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THE ROLE OF SITUATED LEARNING IN EXPERIENTIAL EDUCATION:  
AN ETHNOGRAPHIC STUDY OF THE KNOWLEDGE-CONSTRUCTION  
PROCESS OF PHARMACY STUDENTS DURING THEIR CLINICAL ROTATIONS

A Dissertation Presented

by

PAUL DIFRANCESCO

Submitted to the Office of Graduate Studies,  
University of Massachusetts Boston  
in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

June 2011

Higher Education Administration Doctoral Program

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## ABSTRACT

THE ROLE OF SITUATED LEARNING IN EXPERIENTIAL EDUCATION:  
AN ETHNOGRAPHIC STUDY OF THE KNOWLEDGE-CONSTRUCTION  
PROCESS OF PHARMACY STUDENTS DURING THEIR CLINICAL ROTATIONS

June 2011

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Directed by Professor Dwight E. Giles Jr.

The purpose of this study was to explore learning through the social construction of new knowledge by pharmacy students engaged in experiential learning. Academic leaders and practitioners are responding to calls for the redesign of experiential education that will better prepare future pharmacists for practice. This has broad implications for educational programs and health care delivery.

Situated learning theory served as the theoretical framework for this study. The previous research of Lave and Wenger (1991); Bailey, Hughes, and Moore (2004); and others guided this research. Situated learning theory informed the research questions, which focused on understanding how students constructed knowledge in a social setting.

An ethnographic approach was used to research context-based learning in this cultural setting. Four pharmacy students, who were on their clinical rotations, were chosen based on purposeful, criterion-based sampling. The methods employed for data collection included participant observation, semi-structured interviews, and document analysis. A narrative was composed as a way to document the learning experiences of the four students, and as a way for the data to emerge. Subsequent data analysis and interpretation led to the main findings of the study.

The study was informed by five factors that provided insights into the students' knowledge-construction process. They were (a) personal identity, (b) participation, (c) practitioners, (d) context, and (e) content. Findings included the importance of the personal identity of the students, the level and type of participation by the students as determined by the clinical instructors, the ability of students to make a genuine contribution to the practice, and the relationship of context to content.

This new understanding of situated learning has implications for the entire field of experiential education. These findings can guide us in designing internships and service-learning programs for students who are enrolled in educational institutions. For the profession of pharmacy, a well-developed experiential program will enable new pharmacists to meet the many challenges of providing high-quality patient-centered care and of navigating a complex health care delivery system.

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I would like to start the long list of people that I am indebted to by thanking my dissertation committee and other faculty. Dwight, I remember the first day of orientation back in 2002 when you approached afterwards to share your interest in experiential education. It made me immediately feel like I belonged and that my area of interest had legitimacy and support. It was also the start of a wonderful relationship. In all of my years as a student, I never have met, nor could I have ever conceived of, a faculty member who was so interested in, committed to, and caring about students. I enjoyed all of the courses and seminars that you taught and was so very pleased when you agreed to chair my committee. I really appreciated your support throughout the dissertation process especially during the more difficult moments. Your eternal optimism and unwavering faith concerning my work was contagious as it affected me in such a way that I never had any doubt in myself or my work. I look forward to the next phase of our relationship as colleagues. Thank you, my friend!

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again for agreeing to be on my committee, especially at a time when your schedule was already so demanding.

David, one of the best things that Dwight introduced me to was your body of work. I so enjoyed reading your research, and obviously it had a great impact on me. To have an experiential education/situated learning theory/ethnography expert on my committee was a true gift. Of course that fact really kept me honest and made me a better researcher. Not only was your book invaluable to me before, during, and after the research, I also enjoyed reading it as a narrative—and how often can that be said about an academic text? I also wanted to thank you again for the afternoon that you spent with me answering my questions and discussing my proposal during my visit to NYU. Finally, I wanted to express my gratitude for driving round-trip from New York on a single day to attend my dissertation defense in person.

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To conclude, I would be remiss if I did not thank those unnamed persons who participated in the study. To the dean and experiential director of the academic institution

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## DEDICATION

This work is dedicated to my wonderful wife Claire, the most important person in my life. Thank you for everything. You are my inspiration and this is my gift to you with all of my love.

I also want to honor my dear mother and my late, dear father who made sure that I chose the right roads during the very early days of my life's journey.

## TABLE OF CONTENTS

ACKNOWLEDGMENTS .....	vi
DEDICATION .....	xi
LIST OF FIGURES .....	xiv
CHAPTER	Page
1. INTRODUCTION .....	1
Background .....	1
Problem Statement .....	9
Significance of the Problem .....	12
Purpose of the Study .....	15
Theoretical Framework .....	16
Research Questions .....	18
2. REVIEW OF THE LITERATURE .....	20
Professional Education .....	20
Health Care Education .....	23
Pharmacy Education .....	27
Constructivism .....	31
Experience .....	32
Reflection .....	34
Experiential Education .....	35
Situated Learning Theory .....	37
Identity: The Interaction of the Personal and the Social .....	55
3. METHODOLOGY .....	58
Introduction .....	58
Methods .....	58
Participants and Sites .....	61
Research Design .....	67
Interviews .....	73
Observation .....	76
Document Analysis .....	79
Data Analysis .....	80
Coding .....	81
IRB and Site Requirements .....	97
My Role as a Researcher .....	98

CHAPTER	Page
Quality of the Data.....	99
Delimitations.....	101
Limitations.....	102
Summary.....	102
 4. NARRATIVE: THE STORY OF FOUR STUDENTS .....	 104
The Story of Ned.....	105
The Story of Antonia .....	123
The Story of Lana .....	135
The Story of Jen.....	144
 5. FINDINGS .....	 156
Identity: Personal and Social .....	158
Participation .....	164
Practice and Practitioners.....	173
Context.....	184
Content.....	191
Summary of the Findings.....	195
 6. DISCUSSION.....	 198
Introduction.....	198
Towards a New Understanding of Situated Learning Theory .....	199
Implications for Practice.....	211
Recommendations for Further Research.....	215
Limitations .....	218
Final Thoughts and Reflections .....	220
 APPENDIX	
 A. RESEARCH PARTICIPATION CONSENT FORM.....	 225
B. CONSENT FOR AUDIOTAPING AND TRANSCRIPTION .....	227
C. SITE-SPECIFIC INFORMED CONSENT.....	228
D. INVITATION TO PARTICIPATE FROM INSTITUTION.....	232
E. INVITATION TO PARTICIPATE FROM RESEARCHER.....	233
 REFERENCE LIST .....	 234

## LIST OF FIGURES

Figure	Page
1. Knowledge-construction pathway: Acceptance by a community of practice.....	210

CHAPTER 1  
INTRODUCTION

*A college's purpose is not to transfer knowledge but to create environments and experiences that bring students to discover and construct knowledge for themselves, to make students members of communities of learners that make discoveries and solve problems.*

—Barr & Tagg, 1995

**Background**

Currently in the United States there is widespread agreement that improving our health care system should begin with changes in professional education. For example, in a recent report, a number of leaders in the health care field came together and developed recommendations to improve professional education including medicine, nursing, and pharmacy (Institute of Medicine as cited in Greiner & Knebel, 2003). The guidelines that have been set forth emphasize certain professional competencies. For this report, the authors have adopted the following definitions of the competencies: "the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individuals and community being served" (Hundert, Hafferty, & Christakis, 1996).



Similarly in Great Britain, as far back as 1993, the General Medical Council, the regulator of the medical professions in the United Kingdom, has urged medical schools and related health fields such as nursing and pharmacy to revise their curricula. These suggested changes include a learning environment that emphasizes collaboration, relating practice to theory, and self-directed learning. Professional schools in health care are now developing experiential learning programs with a focus on collaboration, critical thinking, problem-solving, and lifelong learning. Leaders in the field such as Eraut (1994) and Schön (1983) have also warned against relying totally on the teaching of technical knowledge, and insist that it must be balanced with professional knowledge.

Schön (1987), for example, has written about how professionals must build reflection into their practice to avoid an overreliance on technical knowledge. Professional knowledge includes both (a) propositional knowledge such as that derived from private or personal sources and (b) process knowledge that involves critical thinking and decision-making. These elements of knowledge are largely socially constructed in a situated context (Eraut, 1994). How can faculty in medicine, pharmacy, and other health professions facilitate this type of learning?

The American Psychological Association has acknowledged the importance of social learning experience and context. In a report identifying "learner-centered psychological principles" (APA Learner-Centered Principles Work Group, 1997), 14 principles were identified. For example, principle number one states "the learning of complex subject matter is most effective when it is an intentional process of constructing meaning from information and experience" (p. 2). Principle six highlights the importance

of context-based learning, and principle 11 embraces the "social influences on learning" (p. 3) including "social interactions, interpersonal relations, and communications with others."

Saltmarsh (1997) has written that knowledge is "interrelated and contextual" (p. 82). This approach allows learning to exist as part of the everyday life of individuals and as part of the social community. The author contends that learning, therefore, does not begin and end with formal schooling but rather is one of the many roads an individual will take in order to achieve the necessary steps of being a self-directed and lifelong learner.

The Pew Health Commission (1998) produced a report on improving our health care system that identified professional education as one of the important ways in which the health care crisis can be addressed. Along with changes in medical education, the commission recommended that the workforce appropriately reflect the diversity of the population being served. It further encourages the practice of interdisciplinary care, primarily in an ambulatory setting (Pew Health Commission, 1998). The Pew Health Commission also developed its own set of competencies, which includes ideals such as "embracing social responsibility and service, demonstrating critical thinking, problem-solving skills and reflection, cultural sensitivity, community partnerships, interdisciplinary teams, leadership and continuous learning."

In 2006, the Carnegie Foundation for the Advancement of Teaching launched a three-year research project to study the education of various professions including medicine and nursing. According to the foundation, the research focused on the following

dimensions of education: (a) curriculum, (b) pedagogy, (c) learning, (d) assessment, and (e) context (Carnegie Foundation for the Advancement of Teaching, 2006).

That same year, researchers from the Carnegie Foundation wrote an article in *The New England Journal of Medicine* that claimed that there is a disconnection between the manner in which medical students learn best versus how they are actually being taught. The authors pointed out that knowledge is most effectively understood and applied when the material is "taught, practiced, and assessed in the context in which they will be used" (Cook, Irby, Sullivan, & Ludmerer, 2006, p. 5). This also includes elements of professionalism and socialization that are necessary for engagement with the public.

Lee Shulman, the recently retired president of the Carnegie Foundation, made the improvement of professional education one of the major goals of his tenure. Shulman had previously pointed out that professional education requires both learning for the sake of learning and for use in practice to improve people's lives. Therefore practice must include a "sense of personal and social responsibility" (Shulman, 2005a, p. 18) that contains some of the important components of what practitioners often refer to as professionalism. He further adds that professional work goes beyond just theory, practice, and ethics to require good judgment, because the practice environment contains constant levels of uncertainty. He believes that those are important goals of both liberal and professional education but asked whether all of our educational institutions are able to meet those demands given the current model.

To illustrate his point, Shulman visited medical and pharmacy students on clinical rounds at a teaching hospital. What he noticed was that learners were required to be

teachers and teachers were constantly learning. Throughout the day everyone was trying to learn from their mistakes, from a lack of knowledge, from the patients, from information sources, and from each other. Shulman wondered if institutions of higher education could be a place where members could come together and become a community "of knowing, caring, and operating" all for purposes of student learning. This experiential learning structure that Shulman observed very closely resembles that of a "community of practice" (Lave & Wenger, 1991).

With regards to professionalism, Sullivan notes in a 2004 article that there is an ever-increasing negative perception by Americans of the health care systems and its providers. He suggests that professionals, as part of the educational process, focus on aspects of professionalism such as civic responsibility and an increased level of engagement, which would help address the concerns of the public (Sullivan, 2004).

In the United States, schools of pharmacy are modeled after medical schools. Calls for changes in medical education often extend to pharmacy, nursing, and other health educational programs. The profession of pharmacy has changed dramatically in recent years, and pharmacy education is attempting to address those changes. Pharmacists are required to perform in new and significant ways beyond their already important role as professionals who act as a liaison between physician and patient in the safe and effective dispensing of pharmaceuticals. Pharmacists are now also expected to provide pharmaceutical care that involves the implementation, communication, and monitoring of therapeutic care plans. Other responsibilities include the analysis, interpretation, and

communication of scientific literature to the lay community as well as to clinical practitioners.

In addition, given the ever-increasing changes in the reimbursement process, pharmacists must be familiar with a myriad of private and public insurance plans. This function must be performed within a health care delivery system that continues to evolve as a model of complex ethical, legal, technical, economic, and social systems that present constant and difficult challenges. Pharmacists, while maintaining their technical expertise, are now required to effectively perform a host of cognitive functions that require critical thinking, problem-solving, decision-making, and communication in an ever-changing, ambiguous system of health care.

As pharmaceutical technology develops and as the population ages, the demands on pharmacists will increase. In 2001, the Pharmacy Manpower Project held a national conference to assess the needs of the profession in the United States over the next twenty years. Participants agreed that major changes were underway with respect to changing demographics of the population, medication use protocols, advances in technology, and trends in finance and health care delivery (Knapp, 2002). Advances in biotechnology in the future will allow more individualized drug therapies, which in turn will require more vigorous drug therapy management.

In order for pharmacists to meet these new and increasing challenges, their education must be designed and delivered to allow them, as practitioners, to utilize their technical knowledge to perform the necessary skill-based activities. Equally as important, pharmacy education should allow graduates to use their cognitive abilities to make decisions and solve problems that emerge daily in the complex social world of health care.

In professional education, especially in the health fields such as medicine, nursing, pharmacy, and other health programs, experiential education programs continue to account for a significant part of the curriculum. For instance, in pharmacy education, new national accrediting standards require that professional practice experience comprise at least 30% of the entire curriculum (Accreditation Council for Pharmacy Education, 2007). However, there continues to be disagreement about how best to design experiential learning for students in the health professions.

Most agree that more research is needed to expand our current understanding of how students learn through experience. Experience alone does not necessarily lead to learning, and many theorists believe that the use of critical self-reflection and dialogue with others based on each new experience effectively leads to "meaning-making" and new knowledge (Bransford, Brown, & Cocking, 2000; Brookfield, 1987; Mezirow, 1978; Schön, 1983). Other theorists such as Lave and Wenger (1991) believe that learning is context-based in a particular situated experience and is part of a larger "community of practice."

According to some, experience involves critical self-reflection and a concrete lived experience in a social setting. For example, Schön (1983) has stated that "individual knowledge is connected in action" and argues that "knowing and "doing" are inseparable. He has written extensively about this theme concerning professional education and how professionals develop and continue to learn in practice. Many educators agree that learning for students, particularly in professional education, is linked to experience (Boud & Miller, 1996; Dewey, 1938; Knowles, 1980; Merriam & Caffarella, 1999; Mezirow, 1978; Schön, 1983).

However, many schools continue to struggle in deciding which is the best approach in designing an experiential curriculum that will meet the needs of a more demanding, changing environment. Often experiential syllabi are mirror images of coursework that has been previously taught in the classroom. Is experiential learning merely an extension of classroom-based learning whose sole purpose is to focus merely on technical or rote activities? Or does experiential learning produce a new level of learning that cannot occur in the classroom? (Bailey, Hughes, & Moore, 2004; Giles & Eyster, 1998; Lave & Wenger, 1991; Mezirow, 1978). In one study, this new level of learning, entitled "new modes of thought" (Bailey et al., 2004, p. 162), was found to be "narrative, dramatic, and personal" as opposed to classroom learning which was felt to be "decontextualized and propositional" (p. 163).

Although the above researchers agree that experiential learning leads to knowledge-construction, some (Kolb, 1984; Mezirow, 1978) hold that knowledge-construction or meaning-making resides within the individual. Others (Lave & Wenger,

1991) hold that new knowledge is context-based and resides in a particular situation among a group or community called a "community of practice" (p. 98).

The focus of this study is learning by students during their experiential rotations. The study uses situated learning theory (Lave & Wenger, 1991) to attempt to understand how learning is constructed in a context-based, social setting in a community of practice.

Currently academic leaders and practitioners in the field of pharmacy are responding to many new challenges that have emerged in terms of the educational and practice requirements of pharmacists. The ways in which these challenges will be met in the future have broad implications for the delivery of health care, particularly by pharmacists in the United States, and for the health outcomes of our society. A better understanding of experiential learning will contribute to the needs of new practitioners as they try to meet the continuous challenges of health care delivery.

### **Problem Statement**

A survey of the landscape of experiential educational approaches has uncovered tensions among leading theorists and practitioners with regard to the best way to design experiential programs. Initially, learning from the viewpoint of cognitive psychologists had been the primary focus. From this perspective, learning was an individual effort and only existed in a learner's head. About 20 years ago, situated learning theorists such as Resnick (1987); Brown, Collins, and Duguid (1989); Lave and Wenger (1991); and McLellan (1996) have insisted that situated or context-based learning has a central role. In this model, learning occurs socially among learners. Since clinical rotations occur in a



practice setting that is largely a social environment, it may be useful to research such a setting by utilizing a socially based theory such as situated learning.

In 1999, the American Association of Colleges of Pharmacy (AACCP) reported that pharmacy students should be taught to assume greater responsibility for their own professional development (AACCP, 1999). According to the report, professional schools need to emphasize greater social learning among students. Social learning allows students to gain the attitudes, values, skills, and constructed professional knowledge necessary for effective, responsive practice. The report also suggested that this type of learning works best using nontraditional pedagogies such as experiential education.

Cervero (1991) echoes this sentiment and proposed a learning model for professional education that "develops knowledge through practice" which can occur during experiential education. It is important to note that Sullivan, writing for the *Carnegie Perspectives*, believes that professional education still continues to emphasize abstract knowledge which in turn results in ineffective "decontextualized learning" (Sullivan, 2004).

Experiential education in professional education is not well-defined. There are no agreed-upon "boundaries" or definitions. As a result, there is scant empirical evidence in the literature that can attest to the ability of this pedagogy to achieve the desired learning outcomes. The literature has shown that students learn when they are able to "make-meaning" out of experiences. Furthermore, the continuum of previous, present, and future learning, along with the learning of others, all figures prominently in the development of the learner. These implications are applicable to professional education overall and

specifically in pharmacy education, which is the focus of this proposed study. What is needed is research that attempts to further understand how learners construct knowledge in a clinical experiential setting and what factors will enhance that outcome. The rotations occur within a social practice, which presents both opportunities and challenges for students during the learning process. I define a *social practice* as those activities that connect with the environment, especially in terms of context and culture, and are performed by persons who are all working toward a common endeavor. As discussed in the next section, the community of practice model found in situated learning theory (Lave & Wenger, 1991; Wenger, 1998) is a unique type of social practice.

By exploring this process, researchers and educators will be able to integrate both the transmission of technical knowledge and students' construction of meaning. In this way, experiential curricula can be designed to guide students not just on *what* to learn but also on *how* to learn. Will students be better able to use their clinical experiences to construct the knowledge that will allow them to become better practitioners as a result of this research?

Bailey et al. (2004) have attempted to test some of the more common claims by advocates of experiential education with their own empirical evidence. Using basic principles from the two theoretical frameworks of self-reflection and situated learning, they attempted to test many of the conceptual claims that have been made. Two such claims are that: (a) experiential learning reinforces academic learning, and (b) it also facilitates cognitive development. In the former instance, the evidence was mixed but the latter claim was supported by the evidence (Bailey et al., 2004). More importantly, the

researchers tested their own claim that experiential education allows students to develop "new modes of thought" (p. 151) that were different than those modes traditionally seen in the classroom. The researchers relied on the theoretical literature of situated learning and distributed cognition along with their own studies. Distributed cognition, a form of situated learning, holds that knowledge is context-based and held by a "community of practice." It asserts that the knowledge is "distributed" among the many members of a community of practice (Hutchins, 1995). The authors found empirical support for this claim as well (Bailey et al., 2004).

This study attempted to build upon those findings concerning social practice and by doing so focused on addressing the problems concerning experiential education. Specifically, the educational problem that this study addresses is to understand which factors present in the social setting of a practice can best be used in the design of pharmacy experiential educational programs. Research was undertaken that used situated learning theory as a framework to understand how students construct knowledge through a process that emerges within a social setting. These students must learn to become practitioners while on their clinical rotations. Although context is an important part of the social practice and of situated learning theory, there are other key components of the theory that have equal importance in experiential learning. These other components are discussed in detail in the next chapter.

### **Significance of the Problem**

There continues to be little research about social learning during experiential rotations among educators in the health professions. Even in medical schools where

experiential education has long been a requirement (Flexner, 1928), research has only assessed the linear, technical aspects of knowledge transmission. Students in professional programs are much more than receivers of knowledge; as a matter of fact, many education theorists have long contended that a knowledge-transmission approach is the least effective method of learning (Dewey, 1938; Knowles, 1980). Therefore what is needed is more research that attempts to understand how experiential education leads to student learning. Researchers and practitioners alike could benefit from a better understanding of how students' experiences lead to learning. In this way, the praxis of experiential educators, especially in the clinical environment, can be expanded upon and, just as importantly, their theoretical perspective can be further developed (Malinen, 2000). This can be especially true for clinical instructors who have not formally studied teaching as a profession yet are expected to effectively educate students to become lifelong learners.

Researchers, who place a heavy emphasis on experiential education, have posited that there is a gap between theory and practice with respect to experiential learning. Although knowledge can be derived from practice, more often the teaching is done without the benefit of enough well-researched theories of how students learn (Bailey et al., 2004; Cervero, 1991; Fenwick, 2003; Malinen, 2000). Cervero (1991) has pointed out that the best practices are informed by systematically organized frameworks of knowledge and that theory and practice are indivisible. This includes the professional programs.

Professional experiential programs such as pharmacy could benefit from research that takes a qualitative approach to the study of learning. A recent review of the literature (Fenwick, 2003) shows that between the years 1985 and 2005, there were almost 400 articles published and well over 100 dissertations written about the Learning Styles Model of Experiential Education (Kolb, 1984). Most of these studies used a quantitative approach and in terms of its application, whether in institutions of learning or organizational management, the goal had been mostly to determine *what* a student had learned based on their particular learning style and not *how* they had learned (Fenwick, 2003). A qualitative study that focuses on context-based learning in a social environment could result in a better understanding of how pharmacy students construct knowledge on their clinical rotations. The social structure of experiential learning, which exists as a "community of practice" (Lave & Wenger, 1991) and resultant meaning-making should be studied through the lens of situated learning theory. This study would benefit the health professions, students, practitioners, faculty, and health care facilities. Since health care delivery is a public good, better insights on experiential learning in professional schools could have a direct benefit in terms of educational and public health policy goals.

The profession of pharmacy contributes to the public good in a number of ways. Pharmacists are trained to work in all areas of institutional practice and have become highly specialized. In the traditional community setting, pharmacists serve in the front line in terms of health care consultation. They provide highly visible access to the public for extended hours, seven days a week. Many pharmacists provide *pro bono* services: They visit local public schools to provide programs in medication safety to children and

also travel to elderly residences to provide services concerning medication use. During the recent implementation of Medicare Part D prescription plan, pharmacists helped facilitate the new benefit program and served as the liaison between the elderly, the federal government, and the insurance companies.

### **Purpose of the Study**

This study seeks to explore the learning process that leads to the social construction of new knowledge or "meaning-making" that emerges in the experiences of pharmacy students engaged in clinical experiential learning. The context of this experience is the social environment and social interactions of a community of practice. *Communities of practice* are collaborative groups of people who develop a body of knowledge that is constantly being reconstructed by the participants who together become a social entity and share a common set of tools, vocabulary, and traditions (Lave & Wenger, 1991). Given this definition, professionals involved in a practice and in practice-based rotations may constitute a community of practice with students acting as new members attempting to gain entry into the group. What are the factors that allow students to become members of a community of practice?

The guiding research questions focus on how students construct knowledge from experience, and how their social experiences shape their learning. Why conduct research in this area of experiential education? As Malinen (2000) wrote, "Experiential education is a complex, vague, and ambiguous phenomenon which is still inadequately defined, conceptually suspect, and even poorly researched" (p. 15). Malinen and others argue that current research focuses mostly on generating newer theories rather than on trying to

advance existing theories (Malinen, 2000; Merriam & Caffarella, 1999). Furthermore, more qualitative research is needed in the field of experiential education. Edwards and Usher (2000) claim that it is more important than ever to explore learning, given the current postmodern environment that is creating anxiety among students and practitioners based on the many current challenges such as changes in the social setting, work environment, or the dominance of technology.

A review of all articles published in the last eight years by the *American Journal of Pharmaceutical Education*, the leading peer-reviewed journal for pharmacy education in the United States, revealed that almost no qualitative research has been performed that explored socially constructed knowledge in the experiential education settings of pharmacy students. Many leaders in the field of experiential education believe that learning cannot be understood outside of its context. Whether it is one's culture, social setting, or community of practice: An individual's learning is affected by all of these factors (Fenwick, 2003). A qualitative approach can assist researchers in understanding the social construction of learning from experience in the context in which it occurs.

### **Theoretical Framework**

Situated learning (Bailey et al., 2004; Brown et al., 1989; Lave & Wenger, 1991; McLellan, 1996; Resnick, 1987) provided the theoretical framework for this study. This theory is derived from social constructivism. According to some educators, constructivism should be the primary model used in the design of experiential education. It is characterized by critical self-reflection on one's experience. This has particular relevance to learners who are in a professional program such as pharmacy, where

students are expected to actively construct their own framework of knowledge and apply it to each new clinical situation.

In situated learning it is believed that learning is anchored in the "situation" in which the experience is occurring and not in the individual. This is the key difference between situated learning and other constructivists' theories of experiential learning. Both groups acknowledge that learning and experience occurs in the social world, but other theories of experiential learning assign more importance to the individual while situated learning gives more emphasis to the social context. A particular model of situated learning known as a "community of practice" has been used in formal experiential settings such as pharmacy and medicine, and therefore is an important framework to view participants' social experience in order to gain a better understanding of how knowledge is created in professional programs (Fenwick, 2003).

Experiential learning and its subset, situated learning, are both related to work-based learning (WBL) theories. According to one researcher, WBL can be defined as the "construction, enhancement, and reorganization" of knowledge and "knowledge use" (Moore, 2007, p. 175). The same author also agrees with the concept of learning as a situated process and adds that understanding this process "requires an investigation of the way activities are established, accomplished and processed" (p. 175). At the same time, an understanding of the "social, cultural, political, and technological factors" that affect learning is equally important. (p. 175).

A number of potential research questions emerge from a review of the literature related to context-based experiential learning. How does learning occur on clinical



rotations? How well do students transition from the classroom to the field? How does prior learning change when a student becomes part of a social environment? What can educators do to best support this type of learning? This proposed study is an attempt to find some of the answers to these questions.

### **Research Questions**

The problems of learning from experience that have been outlined have a significant effect on individuals, institutions, and society at large. In order to address these issues a number of questions arise that should be studied further so that our understanding of how students construct knowledge during their professional educational experiences can be advanced. Situated learning serves as the foundation through which learning from experience can be analyzed and better understood.

The following questions have been developed for the research:

#### **Main question.**

What factors in a social practice support the knowledge-construction process of pharmacy students during their experiential rotations?

#### **Supporting questions.**

How do students contribute to their own learning during their rotations?

Which teaching strategies within the practice facilitate student learning?

What role do context and content play in experiential learning?

The literature review in the next section includes a discussion of the rationale and structure of the health care and pharmacy educational practices that currently exist in the US This is followed by a review of general experiential learning theories. Finally there is

a detailed analysis of the situated learning theories that forms the theoretical foundation for this study.

## CHAPTER 2

### REVIEW OF THE LITERATURE

For this study, in order to address the stated problem, guide the research design, and answer the research questions, the empirical and conceptual literature of situated learning and related experiential theories are reviewed. Besides the main theory of situated learning, which includes a particular model known as "communities of practice" (Lave & Wenger, 1991), related theories of cognitive apprenticeships, anchored instruction, and distributed learning are also covered. These theories all derive from the overarching paradigm of social constructivism, which is also reviewed. In order to place these theories of learning in the context of students involved in pharmacy experiential education, a brief overview of professional education is provided. This is then followed by a more focused review of health care education. Finally, the structure and rationale of pharmacy educational in the US is discussed.

#### **Professional Education**

Professional education is characterized by specialized education in a certain field. Originally, it included medicine, law, and the clergy but has expanded over time to include pharmacy, dentistry, and nursing, and other health fields as well as areas such as teaching, accounting, engineering, and architecture.

Each of these professions shares characteristics such as having professional associations with codes of conduct and licensure examination requirements by regulatory bodies. Traditionally, professionals have had the ability to develop a practice with specific clientele and have enjoyed more autonomy in their work than others within an organization.

Professionals have also held a certain level of prestige in society because of their expertise. However, in recent years the services that professionals offer have been viewed as commodities, which has diminished their standing. Professionals have contributed to this problem in some instances by exhibiting elitism, greed, and incompetence.

In recent years there have been calls for improved curricula at professional schools and colleges that had previously been highly technical. These schools have been called upon to include more education in the liberal arts in order to incorporate training that facilitates service, responsibility, cultural sensitivity, critical thinking, problem-solving, interdisciplinary approaches, leadership, and self-directed learning (Carnegie Foundation for the Advancement of Teaching, 2006; Pew Health Commission, 1998).

Sullivan (2005) has written about the importance of professional education. He contends that the lives of citizens can be enriched by the public services that are provided by professionals. Professionals should be committed to ensuring that individuals and society as a whole continue to progress. Professional and academic knowledge both work in unison and allow graduates to move on to a practice where they are able to serve the public. If one of the goals of higher education is to bring about meaningful change, then professional education serves as an important vehicle for this change. According to

Sullivan "the challenge for professional education is how to teach the complex ensemble of analytical thinking, skillful practice, and wise judgment upon which each profession rests" (2005, p. 195).

At the same time he warns us that certain tensions in the professions have increased recently. These tensions are a direct result of conflicts between vested interests, economic considerations, and upholding of the social hierarchy on the one hand and the responsibilities of public service and social functions on the other. As a result, in recent years there has been a diminishment in the status of professionals as perceived by the public (Sullivan, 2005).

One solution is his apprenticeship model, which addresses the issue of integrity among the professions and strengthens the efforts for public good. In this new model, integrity is achieved when cognitive, technical, and ethical components become the integrated focus of learning. This could be done using an experiential approach since modeling and coaching are among the required pedagogies.

More recently Dzur (2008) has proposed a new role for professionalism. In his vision, professionals would become involved in educating and helping the public address the many social issues. In this process, which he has entitled "democratic professionalism" (Dzur, 2008), professionals, while maintaining their specialized knowledge, would work with ordinary citizens as peers to empower those citizens to engage in a more informed discourse, which in turn could lead to better decision-making. He reminds us that this concept was first advocated by John Dewey, who believed that professionals should work with policy-makers and members of the public in using their

specialized knowledge to assist in solving society's problems. The author believes that this would help to rebuild the trust between the public and professionals.

In recent years professional programs have neglected to include public policy as part of the curriculum. Also, the professions have become so highly specialized and isolated that very few professionals engage in public policy activities as part of their practice. Dzur's solution is for professionals to act as "bridge agents" (2008) who could link their institutions, their practice, and the public citizens to provide a collaborative effort to solve problems. Medical, nursing, and pharmacy programs have begun this process by providing service-learning opportunities for their students and also have developed clinical rotation in underserved urban and rural locations.

### **Health Care Education**

Programs in the health professions including medicine, pharmacy, nursing, and other allied health disciplines have maintained strong traditions in the US with respect to education and practice. Continuous advancements in research and treatment have led to significant improvements in health outcomes for many Americans. In many ways, the US health system continues to be a leader in the world.

However, despite the numerous examples of achievement and success, clinical education has not kept up with many new challenges in the 21<sup>st</sup> century. Some of the many challenges facing the US health care system include changes in patient demographics, new practice requirements, staffing issues, quality improvement, appropriate use of resources and technology, and a disconnect between professional

education and professional practice (Institute of Medicine as cited in Greiner & Knebel, 2003).

In terms of demographic issues, the population is becoming increasingly diverse and increasingly older, which means that their health is impacted by various sociocultural factors, and complex chronic health conditions, respectively. It follows then that health care providers must be educated not only in technical and clinical areas but also in the ability to meet different patients' needs and expectations. In addition, practitioners are now being required to continuously manage individual cases that require communication and the provision of care in an interdisciplinary manner. Furthermore, since behavioral and lifestyle changes now figure so prominently in a successful health outcome, patients themselves must now participate as an important member of the team in the delivery of their own care (Calabretta as cited in Greiner & Knebel, 2003). Clinicians are also overwhelmed by an ever-expanding "evidence-based" informatics system (the science of processing data for storage and retrieval) and are not always trained by their respective professional schools to access, synthesize, and apply this evidence in a complex practice setting.

Ideally, all professional programs in the health care field should emphasize patient-centered delivery of care in an interdisciplinary manner, using evidence-based methods. This will ensure that patient care is delivered using the best medical evidence available along with clinical expertise. Equally as important, given the emerging landscape, is the inclusion of the required competencies based on "judicious use of

communications, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice" (Hundert et al., 1996).

Researchers of professional programs such as Maudsley and Strivens (2000) agree that education does not occur in a vacuum. Maudsley et al., in writing about the training of doctors, insist that the clinical environment where experiential learning occurs includes observed behaviors, interactions, and the overall norms and cultures of that particular environment. This learning community plays an extremely important role in the development of a student's value and attitude and hence the future of a profession overall. To complicate matters even more, practice experiences do not always align with the didactic materials covered in pre-course work (Ferrill, Norton, & Blalock, 1999; Maudsely & Strivens, 2000). Clinical training in the classroom often consists of intuition and tradition and may not be current or even supported empirically (Tanenbaum, 1994, as cited in Greiner & Knebel, 2003; Wass, Van Der Uleuten, Shatzer, & Jones, 2001). Also, research shows that traditional lectures, when done in isolation without the opportunity to integrate and apply the topics covered in the clinical setting, are ineffective (Wass, Van Der Uleuten, Shatzer, & Jones, 2001).

One of the most important characteristics about the professional education of health care providers is the reliance on what Shulman (2005b) calls "signature pedagogies." This approach structures the basic ways in which students, such as in medicine and pharmacy, are educated in their respective disciplines. Specifically, students must learn "how to think, perform, and act with integrity" (p. 52). The clinical



rotation, which is the required experiential educational format of medicine and pharmacy, is a key example of signature pedagogy.

According to Shulman, signature pedagogies exist everywhere in education but have a very strong presence in professional education. Professional education must meet not only the standards of academia but of that particular profession at large. However, most importantly, professionals must earn and maintain the trust of the public and commit themselves to serving that public (Shulman, 2005b).

Professional education is not delivered just for the sake of obtaining knowledge; it is designed to teach students how to serve others. These students are required to acquire a significant amount of theoretical and technical knowledge as well as to develop multiple skills. They must then utilize this knowledge and these skills for the benefit of the public. They must do all of that—and at the same time maintain a level of dedication and behavior that constitutes professionalism. Experiential education is well-positioned to facilitate this learning process.

In summary, education in the health fields has evolved due to demographic changes and advances in technology. Medical education now requires an updated curriculum that would better support the important dimensions of experiential learning such as critical thinking, problem-solving and self-directed learning. Schools cannot cover all the relevant material a health professional needs to know solely in the classroom. Knowledge is changing rapidly, and today's most current knowledge may well be obsolete tomorrow. It will be important to give students a framework for learning the *context* that can be used even as *content* shifts.

Pharmacy education, which often has taken its educational cues from medicine, will also be impacted by this continuous change. Pharmacy education is currently experiencing dramatic changes in its curricula, pedagogy, and experiential programs. Is there an opportunity at this time for pharmacy educators to arrive at some consensus on how best to redesign their experiential programs?

### **Pharmacy Education**

The Accreditation Council for Pharmacy Education (ACPE) is the national agency for the accreditation of the doctor of pharmacy (Pharm.D.) degree in the more than one hundred colleges and schools of pharmacy nationwide. This body is autonomous and consists of members selected through the American Association of Colleges of Pharmacy (AACCP), the American Pharmaceutical Association, the National Association of Boards of Pharmacy, and the American Council on Education. ACPE is responsible for establishing standards for accreditation and enforcement authority concerning this accreditation. It is the sole agency recognized by the US Department of Education to grant accreditation to professional degree programs in pharmacy. According to AACCP, the Pharm.D. curriculum "is designed to produce a scientifically and technically competent pharmacist. This competency includes the ability to provide a high level of health care services to the public" (AACCP, 2004). The professional degree program requires a minimum of two years of specific pre-professional undergraduate study prior to the required four years of professional study.

The educational goals of this program include the following:

- Providing patient-centered care (defined as the application of drug therapy knowledge in the care of patients)
- Developing and managing safe medication distribution and control systems
- Promoting public health
- Providing drug information and education.

This program of study requires a strong emphasis in six key disciplines: (a) medicinal chemistry; (b) pharmacognosy, the study of naturally derived drug products; (c) pharmacology, the action of drugs in biological systems; (d) social studies and administration; (e) pharmacy practice, intended to provide an understanding of the profession as it applies to patient care and obtained through theoretical course work and applied clinical experiences; and (f) clinical components that include the use of drug therapy knowledge, critical thinking, and communication skills in applying pharmaceutical care solutions to a patient's medical problems (ACPE, 2007).

In order to train students to apply patient-centered care in the clinical setting, ACPE has established a number of standards for experiential education that colleges of pharmacy must have in place in order to provide students with opportunities to participate in professional practice experiences. These standards, which are listed in ACPE's accreditation guidelines, include provisions for introductory and advanced practice experiences. Among the key components of these provisions are requirements for appropriate facilities for inpatient and outpatient practice sites. In addition, each site

should have regular faculty (employees of the college) and adjunct faculty (employees of the practice site) who can serve as preceptors (teachers in the clinical setting).

Practice sites and the corresponding preceptors should be selected based on standards established by the college. During these experiential rotations, students, under direct supervision of a preceptor, should have direct access to patients, their medical records, and pharmaceuticals. Recently these standards and guidelines were further clarified by the Joint Commission of Pharmacy Practitioners (JCPP), a division of AACP. According to its statement, pharmacists will develop a commitment to care for and care about patients; and have not only an in-depth knowledge of medical and clinical matters but also an understanding of the sociobehavioral issues affecting individuals (JCPP, 2004).

In addition, pharmacists are now expected to apply evidence-based therapeutic principles of patient care. They also need to consider any relevant ethical, social, cultural, or economic issues in their practice. Collaboration between pharmacists and physicians with regard to drug therapy has also begun. In this model, pharmacists have begun to assume authority to manage a patients' medication therapy under a "collaborative" model with physicians (JCPP, 2004). Currently most states have granted this authority to pharmacists. It is expected that that figure will be 100% over the next several years as regional, and national coalitions continue to advocate for this change. Based on these expanding roles for pharmacists, ACPE, as part of their accreditation requirements, has directed schools of pharmacy to use experiential education as a way to provide practice opportunities for students. Students should be developing the necessary skills, such as

judgment, ability, levels of confidence, and autonomy, to be able to effectively meet the challenges of collaborative practice (ACPE, 2005).

According to a recent report, advanced practice experience is an important element in striving for excellence in professional education (Littlefield et al., 2004). Experiential education allows students to participate in problem-solving for specific patients and thereby to contribute to the care of the general population. Also any treatment plans that result in desirable outcomes will become institutional protocols. As a result, these experiences theoretically allow pharmacy students to build on skills such as therapeutic decision-making and at the same time to use empathy and professionalism in order to optimize patient care.

The same report, however, warns that many of these clinical rotations do not fully provide the necessary opportunities that contribute to a high-quality learning experience. This may be due to time and workload demands on the preceptor. The preceptor may be inexperienced or unfamiliar with the learning objectives. Too often it comes from a lack of understanding of how students learn from experience in terms of active learning, critical thinking, reflection, and the creation of new knowledge. Often the focus is on the students observing activities and shadowing others, or being engaged primarily in routine technical tasks.

It will be the responsibility of pharmacy educators to design, implement, and monitor experiential learning programs that meet the requirements of their accreditors and that will prepare pharmacy students to meet the demands of practice. This cannot be achieved solely in the traditional academic setting. Instead, schools of pharmacy must

continue to work with professional organizations such as AACCP, regulatory bodies such as ACPE, and the members of the practice environment. There appears to be general agreement among all parties that experiential education is the ideal forum where students can integrate the knowledge, skills, and behavior that are necessary to enter the health care delivery system. What remains unresolved is how best to achieve this goal.

### **Constructivism**

In the last two decades learning has been shifting from teacher-centered to learner-centered approaches. It is now known that people are not just conditioned to learn (behavioral view). Also there is general agreement that learning does not completely reside in the mind of an individual when receiving external information (cognitive view). Constructivism posits that learners are their own creators of reality or knowledge. Jean Piaget (1896–1980) was an early pioneer of social learning theories and although his focus was on children, his theories have also informed adult development. About the same time, Lev Vygotsky (1896–1934) was also studying children and formed his social learning theories. His view of social constructivism placed more emphasis on the role of a social learning environment than Piaget's.

Social constructivism suggests that learners create their own meanings from experience within a social, interactive environment, although this process varies depending on an individual's capacity or confidence. Previously theorists asserted that knowledge was based on transference from another individual or an object such as a book directly to the learner. In contrast, constructivists suggest that learners are continuously

"adapting to their environment in terms of their understanding of a phenomenon or changes in their social world" (Fenwick, 2003).

The constructivist model, as applied to students involved in experiential education, has enabled educators to emphasize the idea that learners are engaged in "meaning-making." From this framework researchers have learned that individualized experiences can be very erratic or irrational. That is why critical reflection and dialogue are important tools for constructivists and ultimately for the creation of knowledge through experience for the learner. According to one constructivist theory, transformational learning theory, knowledge for the learner "does not exist in books or in the experience of the educator, it exists only in the learner's ability to construe and reconstrue the meaning of an experience in his or her own terms" (Mezirow, 1991).

### **Experience**

As has been discussed, experience is an important component in constructivist theories of learning. In both *andragogy* (adult learning) and *self-directed learning* theories (Knowles, 1980), the assumption is that adults bring their experiences with them into the learning environment. This prior experience serves as a building block for not only their learning but also that of other learners in that situation. The same is true for transformational learning (Mezirow, 1978) in which the core catalyst in an "interaction" is the learner's experience. However, there are different types of experiences, some of which have little or no use in the learning transaction (Dewey, 1938; Mezirow, 1995). Michelson (1996) has stated that experience can either be "the shapeless, pre-linguistic product of unmediated sensory input" or a socially constructed outcome. It is this second

version of experience that can be "deconstructed, acted on, and reconstructed" and then serve as the essence for transformational learning (Michelson, 1996, p. 439). According to Peters and Jarvis (1991), learning starts with experience but it may not lead to automatic meaning-making. In those cases, learners seek new answers or new meaning. The resulting process advances learning and further builds their reservoir of experience. Tennant (1991) discusses how educators can use this process to facilitate learning. Faculty can link learning to the student's prior experience and to any current situation. Faculty can also create learning experiences that require active involvement of the learner. This leads to newly constructed meanings based on experience, reflection, and dialogue with the teacher and other students. Finally, Tennant reminds us that at times a learner's experience may require a critical review: "Any resulting disruption or doubt on the part of the student may allow them to move forward or transform" (Tennant, 1991, pp. 196–197).

Dewey (1938) was one of the first theorists to state that "all genuine education comes about through experience" (p. 13). He also had the insight to warn that "not all experience educates" and that some experiences "mis-educate" and "distort growth" which "narrows the field of further experiences" (Dewey, 1938, p. 13) Dewey argues that in order for experience to become a true learning experience, it must exhibit two properties: (a) "continuity," which consists of experiences that have come previously and which affect the experiences that come in the future, and (b) "interaction," which occurs between an individual and their surroundings (Dewey, 1938, p. 41). In essence Dewey has laid down the foundation for the current experiential theory of situated learning.



Bailey et al. (2004) have expanded this principle and have stated that "the person does not simply undergo an experience, but participates in it, constructing its meaning as it evolves" (p. 30).

## **Reflection**

Experience itself is not enough to lead to transformation. Critical reflection is the necessary second step. This requires critical analysis of the foundational set of beliefs and assumptions that a person possesses. Mezirow (1991) claims that there are three versions of critical reflection but that only one version can lead to transformation. The first type, *content reflection*, consists of only thinking about the event. In the second instance, *process reflection*, one moves right to the problem-solving step. The final type, *premise reflection*, requires self-examination of one's assumptions, beliefs, and values that have been socially constructed over time. It is this challenge that will lead to transformation.

Brookfield (1987, 1994) explains why critical reflection is so important. In his model, there are five "commonly experienced phases." The first phase consists of a "trigger event," which is followed by "appraisal" and then "exploration." After exploration people develop "alternative perspectives," until finally in the last phase they are able to "integrate" these new ways into their thinking (Brookfield, 1987, pp. 25–27).

Giles and Eyler (1998) have also argued that true knowledge-construction from experience in terms of learning concepts requires a long-term and facilitated effort by preceptors or faculty. Only then will students begin to engage in meaningful reflection and connect learning with experiences. The authors have previously asked, "How can service-learning enhance subject matter learning?" as the first question listed in their "top

10 unanswered questions in service-learning research" (Giles & Eyler, 1998, p. 65). They believe that any useful teaching that will assist students in learning from fieldwork must include "systematic knowledge" (p. 68) in the development of meaningful experiences.

### **Experiential Education**

One of the better-known experiential theories is that of David Kolb (1984). Kolb drew upon the works of Dewey (1938) and Piaget (1974) to develop a model that suggests that certain cognitive factors need to be in place for experiential learning to occur. Kolb (1984) proposed a four-step process: (a) a concrete experience, (b) reflective observation, (c) abstract conceptualization, and (d) active experimentation. These components are generally consistent with the constructivists' view of the world and specifically echo the need for critical self-reflection.

Fenwick (2003) has recently criticized this model because the learning situation has not been taken into consideration. Merriam, Caffarella, and Baumgartner (2007) also suggest "experience and reflection seem to exist in a vacuum" (p. 164). Other experiential leaders have also emphasized the role of the situation in experiential learning. For instance, Boud and Walker (1991) believe that the current context of the experience helps facilitate learning coupled with a student's previous experience, also in terms of context.

Jarvis (1987) has suggested that Kolb neglects to address issues of culture and power in his experiential model. Jarvis addresses this issue by empowering the student to bring his or her own personal biographical experience into play since previous experience affects future experience (Dewey, 1938). This allows students from different cultures to socially construct their knowledge. It also underscores the situatedness of experiential

learning. Jarvis states that reflective practice is crucial but also that reflective learning, which allows a student to "experiment with the environment," is now also occurring (Jarvis, 2001, p. 52).

Jarvis (2001) agrees with Dewey that not all experiences will lead to learning and that some could actually miseducate. He adds to the theory by claiming that there could be a force of diminishing returns with respect to increasing experiences for purposes of increased learning. Jarvis states that students often choose a path that they are already familiar with to accomplish an outcome. Fenwick (2003) has written that the community of practice model (Lave & Wenger, 1991) helps experiential educators design experiences that contain real-life situations for students that in turn may benefit the community at large. She cites service-learning and cognitive apprenticeships as two examples commonly used in experiential learning. Most agree that critical self-reflection facilitates learning from experience. However, more researchers now believe that the social context is an important part of learning and is not limited to the inner workings of a learner's mind.

Giles (1991) has written that to Dewey (1938), all learning was situational. He later expanded this point to say that Dewey believed that in order for "knowledge to be usable through recall and application" it had to be "acquired in a situation" (Giles, 1991, p. 79). If this does not occur the learning remains disconnected and will not be useful in other contexts. Saltmarsh (1997), at about the same time, writes that for Dewey, "education and experience supports the belief that the workplace, in conjunction with the classroom, serves as an arena in which significant learning takes place." (Saltmarsh,

1997, p. 6). There are inherent challenges to experiential learning, and Dewey (1938) has previously warned us that not all experience leads to learning. That is partly because the goals of the workplace are for "private profit or personal gain" (Saltmarsh, 1997, p. 8; Westbrook, 1991) or whose focus is production and not learning (Moore, 2007).

Fifty years after Dewey's claims and for the next 20 years up to the present, situated learning has become a stronger focus in education theory and research and will be the focus of this particular proposal. A review of the literature on situated learning follows next.

### **Situated Learning Theory**

Over 20 years ago Resnick (1987) wrote that our educational system had been focusing on individual cognition even though the activities in and out of school were socially shared. Also at odds was the emphasis that school placed on thinking and doing without the use of any aids. This contrasts sharply with the fact that any activity outside of school is performed by the use of "cognitive tools." In addition, the activity is "shaped and dependent on said tools" (p. 13).

Her version of situated learning also utilizes objects and events directly as part of learning as opposed to the usual practice in the classroom where often mere symbols are used. Resnick (1987) also questions the generalized nature of learning in the classroom as compared to "situation-specific competencies" (p. 14) in the social world, and contends that very little learning is transferred from a generalized school-based environment into the outside. Resnick believes, however, that total dependence on situation-specific learning is ineffective. School-educated individuals usually are more successful at

specific activities than uneducated persons. However, she argues that even schooled individuals used newly created methods of learning in real situations instead of relying on school-based formats.

Resnick explains her belief of the importance of situated learning versus classroom learning from three important perspectives:

- Learning for economic preparation in life
- Lifelong learning
- Preparation for civic and cultural participation in the social world

Resnick (1987) originally argues that over time professional education has moved largely from the practice field into the academic institution due to the rapid growth of knowledge and the need to regulate practitioners. This has led to a "tension" in the professions between researchers and practitioners with respect to how students should be educated. Her recommendations two decades ago are still applicable today: the use of group learning versus a total dependence on individual activity, the use of tools that would be found in practice, and the importance of contextualized skill development. All of these components are necessary to create "strong out-of-school learners" (p. 18).

Resnick makes these claims based partly on her own study (1987) that found that the most successful educational programs all included three elements of situated learning:

- Socially shared activities
- Apprenticeship-like structures
- Course content designed to include student participation and meaning-making

Lastly Resnick reminds us that in addition to the acquisition of knowledge, schools should focus on the development of "reasoning and reflection" using a "shared cultural knowledge" so that students can take their place not only in the workplace but in the social world as well.

Brown et al. (1989) have contested the belief that one can teach conceptual knowledge and that it can then be abstracted from the classroom setting. Their research shows that knowledge is "situated" and is connected to the "activity, context, and culture in which it is developed and used" (Brown et al., 1989, p. 32). They have adopted the concept of knowledge as a set of "tools." This comparison is relevant since knowledge, like tools, "can only fully be understood through use" (p. 33). The use of knowledge or tools changes the "user's view of the world" and leads him or her to "adopt the belief system of the culture" that serves as the backdrop for this "knowledge" as a tool (Brown et al., 1989, pp. 32–33).

According to their research, students who use tools "actively" (situated knowledge) have more insight into their knowledge and to the world that it applies versus students who only "acquire" them (conceptual knowledge) (Brown et al., 1989). Furthermore, they contend that "activity, concept, and culture" are all present and necessary for learning so that even possession of conceptual knowledge and opportunity to participate are insufficient unless the student is allowed into the culture.

The authors point out that this "enculturation" is in essence a "cognitive apprenticeship" (p. 35). The apprenticeship model leads to "authentic activity" (p. 36), unlike the classroom. They also contend that the "tools" are not used in the same way in

the classroom as they are used by practitioners. These elements of situated learning have implications for teaching. Should the material be made explicit to the student—and out of context—or should the material be given implicitly—and in context?

Brown et al. (1989) have written about teaching models of mathematics that use situated learning principles. The first study involved the teaching of problem-solving in practice where the researcher demonstrated mathematics in practice and in turn allowed the students to think about the use of mathematics in the social world and the use of tools in that setting. This approach used problem-based learning and its tools within a culture of mathematicians. (Shoenfeld, 1985 in Brown et al., 1989). In the second case, a teacher developed context for her fourth-grade students. According to Brown et al., students developed a four-part learning framework for mathematics studies: (a) intuitive knowledge, (b) computational knowledge, (c) concrete knowledge, and (d) principled knowledge.

Beach (1995) conducted a mathematics study that examined the school-based versus work-based learning of high school students who were apprentices and compared them to practitioners who were also preceptors of those apprentices and who happened to be studying mathematics in an adult education course. The study concludes that the mathematics abilities of the practitioners were better developed both in the work situations and in the school situations than that of the apprentices. It was found that in both cases the practitioners had used context and the students had used a decontextualized format.

Lave and Wenger (1991) have studied learning as a situated activity and deduced that its main characteristic is the idea of *legitimate peripheral participation* (p. 29). In this model learners participate in communities of practice (p. 29) where newcomers acquire the skills and knowledge that allow them to become full participants. The key point is that this learning occurs in and is part of a sociocultural environment.

The sociocultural environment allows for these newcomers or novices to interact with experts in activities that include various "identities," "artifacts," and the knowledge within a certain sociocultural environment or "community of practice" (p. 29). The goal is for these peripheral newcomers to eventually become a part of the "community."

Lave and Wenger have also differentiated situated learning from the traditional notion of apprenticeships by claiming that it is more than "learning by doing." Instead they posit that learning is an "integral and inseparable" aspect of social practice (p. 31). They have theorized that situated learning emphasizes the relationship between knowledge and learning because it concerns itself with the "negotiated" character of meaning and the "concerned" nature of learning activity among all participants (p. 33). The implications of this theory are that situated learning allows for the understanding of the whole person as more than just a receiver of knowledge; and that activity, agent, and social world "mutually constitute each other" (p. 33).

Lave and Wenger (1991) have proposed that situated learning exists as a "transitory bridge" that connects the view that cognitive processes are primary in learning on the one hand with social practice as the primary vehicle for learning on the other hand (p. 34). According to the authors, a social practice view of learning is not contradictory to



constructivists' notion of the individual as the source of knowledge creation. That is because a social practice specifically focuses on the "person-in-the-world" as an individual who happens to be a member of a particular sociocultural community (p. 52). As such, an individual in a specific social setting will have his or her own perspective of knowledge and experience. As a result, a certain dynamic occurs where newcomers learn and their resultant experience itself becomes an "evolving" form of membership in that community (p. 53).

With regard to "personal reflection," another important concept of traditional constructivists' notion of learning, Lave and Wenger (1991) also see a consistency with their model. They view personal reflection as "individualized moments" that are based on the various episodes of social experiences (p. 54). However, the authors also believe that participation in communities of practice can never be fully internalized nor externalized by the individual.

The inability to learn by newcomers or novices can be traced back to specific events during legitimate peripheral participation. Experts or full participants in communities of practice must consider the political and social organization, its historical development, and their own effects in providing continued opportunities for participation and learning. Often peripheral participants or newcomers may find it difficult to gain access to full participation when masters or experts assume the role of "pedagogical authoritarians" (p. 76). Ironically, experiential learning sometimes attempts to adopt a more traditional classroom-style form of instruction that is not student-centered in design and does not allow for true participation. Lave and Wenger believe that this underscores

the fact that in master-apprenticeship relationships, providing legitimate participation is more important than providing didactic teaching.

Lave and Wenger (1991), in researching this theory, observe that practice environments provide a certain "pattern of learning" that allows goals to emerge for the learners, who come to appreciate the holistic perspective and what specific learning should occur. They have also seen that for newcomers, learning seems to be an improvised and not a defined set of activities that are provided by the master or expert. The authors suggest that learning during apprenticeships occurs through practice activity as opposed to in a classroom environment where learners are the *object* of a practice. They conclude that "mastery" resides in the community and not the "master." At the same time they remind us that apprenticeship-learning is not the same as work-driven learning. The sequences are different, and for a peripheral participation should be less intense, vital, complex, and possibly non-sequential than would be for full participation. The authors believe that a community of practice is the vehicle for the existence of knowledge and that it facilitates the sharing of that knowledge since it provides "interpretative support necessary for sense-making" (p. 98).

According to Lave and Wenger (1991) apprentices have access to the "physical" activities that are occurring in the various "tools of the trade" (p. 102). The experience is further enhanced by the role of newcomers in information and conversation flow. It is within this context that they can make sense out of what they observe, touch, and hear. Additionally, they distinguish between "talking about practice" (opinions, stories, and histories) and "talking within practice" (exchanging information that is necessary to get

the work done) (p. 109). Both dialogues have a function within a community of practice: to engage, focus, and shift attention among various activities and as "supporting communal forms of memory, reflection and learning" (p. 109). For student newcomers, the goal is not to "learn from talk" that excludes them from participation but to "learn to talk" as a result of it (p. 109).

The goal for student novices is to go from peripheral to full participation. This requires a commitment of time and effort from both the masters and the novices. In addition, the newcomer must continually assume more responsibility by performing more difficult and risky activities. Along with this commitment, the novice or apprentice must assume a greater sense of identity consistent with the master-expert. Lave and Wenger (1991) have emphasized that there are significant negative consequences for not allowing newcomers the opportunity for legitimate peripheral participation—both for the newcomers and the practitioners. For students, it means that their identity becomes an "explicit object of change" (p. 112) rather than the other way around where cultural and social relations can be affected by newcomers. Additionally, if no new cultural identity results from new participation, no new vehicle for newly developed practice emerges. Learning then merely becomes an "exchange" value that is segregated from its "use" value. In other words, a conflict arises where "learning to know," which is true knowledge, is replaced by "learning to display," which is knowledge useful only for evaluation purposes (p. 114).

It is true that ultimately allowing newcomers to become legitimate participants results in a tension of the "continuity-displacement" continuum; but this is a desirable

process since change is an important goal in a community of practice. The life cycle in this social environment therefore becomes "reproduction, transformation, and change" (Lave & Wenger, 1991 p. 123). Wenger (1998) later writes that this type of social theory of learning cannot exist exclusively within the four walls of academia. Knowledge consists of information stored in an individual that requires active engagement in a social setting. The goal for educators therefore should be to provide access to individuals, resources, and environments that will allow this stored information to become true knowledge that can be used in the social world.

Experience and collaboration have been an important basis for situated experiential learning theories. Dewey, for example, claims that "the social environment is truly educative in the degree in which an individual shares or participates in some conjoint activity" (Dewey, 1916, p. 26). A decade later Lindeman (1926) notes that "the approach to (experiential) education will be via the route of situations not subjects" (p. 6). The concept of social context suggests that "learning is an everyday event that is social in nature because it occurs with other people, and it is the interaction with the setting itself that determines the learning" (Wilson, 1993, p. 13). Context-based learning reflects consideration for "the interaction and intersection of students, learning tools, and context given a learning environment" (Hansman, 2001, p. 44).

This sociocultural model frames learning not as a random event or something that occurs in the mind but rather as an activity that is significantly influenced by the "context, culture and tools" in the educational transaction (Merriam & Caffarella, 1999, p. 22). Prior to this, learning was thought to be primarily behavioral or psychological. It

was Vygotsky (1978) who originally studied the idea that a learner's action occurs in a cultural setting. Others later discovered that these social activities included many layers of interactions, beliefs, values, knowledge, skills, symbols and relationships (Wert, del Rio, & Alvarez, 1995).

Vygotsky also theorizes that these functions are facilitated by the use of "technical tools" such as machines or "psychological tools" such as language, writing, and strategies that were made available by a particular culture. As a consequence, these "tools" resulted in linguistically derived social "meanings" (Vygotsky, 1978). Although Vygotsky's theories are based on how children learn, they allow adult education practitioners a way to understand aspects of his theory to form the basis of one particular type of context-based learning in adults: that of situated learning. In the past, situated learning has been criticized as a learning theory primarily by traditional cognitivists. However, those critics generally concede that context remains an important aspect of learning. (Anderson, Reder, & Simon, 1996; Choi & Hannafin, 1995).

The main concept behind situated learning is that learning is rooted in a social context. The relationships among students, the tools that they use, the makeup of the action, and the social environment facilitates the learning process (Hansman, 2001). However, Lave (1996) contends that adding situated contexts to the learning process is insufficient. She believes that practitioners should also focus on the connections between students, tools, and activities as seen in a given social situation. Lave (1996) adds that the ideal learning situation involves real-life action that includes social connections and the use of tools. As Dewey (1938) and others had previously stated, Lave and Wenger (1991)

also warn us that not all experiences result in learning. The authors have concerns regarding how some practice environments do take advantage of learners as a "cheap source of unskilled labor" (p. 76). Often, another challenge comes from experts who tend to teach from a "top-down" approach, which is often seen in the classroom setting. They see students as novices who should be "instructed" rather than part of the community of practitioners.

Hansman (2001) draws similarities between situated learning and experiential learning. According to Hansman, experiential learning focuses on performing an activity that results in new knowledge. Experiential assignments may be a self-directed activity in which the student obtains guidelines in advance and is expected to perform the activity without any supervision. Situated learning, on the other hand, includes self-direction and "doing" but also focuses on the relationship between the learner and other learners and the tools of the sociocultural environment. Learners, for example, may form groups and continue learning in other locations, or more experienced participants may share their knowledge with less experienced ones. Students potentially learn answers not only to current issues but upcoming ones as well. Finally, a dialectic process may occur between participants (Hansman, 2001, p. 46).

Lave and Wenger (1991) cite several studies in their writings that make the case for situated learning. One study discusses the training of Yucatec midwives. After many years of training in a situated environment they begin to move from peripheral to full participation. As the "apprenticeship" evolves, the student performs very simple and routine tasks, until one day full participation occurs when the student takes responsibility

for delivering the child. Not only does this aptly describe the "situatedness" of learning but it also reflects the "socioculturalness" of the event for both the community and the midwives (Jordan, 1989 as cited in Lave & Wenger, 1991).

In another study in West Africa, apprentice tailors move from learning within the family unit for the purpose of domestic need to developing a specialty skill from an expert in the community at large. Lave and Wenger (1991) point out that the learning is quite formal. For example, as part of the apprenticeship with the expert, novices are required to reverse the process of creating a garment. In this way, the learners can see how each step relates to the previous step, the next step, and the whole process so that they are able to situate their learning and understanding

As the dimensions of situated learning unfold, learners become part of a community of practice and experience the "history, assumptions, and cultural values" of that group. Communities of practice (Lave & Wegner, 1991) and cognitive apprenticeships (Farmer, Buckmaster, & LeGrand, 1992; Rogoff, 1990) are two models that have allowed educators to incorporate elements of situated learning into their practice.

Rogoff (1990) developed a model that positions learning as part of personal, interpersonal, and community situations. LeGrand Brandt, Farmer, and Buckmaster (1993) also have created a framework that is often used in professional continuing education. This model consists of five ordered stages: "1) modeling, 2) approximating, 3) fading, 4) self-directed learning and 5) generalizing" (Hansman, 2001, pp. 47–48). Students in graduate programs often work within this framework as they participate as

teaching assistants, researchers, and finally dissertation candidates. Many institutions also utilize this model as a way to mentor new faculty.

LeGrand Brandt, Farmer, and Buckmaster (1993) describe a study where principles of cognitive apprenticeship were applied in a continuing education program for practicing pharmacists. Using the five-phase model, pharmacists were trained in implementing a new Medicare program that required that increased cognitive services be provided. Cognitive services in pharmacy include such things as providing of drug information, consultation and referral services, and drug therapy monitoring.

(Pharmacists also still provide the traditional management of medication-use systems including inventory management and distributive functions such as mixing of sterile intravenous solutions in the hospital or dispensing of prescription medication in the local community pharmacy.) Practitioners who taught with the model performed better overall than other pharmacists who received traditional instructional design methods. The researchers conclude that by using the five-phase approach, students could better handle any type of unusual task, problem, or situation. These pharmacists were also better able to balance or combine their theoretical or practical knowledge when needed. The authors also conclude that the model emphasized a higher level of performance rather than minimal or novice levels of learning (LeGrand Brandt et al., 1993).

Communities of practice are "self-organized" groups that have formed in order to connect to a shared purpose and a willingness to learn from others. Wenger (1998) has written about these relationships as a set of related ideas that include (a) mutual engagement, (b) joint enterprise, and (c) shared repertoire. Wenger and Snyder (2000)



described communities of practice as having "passion, commitment, and the ability to identify with the group's expertise." The authors claim that many organizations are adopting this model as one way to transform themselves into "learning organizations" (Wenger & Snyder, 2000, p. 142).

Daley (1999) performed an empirical study to determine how nurses learn in a professional program using this model. She concentrated on how inexperienced and experienced nurses understood their learning in terms of "how they learned to learn, how they could teach themselves, and how they built their own bank of knowledge." Daley found that the experienced nurses framed the learning process in such a way that their knowledge and experience could be shared with the less experienced nurses. At the same time, they were able to share individual expertise among other nurses at their level.

There are related theories such as distributed cognition (Hutchins, 1995) that also emphasize the importance of context. In his well-known study, Hutchins analyzes the complex navigational activities of naval personnel where the knowledge was divided between the navigators and the environment. His original research forms the basis of the distributed cognition theory: Hutchins theorizes that coordinated cognitive activity was due to its situatedness within the context of that activity. Hutchins also tried to locate the human mind in the social world. This runs contrary to the traditional cognitivists who held that the world at large existed in the mind of individuals. He also brings this theory forward by claims that knowledge is shared by many minds located in a social setting.

Certain models focus instead on a type of context-based learning that emphasizes an apprentice-master or novice-expert relationship. The most recent research on learning

shows that expertise is not just based on memory, intelligence, or ability to use strategy in the thinking process. In addition, experts utilize their knowledge in terms of "what they notice," and "how they organize, represent, and interpret information in their environment" (Bransford, Brown, & Cocking, 2000, p. 31). Masters or experts are able to notice dimensions and arrangements of knowledge that are overlooked by the novice or apprentice. Furthermore, the knowledge base of experts is not limited to isolated data. Rather the knowledge is "situated" in a particular environment. Novices do not have the ability to categorize knowledge into "chunks" (p. 33) that can be quickly recalled and applied to specific contexts.

The key for achieving greater mastery is to provide apprentices with experiences that allow them the opportunity to work with knowledge in meaningful patterns (Bransford et al., 2000, p. 36). Learning is enhanced when information is presented within a context of important ideas and concepts that give that information meaning. Another characteristic of experts is their ability to recall information that applies only to the task at hand in an efficient manner. In this case the expert's knowledge is "conditionalized"—arranged so that it can be utilized in the right situation (p. 43). However, traditional constructivism theory does not address this learning need (Bransford et al., 2000). Additionally, the masters or experts also possess "adaptive expertise." They are able to approach new problems by using what they already know but also continuously challenge that existing knowledge as a way to reach new levels. This process has broad implications for how students in particular should approach an

experiential learning environment and how all practitioners should approach lifelong learning (Bransford et al., 2000).

Bransford and others at the former Cognition and Technology Group at Vanderbilt (Bransford, Sherwood, Hasselbring, Kinzer, & Williams, 1990) used technology to facilitate situated learning. Based on "virtual" experiential activity, learning was enhanced when presented as a real-life problem or situation. The materials also allowed students to actively participate in the learning process. The goal was to create a model that helps to understand how students or novices create knowledge in experiential settings. Specifically, the researchers' interest focused on the intersection of learning during experiential activities with learning in the didactic setting. Bransford and his group also researched how various approaches to instruction facilitate experiential learning and how students were able to see the relationship of theory and practice.

The Vanderbilt group supported their claims about situated learning with two important studies. The first study, known as the Young Sherlock Project (Bransford et al., 1990), resulted in richer, deeper learning among the group of students that were taught using the Anchored Instruction method. The second study, known as the Jasper Series (Bransford et al., 1990), resulted in students increasing their ability to solve complex problem formulations when compared to their abilities based on a pretest given before the anchored instruction.

Other researchers have also focused on how experts can facilitate learning in a situated environment. Bailey et al. (2004) raise certain questions in this area. Specifically, the authors ask what "school-based educators" can offer students that they might not

learn through their experience. Framed differently, the question becomes: "what do teachers, advisors, and program coordinators do to make the learning richer, broader, and deeper?" (Bailey et al., 2004, p. 2). According to these same authors, experiential education should be able to link academic theory with practical experience; they support the idea of the "reflective practitioner" (Schön, 1983). Reflective practitioners not only perform as experts but also are able to have perspective in terms of a larger meaning especially with respect to the sociocultural environment (Schön, 1983).

It is this sociocultural learning that Schön (1983), Lave and Wenger (1991), and Bailey et al. (2004) all believe needs to exist so that a student or novice can construct knowledge. However, Bailey et al. concede and Lave and Wenger agree that the process of applying the concepts of classroom learning to the experiential setting is a difficult task. Accordingly, faculty must facilitate students' efforts to reconcile and connect the classroom and the field.

Bailey et al.'s (2004) findings indicate that there is a significant "gap" (p. 3) between what they call "academic theory" and "practical experience" that students must bridge. They conclude that some of this is due to the fact that students resist engaging in reflection. Another reason may be the fact that students perceive the two arenas—the classroom and the workplace—as completely different and unrelated environments. Furthermore, some higher education institutions continue to reinforce that notion. The researchers also view this challenge through various theories of "modes of thought" (p. 5). Specifically, modes of thought describe the manner in which students "experience and interpret" the world and the subsequent way in which these individuals demonstrate

meaning-making about themselves and their environment. Within this framework, subjects frequently described their learning experiences as "activities" and "skills" as opposed to a reflection of any related concept.

Bailey et al. (2004) believe that novices have difficulty in phrasing their activity in abstract or global terms. This is also supported by Bransford's (2000) categorization of novices. Vygotsky (1978) explains that the developmental stages of learning occur first on an interpsychological level and then on an intrapsychological level. Bailey et al. applied this concept of Vygotsky to experiential learning and found that as novices engage in "complex cognitive activities," "they do things before they understand them" (Bailey et al., 2004, p. 6).

One particular study that looked at the transition from novice to expert among medical students identified three factors that affect students' success in the experiential environment. The first factor is the heavy emphasis that medical schools (and pharmacy school) place on learning the basic biomedical sciences. Typically, programs devote equal time to biomedical and clinical learning. The basic sciences are necessary and serve as the building blocks to clinical medicine. However, students have a difficult time relating these topics while on their clinical rotations. Second, students on rotation often are given "lesser" tasks because they are students, and this lack of authenticity makes it difficult for the students to connect the activity to any learning goals. This complaint is often heard in pharmacy rotations as well. Third, a challenge exists given the delicate balance of the classroom and the rotation site in terms of knowledge versus skills. Too much emphasis on knowledge will result in a student's inability to develop competent

skills. Too little emphasis on knowledge leads to the lack of the competency needed to properly utilize that skill. The overloaded curriculum is thus a struggle for the faculty to administer and quite difficult for students to manage (Boshuizen, Bromme, & Gruber, 2004).

### **Identity: The Interaction of the Personal and the Social**

Social identity has been discussed as an important component of situated learning theory. Newcomers and experts mutually co-construct social identity as these new learners move from peripheral to full participation within the practice (Lave & Wenger, 1991; Wenger, 1998). This aspect of the theory focuses on identity as a social process but does not consider individual identity as part of that process.

Some researchers (Beijaard, 2006; Billett, 2001) have found that personal identity is an important aspect to an individual's development. That *personal* identity both defines learners and prepares them for the building of a *social* identity. Social identity originates from activities in group settings and is constantly being formed and re-formed as the personal identities interact. These personal identities are said to derive from personal characteristics and relationships.

According to one researcher, becoming a professional relies partly on the individual and that individual's personal goals. These personal goals influence the reasons why learners participate and the ways in which they choose to become involved (Billett, 2001). That same researcher, who supports the notion of socially constructed identity, later wrote that individual agency predominates over social guidance (Billett, 2006).

Finally, with respect to professional education, recent research holds that identity can be analyzed from both a cognitive (psychological) and a sociological perspective. An individual will co-construct an identity when engaged with others but continue to define their own identity in terms of "who they are" and "what do they want to be" even if this individual identity is developed within the social environment (Beijaard, 2006).

It is clear that changes in the education of students in the health care professions, including pharmacy, have begun. Approaches to learning now emphasize context-based activity in a social setting. However, there is still tension between those who argue for the importance of the cognitive learning of students and others who believe that learning is largely a sociocultural phenomenon. Even among educators and researchers who lean towards the latter, variation exists in terms of how best to implement this strategy. Lastly there is consensus concerning the inability of students to consistently connect classroom learning to activities in the field.

Certain aspects of context-based learning emerge as key concepts. Legitimate peripheral participation in a community of practice (Lave & Wenger, 1991) is a model that was researched. What is needed is research that explores how students construct knowledge as they move from the classroom to the field. How does their previous experience affect their new experiences? How can faculty best facilitate student learning during experiential rotations? Lastly, it is important to understand how context-based learning leads to meaning-making.

In an attempt to answer those questions, this researcher selected a methodology that supported the concept of social learning. The methodology also provided the data

collection tools necessary to investigate the theories of situated learning. The fieldwork was performed in several settings where social practices were occurring, each with its own unique culture. Those environments were all rich with context and contained numerous opportunities for experiential learning. The next section provides a detailed outline of how this research was performed.



## CHAPTER 3

### METHODOLOGY

#### **Introduction**

This study looked at the process of learning during experiential rotations. The goal was to increase our understanding of how students construct knowledge in the field. To reiterate, situated learning theory served as the foundation through which learning from experience was analyzed and understood. The theory also guided the research questions and the methodology.

The following research questions were developed for the study.

#### **Main research question.**

What factors in a social practice support the knowledge-construction process of pharmacy students during their experiential rotations?

#### **Supporting questions.**

How did students contribute to their own learning during their rotations?

Which teaching strategies within the practice facilitated student learning?

What role did context and content play in experiential learning?

#### **Methods**

A qualitative methodology was used in this study. Qualitative research has been defined in many ways, and one useful approach to understanding what constitutes a qualitative study is to consider its characteristics (Hatch, 2002). The first characteristic of qualitative research is that it occurs in natural settings and consists of the real experiences of real people as they go about their daily lives. Secondly, researchers themselves gather the data directly instead of using an instrument. As a matter of fact, the researcher is often viewed as an instrument of data collection. This point is discussed later in this section. Thirdly, qualitative researchers are interested in understanding how individuals make meaning of their social surroundings. Finally, it can be said that qualitative research is reliant on emergent design. The direction of the research changed as the study evolved. The process was deductive since the data collection and analysis were guided by the factors of situated learning theory.

Consistent with these reasons, a qualitative approach was used because of its ability to focus on an understanding of how students constructed knowledge in a context-based environment. This approach helped answer the research questions that were posed based on the theoretical framework of situated learning. The qualitative approach of ethnography was chosen because the learning activity occurs among members of a social practice. Therefore this cultural environment had the potential to play a prominent role in advancing our understanding of how experiential learning occurs.

One can also look at a "research paradigm" (Creswell, 2003; Crotty, 1998; Hatch, 2002) to determine whether qualitative research is indicated. This study advocated learning from a constructivist's perspective. The key feature of this paradigm is that

multiple realities of knowledge are constructed by humans in a naturalistic setting. To try to explore and understand (not to try to measure) this phenomenon, it followed that a qualitative research approach should be employed.

Ethnography was selected as the specific form of qualitative research for this study. This type of qualitative research focuses on the study of cultures. The most common methods of data collection include interviews, participant-observation, and document analysis. Previous studies of experiential or workplace learning looked through a cultural lens in terms of relationships, activities, knowledge-in-use, and the acculturation of new members into a social group (Bailey et al., 2004). According to Bailey et al. (2004), an ethnographic approach allows one to "construct an adequate account of the workplace cultures (social relations, activities, context, and knowledge-in-use) and the induction of interns into those cultures." For Bailey et al., "That means participant-observation: Watching what people do; asking them questions, collecting artifacts" (2004, p. 224). LeCompte & Schensul wrote, "Ethnography generates new theories or builds on existing theories of culture" (1999, p. 8), and this is accomplished by studying how people behave, think, or, most relevant to this study, how they learn, all of which is "situated" in the time and place of a community. Situated learning theory (Lave & Wenger, 1991) shares all of those concerns and was a useful theoretical framework that guided this ethnographic study. Ethnography has played a significant role in many studies as a way to study cultures and has a rich tradition.

Between 1917 and 1942, one of the early traditions of ethnographic studies was initiated by members of the sociology department at the University of Chicago. Two

sociologists, Robert Park and Ernest Burgess, and their doctoral students, published a number of ethnographic studies that depicted the difficulties of modern life in an urban setting for less fortunate people. The purpose of these studies was to bring about social change. This Chicago School was influenced at the time by the symbolic interactionism ideas of George Mead and John Dewey. These ideas, such as "human flexibility," "genesis of the self," "definition of the situation," and the role of the community in the social process (Deegan, 2001, p. 14) predict this current interest of human learning as an experiential, context-based, social activity.

Although ethnography has been guided by different research paradigms, in this study an interpretive or constructivist approach was used as opposed to either a positivist or critical approach. This view holds that beliefs, meaning-making, symbols, and ultimately learning are socially constructed, negotiated, situated, and participatory (LeCompte & Schensul, 1999). Positivism or the "scientific method" is a cause-and-effect approach. In that paradigm, "truth" is determined through an empirical or quantitative means and the data collected either support or reject the theory under consideration. The critical approach, although similar to a constructivist approach, focuses on advocacy, equal participation, and social justice for persons who have been marginalized due to race, gender, class, and the like. The focus of this particular research was on inquiry that could lead to changes to improve practice.

### **Participants and Sites**

I chose a labor- and time-intensive design to achieve the necessary depth of analysis. In order to achieve such a focused approach, I decided to follow a total of four

participants. Before I was able to proceed with the study, some key issues had to be resolved. First, I had to identify the volunteer participants who would eventually be involved in the study. Second, the participants needed to possess certain characteristics.

I felt it was necessary to interview and observe the students multiple times over the course of two rotations. The reason was that I would be able to collect rich data over time, at different sites, and as the students progressed. Each rotation was four weeks in length, which meant that I followed all students for a total of eight weeks. I also interviewed the primary clinical instructor in each case to help me clarify and validate the data that I was collecting during the interviews and observations.

I decided to follow a total of four students over that time period. The four students were all from the same graduating class of 2010 and were all from the same school of pharmacy. This meant that I could study each student at two different clinical sites over two different rotations. As a result of this plan, I spent either three or four full days per week in the field over the course of the two rotations.

I was assigned a gatekeeper by the hosting university. This gatekeeper had the same experiential responsibilities that I have at my own academic institution. He also served as my key informant and facilitator. After I received institutional review board (IRB) approval from the host school of pharmacy, he notified a number of students and faculty that I would be contacting them regarding the study. He also facilitated access for me to each of the clinical sites. However, I did not reveal to him which students I had selected due to IRB concerns of a conflict of interest on his part between his responsibilities to the student and his relationship to me.

The selected students comprised three females and one male. I will introduce them by their pseudonyms: Jen, Lana, Antonia, and Ned. In the next chapter, I present a narrative of these students with respect to their identity and learning. This ethnographic "story" will allow you to know the participants and their learning experiences and also serve as the basis of the analysis I present in Chapter 5. The narrative describes their educational biographies as well as their personal identity as learners. It is important to note that this "personal identity," as discussed in the previous chapter, differs from the social identity that is described in situated learning theory (Lave & Wenger, 1991).

The four students were chosen using a purposeful sampling approach (Merriam, 1998), which results in the highly detailed and rich level of data that I alluded to previously. I utilized a "typical case" sampling approach where all participants represented similar cases and not any unusual, extreme situations. Each student had to be in the same pharmacy program, in the same graduating class, and eligible to attend their clinical rotations. The clinical rotations, set by ACPE, include four required rotations and various elective rotations. The two rotations included in this study incorporated three required rotations: internal medicine (inpatient), ambulatory care (outpatient), and hospital pharmacy practice; as well as an elective rotation at a poison control center. All rotations focus on a core set of objectives that are common throughout the experiential program. Other activities were based on factors such as student need, preceptor specialization, or assignments that were site-specific.

It is important at this point to discuss the makeup of the four students that were chosen in terms of gender and race. As I have mentioned, the four students consisted of

three females and one male. This ratio is consistent with the graduation rate for pharmacy schools across the country. According to a recent report, 64.4% of the Pharm.D. degrees were conferred to women and 35.6% to men for the 2008–2009 academic year (AACP, 2009). It should also be noted that the genders of the preceptors were close to being evenly split. Therefore it is reasonable to conclude that based on gender, the experiences of these four students are representative of pharmacy students at large. In terms of race, 21.2% of graduates in 2009 were of Asian descent (AACP, 2009). This means that the makeup of the student participants in the study closely represented that group as well.

The same cannot be said for persons of color. Once again in this study, three of the four students were white and the fourth student was of Asian descent. That same AACP report indicates that 6.3% of the graduates were African Americans, and 4.1% graduates were of Hispanic descent. The students in the study were not representative of persons of color in the student population in terms of enrollment or in terms of the experiences of persons of color. Since this study occurred in an inner urban area, in each of the practice sites that I visited, a majority of the patients that was being cared for were either Black or Hispanic.

The clinical sites utilized for the study were based on the assignment process that the students were involved in at their educational institution prior to the start of their rotations. In this case, the clinical sites included three hospitals and two health centers. In July 2009, the four students were assigned to the same hospital during the first rotation. During this rotation, the four students were either in different parts of the hospital with different preceptors or were convened together for their learning sessions with one of the

clinical instructors. During the second rotation, the clinical sites of each student varied and consisted of two hospitals and two health centers. The second round of rotations occurred in August 2009 for three students. I followed the fourth student in September 2009 because she was not available in August. All of the clinical sites were affiliated with the host school of pharmacy and also served as teaching facilities for the medical and nursing schools of that same academic institution.

The core tasks performed during these pharmacy rotations were based on the ACPE standards that have been previously discussed. These tasks can be divided into five main categories. The first category relates to understanding and demonstrating the role of drug therapy and the characteristics of disease states and their management. Students must integrate information and apply it to specific patient cases. This includes reviewing the profile of each drug being used for factors such as how the drug works, when should it be used—and not used, possible side effects, etc. Students must also identify any necessary laboratory tests to support the drug therapy. Finally, students learn how to plan the proper patient therapy upon discharge from the hospital including any teaching or instructions to be given to the patient or family member about the use of the drugs at home.

The second major activity for students` revolves around working with the patient's medical chart. Specific tasks include reviewing the medical or surgical history of the patient, vital signs, lab test results, presence of any drug allergies, behavioral or lifestyle factors such as use of herbal remedies or being a smoker, and inconsistency to the adherence of prescription medication routines when the patient is at home.



Third, and unique to pharmacists, students learn to design a pharmaceutical care plan. This process involves a focus on the drug therapy and all of the related issues that need to be addressed. Students construct and maintain a "problem list" that can be expected given the specific nature of the particular disease, the drugs that are being used, and the status of the patient. Students are expected to recommend plans for each of the problems. They also make drug therapy suggestions based on interviews of the patients, results of their physical assessment (e.g., blood pressure, pulse, various signs and symptoms), and the medical chart. Also, students may perform drug therapy reviews for side effects or contraindications (situations where a particular drug should not be used due to certain factors that are present). Students write clear, concise notes regarding any of the above and communicate those issues to preceptors and other clinicians utilizing oral presentation skills.

The fourth area, providing drug information, is one of the most important areas in which pharmacists are involved. The tasks include obtaining the necessary background information of the drug information request, identifying the appropriate sources in the literature (called informatics), and retrieving and evaluating specific information for the target audience (health care professional or patient). Students often provide information-based presentations to health care providers regarding new therapies.

The fifth and final area of activity involves the student developing a professional attitude that includes communication, conduct, and physical appearance. These traits are played out in situations such as a student's ability to receive constructive criticism, demonstrating dependability, showing patient empathy, functioning independently when

necessary, conducting self-assessment in their progress, showing competency in their planning, organizing and achieving assignments, maintaining patient confidentiality, and responding to assignments and responsibilities in a timely manner.

### **Research Design**

The structure for interviewing and observation that I used in this study was created to assist me to understand what people knew, what they were doing, and what they were using to create products and services (Bailey et al., 2004; Spradley, 1979). The interview protocol that I employed sought information about the following topics: (a) a student's biography and educational history, (b) the specifics of a student's activities, (c) the views and understandings of the student, (d) critical incidents—what happened, why, and what did it mean (Spradley, 1979), and (e) clarification of or curiosity about my observations.

Using situated learning theory as a lens, the goal for this study was to understand, describe, and interpret a topic that has not been thoroughly studied (Johnson, 1994). This was achieved not only by explaining behavior but also by describing context, which resulted in a thick description that therefore allows for meaning-making to any outsider (Geertz, 1973).

Prior to the start of this research, I initiated a small pilot study. During the early spring of 2009, as part of a requirement for an ethnography course that I enrolled in, I utilized this pilot study to strengthen my methodological skills before beginning the actual dissertation research. The pilot was designed as a "mini" version of this dissertation research and served several purposes: (a) I tested my research questions and

theoretical framework, (b) I gained experience collecting data with ethnographic methods, (c) I became familiar with the IRB process, (d) I practiced writing ethnographic narratives and writing as a form of inquiry, and (e) the study produced preliminary data that I reflected upon and that allowed me to devise a preliminary data analysis system including a coding schema. Although the pilot was too limited to produce real findings, it provided me with some insights into what would become important emerging themes such as that of "identity." In Lave and Wenger's (1991) publication on situated learning, identity was not a fully developed concept. However, since identity played a significant role in my pilot study, I reviewed Wenger's subsequent publication (1998) in which he wrote about the role of identity in great detail. By participating in an ethnography course, performing a pilot study, and expanding my literature review based on emerging themes in my pilot data, I was better prepared to begin the actual dissertation research.

The centrality of ethnography as a method is a focus on culture, and therefore it is ideal for this type of applied educational research. Ethnographers believe that their research is focused on two goals: (a) exploring sociocultural issues in the community setting and (b) using the results of the research to try to address those issues. In this sense, ethnography is about change (LeCompte & Schensul, 1999). This methodology is appropriate for this study since I am interested in exploring how experiential learning occurs as a social and cultural activity and therefore in developing new ways to improve that practice. It is important as a practitioner to use research to make those changes. As I discuss later in this chapter, it was also challenging as a practitioner to assume the role of a researcher and suspend my assumptions and beliefs as I entered the field.

The first step of the fieldwork process was to design an IRB-approved recruitment information sheet for any potential students that I wished to enroll in the study. This flyer was posted on campus and mailed to specific students (see Appendices D and E). When students who met the criteria and who were interested in participating were identified, I discussed the study with these students individually in a private setting. I explained the details of the study in terms of their degree of involvement, their rights as a research participant, and any potential risks to them. I explained all of this verbally and answered any questions they had regarding their role as research participants. As I met with the students individually, I gave them copies of the IRB-approved informed consent document that included everything that I had discussed with them, in writing, and which they were required to read and sign (see Appendices A, B, and C).

Once I enrolled the four students, I scheduled interviews with each of them. All interviews were conducted in private settings and I recorded each interview with a digital audio recorder. I informed the students that their interviews would be recorded and they signed an agreement to this as part of the informed-consent process.

I met the two lead preceptors from the first rotation who would be ultimately responsible for the students' activities and whom they would meet with daily. During my meetings with the preceptors, we planned the days and times that I would hold the interview sessions and conduct observations in the clinical areas. During July 2009, I interviewed each student a total of three times. Interviews were conducted at the beginning of the rotation, at the midpoint, and at the conclusion of the rotation for each of the students. I also spent three full days per week at the site shadowing each student at

different times including when they were seeing patients with different medical teams and when they were together with the preceptor. I arranged for the individual interviews with the students on these days. I also interviewed each of the two lead preceptors toward the end of the rotation.

It is important to note that my interview strategy was based on three goals. The first goal was to relieve any tension with the students and to develop a trusting and positive rapport with the participants. I accomplished this by asking each participant for a brief personal biography and educational history. Not only did this allow them to ease into their role as research participants, but it also resulted in rich data that became central to my analysis.

The next goal of the interview was to ask about the tasks and routines that the participants would be involved with and what type of training and direction they received to help accomplish these assignments. Questions pertaining to tasks and assignments are consistent with my theoretical framework. Since the premise of situated learning is context-based, it follows that students' learning could be understood by the activities that they perform on rotation (Bailey et al., 2004).

The final goal of the interview was to design questions that allowed me to probe students for more information when it was necessary, ask about observations that I made for purposes either of clarification or verification, or just satisfy any inquisitiveness I may have had about the social environment. Since I could not know in advance what would eventually be relevant or not relevant, when I was in doubt my default was to ask and

record. I would worry about whether or not I would use the data after I had left the field and was in the data analysis stage.

The same held true during the observations. I recorded copious notes when I observed the students. I also recorded descriptions of the environment, activities that occurred simultaneously, and anything else that was of interest to me. Since this was ethnography, I felt that it was important to accurately record the scenery within the environment, the various players, and what was going on around me. Even if I did not need these data for my findings, they would allow me to accurately and richly describe everything.

Experienced ethnographers understand that observation requires focused attention on the "routine cultural activity" in order to learn the answers to their research questions. It would be a lost opportunity to ignore the details of these everyday activities and instead look for only examples of the themes being researched. Whyte, in writing an appendix to an updated edition of *Street Corner Society* (1993), recalled realizing that his observation of men bowling should focus on bowling instead of the research theme that he was trying to identify. He concluded that the bowling activity was actually the vehicle in which the behaviors he was interested in manifested themselves. The lesson here is that no activity or event in these settings is insignificant, and that this study's goal of understanding situated learning could emerge in many different ways.

I developed a protocol for the interviews that was reviewed by the IRB. However, for the observation I used the simplest of instruments: a stenographer's notebook that was small and spiral-bound for quick and easy access, and that I could carry in my pocket. I

divided the pages into two sections; the first section was where I recorded my field notes and the second section was for me to record memos to myself. These memos included either comments or questions about what I had observed, ideas about situated learning theory, or notes about my research methods. These memos were transcribed along with my interviews and observations into The Ethnograph, the software program that I chose to assist me with the analysis.

Since the digital recorder and the notebook had private and confidential information, I always kept them on my person and locked them up in a file cabinet when I was not in the field. I created pseudonyms for the students and preceptors to maintain confidentiality. I refrained from using the name of the hospital or health centers in my questions or note-writing. From time to time a situation arose where a description of a person, place, or thing could have been connected back to a participant or the site; in those cases I was careful to try to avoid the problem.

In addition to the interviews and observations, I also planned on reviewing documents as part of the data collection. However, as the research progressed, this method became less important. I read documents about the clinical sites and my host university, especially the experiential materials, but they played a minor role during the rotations. For instance, preceptors did not strictly adhere to the grading tool for the students and instead provided their own version of progress reports informing them of what they had achieved and what they need to improve on. Also, this school of pharmacy did not require that students maintain reflective field journals, which I had hoped to read.

This required some adjustment and change in the field, and if I felt I needed any of those details, I would just ask the preceptors or students for this type of information.

The data collection process continued during the month of August 2009. The only change was that three of the students were now assigned to different locations and the fourth student would not be available to participate until September. However, that did not impact my research. I traveled to different locations on different days and kept the same protocol of three interviews per student for that rotation and three full days of observation per week split among the three students. In the case of the fourth student, I followed her in September utilizing the same interview and observation protocol. Fortunately, all four students continued with their participation in the study and regardless of the site, preceptors and other members of the practice were welcoming and supporting of my efforts.

### **Interviews**

The digital audio recorder that I used had enough capacity to store all of my interviews over time. It also contained software that allowed all recordings to be transferred to my computer in a digital format using a USB connection. The software included a number of features that helped facilitate the transcription process. I employed a person to transcribe the recordings and another for the field notes. Both had previous experience with IRB-approved research data and I discussed my security requirements with each of them beforehand.

The interviews that I conducted were in-depth and semi-structured. By relying on both observation and interviews, I believe that "thick, rich descriptions" of the social



activity of the students were obtained (Geertz, 1973). I employed a formal interview protocol but gave myself the latitude to follow up with new questions to probe, clarify, verify, and learn about the learning activities discussed or observed. Therefore the method of questioning the students was semi-structured. This was especially important since the focus of the interviews explored the personal histories, cultural beliefs, and learning activities of the participants. This approach allowed me the flexibility of an open-ended interview while maintaining a focus similar to a survey (Schensul, Schensul, & LeCompte, 1999, p. 149). Semi-structured interviewing utilizes a set of interview questions developed in advance and derived from the research questions and theoretical framework of the research proposal.

However, for me, it was equally important for the answers to be open-ended. This approach encouraged interaction and exploration by both the participants and me. In this way, true qualitative textual data was generated. The model of inquiry that I adopted and adapted was a three-step analysis of the tasks: (a) establishing (what needs to be done), (b) accomplishing (how it will be accomplished), and (c) processing (what was the outcome) (Bailey et al., 2004). Since the premise of situated learning is context-based, it follows that students' learning process could be understood by the activities that they perform on rotation (Bailey et al., 2004). The other key factor is the environment itself: the site, the staff, their culture, politics, organizational structure, and the daily routines. The data collected in this study via observations, interviews, and document analysis were based both on the activities and themes. With respect to the student activities, the first step was to break these down into basic tasks that allowed me to construct the interview

questions, design the observations, and identify the related documents. These methods also allowed the environmental themes to emerge.

Since I also relied on interview data, the development of good interview questions became a significant step. Constructing questions that are appropriate from the standpoint of the participant became my main concern. I created interview questions that utilized language and terms that could be understood by these students, considering their educational level. Questions were brief, and I tried not to ask any compound questions that require multiple answers, which would have become confusing. I also did my best to avoid biased questions and questions that were insensitive in terms of ethnicity, culture, gender, or education level. Finally, I strived not to ask leading questions since that would adversely affect the data; but I have to admit it was difficult, and I found myself doing so at times and had to quickly restate my questions when this occurred.

I asked the participants questions about the rotation site and the various players. Their answers to interview questions served to clarify and add to what I observed. In other cases their answers either supported or contradicted what I observed. Some examples of the structured interview questions that were adopted from the task analysis model (Bailey et al., 2004) are the following:

- What activities need to be performed?
- What are the specific tasks that have to be completed for each activity?
- Who determines which activity needs to be done? When? By whom?
- How do students receive their instructions?

- What resources are they given?
- How do they proceed if they have a question or problem?
- Who else is involved?
- Do participants work together?
- What responsibilities does each participant have?
- Is there a schedule of the activities? Is there a certain time length?
- Does the student receive any feedback after the activity?
- Is the student allowed to repeat the task at a later point?

### **Observation**

As I prepared to enter the field as a participant-observer, I thought about the techniques I would use to observe the research participants. Spradley (1980) defined participant-observation and examined the differences between an "ordinary participant" and a regular member of the "sociocultural" group and the "participant-observer" or the researcher in that identical setting (p. 53). The participant-observer is present for two reasons: (a) like the ordinary person, to be part of the particular activities of that setting and (b) unlike the ordinary person, to observe the actors, activities, and events in that environment. The participant-observer must be acutely aware of all that is occurring including incidental events that are usually not noticed by the ordinary person. In addition to this "increased awareness," one must take a much wider, global view. As the participant-observer, the researcher has two perspectives of the field: that of an insider and that of an outsider. In addition to all of these demands, the participant-observer must

approach any encounters and activities with introspection. Finally, only the participant-observer makes extensive notes of the experience (Spradley, 1980).

Whyte (1984) indicated that only by assuming the role of participant-observer will the researcher be able to clarify, expand, and validate the interview data. Also, the process often leads to major findings that were unexpected and may affect the theoretical framework of the study. At the same time, the authors remind us of some of the disadvantages of this method. The events that unfold are difficult to quantify and the process itself is very labor-intensive. (Whyte, 1984).

It was clear from the experiences and writings of those researchers that I wanted to be a participant-observer in this study, and I proceeded to enter the field in that role. The two compelling reasons in making that decision were: (a) I needed to be a part of the activity in order to gain acceptance by the practice and (b) necessary to gain access to any of the players, locations, and activities so that I could collect any data I believed to be important.

I recorded field notes continuously throughout the study. The field notes became an important source of data for analysis and interpretation. I ensured that the field notes were very detailed and focused and that everything that was seen and heard was always recorded as it occurred or immediately thereafter. At the same time, I knew it was important to record my observations accurately. Behaviors were noted in a highly descriptive manner without assigning any meaning to them; I tried to be merely a vehicle for the data. Also I knew that over time, as I collected and analyzed the rest of the data, I could assign meaning to those behaviors during the interpretation stage of my research.

In order to accomplish all of these goals, I knew that I would have to schedule myself at the various sites for periods of time. This would guarantee that the many daily routines and unique events were witnessed and recorded. My observations included mainly the four students but also other individuals with whom they interacted in the various situations that occurred in their learning process. However, I did set aside some time in a private area each day to reflect and create detailed notes that would otherwise be unclear or even unrecorded if I had attempted to record all of the field notes during the actual observation or days later.

The observations were accomplished solely through my eyes. Therefore, in order for accurate interpretation to occur at a later date, I focused intensely on the many details while at the same time maintaining the theoretical framework that served as the foundation of this study. I strived to avoid using personal biases or value judgments at any time during the course of the study. Realistically, the effects of my personal views can never be totally eliminated.

Since the focus of this study is context-based learning in a social environment, it was important to observe examples of any detailed tasks required during the rotations that helped me to determine if student learning was occurring. Observations of the larger picture were also important. What were the cultural and political characteristics of the site? At what level were students being allowed to participate? What were the instructional techniques of the preceptors? How were the students using knowledge? What was the communication process? How did relationships form? Did people work in teams, and if so, did it resemble a community of practice? As a participant-observer I had

to constantly balance the two perspectives: that of a macro and a micro understanding of what occurred around me.

### **Document Analysis**

Document analysis, as a method, turned out not to be as important as the interviews or observations. The social community of practice committed many scripts to memory and their experience allowed them to take directions or make decisions as issues arose. However, all practitioners referred to legal requirements, policies and procedures, and patients' medical records faithfully. The patient medical record was a primary teaching tool and was employed constantly during experientially learning. This becomes evident in the data analysis chapter. The content of the medical record was not a part of the data in this study.

The analysis of documents I reviewed, such as portfolios, syllabi, grading forms, and procedural manuals, served several purposes. These documents provided background information of the practice site and additional context for the social setting. Along with observation and interviewing, document analysis helped verify the data provided by the participants. This redundancy helped to "triangulate" the data, which is a method of ensuring quality and trustworthiness of the data. However, these same documents did not play an ongoing role in my data collection when I was involved in the social setting. I recall not being surprised since as I came to understand that learning activities were driven by the task at hand and not from some preplanned agenda or procedure, especially those formulated by the academic institution, with the exception of written, mandatory practice-based protocols.

## **Data Analysis**

As soon as I initiated the data collection process, I began the process of analysis and interpretation. The process was recursive during and after the fieldwork. The data analysis was partly a technical process that involved reducing the data to manageable chunks. It was also a reflective process since I kept thinking about situated learning theory and what I was trying to learn via my research questions and the data that I was collecting.

There has been much written about data analysis by different ethnographers. Some ethnographers believe that the goal of analysis is to create less data, not more, by use of coding and categorizing so that the data are crunched and concise (Wolcott, 2008). Others have pointed out that analysis accomplishes multiple purposes. It allows the data to be organized and reduced, and to form itself into patterns and themes (Patton, 1987). Still others see it as taking "raw data" and converting it into "cooked data" or "results" (LeCompte & Schensul, 1999, p. 3). The results become descriptions of the sequential events that were recorded in the field. This allows the data to be interpreted and recommendations to be made for further study or action (LeCompte & Schensul, 1999).

One of my goals was to tell a story and interpret what the story meant. For this reason, I decided to write two chapters of analysis and interpretation. The fourth chapter is a narrative: the story of four students told by me in their "voices" about their experiences. Although the transcripts from their interviews serve as data to be analyzed and interpreted, they also stand on their own. The students' own words introduce us to their educational world and how they perceive it. What are their fears and worries about

the rotation and about their careers? Who are they and where do they come from? All of this matters as their social background merges with a new social world of practice that is certainly different from the classroom. This "new" ethnographic approach allows the reader to better understand the learning experiences of the student and, in the process, to see how certain data emerged that either supported the theoretical framework or not. Either way, the data that emerged from the students through interviews or observations began to connect to the research questions. In Chapter 5, the data analysis was further expounded upon and interpreted to become the findings in this study.

The interviews and field note data were transcribed on an ongoing basis during the study. In order to ensure the accuracy of the transcriptions, I compared the transcriptions to my audio recordings and to my field notes. It was also helpful to review my data in and of itself so that I could reflect on it, clarify it in my mind, or even adjust my fieldwork. Once I reviewed the original data sources and the corresponding transcriptions, I prepared to download those files into the software program I had chosen, The Ethnograph (version 6). I chose this program for several reasons: It had been used by a number of ethnographers for many years including two of my advisors, the cost was affordable, and the program was user-friendly so that I could master the fundamentals in a short period of time.

### **Coding**

After I created a file for my data and downloaded all of the transcriptions, I then created my preliminary version of a coding model, which was built on multiple descriptive codes that were associated to a certain number of theoretical or parent codes.



The coding model that I used in this study moved from a more abstract understanding at higher levels, which were analytical and theoretical in nature, to a low level of descriptive consideration. In the lower levels, the data were coded based on descriptive and categorical activities and discussions obtained during observations and interviews using task analysis (Bailey et al., 2004). The higher-level coding schemas were based on the analytical and abstract concepts derived from situated learning theory (Auerbach & Silverstein, 2003). I then begin to review each data set. First, I reviewed every interview followed by every day's field notes. I coded each data set using features in the software so that all relevant data had one or more codes attached to it.

The descriptive codes had been developed to highlight certain activities in the data that supported the factors that have been identified, and helped inform this study. There are five factors, and they emerged based on several factors. First, since situated learning theory serves as the theoretical framework in this research, the factors relate to important foundations on which the theory has been built. In this case the coding process has been a highly deductive one since the theory served as the framework.

The five factors were:

1. identity,
2. participation,
3. practitioners,
4. context, and
5. content.

Each factor was useful as a lens for purposes of analysis as follows:

1. Both the personal identity of the student as an individual, or the social identity of the student co-constructed with the members of the practice, shaped the process.
2. The participation of the student, which was encouraged or hindered by multiple factors, was necessary for discovering different forms of learning.
3. The practitioners, who served as gatekeepers and facilitated the learning process, used various teaching approaches to capture the identities and actions of the participants.
4. The context of the practice environment, which were the objects or the circumstances that were always present, had the potential to facilitate learning about the practice.
5. Content, of the kinds of knowledge being encountered and used in context, is an important part of the learning process in medicine and pharmacy.

These five factors were used as the analytical codes from which corresponding descriptive codes were developed and used to categorize the data. After multiple readings of the interview transcripts and observation field notes, I arrived at a long list of potential descriptive codes. After reviewing this list with my advisor, I developed the final list. In each instance, these descriptive codes were connected back to one of the five factors and identified the data that were significant in the study. In some cases a descriptive code was used infrequently but in other situations a code was used often. In the next section I have provided some examples of these descriptive codes along with corresponding data.

The next point that needs to be made is the fact that these five factors manifested themselves during the pilot study that was undertaken in early 2009. Although the analysis and findings were not fully developed during the pilot study, it was apparent that the five factors were present as important elements. Likewise, as data were analyzed during and after this study, those very same factors served as clarifying lenses as I tried to obtain insights about the various activities as reflected in the observations, interviews, and data analysis.

Since the theoretical framework used in this study was situated learning theory (Lave & Wenger, 1991), there were certain factors within the theory that became analytical guides for the data analysis. As I spent time in the field and also as I began to look at the data, I noticed that certain factors of the theory would be very useful in my analysis. At the same time, as I will discuss, the model did not yield a good fit with the theory.

### **Identity.**

As I first discussed in Chapter 2, personal identity assumed a critical role in my interviews with the students. This does not diminish the importance that social identity (Lave & Wenger, 1991; Wenger, 1998) played as the student and preceptor came together in practice. What I learned, however, was that certain components of a student's identity affected his or her ability to engage in the learning process. The key descriptive codes that I developed to locate personal identity in the data are as follows and are listed in no particular order:

1. *Self-assess*: Students used their own individual ability to make determinations about their pre-existing knowledge level given a certain assignment. This in turn allowed them to better prepare for the required work.
2. *Goals*: Student all had goals, whether for the task at hand or for the day's assignments. They often made learning decisions based on these situated goals.
3. *Learning preference*: Students had stated in their interviews that they preferred certain learning processes to others. During the interviews they revealed which learning processes they had preferred while they were still in the classroom and how that changed when they were in the field. This preference varied among the students and was a motivating factor for them.
4. *Self-direct*: Students came to the field with varying abilities or motivations to be self-directed that affected their participation. Often self-direction was necessary if they were required to work and learn independently. Sometimes self-direction was a "sink or swim" matter because the preceptor was not engaged and students still needed to progress in their learning.
5. *Metacognition*: After certain experiences students often realized how much they really knew—or didn't know—about a situation. This was usually a positive process because students either were pleased that they knew the answer when an experience occurred or, if they didn't know it, it motivated them to learn about the matter.
6. *Expectation*: Students had certain expectations as they entered in the field. Some of this was related to their goals, but a large part of it was related to what they

were told back on campus in terms of what to expect during rotations concerning the progress of their learning. Conflicts sometimes arose concerning expectations that affected learning.

7. *Previous experience*: All students had previous, limited introductory experience in the field, which was a requirement. Also, as students moved from one advanced rotation to the next, they were able to build on each one. Certain students seemed to perform tasks, make decisions, or understand a process better due to their previous experience. Students were highly motivated when they were able to use their previous experience to connect to a current one.

### **Participation.**

Situated learning theory emphasized the fact that students had to move from peripheral to full participation and that this participation had to be legitimate (Lave & Wenger, 1991). That aspect of the theory was also important in this study. The following descriptive codes helped to identify those factors that facilitated or inhibited participation.

1. *Problem-solve*: Students were expected to possess knowledge-in-use, to apply it to a situation, and to produce a plan or recommendation. This required real participation by the student.
2. *Novice*: When students first entered a new rotation, the preceptors would often supervise the student closely and provide additional support. Participation may have been genuine but was still limited.

3. *Obstacle*: Sometimes a student's ability to participate was impacted due to policies that limited student involvement or due to the actions of the preceptor. These rarely could be overcome and had an adverse effect on learning.
4. *Access*: The ability to see patients, use electronic records, or move about freely in the clinical area all were factors that affected participation. If access was a problem, a solution could usually be worked out.
5. *Team activity*: These events required that students work together among themselves or with one or more practitioners. They were usually formalized and students benefited.
6. *Student-as-teacher*: It is often said that the best way to learn a topic is to teach it. This was the case in the field, where preceptors regularly asked students to inform the group about something that they had learned. Occasionally the teaching occurred in an unplanned manner such as a student interacting in a group who had insights that could be shared with others.
7. *Contribution*: The highlight of participation occurred when a student was able to contribute information or a resource that the practice could then use for the patient. Often this type of event moved the student toward being a member of that practice for at least the duration of the rotation.
8. *Degree of participation (peripheral to full)*: During observations over the course of a rotation, progress in the learning processes were noted when students moved from limited participation to very active participation.

### **Practice and practitioners.**

The instructors had multiple roles. First, they were employees of the site and were expected to care for patients. They did this as individuals and collectively as a practice. Second, they served as clinical instructors and were the teachers for the students on rotation. Part of this teaching role was to be a gatekeeper so that the interests of all parties at the site could be maintained.

1. *Question-and-answer (Q&A)*: This is the most common technique that was used. Diagnosis and treatment of patients are done by obtaining information, including or excluding multiple possibilities, and eliciting the opinions of others including the patient.
2. *Demonstrate*: Experts usually demonstrated an activity so that newcomers could observe and learn. If it was a common activity and would be useful to the learner, then the learner may have had the opportunity to try the activity.
3. *Shadow and observe*: This approach is useful for introducing students to an environment or situation. They may progress and participate more fully in subsequent rounds if applicable (such as interviewing a patient), or it may be solely an observation that will enrich the experience (such as observing surgery).
4. *Feedback*: Preceptors provided feedback to the students on a regular basis. It occurred during specific activities, informally when the preceptor observed a situation, or if the student asked for help. It also occurred formally during grading since these rotations were considered "courses" back at the academic institution and students received grades and academic credit.

5. *Giving advice*: Students in a large site, such as a hospital, were often placed in different areas with different instructors in the course of the day to take advantage of all of the learning opportunities. However, the lead preceptor was directly responsible for that student. The student spent a majority of the time with that preceptor, not only to construct knowledge and sharpen skills but also to develop affective learning such as professionalism.
6. *Novice/expert activity*: Students were generally well-prepared by the academic institution to learn on rotations. However, many times the learning activity was so foreign to the student that they truly were novices and were totally dependent on their preceptors (the experts) to be introduced to a topic.

**Context.**

1. *Tasks*: The daily tasks that were designed to both care for patients and provide a teaching venue played an important role in the development of the students.
2. *Routines*: These were tasks or activities that were repetitious or aggregates and often were scheduled.
3. *Tools*: The rotation site contained a number of tools that the students could use that contributed to the learning process. Besides computers and medical charts, there were diagnostic tools such as blood pressure kits and protective items such as gloves, masks, and gowns. Students also used their personal digital assistants (PDAs), which contained downloaded reference materials.



4. *Areas of the environment:* Specific sections or areas of the site that served as a support system for students. Since these sites were both medical and teaching facilities, much of the physical layout was set up to support the learning process. Culturally, staff at all levels deferred to those students and preceptors who were engaged in learning activities.
5. *Symbols:* The site contained many symbols that identified members of the medical/learning culture. They included white coats, name badges, and names and titles embroidered onto the white coats. Tools such as stereoscopes and charts also signified who the members of the practice were. Students initially may have been overwhelmed by symbols but eventually adapted to them and adopted them.
6. *Patients and patient cases:* In this practice environment, the ultimate learning process is to be involved in a direct patient encounter. Students learned that resources such as a medical record, or processes such as diagnosis or treatment plan were really about taking care of another person. Students attempted to problem-solve and advance their learning by using patient cases.

**Content.**

1. *Recall:* Students were required to recall class-acquired drug information on a regular basis when requested by a preceptor. Once recalled, this information was shaped and applied to the particular clinical setting.

2. *Didactics*: Students talked among themselves and compared their classroom or didactic learning with their experiential learning. Often the didactic learning was relevant to them. Other times it was not useful.
3. *Memorization/facts*: Students had previously relied on memorization when learning about drugs and drug therapy in the classroom. However, preceptors were less concerned about students memorizing any knowledge-in-use and more concerned about students developing a framework on how to use knowledge-in-practice.
4. *Grades*: Previously the goal of coursework was to obtain good grades. Students on rotation now understood that that was not the goal. Additionally, the techniques that they had used previously to obtain good grades in coursework would not necessarily help them succeed in the field.
5. *Knowledge-base*: Students on rotation were challenged each day to think on their feet. There were many factors that influenced that, however, and a student's knowledge base was always the starting point. A knowledge base included specific facts and skill level as well as a general understanding of pharmacy practice and professional behavior. This content derived from the classroom and became contextualized during the rotation or was situated within the context of the site.

Finally, it is important to note that these five factors that served as analytical codes and the corresponding descriptive codes accurately reflect the cultures and

workflow of the typical clinical rotation within a medical model (ACPE, 2007). I also have encountered a similar structure in my own practice such as the pedagogy of the preceptor, participation of the student, and context of the rotation site. For all of these reasons, the five factors or factors became the framework that I selected to develop the key descriptive codes that allowed me to identify relevant data and perform the subsequent analysis and interpretation that ultimately led to my findings. In the following section I provide select data examples of the five parent codes and many of their corresponding descriptive codes.

In this first data example, I labeled the data with the descriptive code of *expectation*, which has the parent code of *identity*: "I don't know what I'm allowed to do. I would think I'd since I'm almost a pharmacist I should be able to do some stuff."

Here the student claims that she has not been invited into the practice by anyone to learn, and that she has concerns about how that will impact her learning and ultimately her development as a practitioner.

In the next example, still under the parent code of *identity*, I have labeled the data with the descriptive code of *learning preference* since her preference is to be engaged in meaningful activities and not to be a passive, casual observer as was the case here. The student is frustrated here since the activities, or lack of activities, are not contributing to her development as a pharmacist and, more importantly, none of the practitioners seem interested in her.

I was just feeling completely useless not having a role so much and [with] what they were teaching, just because a lot of it was focused more towards the medical

students or residents and not so much on pharmacy. It just seemed like it was very focused on the medical part of how a doctor would take care of it versus the drug or what the drug does and the facts. So I feel like it was a little bit unbalanced and [there was] no role for pharmacy students.

Under the parent code of *participation*, the next two excerpts represent data categorized by the descriptive codes of *student-as-teacher* and *contribution*, respectively. As will be discussed in Chapter 4, participation is a key determinant of student success on rotation. In this first example the students are learning because they are able to "teach" what each of them knows so that the level of participation is effective and serves to motivate the students further:

I think we all learn from Dr. [a preceptor] and from each other. Some of us will know things that others don't, but it's definitely like hearing a question and someone says the answer—I might say it right after them just because I hear them say it and I'm like "oh yeah," or they'll say something that will spark [the answer].

In this second data example, the student complains that his participation is limited and that he may not be able to contribute to the practice:

I don't really think they're going to utilize me too much. I mean, they were talking about doses and things and they didn't refer any questions our way, so my guess is it'll probably be a lot like last month—there won't really be a whole lot to do on rounds, it'll be whatever I make out of it.

The parent code of *practitioners* is discussed next. The two corresponding descriptive codes that are highlighted are *pedagogy* and *question and answer (Q&A)*,

respectively. In the first instance a student is discussing the specific feedback technique that her preceptor is using and how she responds to that approach:

Here you get feedback instantly and if I said something wrong then my preceptor's going to [say] 'That's wrong.' ... I don't mind that—I mean, I take things like that pretty well. [I'll ask,] 'So, well, how am I wrong?' and then she'll explain it.

The next example is of a student responding to a Q&A session, which is frequently used as a teaching approach in the clinical setting:

I would have had [the answer] ... if there was a question—I already knew the lowest dose available of Singular [an asthma medication]. But they wanted to know what age group you could go down to. But I was pretty confident [of] the answer I gave—I said "Twelve months." But obviously I would have wanted to look that up. I'm not that confident with my answers and I think we actually have to look things up before [saying it out loud], it's like one of the policies here.

Also I have included two data examples with their corresponding descriptive codes that fall under the parent or analytical code of *context*. In the first example the descriptor is the general *environment*, which refers to experiences that are occurring around the clinical area. This is contrasted with the second example of *patient case*, which is a much more specific occurrence in the clinical environment and is an important source of information and of learning for both newcomers and old-timers. First, with respect to *environment*, we see a student starting to develop familiarity with the practice

because of the time spent at the site although she does complain it still is not enough time.

I definitely—I'm starting to get the hang of it now, but I wish that it was a little longer because I feel like four weeks [is] a little short. I mean, there's like so much to see and just as you're starting to get used to something and then I have to go to the next one. For me I personally it takes a while for me to adjust to new things, so....

The second data example was coded as *patient case* because as a properly used tool it leads to significant learning about the practice. The patient case is the core learning tool for everyone, every day, at all levels of the practice.

I kind of just hope to, I mean—it's tough to just sit around and think about things you want to learn about, so I think... I like just seeing the various patients and then picking the one that's interesting to me to kind of learn about it.

*Content* serves as the final parent and analytical code. Here also I have selected two descriptive codes and their corresponding data as examples of the coding schema. They include classroom *recall* and general *didactics* as differentiated from experiential learning. The pharmacy curriculum is very structured and, generally speaking, the material is covered in class, simulated in the lab, and then practiced in a clinical environment. Students are expected to use or "recall" what they have previously learned and apply it in the practice. Also it is during their rotations that it is hoped that they make the shift from highly theoretical learning to more practical learning. The two data examples below reflect this process. In the first case we see an important example where

a student talks about "recall" as an important activity but at the same time realizes that the goal of learning in practice is no longer about obtaining a good grade:

Well, I really want to... gain the confidence that maybe somewhere... in my head I've actually retained stuff from school. That's a really big concern for me—is that what if I just studied just to get the grade and I didn't [learn] to learn? That really worries me. So I hope to learn a lot actually on rotations and be able to [use it].

And here a student reflects on past classroom experiences or "didactics" and compares that to her experiential activity: "You're able to ask questions that you wouldn't ask in the classroom. I just think it's a better learning experience environment."

After completing this long process of categorizing the data with these codes, I could now recall the coded data by using commands in the software. This software allowed me to organize the data into categories that I felt were relevant. More importantly, as I continued to analyze and eventually interpret the data, the software program allowed me to perform various search functions where all the data that contained a certain code or sets of codes could be retrieved and listed.

I began to realize that I had very rich data that helped me to think about situated learning theory and began to answer my research questions. As I continued to review the data I realized that certain themes with strong supporting data emerged repeatedly. Sometimes the data aligned with the theoretical framework and sometimes it appeared to contradict parts of the theory. Likewise, the data sometimes began to answer my research question and other times just produced more questions. The process was a long and arduous one but necessary to ensure quality and trustworthiness for my study. I estimated

that I spent about eight months in this phase including the time I spent on the preliminary analysis while the study was still ongoing.

Since situated learning was the theoretical framework, my research and interview questions and coding model were designed in a deductive manner. However, it was also important to follow the data wherever it went even if it did not fit the plan. These outcomes have become the basis of my findings and have important implications not just for practice and future research but also for how we can rethink situated learning theory.

### **IRB and Site Requirements**

In a study involving multiple medical sites, the IRB process was very challenging. IRB approvals were required by the degree-granting university, the host university, and my own academic institution where I was employed since I held a faculty appointment there. Each of the five rotation sites also required approval from its own IRB. I contacted all of these different boards well in advance and submitted to their various requests which included CITI training (Collaborative Institutional Training Initiative), which is a Web-based, standardized testing service required by many institutions as a precondition of IRB approval.

Fortunately in my case, all seven IRBs involved were affiliated with the CITI program. My degree-granting institution was the first required IRB approval and where I first completed CITI training. The training sessions consisted of various modules that were germane to the type of research that I was proposing. However, its IRB requirement differed from other institutions in terms of which modules were applicable so that on several occasions I had to complete additional modules in order to move forward.



Each IRB required that I complete its application and attach a summary of the proposed research instruments such as the interview protocol, a copy of my participant recruitment letter, and any informed consent forms that may have been approved by the original IRB. One IRB insisted that I use its informed consent so as I enrolled the students I asked them to sign both versions. Only one IRB required a separate consent form for the audio recording of the interviews (see Appendix B).

In addition to satisfying the IRB requirements, most of the institutions required that I produce medical records documenting my immunization history; in some cases I received additional immunization. I also submitted to criminal background checks and training on the Health Insurance Portability and Accountability Act (HIPAA, 1996), which is a federal statute that establishes procedures for protecting the private medical information of the public. These were the many requirements that I fulfilled before I was allowed to enter the clinical sites.

### **My Role as a Researcher**

As an educator and pharmacist who has focused on experiential education, I have commonalities with the people who participated in the study. However, researchers walk a fine line here since I was never really a full member of the study site. Instead, I focused on how to "not be me" in a location that is "not mine" with cultural traditions that "are not known" or that "I may not fully understand" (Schensul et al., 1999, p. 72). I also was careful to maintain my role as a researcher. It is not uncommon for participants from the community to reach out to the fieldworkers for assistance, which may compromise the relationship and therefore the data. On more than one occasion I was asked to participate

in a way that I felt was a conflict so I had to decline and explain why. In each case the person involved understood and agreed with my decision.

This environment and the activities of the participants were very familiar to me because I serve as a faculty-administrator in a pharmacy experiential program at another institution. For this reason, it was necessary to withhold "stereotypes, opinions, and judgments" (Schensul et al., 1999, p. 72) from the data collection since as the researcher, I was serving as an instrument of data collection. Ethnographers use critical self-reflection in order to maintain their role as an unbiased tool of data collection. They must constantly reflect on their role in the current research process as well as on their own experiences and their view of the world. I also relied on ongoing critical reflection during the course of the study.

Another ethical consideration was that it was important for me to "make the familiar strange and the strange familiar" (Sunstein & Chiseri-Strater, 1997, p. 8). Since I have been involved in this type of practice for many years, I continuously focused on my observations and interviews for important data that I might have taken for granted and could have overlooked but which might be important to the reader and to the study. Equally as important, I wrote my findings in a way that clarified the jargon and technical terms used in the field so that the readers would be able to understand and appreciate the narrative and findings.

### **Quality of the Data**

In the field of qualitative research three perspectives exist about how to determine the quality of the research. On one side, a number of researchers believe that qualitative

data should be judged by many of the same means as quantitative research. On the other end, there are those who feel that there should be no standard requirement. The rest of the field is located somewhere between those two views (Rolfe, 2006). In this study, I have taken the last view and have used a number of predetermined criteria to ensure the quality of my data during the entire cycle of my study.

A useful model that I relied upon suggests the use of two or more of eight different procedures that have been well-established over time. I decided to employ four of those eight techniques in my study. The four approaches that I selected were: (a) prolonged engagement and persistent observation, (b) triangulation, (c) clarifying researcher bias, and (d) use of rich, thick experiences (Creswell, 2006).

The first approach—time and persistence in the field—ensured that I learn the technical processes and the culture of the practice, build rapport with the participants, and check the accuracy of the data (Lincoln & Guba, 1985; Merriam, 1988). This commitment allowed me to focus on what was important in my study and crucial in an ethnographic study. It has been said that "working with people day in and day out, for long periods of time, is what gives ethnographic research its validity and vitality" (Fetterman, 1989, p. 46).

For my second approach in ensuring quality, I relied on "triangulation" (Lincoln & Guba, 1985; Merriam, 1988; Patton, 1990). My understanding of the data improved since I utilized interviews, observation, and document analysis in my data gathering. Using multiple gathering techniques increased my level of trust in the data. I also included the clinical instructors in my interviews. As a result of all of these steps, I was

able to compare my data from all of these sources, and I developed a high level of confidence in the initial analysis and in the subsequent findings.

The third approach required that I clarify my biases (Merriam, 1988). I understood my potential biases and position in this research and how they could affect the outcomes. I reflected on these biases while I was in the field, and disclosed this potential issue to the reader as I provided my interpretation of the data.

The fourth and final step that I took to build quality into my study was the use of rich and thick descriptions (Geertz, 1973; Lincoln & Guba, 1985; Merriam, 1988). Many examples of these descriptions occur throughout Chapter 4 and Chapter 5 and allow readers to not only be "present" in this environment but also to stimulate them to think about how certain learning activities in this setting could be "transferred" to another setting. This is a goal in qualitative research (Creswell, 2006), and it should not be confused with "generalizability," which is a quantitative outcome. I believe that my narrative ensures credibility to this study because it allows the "voices" of the four students to be heard.

### **Delimitations**

This research was designed with a particular scope. The qualitative study confined itself to observing, interviewing, and analyzing the documents of a select number of individual student participants. Sampling was purposeful and criterion-based and limited to a narrow range of sampling strategies (Moustakas, 1994). Criterion-based sampling was used because it ensured that all the participants met the same criterion; i.e., were involved in the same type of experience.

## **Limitations**

Certain limitations existed within this study. It is possible that the results of this "human sciences" interpretative study may not be valued by clinical faculty or those from the natural sciences. The participants were purposefully selected specifically by the researcher, and therefore the results are not generalizable to other contexts, situations, or other health professions.

The research focused on pharmacy experiential education and the profession of pharmacy. The participants were pharmacy students, the lead preceptors were pharmacists, and the clinical rotations were based on a pharmacy program. As such, I cannot make the same claims about other related health and medical professions and their experiential components.

Another limitation of this study concerns the sample size of four students. The sample size was decided upon based on the fact that this qualitative study required interviews, observation, and document analysis, all of which required a considerable investment in time and effort. Since this was an interpretative study, my findings can be open to disagreement or alternative interpretations by other researchers.

Finally, given my inexperience both as a qualitative researcher in general and specifically in the use of ethnographic methods, my interactions with the participants, the data analysis, and ultimately my interpretation of that data all may have been affected.

## **Summary**

This chapter reviewed the study's chosen methodology and methods. A qualitative approach was used to help us understand how pharmacy students construct knowledge

while on their clinical rotations. Ethnography was chosen as the specific qualitative methodology because the theoretical framework used in this study is rooted in the culture of practice. Observation, a method unique to ethnography, provided an opportunity to fully study the activities and relationships that are critical for the students in their knowledge-construction.

This chapter also covered the selection process of the four students and the clinical sites as well as a review of the IRB processes. The research design and data collection methods also were explained in detail. With regard to issues pertaining to trustworthiness and quality, I took a number of steps that have been used by other researchers previously to ensure the credibility of my data collection, analysis, and interpretation. I have also been forthcoming with what I believe are the limits of this study.

In the next two chapters I present my data analysis and interpretation; in Chapter 4 I provide a narrative of the learning experiences of the four participants. Since my chosen methodology is ethnography, I felt that it was important to tell their stories. In addition to highlighting their identity and levels of participation in practice, their narratives serve as a vehicle where important data emerged. In Chapter 5, I discuss the analysis of my data and my findings in the traditional manner.

## CHAPTER 4

### NARRATIVE: THE STORY OF FOUR STUDENTS

Why include a narrative as part of this study? In Chapter 3 I stated that I chose ethnography because I was interested in studying a culture. Specifically, in this case, the focus was a culture of learning in a unique social environment. My approach was to immerse myself in four students' experience and to learn about how they learned on rotation. Consistent with my constructivist view, the students were able to teach me about experiential learning. Therefore, by using their voices in this narrative, I tell the story of their learning as well as mine.

In professional programs such as pharmacy we have begun to support the notion that our approach as faculty should be student-centered. These particular students were less than a year away from graduating, obtaining licensure, and becoming practitioners. Personally it was important to me to understand who they were, to hear their voices, and to learn from them. This approach is also consistent with the new approaches to writing ethnography.

According to some of the current thinking in the field of ethnography, the point of using this methodology is to use field notes and research writing to tell a story. In my case, the writing of this story is also the writing about a culture (health care providers)

and writing about the members of that culture. Yet in qualitative research there must be a balance between representing the members of the cultural group participating in the study and the analysis and interpretation of the researcher who is an outsider. In this study, I am writing about my own personal experiences and the personal experiences of the student participants. (Goodall, 2000).

As the researcher, I have significantly reflected on my fieldwork and, more importantly, I have become more reflexive, which is defined as "the process of personally and academically reflecting on lived experiences in ways that reveal the deep connections between the writer and his subject" (Goodall, 2000, p. 137). In this case, I felt it was necessary to let the four students tell their stories because it was important for the readers to know them. However, these are not just narratives; the students are in way, co-researchers with me, and they offered significant data that helped me address the research questions. In the following section you will meet and learn about each student and their learning experiences. Their stories and the data that emerge form the basis for the following chapter where the data was analyzed and interpreted.

### **The Story of Ned**

Ned (pseudonym) is a male college student in his 20s enrolled in a doctor of pharmacy (Pharm.D.) program in the northeastern part of the country. (Pharmacists no longer receive a baccalaureate degree, previously a five-year program for pharmacy; instead the national standard is the six-year doctor of pharmacy [Pharm.D.] degree.) I met Ned at the beginning of his first rotation in July 2009 at a teaching hospital where he had been assigned along with four other students. Ned was beginning his final year of the six-year



program. This was the first of nine rotations required to complete his clinical training prior to graduation. Each rotation was a month long, and was part of a curriculum designed to provide students with experiences in various practice settings and specialties.

Pharm.D. students spend their last year of a six-year curriculum on rotations at various practice sites. Ned opted to take the first rotation block off while other students started their rotations right away. As a result, the other students in his current group already had completed a rotation. Ned expressed a slight concern since this was his first rotation experience and his fellow students had a previous practice experience that they could benefit from.

Based on the interviews that I had with Ned and the observations that I made of him, Ned acted mature and self-assured. For instance, he set goals for himself in addition to those that were required for that particular rotation, and he was eager to start. Ned stated from the beginning that he was considering postgraduate training, such as a residency, which requires spending an intense year in a specialized clinical environment after graduation from a Pharm.D. program.

Before discussing Ned's identity it is important to talk about his background and his previous experiences. Ned's background may have helped inform the present situation and may even assist in providing some future insight about him. How did Ned choose his present path? In the following excerpt we learn about some of the factors that steered Ned towards pursuing a career as a health care professional.

The things that influenced me, well, neither of my parents were college-educated so the money was always a stress. I mean, the job security wasn't there. So I think

that was a huge thing for me. I didn't want to—if I switched a job I wanted it to be on my terms not cutbacks or somebody else's. So that was a big part of it. And I was just interested in the sciences but I didn't really want to spend my entire youth in school. I knew I wanted to do something in health care but a doctor didn't really appeal to me. Then I researched [becoming] a physician's assistant—that was kind of like a second career choice, a lot of, like, EMTs or nurses then became PAs. So I think pharmacy was what I originally [started] with.

I just figured I could provide for a family pretty comfortably if I was a pharmacist. It was something that I was could see myself being interested in doing and just, you know, you could pretty much do anything with it. I wasn't exactly sure what I wanted to do. So if I got a Pharm.D. and then I wanted to do something [in] business, I could do business. If I wanted to do retail where I dealt with [an] outpatient sort of population all the time, that would be good. If I wanted do inpatient that was fine. If I wanted to do research—you know, I wasn't really sure.

Although Ned is unsure of his exact future role within the profession, he is willing to explore various options. According to Ned, the specific learning needed to clarify his future interests and to succeed in the current rotation are not fully clear to him until he participates in that experience. Ned is very goal-oriented and is weighing his career options. This is important to who Ned is—not just as a person but also as a learner, since his career goals also lead him to reflect on what he wishes to focus on during each rotation.

Well, probably one of the things I was excited about when I got in, when I decided I was going to go to Pharmacy U. [fictitious name] was the research component just because it added another opportunity in pharmacy. But I did a research project under a professor at Pharmacy U. for—I could only do a semester. It was pretty boring. I didn't feel like it was very well-controlled. So I'm sure there would be some type of research I'd like to do. Just that wasn't it. I don't know what I would want to do. It was more history-related research and I think that was probably part of the reason it didn't really interest me.

Maybe if I was working on something interesting I would enjoy it more. I know that a lot of residency programs require that you get published at some point during... your rotation and the residency. So I guess I'll have to give it another try. Hopefully that time, since I will be picking the topic or I hope to pick the topic, it will be more interesting. If it's not at that point then I'll know that research isn't going to be for me.

Part of Ned's identity is to connect his career goals with whatever activity he is involved with on his rotations. He is able to have short-term goals for what is required for his daily tasks and routines but also has the ability to think globally and over the long term. He understands how the various components of his rotation fit into the immediate learning goals (both his and that of the program) as well as how any steps or directions he may focus on could potentially help him with other career opportunities.

So I'm going to the ASHP [a national professional organization for pharmacy] convention in Las Vegas and hopefully come up with five solid picks for a

residency. That's really what I want to do. I think this particular rotation, it's kind of easy but it's also going to be one of the more important ones. It's that ultimately I want to do something clinically relevant, or be in a hospital, so this is probably an important one to do well on. I'm hoping that by the end of that general year of the residency, for sure, I'll be comfortable. But I feel like I'm going to be learning well beyond that, and in terms of graduation, I think I'll have an adequate skill set and hopefully above-average to tackle a residency. It's kind of hard to tell right now because a lot of it's refresher and not so much new information, and I think [that] probably has a lot to do with it being a general medicine rotation. I think if I was doing like a specialized one where I was tackling new drugs and stuff, I think that I'd probably have a better answer.

Ned's story revolves around certain important dimensions that he identified and that I found to be true based on many hours of field observation. These dimensions include: (a) Ned's personal identity, goals, and learning preferences, (b) his level of participation, (c) the daily interactions with colleagues and preceptors (clinical instructors), (d) his daily tasks, routines, and the tools he uses, and (e) how he uses content- and context-based knowledge. These particular dimensions are not found as separate, linear occurrences but are interrelated and integrated themes that emerge during Ned's experiences. Although these dimensions can be found in other students, this story is indeed the story of Ned—but more importantly, for purposes of this study, it is the story of Ned's learning. The two stories, however, are inseparable—not just due to the fact that his learning is situated in a structured, purposeful environment but also due to the fact

that socially, Ned's identity plays a significant role in how he negotiates his learning and in the outcomes of the journey. Both will play a major role in how Ned develops as a practitioner and person.

One unique aspect of Ned's character is that he always fully commits to participating in whatever rotation activity may be occurring. During these sessions, I observed Ned to assume many roles. Predictable as a student, Ned was sometimes tentative; nonetheless he moved in and out of these roles without much effort. Some of the roles I observed him assume are group facilitator, student-as-teacher, novice, jokester, technical expert, "human reference book," and "human calculator."

Ned is uninhibited and is not afraid to make an educated guess when questions are thrown out to the group. He has no problem when he gives a wrong answer; he just jumps back in and reengages. Ned explains his reaction to me during an interview about one such episode: "I probably won't get that question wrong again, at least not anytime soon."

The rapid question-and-answer routines that are common in this environment as a teaching and learning method serve as a catalyst for Ned. Other students that I have observed are hesitant during these sessions and, if they do answer incorrectly, are not eager to jump back in right away. The following excerpt illustrates a rapid-fire exchange in which Ned appears to thrive:

Ned discusses intravenous (IV) antibiotic dose.

Preceptor: "What?"

Second student: "Isn't that in range?"

Preceptor: "Not really." Looks it up.

Ned and preceptor continue to discuss. He refers to computer chart again to calculate a new dose, walks through an easy calculation method, now checks actual dose.

Preceptor points out that she highlighted a note in purple for the medical resident and says, "They are always forgetting."

Ned and preceptor continue to calculate IV dose.

Preceptor comes up with answer: "It's a little low."

Ned: "That may be good because there is some renal impairment."

Preceptor raises her voice: "There's renal impairment?"

This is another exchange with a different preceptor and other students:

Preceptor to group of students: "What is the plan?"

Ned: "She should have a diuretic."

Another student asks about dialysis and Ned clarifies.

Preceptor: "Anything else?"

Ned: "If she doesn't have *C. diff.* [*Clostridium difficile*, a type of bacteria], she will!"

Group laughs.

Preceptor: "Do you find *C. diff.* in gram stain?"

Ned: "No but looking for flora."

Questions from students. Ned goes into a discussion of infectious disease therapy for everyone's benefit.

A final example with the same group:

Preceptor: "What is patient's albumin?"

Student: "One. Normal is around 4."

Ned: "Patient level is 3.2."

Preceptor: "Why is corrected calcium important?"

Student 1 gives answer.

Preceptor talks about dangers of calcium phosphate precipitate levels greater than 55, and this patient's are over 90.

Ned: "Then they don't need more calcium."

Preceptor: "I wouldn't" and says Ned is correct in hesitating to support calcium therapy.

Student 1: "Why did she get it?"

Ned: "To lower phosphate level."

Preceptor: "In this case—have to be careful."

Student 2: "Palm Pilot says contraindicated in hypercalcemia [elevated calcium]."

Ned: "In TPN [type of intravenous solution] worry about binding."

Student 1: "How about aluminum?"

Preceptor: "Could but isn't best choice."

Ned: "[Causes] constipation."

While talking with Ned it became apparent that his learning style is well-developed. Prior to his final year, during the didactic portion of the curriculum, Ned states that he avoided relying solely on memorization. Instead he would learn key

components of the classroom material and later would fill in the gaps as the situation required.

I'm not one that pulls out 500 index cards and, like, has a mnemonic for everything... I try to understand it the best I can... [and] I usually am able to understand enough of it... I can usually find a simplistic answer somewhere on the internet to fill in the blanks.

Even when Ned is not in an "experiential situation" he demonstrates a tendency to put learning into context, unlike students who rely heavily on content-based learning: "One needs the ability to set goals for learning because... I wouldn't have any goals for the rotation if I didn't have questions. I think I would probably just be showing up, going through the motions."

This statement is quite insightful. Ned states that assigning someone an experience does not guarantee learning even if the specific activities have been well-planned. The most important factor is the quality of the tasks and assignments. Do they provide immediate opportunities for growth, and do they help build upon subsequent experiences (Dewey, 1938)? Ned knows instinctively that learning is an active process, an action step that has to be negotiated by a person in a social world. This finding is consistent with situated learning theory where "agent, activity, and the world mutually constitute each other" (Lave & Wenger, 1991, p. 33). Do students see that as solely the responsibility of the instructor, or is a meaningful and beneficial rotation a mutual responsibility between faculty and students? Ned addresses the need to negotiate learning opportunities throughout my discussions with him.



Ned continues to speak about various learning situations and is able to assess the opportunities for participation. Clearly, Ned sees a benefit from true participation. According to situated learning theory, participation is integral; this model requires "legitimate peripheral participation," which occurs when novices obtain knowledge and skills by being part of a practice that allows them to start at the periphery and move toward full practice. This level of participation allows them access to a number of practitioners and experts so that they can speak about relationships, activities, identities, and artifacts within that social system (Lave & Wenger, 1991). In the following excerpt Ned talks about how motivating it is to be allowed access into a practice and how this access enhances his learning.

I think it is kind of cool to see things we've talked about, to actually see them, put an image to them.... You know, the signs for... liver failure, cirrhosis, it's pretty evident to see an actual patient and it just kind of cements what you've already learned.

Students begin to learn the makeup of a practice by their participation in the daily tasks. Ned is able to learn about who is involved and what they do, and what the everyday work life is like. How do experts talk, walk, and work? He then is able to understand what learners are doing and what they need to know to become full participants. The primary teaching model in this clinical environment is the case study and problem-based learning. Students use their previous classroom knowledge along with some practice guidelines that they are given and are expected to evaluate the patient and make recommendations. The ensuing discussion with the preceptor and other students

leads to a student's development. Armed with this new layer of context-based learning, the student returns the next day and attempts to apply the framework in a new situation. This aspect of "processing" of what has been experienced allows novices to understand and learn how knowledge is used in that particular setting. This approach also provides students with a model for knowledge-use and problem-solving that can be adapted to other situations (Bailey et al., 2004).

The data suggest that Ned has the potential to move toward full participation. In the following passage one of his preceptors talks about his progress.

I had spoken with Ned earlier, at the midpoint, and Ned has done really well. He has strong background knowledge. He has a really good ability to talk to people. He has a really strong ability to use [the] context of different things.

Ned is also self-directed in his learning. He has his own goals, which he works into his learning. With the help of his preceptors he takes the requirements of the rotation and customizes them to meet his own needs.

She told us that what the requirements were for the course and she gave us a grading rubric so that you pretty much make your own grade based on each of those boxes you can check off. Which is nice to have. It's very clear-cut, [the] rotation['s] goals [and] objectives.

Being self-directed is an important part of Ned's personal identity. This point, which I have observed with each of the students, is not addressed in situated learning theory (Lave & Wenger, 1991). Identity in this study took on an even larger role than situated learning theory would predict. The experiential learning process must consider

the characteristics that make up the personal identity of the student and the social identity that emerges when a student engages in a community of practice. However consideration of the former facilitates the manifestation of the latter. As I discuss in detail in the next chapter, one of the pedagogical strategies that seems to ensure that students are engaged in the learning process is for the instructors to know and account for the uniqueness of each student. This is what differentiates experiential learning from some of the classroom settings where the learning process may not be so individualized. Furthermore, this consideration is necessary because no amount of didactic learning prepares a student for the dramatic transition that occurs when students move from the classroom to the rotation site.

The learning focus has changed for Ned since he finished his coursework. From his perspective, the goal of didactics was as much about receiving good grades as it was about learning. Now that he is on rotations, there is a shift in his own thinking. His concerns revolve around participation and learning. Ned envisions that experiential learning is the path he needs to take to become a specialist. He has the insight to challenge himself and chooses rotations that will be more challenging.

My coursework goals were to get a really good grade without killing yourself over it, basically. Rotations, from what I heard, you don't really get a bad grade unless you do a bad job. So it's really up to you as an individual to get as much out of it as you can. So I would say my goals for rotation would be just to make sure that I get enough out of it so I don't look like an idiot going into my

specialized rotations and that I get comfortable enough with this first rotation that at the first day of the next ones I'll be ready to go.

It's also hard... knowing that when selecting rotations you could pick the easiest rotations but you're not going to get anything out of it... You've just got to try to tell yourself it's only going to be nine of them so just make yourself do the work.

To facilitate his experiential learning, Ned relies, as do the other students, on drug information that he downloads into his handheld personal digital assistant (PDA). Preceptors often complain that these devices, although convenient, can only offer a snapshot in terms of answering a drug information question. Many times a pharmacy practitioner still has to cross-check several references and use critical thinking skills to integrate and resynthesize the information before making a recommendation. In the age of instant electronic information, students can be lulled into a false sense of security with these electronic wizards. Ned realizes that possibility and, when asked, puts it in perspective. He indicates that he utilizes the more comprehensive references routinely and only uses his PDA for a "quick" check. He also uses this tool to document some of his activities, thus adding important context to the drug information content.

If I was to give a dose I'd have to check Micromedex [drug reference system] pediatric dosing and then Lexicomp [also a drug reference system] pediatric dosing before I could say anything. And so I do use it for that, and I still use it for a lot of the same reasons I used last month because it's just a quick reference mechanism of action. Since we see outpatients, I don't like just standing there

with a notebook with a whole pile of patient information in front of me. So I'll make like little notes in my Palm Pilot like "room 622" ... or just easy stuff like that. So it's not just for looking up drugs like I used last month. I try to integrate it a little more just because it's more compact.

As mentioned previously, Ned often displays signs of self-directed learning. This manifests itself in the fact that his participation continues to move from the periphery into a level of fuller participation. For instance, he chooses topics that are of interest to him (and are still important to the practice). His criteria are less what he thinks his preceptor wants him to focus on or what would be easiest for him in terms of time and effort; as reflected in the next data examples, his criteria align with his personal goals and thus are connected to his emerging identity.

Although I have previously classified this identity as *personal* to differentiate from the *social* identity that students will experience in a community of practice, this personal identity was probably co-constructed with other persons in a previous social environment such as family, friends, classmates, or some social organization. From that standpoint, Lave and Wenger are correct about the nature of social identity.

I kind of just hope to—I mean, it's tough to just sit around and think about things you want to learn about. I like just seeing the various patients and then picking the one that's interesting to me to kind of learn about....

[We've already] gone over cellulitis [tissue inflammation]. So I think today I'll probably pick the MS [multiple sclerosis] patient just because the treatment guidelines for that disease would be of interest to me. While she's here

for bilateral DVTs [deep venous thrombosis; blood clot], I'm going to focus more on the MS treatment....

I wouldn't have any goals for this rotation if I didn't have questions. I think I would probably just be showing up, going through the motions, and then sitting around at 1 o'clock talking about everyone else's patients and just leaving. So I think that if I didn't have something stimulating my interest I wouldn't be getting a whole lot out of this.

In my observations of Ned, I routinely saw him recall previously learned content and apply it to a situation. Content takes on importance in professional programs like pharmacy. During coursework, content is often taught as a case study or by using problem-based learning approaches. In addition, during classroom lectures, faculty will connect content to their own practice using anecdotal examples, or frame situations in generic ways since they cannot divulge specifics due to patient confidentiality.

The important thing to note here is that content is taught with special emphasis and with "strings attached." What I mean by that is that in pharmacy schools, content is often (but not always) taught with examples of how it is applied in the clinical environment. This means that students possess content knowledge that was taught either in the abstract or in context. This affects how they use it in the field. Students like Ned are acculturated into approaching experiential learning with a particular knowledge base as a precursor. In addition, Ned would not be as welcome into a practice, and given a high degree of access, if he did not demonstrate that he had possession of the necessary content that could be recalled. This study underscores the fact that there are many

examples of content that can be categorized as "contextualized content." In the following passages, Ned recounts how he connects content to context. Is the content "contextualized" because of the way pharmacists and physicians are educated?

In really looking at it it's simpler than the adult formula for clearance, though the fact that I forgot it I can only attribute to, probably, that I learned it in one class out of a 16-week course and used it on one exam in a 16-week course. But I feel now it's in there.

Things that I'm weak at I would like to keep figuring. I like to memorize organisms and susceptibilities more when I do ID [infectious disease]. Also we didn't really have a very formal background in any HIV management so hopefully I'll get to cover those drugs a lot either as an assignments or patients or whatever—anything will be helpful. And hopefully just get even better at drug information because [my] time to finding an answer, like a reliable answer, has been reduced a lot in this. I would like to keep on that path to just pull things up and maybe even find some benefit. You know, the work[s] done already—I've saved a lot of the pdfs as files on an external hard drive—and it'd just be kind of cool to walk away with this huge database of the best of the best literature for a given disease state.

In a pediatric therapeutic class they just say "dosage-adjust renal impairment, these are the levels," but they differ from drug to drug so you're not really expected to memorize it. It's good that it's adjusting renal impairment but it's not really until you see a patient with renal impairment that you're like all

right, how bad are these kidneys, or how bad [is] this person's kidney function, and then it's a lot more applicable. [You realize] the reason he was underdosed is that they knew that he had renal insufficiency. What they miscalculated or maybe neglected was just the severity of the impairment, because if that had been taken into account then they would have seen that it wasn't bad enough to dose-adjust. That's a difference, I think, between reading bullet points about renal impairment and actually applying it to a patient.

I interviewed Ned again during the following month while on a different rotation. There is a marked difference in his thinking. After completing his previous, first rotation he no longer is unsure about what to expect and how he will perform. He now starts to compare the two experiences. Ned speaks as a participant who is actively engaged and no longer sits on the outside. He enjoys being part of a team and making real contributions. He relies less on content knowledge and more on the learning as it occurs in the environment with his fellow students and preceptors as they care for patients.

I definitely prefer it this way, yes, for a couple of reasons. Last month it seemed like you were going into rounds blindly. I mean, you're not really sure what patients you were going to have and therefore you couldn't really prepare with certain with recommendations, and not knowing everything about the patient until after the fact was a huge hindrance to figuring out [how to] contribute anything. So you felt kind of like you were in the way on rounds. Whereas here you feel like you're part of the team because you talk about the patient ahead of time, you're familiar with the patient, and then any pharmacologic issues that you may



have noticed or may not have noticed have been discussed. And you know that they're sound because there's five people talking about it at the same time. I think it makes for better medical rounds and a better learning experience, but it also contributes to the team, I think, which I like.

In his following rotation, which occurred in August, Ned reveals important insights into the formation of his identity as a newcomer. At this point content, context, identity, participation, and practice all converge and deliver the various levels of learning. In comparing his August rotation with his July experience, Ned states the following.

Everything is different. The people there are much friendlier, which I think makes you feel like less of a burden and more of a help. I don't mean just in terms of the preceptor or rounding team—in the hallways, it's not odd for someone to say "good morning."

Students begin to define their relationships in these rotations but they also become defined by their relationships and therefore learning involves the construction of both personal identity as well as social identity. This is why participation is so important. Learning, identity, and the social membership within a particular group act in unity.

After following Ned in the field for two separate rotations I was able to observe how these two forces of social practice and personal identity both facilitated and stood in the way of Ned's learning. The learning experiences of Ned at his practice sites seem to be located at the center of two distinct phenomena. On the one side one finds the "social practice" enterprise, which primarily concerns itself with the evolution and reproduction of practice. Inclusion of newcomers is a part of that mission. On the other side sits the

personal identity of the student. Two key expected results are development and transformation of that student. Until that personal identity is taken into consideration, it appears to be difficult for Ned to mutually co-construct a social identity with the practitioner.

Ned will need access to all of the practice activities and to the expert practitioners. These "experts" must share their information, resources, and opportunities in order for Ned to participate in all aspects of practice. This is crucial in any community of practice for its evolutionary processes and reproduction cycle and for the newcomer in terms of their development and identity. However, the road that connects these two destinations contains as many obstacles as it does opportunities.

### **The Story of Antonia**

The next student story is that of Antonia (fictional name). As was the case with Ned, Antonia is also a college student in her early 20s who is studying pharmacy and is on her clinical rotations. At the beginning of this study, I sat down with her for an interview to learn more about her. It was mid-July 2009, and she was just beginning the second of eight required rotations that would be completed before graduation.

As I asked about her background, it was immediately clear how education played an important role from the start of Antonia's upbringing. Here, she describes what was expected of her and her sister.

Education was always pretty much my parents' number-one priority for us. We didn't really have to do chores or we didn't get punished, because as long as our

grades were good my parents respected that that was their primary goals for us—  
to always get good grades and to go to college.

Antonia admits that even though this was a positive step in her development, it soon became a source of stress for her as well. For Antonia, receiving high grades became a priority to the point where it affected her social life.

Like I said, since my parents always focused on our education, grades became really important to me so I'd always be stressing out about my grades. That obviously made me study a lot and try to get the best grades that I possibly could. I didn't have much of a life. Starting at college it was all pretty much learning and trying to adjust to college.... I don't really remember studying for anything in high school because it was easy for me, but college was completely different and it was stuff I had to understand to get a good grade. That was always my main focus, was just getting a grade.

I asked Antonia what her favorite subjects back in high school were and her response was that she was interested in both the arts and the sciences. These interests led to her being involved in outside activities such as music. Family members, even those outside of her immediate circle, continued to influence her in her decisions.

It was an equal mix between math, chemistry, [which] I liked and the arts. I love photography, music obviously, art too. I took private lessons for piano. The actual reason I started playing the piano is I was jealous of a cousin who was two years younger and who played the piano so beautifully. I was like, "I need to do this." So she was my inspiration, my younger cousin.

Antonia values education and sees it as a path to success, and certainly it met with her parent's approval. She also shows a competitive side to her personality. She admits being jealous of her cousin's ability as a pianist and thus pursuing music herself. Also, by her own account, her eventual decision to pursue a Pharm.D. was due to her older sister's enrollment in pharmacy school. For Antonia, obtaining an education, family influences, and competitiveness help her choose a career path.

Pharmacy—purely one reason, being that I did not know what I wanted and my sister had started. She's a year older. She had just started college and she chose pharmacy, pre-pharmacy, so that's what I chose, and it kind of just stuck.

Although Antonia currently holds a part-time position in community pharmacy and is leaning in that direction, she still has not decided what area of pharmacy she will choose and is hoping that her year of clinical rotations will guide her: "Well, I do work retail right now. I'll probably start off working retail although I'm not sure that's what I want in life. I'm hoping to find something in these rotations that I'll really enjoy."

As the interview progressed I asked Antonia about her previous classroom experiences and how she now approached experiential learning. She confesses that her goals initially were to gain more confidence as she participated in the rotation and to try and utilize as much of her classroom knowledge as she could recall in order to apply it to the practice setting. Noting that her main purpose during her coursework was to obtain good grades, she now wonders if that strategy will serve her well in the field. Additionally she knows that the prospect of dealing with real people with medical problems will be different than covering material from a textbook.

Well, I really want to, I guess, gain the confidence that maybe somewhere in there, like in my head, I've actually retained stuff from school. That's a really big concern for me, is that what if I just studied just to get the grade and I didn't to learn. That really worries me. So I hope to learn a lot on rotations and be able to have experiences so it's not just like in a book in front of me, it's real life in front of me. I think that helps with retaining information, is actually experiencing it and going through it. So my main goal for rotations is to learn as much as I can and to retain it.

I press Antonia further about learning in the field in terms of her approach and any helpful techniques that she may be using. She realizes, even at this early stage, that the approach that worked for her in the classroom may not work for her now. She claims that she is using all of her senses now because she doesn't have the luxury of writing everything down verbatim. More importantly, she starts to appreciate the importance of context as the facilitating factor in clinical learning and the fact that rote memorization is not the best approach.

In terms of learning, it's a little different because obviously on [medical] rounds I can't stand there with a notebook and write everything down. It is a little more like auditory only, but it's also obviously visual. Like you see, like, the edema [fluid retention], and I knew what it meant but I never actually knew what it looked like. Now I know what it looks like... so the visual part is really good. I actually like seeing it on a patient and actually connecting it with what we learned in school. I like making that connection. As far as learning new stuff, if someone

says something and I'm like, "oh, I need to know that," I try to remember it, I try to memorize it but that doesn't always work, it doesn't happen.

Antonia then goes on to talk about how she is starting to make the connections between the material covered in her past coursework and in the way that it emerges in the clinical environment. In the following example she takes a major step in her analysis of how to look at kidney failure in real life. She is perceptive enough to not look at kidney failure in an abstract way, but instead to look for various signs, symptoms, and any of the patient's relevant medical history.

I think it helps because we basically have the all the background information that we need, so that when we do see it in person, we understand it. There's a lady with kidney failure and I know what kidney failure is but—not that I can see it on her, because you can't, obviously, visualize the kidney failure, but she has edema... it just helps knowing if I get a patient list, I can see what their disease states are... and here I get to go and actually see them. So I think what we learned in school is really good background information that we need.

Antonia continues to struggle with her confidence even though she is able to make a connection between her classroom-based knowledge and knowledge-in-use in a situated environment (Bailey et al., 2004). In the following excerpt she expresses both positive feelings when she is able to apply her knowledge and frustration because she hesitated to communicate the correct answer to her clinical instructor. She remains hopeful about gaining confidence and her ability to participate.

It's important to me when I do make a connection. It's a good feeling because I'm like "oh wow, I really knew that, but I didn't think I knew that".... For example, yesterday our preceptor asked us "what's another use for TCAs [a type of antidepressant]," and [I had an answer but] in my head I'm like, "Wait, that sounds so weird... I'm not going to say it." And then he said it and I'm like, "I should have said it." I just didn't have the confidence to say it out loud. So putting the pieces together, whether on rounds or here during our discussions, it definitely helps. It makes me feel good about myself that maybe I'm not as dumb as [I] thought I was, or maybe I actually retained the information.

Interestingly, in the next interview that I had with her a few weeks later, she talks about her eagerness to respond to a question that was never actually asked of her by the preceptor. Is Antonia becoming more confident? Is it the specific material, which she knows well? Or is it the fact that she was presenting with a group of her fellow students that provided support to her? I did observe this presentation and the preparation that led up to it, and noticed that all three factors played a role.

I actually kind of regretted that the preceptor didn't ask anything only because he asked the students before us the statistical analysis parts and I was pretty ready to answer any questions he might have had but that didn't happen.

Ironically, though she gained strength while working on that group project, when I asked her about group learning in general she reveals that she does not really like working in groups. She feels that the logistics were too challenging and that she is unable to negotiate effectively with other group members, and would usually acquiesce to the

wishes of others. Once again, we see Antonia's confidence emerge as an issue even though she continues to be very successful in her experiential activities.

I'd like to add that I don't particularly like working in groups like the journal club only because I've had bad experiences before working with other students and a lot of times I find that there's a clash of opinions on how to do something. And there was like a slight clash here this time too, and I tried getting my opinion across and another person tried getting their opinion across and it was just not working and eventually I let it go.

Overall during the first month of observations and interviews, I found that Antonia responds well to the question-and-answer teaching method. In this format students are expected to be familiar with their assigned patient cases, to have rounded (attend medical rounds) with medical residents so that they can meet patients face-to-face and interact with them, and to have the requisite background knowledge base. In the following scenes, Antonia and others students are participating in such a session with one of their clinical preceptors in July, my first month of observing her.

The preceptor then asks why the patient can't have [anticoagulant drug] Heparin. Antonia responds that there is a problem with the intravenous line that resulted in clotting.

Antonia next suggests that the patient could have iron overload. They all wonder why. "Have there been multiple transfusions?" asks the instructor.

Antonia confirms this was necessary from the diagnosis.



Antonia then discusses the treatment for increased excretion of Iron. She shares her patient plan: keep them isolated until the flu is over. Short-term plan: decrease the pain and eventually decrease the drug therapy and transfusions being received. Deal with iron levels. Long-term plan: chronic pain relief; schedule future transfusions.

I also interviewed and observed Antonia during the following month, August 2009. She was now at a different clinical site where the focus was poison control. Her rotation consisted of assisting the charge nurse at the poison control center where she helped screen calls from consumers and clinicians concerning chemical and drug poisoning issues. In addition she would help by following patient cases and in the providing of drug and chemical information. She was assigned to this site with a team that included a nurse, another pharmacy student, a medical resident, a medical student, and a toxicologist. In addition to covering the call center, the team was responsible for consultation of poisoning emergencies at the nearby hospital. This required regular treks from the poison control center to the hospital in a different part of town. Coincidentally, the hospital was the same one where Antonia had been on rotation the previous month and where I first had a chance to meet with her. It would be interesting to see how she had progressed and what role this new rotation would play in her development.

When we began the first interview for that second month, it became apparent very quickly that Antonia is unhappy with certain components of the new rotation. I asked her about her activities at the poison control center as well as the assignments at the hospital. Apparently, since she was assigned to the medical team, she attended the same

conference that they did at the hospital along with other medical residents and medical students. However, she feels that they are irrelevant to her learning goals and she considers them a waste of time. Here is her response to my question as to whether she was having a good learning experience during this cycle:

Not really. Because then, Tuesday, we meet there again and it's pretty much the same kind of deal in the morning. You're not really quite sure what you're doing, and then at 12 they have these lectures that they give to med students and if I had wanted to go to med school, or if I was in med school, I'd be in one of those lectures. But I'm a pharmacy student and neck trauma, or how to read [x-rays], whatever, I don't need to know that either so that's a waste of my time too. And I'm not learning anything pharmacy-oriented in that time and that's really upsetting because here I am, nine months away from getting my Pharm.D., and I want to learn what I need to learn. I don't want to sit there learning on how to make a hole in someone's trachea to make them breathe. I don't need to know what nurses need to do to improve a patient's experience in the ER. That's not my field.

So we sat through that last week, Tuesday, and we were pretty upset about it so we left after the second one even though there's three, because you know, we were pretty upset about it. So yesterday we went to the toxicology fellow and we were like, "Can we not go to these? Because they have nothing to do with us. We'd rather work on our project." So she's like, "Okay, why don't you guys go

ahead and work on your project but don't be late for the attending physician's lecture," which was at 2:00.

So then we had to go back at 2 and he gave a lecture about—I forgot what it was because I fell asleep but we were here for that and we were there for the next guy's lecture on EKGs [heart monitoring] and that's not what I'm here for, so it's just torturous.

The standards in pharmacy schools across the country require that a majority of rotations should be with a practicing pharmacist. However, during the course of a rotation, the student may spend time with clinicians other than the pharmacist. In addition, some rotations could be with a physician, a nurse, or another clinician because the standards for pharmacy education and the consensus in the health care profession are to emphasize the opportunities for collaborative practice and interdisciplinary patient care.

Antonia does not have an issue with having a non-pharmacist as one of the preceptors. As a matter of fact, in her previous rotation I observed that she did enjoy her time with the medical team on rounds. However, the lead preceptor, who was a pharmacist, was available to facilitate the learning. Even in this current rotation, she admits having a good experience with the lead preceptor at the poison control center who happens to be a nurse. The content and context there however primarily involve medications and their use and is therefore relevant to pharmacy. Antonia does have an issue with the content and pedagogy of certain aspects of the rotation. In her defense, according to a significant amount of the literature about learning in the field, all

experiences do not result in successful learning, especially if it is without context (Dewey, 1938; Lave & Wenger, 1991).

Obviously Antonia felt very strongly about this issue, so I decided to ask for her opinion in terms of what she thought constituted a good rotation. The first issue that she addressed was who the clinical instructor should be. In the following excerpt from an August interview, Antonia talks about her perspective on clinical teaching.

First of all, I would probably not include a rotation that does not have a pharmacist in it because here we are, we don't have a pharmacist with us, we don't know what the role of a pharmacist would be.

In an interview later that month, although she could not elaborate at the time about what an ideal rotation experience would look like, she was able to tell me how the current rotation was problematic. Interestingly, she responded to me on a more personal level, as if she were hoping that my research could help address this issue in future situations:

I kind of think that I'm venting to you but you are a faculty member, and I think it's kind of an eye-opener for you too—your students may be stuck in the same kind of position that I am where it's just really frustrating and they can't really do anything about it because they're just a student.

Due to scheduling conflicts, I was not able to hold the last interview with Antonia in August. Since she was off (and would be away) during the next cycle in September, I did not interview her again until October. Once again I asked her about what an ideal

rotation experience would look like to her and she began to tell me about her current rotation, which was not part of my scheduled observations:

I have amb care [ambulatory care] right now. Great setting, at the VA. My preceptor is wonderful. I came over jet-lagged, completely, because I had gotten home at 12 at night [and] I had my rotation at 8 in the morning. So I was very jet-lagged. I was very nervous. But immediately he was really cool, very laid back, told me that this is how the rotation [is] going to go, this is what's expected of you, and just completely relaxed my fears. Like everything went away. That was, I think, a Thursday when the month started, and Friday I watched him interview patients and he specializes in diabetes and hypertension, and then the following week starting Monday I started doing it. I started meeting with three patients every day and typing up the notes afterwards and it's a great experience.

Antonia had quite a different experience since the August rotation that I had observed and had last interviewed her. She seemed quite happy and doing very well on this current rotation. Many of the issues that she had identified to me in our last interview that been obstacles were no longer present. Specifically she was being instructed by a pharmacist who could teach relevant components of practice and serve as a model. Antonia was also allowed to practice (under supervision) as a pharmacist in that environment would; in other words, she experienced legitimate participation (Lave & Wenger, 1991). She was able to use her knowledge in an actual contextual setting and most importantly her confidence and thus her identity was strengthened. Antonia said it best:

It feels good. Yesterday, for example, we had a patient where he had too many hypoglycemic [low blood sugar] events in a row and he was taking [diabetic drug] Metformin, 1000 mg, once a day at around dinner time. And that's when he was having his hypoglycemic events, before dinner. So I was like, "Let's split up the doses—maybe that will help him a little bit." We changed him off of one drug and switched him to another and the splitting of the dose might not be such a big deal but he was like, "I wouldn't have thought of that. That's a great idea—split up the dose. Maybe he won't get such a big effect at once." So it feels good. It builds my confidence.

### **The Story of Lana**

Lana, the third student who participated in my study, is a quiet, polite, and reserved young woman who is an only child. She is about the same age as the other two students and also is a Pharm.D. candidate. However, unlike the other students, Lana came from a foreign country when she was a child and did not speak any English when she first arrived in the US. I was surprised to learn this fact during our first interview in July 2009, because she communicated as well as the other students and verbalized her thoughts as if English had been her first language.

Growing up in the northeast, Lana attended the public school system and participated in a number of extracurricular activities. She also enjoyed and did well in her math and science courses and decided to use those as her staging for further study. She also credits a high school chemistry teacher who had influenced her, which ultimately motivated her to explore pharmacy as a career option:

When I was in high school we had a really, really good chem teacher. He actually has a Ph.D. in chemistry, so he was very motivating to all of us. That's how, in a way—he kind of helped me with figuring out what I wanted to do after high school, and we came to the conclusion of pharmacy.

At first when I was a freshman in high school... I didn't really have the clear idea of what I wanted to do.... There were so many ideas but... I really like biology. But I also like chemistry... I kind of want to do something where [it would] allow me to—kind of a combination, a middle ground between biology and chemistry. And I guess with the help of my teacher I was able to figure out that pharmacy is probably the best option for me.

Ironically, even though the decision to enter pharmacy school was a relatively easy one, now that she is in her final year of pharmacy school and on her advanced clinical rotations, she still has not chosen a particular area of practice within the profession.

Lana takes a very caring and patient-centered approach when discussing her learning goals. Similar to the other students, she has the same expectations for developing her knowledge and skills in important areas as drug therapy, disease management, and the necessary technical skills that will allow her to become an entry-level practitioner. In addition, she understands and embraces her future role as a caretaker who will be responsible for the health and safety of any patient or consumer with whom she may interact. I asked her for the most important thing she had learned on her rotations thus far, and her response was as follows:

I think the most important thing that I learned is actually about the way you care for your patient.... Whether or not if you're in a hospital or a community setting, pharmacists are expected to have the same level of patient care and level of professionalism.... It's the same level of care that you're providing to your patient and it's the same level of knowledge that you're able to give to your patients....

There are opportunities like medication therapy management, which, again, that's an opportunity for you to show your clinical skills and you do get to work very closely with your patient.

During the subsequent interviews in July I asked her about her specific rotation for that month which I was also involved in as an observer. My main objectives in my fieldwork with Lana were consistent with what I was looking at as an observer at the rotations of the other students. Since I was studying the students' experiential activity through a situated learning perspective, I was most interested in the following dimensions: the significance of the identity of each student, the degree of their participation, the teaching style of the instructors at the site (who were also the practitioners), and the role of context-based learning.

Since both Ned and Antonia indicated that they prefer to work on projects alone versus in a group, I wanted to know how Lana felt about it. She says, "I think I can work either way. Actually, I'm pretty versatile. So group work or if I'm working by myself, it's fine with me."

I asked her again during the following month as I observed her in a different location where she was paired with different group of students:



I like the combination—both, actually, it's better. I mean, [there are] certain times when I feel like I need to actually take out a time to actually sit down and... digest information on my own first. But then also I want to work with other colleagues, [to] be able to share new ideas, information, and something kind of like a confirmation—you know, having discussions of how we feel about certain things.

Lana does not complain to me about having to work in groups, and based on my observations, Lana is not outspoken compared to the other two students in terms of her learning preferences. She is willing to accept the established requirements of each rotation and daily assignments of the various preceptors without question. She demonstrates some hesitancy to the learning process and does not have a specific agenda or checklist for what she feels needed to be covered.

I observed this approach during both cycles in July and August. However, it was not as obvious in July since the preceptors then would aim their questions at the entire group of students even if one particular student was presenting a patient case. It then became a matter of which student wished to respond, had the better knowledge base, or was the quickest to respond. Therefore it was difficult to determine just from those observations which of the reasons held true for Lana. Given her reserved nature it was also difficult to cull all of that out during the interviews. In addition, she was just getting to know me and probably was still not comfortable discussing aspects of her identity in such a frank manner.

This changed significantly in August. In the second rotation experience in which I had the opportunity to observe and interview Lana, I was better able to understand her learning preference. Although not addressed by situated learning theory, I believe that it played an important role in the progression of Lana's learning process. Lana seems more comfortable now in her interviews with me. Perhaps she had become used to my presence or maybe it was based on the fact that she had completed another rotation experience and has been gaining confidence. In my first interview with her during this second cycle she conveys to me a sense of understanding of not only the goals of this rotation but also how it serves to prepare her for her role in the near future as an entry-level practitioner. In the following excerpt she explains the short- and long-term goals of the rotation from the perspective of the preceptor—as well as her own:

Probably by the second week, which is the upcoming week, I should be able to work on my own, in terms of seeing patients and stuff like that, because that's what the preceptor wants us to ultimately achieve—because she want us to take this opportunity to be able to learn while at the same time to become more independent. Because once we become pharmacists, you have to be independent. I mean, there's not going to be someone who's going to hold you by the hand and [who] tells you what to do. So that's the ultimate goal of what she's working us towards.... If there is a pharmacy appointment, on the clinical side we're able to have an interview with the patient, assess what type of things that the patient is going through, and be able to come up with a plan of how to *per se* treat the

patient, and how to follow up and things like that. So that's like the goal that she's working all of us towards.

Later during that same interview Lana shares with me what she believes are the learning benefits that she is currently reaping from this experience. We see that Lana is tuned into the technical and clinical components that she will have to master but also we see something that continues to emerge that was discussed earlier about this student. That is her genuine concern for patients and their care.

I had previously observed Lana struggling to use her content knowledge in various clinical situations. This was also noted by each of her preceptors when I interviewed them. However, as I had stated earlier, the August rotation was marked by Lana's newfound understanding of her identity and ability to participate. She now enthusiastically embraces her daily assignments and even talks about the demographics of the population and not just about individual patient cases in the form of a medical record. In the following passage we begin to see Lana emerge as a member of the team of practitioners that assesses patients holistically. This learning outcome extends beyond Lana just being able to master content knowledge: It could signal the emergence of her identity in which she is able to participate in a community of practice and develop her learning by using context in her thinking (Lave & Wenger, 1991).

I like the way the preceptor designed this rotation. I just think it's great because we get to work with the patient directly. We actually get to give our input, see how everything is, and we actually do monitoring and follow-up and stuff like that, and it gives you also the opportunity to work with other professionals. We

get to work with medical students. We get to work with nurses, case coordinator[s], pretty much everyone. And definitely the type of patient that we work with here too is a very special population because it's an inner city. So there's some underserved patient populations where they don't get adequate health care, and it's unfortunate, but a lot of people come in here and I just find that it's a rewarding opportunity that you get to work with the patient, the type [of] patient population and the community, the medical community here.

I spoke to Lana at length about how she approached learning previously in the classroom versus now that she is on her clinical rotations. She revealed that in school she relied on rote memorization but that didn't help either to retain information or to apply it. Now that she is in the practice setting, she is learning to make connections between the drugs, their uses, and potential side effects or adverse reactions. She had previously mentioned her concern for the patients, and that certainly motivates her learning. In addition she has a preceptor who emphasizes the situations of knowledge and knowledge-in-use (Hutchins, 1995). Lastly, Lana is making progress: Her goals are sharper, her learning preferences are better defined, and her identity is emerging as a major factor.

Her preceptor for this rotation, whom I interviewed after Lana's rotation, also stated that Lana was very professional and considerate of the patients but had difficulty with both her confidence and the use of knowledge. She also noted that Lana was continuing to improve her learning and the building of confidence. In the following section Lana talks about this evolution and new insights she has gained because of her legitimate participation on the rotation (Lave & Wenger, 1991).

When you're learning in school, I feel like a lot of it is just memorization and then just done with it. Afterwards you don't really apply what you really learned in a practice environment. For instance... there's this one drug we dispense at my pharmacy. I work in retail pharmacy and we dispense hundreds of scripts for it. And it's a centrally acting drug but then you actually ask, "How does it actually work and what are the side effects?"... And then, the preceptor will say, "You need to make connections. So if it works in the brain, then what are some side effects?" Well, sedation. So it's like learning by making, learning by association, [which] I think is important....

In class, you don't really learn. We learned a bit, I mean—it's not really the practicality of the drug, like where is it used and what type of side effects do you expect. You don't really learn about the dosing. You're just like "Okay, this is the pharmacology of the drug, and these are the side effects." You don't really make the connections where okay, this a centrally acting drug, therefore it should have these CNS side effects. I feel like we're missing that really important connection, the linkage between mechanism of action versus side effects. You know, learning by associations. Versus here, you are making that type of connections and it makes the learning—it makes it stick to you more, it's giving you an understanding of the subject matter, versus when in school we're so concerned with memorizing as much information as we can that it doesn't really facilitate learning as well, I don't think.

During my last interview with Lana I asked her about the progress that she had made and also how she felt about it. She seems quite pleased, especially about gaining confidence.

It feels pretty good. I think it comes with building up the confidence. You've got to be confident about the information. And I think that's what the preceptor is getting at, is she's trying to build up that confidence, like she's building up our knowledge base. That's what she's getting at—she wants us to work up to the level where we're going to be confident with the knowledge that we have, being able to answer questions and stuff like that, because once we get into the workforce she's not going to be there.

I thought about how much progress Lana had made given the fact that when I first met her she was more reluctant and unsure of herself. I also thought about the structure of the first rotation where, as I previously mentioned, the instruction was not targeted at each individual student in turn but instead to the group. For Lana, this was a more difficult environment than her current setting where the instructor asked each individual student questions directly and then added follow-up questions. If Lana struggled, the instructor would not give up but would continue to facilitate her response. In her previous setting, if Lana didn't respond quickly enough, someone else would answer, or if she didn't respond at all the preceptor would call on another student. The latter setting worked for Lana because besides focusing on context-based learning and allowing her to legitimately participate, her identity was valued and she was treated as a member of the practice. I think that Lana sums it up perfectly in the following quote:

Yeah definitely, I think these rotations are designed to be that way so that way you pick up pieces of information and things like that as you go along and by the end of this year, we'll have enough knowledge and enough confidence to be able to practice pharmacy, I hope, because I feel like just going through school and not having the opportunity to go on rotation—I don't think we're capable enough with what we gather in school in a room. A classroom environment [isn't] enough to help us to be pharmacists. Versus once you go on rotation, that's where you get the real live experience, and those experiences are very important.

### **The Story of Jen**

The fourth and final student who is a participant in this study is a young woman who I will call Jen. As was the case with the three previous students, Jen is from the northeast section of the US, where she is enrolled in a Pharm.D. program. She also was starting her second rotation in July 2009 when I first met her. When I interviewed her that month, I asked if others in her family had gone to college and whether any of them had played a role in influencing her to pursue a career in pharmacy.

I have an older sister. She is a French teacher. My mother's a nurse so she's involved in health sciences and she kind of got me directed me in the direction of pharmacy because she just, I don't know, thought I would like it.

I also asked her about her college experiences prior to the clinical phase. She says:

It was awesome. I love being in college, obviously. Freshman year the classes weren't horrible. I thought it was pretty—compared to what I'd been taking in the past years, it was pretty easy, the first couple of years.... I took the college-level

courses in high school so I didn't have to take general chem, calculus, which were hard courses that everybody had to take so I kind of lucked out there. Science was definitely my strongest subject, especially chemistry, so it was a good fit I think.

Since I would be observing her learning style during this current clinical rotation, I asked her to talk about the kinds of things that she used to help her learning during the coursework phase of the program.

I just take all my notes that I have and type them out because I don't know, just typing them makes me learn it. And then just read it and that's how I do it. I don't make flashcards or memorize.

I probed further about how rewriting her notes helped with her learning. She says, "They were pretty neat—I mean, typing them helped me organize them better. But for the most part when I take notes I tend to copy down everything, every little thing. They were pretty easy to follow, I guess."

Since the rotations involved a considerable amount of group activity with multiple preceptors and other students, I asked her about her learning preferences and it was interesting to note that she (similar to Ned and Antonia) is more comfortable working alone:

I guess I don't—not to sound mean or anything—I just don't like to hear how other people are interpreting it. I just like to learn it myself. I just have my own way of thinking of it, I guess, and sometimes listening to how other people think of it confuses me.



I also wanted to further understand how her previous coursework had prepared her for her rotations. In a previous narrative with student Ned, I had discussed how classroom learning often has context because instructors are often also clinical practitioners and will use a case method approach. This approach helps the students gain a perspective of new knowledge. According to Jen, even with this type of anchoring, the case study method does not compare with the impression made on her when she encounters real-life, context-based, learning experiences. The following excerpt is from a discussion I had with Jen about context during the interview:

In a classroom it's kind of like you're given the drug and you're given a list of information about it and whether you remember it or not is basically just—you're going to learn it for a test and then might not ever remember it again. In the actual clinical setting you've seen the drug being used firsthand. You're getting experience with the drug being used in a patient so it's something that you can remember because you [have] something to apply it to rather than just looking at it and memorizing a list of information about it. So I guess just remembering it with an experience involved in it.

Jen is somewhat reserved and wasn't necessarily the first to respond to question-and-answer sessions. Regardless, she is always prepared and able to contribute to the discussions. She develops positive relationships with her instructors. However, as I continued to observe Jen during her experiential activities, I did notice on more than one occasion that she displays a unique characteristic. For example, during the very first day of observing Jen, a situation occurred where the preceptor was chiding a student for not

knowing the next step in a discussion during a group session. Jen, without hesitation, advocates for that student and challenges the instructor. Here is that exchange which I recorded in my field notes:

The student asks the preceptor what he should talk about next. Her response is quick: "Don't you know!" The student looks at her and doesn't answer. Jen responds as quickly as the preceptor did and tells her, "The other preceptor [who is the lead preceptor] usually is the one who starts a new discussion at this point and not the student."

A similar incident occurred a week later. Preceptor to a student while he is presenting a patient case: "always find out renal function and liver function to dose drugs." The student does not respond but keeps checking his notes for those values. Jen intervenes and questions the preceptor: "Don't you only record abnormal values? If so, he wouldn't write down renal or liver lab results if they were normal."

Whether Jen is correct or not in those examples is less important than the fact that she is willing to support another person if she believes it is right to do. She does even at the risk of being wrong or displeasing an authority figure. Most importantly, I perceive this quality to be part of Jen as a learner.

Did Jen's developing identity include being a leader or an advocate? At the moment she was representing and defending her fellow students to the instructor/authority figure but in the future she might take on a role as a patient or

consumer advocate. I decided to ask her about this during our next interview the following week:

I don't know, I think maybe just we're looking out for each other. I don't want—I think if someone's asked an unfair question then I'm going to try to help them out, I guess. I don't know if that's a bad thing.... I've never really thought about myself as a leader, nor do I really want to be a leader. I just don't like... I don't know. I don't like coming up with things... I mean, some of the people on our rotation are quiet and they're not going to stand up for themselves sometimes so I don't have any problem doing that. I just feel, I guess, I feel an obligation to say what I mean to help them out and to say what I think they should say, I guess because maybe it's not coming to their mind.

I interviewed Jen three times in July: at the beginning of that rotation, at the midpoint, and finally at the conclusion. I also observed her two or three times weekly during the same month. I was interested not only in her identity as a learner but also in her level of participation in the rotation activities, her interactions with the practitioners, and the context of her learning. As I got to know her better and she became more comfortable talking to me, I started asking more detailed questions about her learning experiences. Specifically I asked her about her experiences when she attended rounds with the medical residents, which is often part of the requirement for pharmacy students in this type of rotation. For instance, during my observations, I noticed that although the medical team was very welcoming of Jen as part of their rounding team, they did not quite know what to do with her. Different team members would explain processes to her

at times and allow her to participate in routines such as listening to a patient's heart or lung sounds. If there was a drug-related issue they would discuss it with her. However, very frequently they were very involved with taking care of their assigned patients and focusing on their own training. This had the unintentional consequence of excluding Jen from legitimate participation (Lave & Wenger, 1991). During these periods Jen's facial expression and body language implied that she was either bored or unhappy so I asked her about it during one of the interviews. She says, "Yeah, it's—I mean, I can't really say it's frustrating, it's like... why am I here? ... Because I can't really contribute anything."

Contrast the above encounter with the following observation where the clinical pharmacist (and lead preceptor) was rounding with Jen and some other students on a different day of the same week. The preceptor was fully engaging the students and encouraging the students to refocus on what was important because they were stuck on minutiae and couldn't move past it.

Preceptor: "Put down the papers and think about the disease in the upper GI [gastrointestinal], the symptoms, and how [you] would diagnose it." The students each call out what they would expect to see in the medical record or chart concerning this.

Preceptor: "Now that we have a picture of typical patient with this disease, we can now focus on the specific patient." The preceptor is now looking something up but the students quickly advise him on the matter. (My thoughts at that moment were about how learning and teaching can flow in both directions.)

As they continue, he reminds the students of standard formulas of kidney function test and that the results do not show kidney damage. Preceptor asks if stool guaiac (diagnostic exam for blood in the stool) had been ordered—students didn't know but he points them to the medical record, which shows it was ordered.

In the same interview that week, I asked Jen to talk about the different instructional approaches of the two pharmacy preceptors and her preference if she had one.

I think that when we were with [Preceptor 1] he did a really good job of giving us a lot [of] useful information. He took a long time with each patient to go over every detail, and I think that was really helpful, as opposed to when we were with [Preceptor 2]. I still learned there, too, but she kind of goes over things a lot faster and it's more like a quiz, I feel, than a learning experience.

Since I had observed Jen at various times with both preceptors, I could see her point of view. Preceptor 1, who was the lead preceptor and more experienced, was very context-driven in his approach to teaching. In contrast, Preceptor 2, who was less experienced, took more of a classroom type of approach in her instruction.

As I had done previously with Jen and with the other three students in my interviews, I continued to ask her about context-based learning at the hospital:

You see such a broad range of patients that you kind of get a better understanding of what disease states look like, and there's little bits of information that you learn along the way—like what they look for in each kind of patient, like the system that they'll look at for, say, a patient with liver disease, the signs, the stuff that

they'll look for in that patient, and then a diabetic patient, so you learn what's important and how everything works, I guess.

Each of the students that I interviewed has a differing perspective of school-based learning but all focused initially on content. Eventually, as they adapted to the practice environment, all began to appreciate context-based learning. In a later interview, Jen sums it up this way:

I think it's hard to teach in school the type of—traditional types of things. I think that comes with learning at the place you're going to be working. You're going to learn every place is different, so it's hard to teach something like that. So I think they do teach you to focus in on the clinical aspect because where else are you going to learn it?

Jen realizes how important an experiential learning opportunity is and I have seen how frustrated all four students have become when a particular experience does not work out. The students realize that it is truly a lost opportunity. Unfortunately Jen's next rotation causes her a great deal of concern in this regard. I didn't have a chance to follow Jen in August but was able to observe her again and conduct more interviews with her the month after that in September 2009.

In my first September interview with her, I realized that there was an issue with this rotation assignment. My initial interview questions were intended to reunite us after not being in touch for a month. However, Jen decided to get right to the point about her level of real participation in the September institutional pharmacy rotation at a different hospital.

I think that's going to be a definite problem for them if they have—I mean, I know the other student they had, and she's like me so I'm sure that was fine, but if they get a student that is really introverted and quiet... I think it's just not going to be a very good learning experience for them because this rotation is a lot of what you make of it, I feel.

Jen is talking about the lack of structure or planning of student activities. Her point is that on this particular rotation, she is always looking for something to do on her own and if she weren't so self-directed she would have nothing to do for most of the day. Even when there was structure and/or a concrete assignment, there was inconsistency or a lack of buy-in from the various preceptors. Jen comments further about a routine process that she was involved in on three different days with three different preceptors. She experienced a sharp difference in the level of mentoring from the third preceptor as compared to the first two.

I said before I went with the neonatal pharmacist this week and he was awesome. It was a really good day. I learned a lot and he explained everything to me like, and was willing to [teach me].

I went with another pharmacist up on the floors and he was good. You saw the pharmacists that were up on the floor with him. He verifies the [prescription] orders [from the doctor]. He was good.

But they sent me yesterday with a different pharmacist doing the same thing and it was a totally different experience. She wasn't willing really to teach me.

During my observations of the student's activities and activities of the practice overall, I concluded that this particular practice site has significant opportunities for learning based on their daily activities but currently Jen is only very peripherally involved. On the positive side, it could easily be corrected; but unfortunately it will be too late for this student if and when this happens.

In my last interview with Jen on September 30, 2009, I asked her to put all of her experiences so far in perspective. This current rotation, although problematic at times, was actually her fourth rotation (I had observed her for a total of two rotations) and her halfway point for the year. Jen is positive in her assessment and satisfied with the progress of her learning thus far. She emphasizes the fact that overall they were valuable learning experiences.

I think it's been really good. I definitely learned a lot more in the past four rotations than I did in five years of class, so I just have been retaining a lot more information. I think just being able to apply what you learned in the classroom helps it to stick in your mind better... being able to apply what you've learned to actual patients and seeing how pharmacists do work in real life.

In my final observation of Jen, which was the same day as our last interview, I observed her as she attended various meetings. The meetings themselves were important because they focused on the operational, clinical, and administrative functions of the hospital. I spoke to Jen's preceptor and asked him what the intent was in sending Jen to attend each meeting once. His response was that it gave the student a good overview of



what types of issues emerge every day in a medical center and also provided a glimpse into the ways that staff addresses these issues.

Jen's perspective, however, was that they were each only one-time activities where she was given no background information. In addition, each time she would attend a meeting, it would be in the middle of an ongoing initiative that might have been occurring for a length of time. Most importantly from my viewpoint (I also attended many of these meetings and observed the activities) Jen only participated in one session that was pharmacy-related. In the other sessions she sat passively and neither participated in any activity nor communicated with any of the members. Most of these interactions therefore were devoid of Jen's identity, her participation, collaboration with a mentor/practitioner, and context-based learning. The student had daily experiences, but did the student learn from those experiences?

### **Summary**

In this chapter I have created a narrative that recognizes the students as individuals, learners, and co-participants in this study. I have provided some insight on each student in terms of their cultural upbringing and their educational history. As I continued the interviews and observations I began to ask follow-up and probing questions about particular phenomena that I had witnessed or that had been related to me during the interviews. This process led to an emergence of key factors that appeared to play an important role in their lives and in their learning for all four of them.

I reflected on those factors that played a critical role and that existed in each student's case. As I discuss in detail in the next chapter, the factors that emerged from this

narrative include personal identity, participation, practice, context, and content, which converged to form a dynamic relationship that connected students, teachers, and practice sites. They also had a connection to situated learning theory; yet personal identity, which I found to be important, is not part of that theory. On the other hand, there were important examples of social identities that were mutually co-constructed as students came together with preceptors and began to perform as pharmacists. This narrative served to introduce the four students, their lived experiences, and the challenges in their experiential learning efforts. It also revealed the important factors that I have discussed relative to each individual student. In the next chapter, I focus on these five factors as an interrelated group and as they exist across all of the students' experiences, and present my analysis of the data and my interpretation of how these factors guide our understanding of the learning process.

## CHAPTER 5

### FINDINGS

In the previous chapter, four students discussed the various aspects of their experiential learning in their own words. We learned about their family background, educational history, and the factors that helped shape their decisions about which higher education program to attend. They also discussed their learning styles and experiences as they moved through the didactic courses and laboratory work prior to their yearlong experiential rotation assignments.

The students had diverse backgrounds and came to choose pharmacy as a career for different reasons. During their coursework they approached learning differently, employing unique techniques to help facilitate their learning. Each student had career goals that were, in each case, still not totally defined. However, during the experiential phase, after I interviewed these students and observed them over two experiential rotations, it became apparent to me that certain common factors affected their ability to learn.

The following five factors played an important role in the students' development: (a) personal identity of the student, (b) level of participation of the student, (c) practice and practitioners, (d) context of the learning activities, and (e) content. The analysis will

show that the last two factors—context and content—often operated in tandem as a dynamic and that content, which could be situated content as predicted by situated learning theory, had special importance for pharmacy when it emerged as "contextualized" content as a result of the preceptors' use of situated pedagogies.

Participation, the practice setting, context, and content are all phenomena consistent with situated learning theory (Lave & Wenger, 1991). The key role that personal identity often played in this study, however, is a finding that is not discussed in situated learning theory. However, *social* identity is an important component of the theory and was also a finding in this particular study.

During the narrative in the previous chapter, the students who participated in the study told their unique personal stories. However, as previously indicated, the stories of the four students Ned, Antonia, Lana, and Jen also tell the story of their experiential learning. In the social world, the learner and the learning are inseparable. This is the culture of situated learning, and that is why any analysis of the findings is predicated upon the experiences of the students. The five main factors and subthemes derive from the observations and interviews of the four students.

Whereas the previous chapter served as a preliminary viewing of the factors as they pertain to each student, in this chapter the focus is the analysis of the factors as they relate to the theoretical framework of situated learning. The data shows that most of the factors are consistent with situated learning theory. Each of the five factors is first discussed individually since they are unique concepts that play a major role in the findings. The factors are also discussed as an interrelated group, because together they

connect to situated learning theory and, in this particular study, play an important role in answering our research questions about how students learn during their experiential activities.

### **Identity: Personal and Social**

The first learning factor to be discussed is social identity. Lave and Wenger (1991) conclude with the following goal regarding identity: the goal for student novices is to go from peripheral to full participation. This requires a commitment of time and effort both on the part of the masters and of the novices. In addition, the newcomer must continually assume more responsibility by performing more difficult and risky activities. Along with this commitment, the novice or apprentice must assume a greater sense of identity consistent with the practice—in this case, becoming a pharmacist. However, in this study the findings indicated that personal identity was an important factor that helped a student move toward the type of social identity as described in situated learning theory.

Throughout this study, personal identity shapes who these students are via their life histories, their learning preferences, their learning goals, and how well they adapted in each of the practice sites where they participated. Interestingly, the first sign of identity among the students noticed in the field are the physical markers: their name badge with the word "student" stamped on their white coats, the short length of their white coats that designates them as students, and their college seal embroidered in the academic institution's color on the sleeve of the white coats. Those features are certainly an initial step in the creation of a social identity.

This personal identity of "students" provides them with both advantages and disadvantages. Equally as significant, having the social role of "student" allowed them access to clinical areas and patient areas, which had the potential to lead to a number of learning opportunities. Many practitioners will seek out students and offer insights, chances to observe a procedure, or an invitation to participate at some level in an activity. Frequently these clinical instructors will offer the students access to their social group. In those instances, the student would then forge a social identity with the preceptor and the practice as described in situated learning theory (Lave & Wenger, 1991). During my observations I would observe the student take on the role of a "junior" practitioner, and students would rise to the opportunity and successfully contribute to the practice by asking the right questions, providing supporting information, or competently performing a task such as listening to a patient's blood pressure.

In teaching facilities students have special status in that they have significant access and opportunity without the level of responsibility and accountability that practitioners have. This access and opportunity is dependent on the culture of the site and teaching style of the preceptor. However, students often can be observed congregating with each other without an assignment or waiting for the preceptors to interact with them. This is a disadvantage; students may have full access but little or no learning activity may be occurring. Pharmacy students in the field have the added burden of trying to make connections, build bridges, search for relevancy, and seek acceptance into the social group, all while operating within the framework of a clinical practice. Does this force

them to adapt their learning preferences? What obstacles, challenges and frustrations, and lost opportunities occur within this strange and new environment?

Two key subcomponents of personal identity play a key role: individual goals and learning preference. Students who are able to set goals or adapt to varying circumstances may be able to work through these challenges. Some students are more self-directed in their learning and seek out the resources needed to help them; others would not hesitate to approach an instructor to obtain guidance. Unfortunately a student sometimes may not have set clear-cut goals or may be more passive and not seek out an instructor.

It is important to note that Lave and Wenger place a strong focus on social identity. In this study the creation of social identity of the students with their preceptors meant that the student had achieved an importance milestone, and therefore social identity is an important part of the theoretical frame. However, based on the findings of this study, a critique can be made of the theory in that no consideration is given to students' personal identity, which potentially served as the catalyst that propelled them towards the opportunities that emerged when they forged their social identity. Ironically, based on what I learned from the interviews, this "personal" identity has been influenced by social encounters with family, friends, and associates.

Naturally, each student has a unique personal identity; but at the same time certain manifestations of personal identity are common. This could be due to the fact that they follow the same curriculum, which includes rotation goals, expectations, and prescribed models of professional behavior. It could also be due to the fact that these young adults are still in a developmental stage and even the most confident students at times question

their own identity. Lastly, the presence of the social environment and the preceptors play a role since oftentimes the expectations include a standard code of student behavior on rotation.

The following excerpt from Lana helps to illustrate how a student's personal identity frames the learning process:

I think these rotations are designed to be that way so that way you pick up pieces of information and things like that as you go along and by the end of this year, we'll have enough knowledge and enough confidence to be able to practice pharmacy, I hope, because I feel like just going through school and not having the opportunity to go on rotation—I don't think we're capable enough with what we gather in school in a room. A classroom environment [isn't] enough to help us to be pharmacists. Versus once you go on rotation, that's where you get the real live experience, and those experiences are very important.

Students begin to realize that learning on rotation is different than learning in the classroom. Out of the four students in the study, Lana is the last student who was able to make that transition. In this case, identity involves the student's metacognition about understanding what and how she came to know. It involves her learning preference and her confidence in learning. This facilitates a student's ability to participate at a higher level; or, as Lave and Wenger (1991) indicate, peripheral legitimate participation uses context as the basis for learning, and thus students become part of that community of practice even if only for the duration of the rotation.



Jen, another of the four students that was interviewed and observed, echoes the similar points about her identity that Lana emphasizes above:

I feel like rotation is important because this is where you're actually putting yourself in an actual live scenario where okay, there is a patient here and she's having these complications. You've got to be able [to] judge and determine whether or not it's related to the drug or if it's a new onset of something else. So it's important for you to have that knowledge. Then, once you figure that this is entirely related to the drug, from then you've got to try [to] match up with "okay, so these are the things that she's having now, those are like the adverse effects of the drug" ... [and then think] "What can I do to fix this problem?" You probably are going to be looking at okay, what other drug is she on. Is there interaction going on, or is it because the dose is too high, or is it because she's having an allergic reaction to this drug? Then from then on it branches off and you try and figure out what the problem is.

Like Lana, Jen realizes that the first step in her learning is to understand what she knows and what she still needs to know. Once again, confidence, learning preferences, and metacognition all serve as the catalyst that allows Jen to more fully participate and to leverage the context of the environment to solidify her learning.

Another of the students, Antonia, is very succinct in talking about how these experiences allow her identity to be shaped and how they allow her to move forward towards full participation: "I'm learning stuff and I'm retaining stuff and I'm able to make sense of stuff."

Ned, likewise, reveals changes to who he is as a learner now that he is on rotation, and how knowledge is different:

It's different because now it's more of an understanding of why you know. You have to understand why they do things if you're going to remember it whereas in school it was rote memorization, memorize it for two weeks, spit it out on the bubble sheet exam and that's it. You're not going to use it for three more years. It's gone!

Throughout the interviews and observations during both rotations, the data consistently underscore a student's identity as a key first step in the initiation of experiential learning. The most common manifestations of personal identity as reflected in the passages above were goals, confidence, metacognition, and learning preferences. In each of the four cases when students' goals aligned with those of the rotation, students responded more positively to the learning opportunities and by interacting positively with the preceptors were able to advance in the practice where their identity joined with those instructors to form the social identity of the practice. Their confidence increased over time when students felt that learning was occurring. Learning preferences also played a key role here; this is discussed further in the "practice and practitioners" section since supporting student learning preferences typically involves a negotiation between the student and clinical instructor. It is also interesting to note that over time, as students gained experience and knowledge, their perspective and metacognition became factors in their learning.

After gaining experience, students on rotation develop the means to assess their own learning. Previously, in the classroom, assessment was always contingent on grades that a student would receive from the instructor. Students now begin to assess not only themselves but peers, instructors, the clinical site, and rotation objectives. They start to compare coursework and lab work to their rotations; they assess the various teaching styles of the instructors, including their rotation instructors who had previously served in the role of didactic instructors. They compare context and content, their own development, feedback from various sources, and their own knowledge including what they know but didn't realize previously, what they are learning, and what they still need to know. They are even able to evaluate each other as students, which they were not able to do in the classroom.

The growth and development of each student's identity became an important factor that readied them for what Lave and Wenger have referred to as peripheral legitimate participation (1991). This is the next finding discussed.

### **Participation**

Along with context, perhaps the most important component of situated learning theory is the notion of *participation*. Certainly in this study, through interviews and observations, it frequently emerges as an important consideration and is often the tipping point of whether or not the student has a successful learning experience. Participation involves the student's identity as was previously discussed, but also the identities of the practitioners in question, and is an ongoing negotiation between student and teacher.

Lave and Wenger (1991) have studied learning as a situated activity and deduced that its main characteristic is the idea of "legitimate peripheral participation" (p. 29). In this model, learners participate in "communities of practice" (p. 29) where newcomers acquire the skills and knowledge that allow them to become full participants. The key point is that this learning occurs in and is part of a social environment. The social environment allows for these newcomers or novices to interact with experts in activities that include various "identities," "artifacts," and the knowledge within a certain sociocultural environment or "community of practice" (p. 29). The goal is for these "peripheral newcomers" is to eventually become a part of the "community."

The inability to learn by newcomers or novices can be traced back to specific events during legitimate peripheral participation. Often newcomers may find it difficult to gain access to full participation when masters or experts assume the role of "pedagogical authoritarians" (Lave & Wenger, 1991, p. 76). Ironically, experiential learning sometimes attempts to adopt a more traditional classroom-style form of instruction that is not student-centered in design or does not allow for true participation.

Lave and Wenger (1991) believe that this underscores the fact that in master-apprenticeship relationships, providing legitimate participation is more important than providing didactic teaching. The goal for student novices is to go from peripheral to full participation. This requires a commitment of time and effort on the part of both the masters and the novices. In addition, the newcomers must continually assume more responsibility by performing more difficult and risky activities. Along with this

commitment, the novice or apprentice must assume a sense of identity compatible with that of the master-expert.

Based on the data collected, clinical instructors employ many approaches in developing opportunities for students to participate. There are many factors that influence how and when participation becomes available and whether it will produce maximal student learning. The clinical site determines what type of experience will result. Are there any obstacles that a student may encounter? The teaching style and level of commitment of the preceptor also affect the student's experience. Of course, the efforts of the students themselves play a significant role. In the following section, participation data are analyzed within the framework of situated learning theory and with regards to the factors mentioned above: the site, the preceptor, and the student.

Many positive examples of participation were observed and discussed during the interviews. However, there were also examples of participation that were less effective learning opportunities. What were the factors that created positive models of participation and what factors did not? What role did the concept of "legitimate" participation and moving from peripheral to full participation (Lave & Wenger, 1991) play? Did these key tenets of situated learning theory play any role in students' positive experiences?

The following data came from an interview with Antonia after she had completed the two rotations that were part of this study. At the time of the interview Antonia was already involved in her next rotation and talked about the experience. I asked her how she felt about her role and particularly about a specific interaction she had:

It feels good. Yesterday, for example, we had a patient where he had too many hypoglycemic [low blood sugar] events in a row and he was taking [diabetic drug] Metformin, 1000 mg, once a day at around dinner time. And that's when he was having his hypoglycemic events, before dinner. So I was like, "Let's split up the doses—maybe that will help him a little bit." We changed him off of one drug and switched him to another and the splitting of the dose might not be such a big deal but he was like, "I wouldn't have thought of that. That's a great idea—split up the dose. Maybe he won't get such a big effect at once." So it feels good. It builds my confidence.

In the above excerpt the student feels as if she is really learning because she is legitimately involved in the patient care activity and not just observing or shadowing the clinician. Her confidence (identity) increases as she works through the process of using her knowledge in the right context. The preceptor has allowed her to make recommendations that he praised as a "great idea." Even though a different intervention was chosen, the interaction was conducted in a collegial fashion. All the elements of situated learning came into play when the instructor stated that her idea was a good one and might be used in the future. The practice is benefiting from the student's full participation, and obviously this bodes well for patient care. This particular experience may motivate the student to increase her level of participation even more at the next opportunity, which is a key component of situated learning theory.

In another example with the same student we see how confident she is when speaking with a patient while not under the direct supervision of the instructor. This level

of confidence facilitates the students' knowledge-use and is a good example of the context-content relationship, which is important in fields such as pharmacy and medicine. Finally, one notices how the student appropriately stays within her role and scope of responsibility.

I introduce myself as a student, and that I'm there for the month, and I'm there to learn from them, basically. And so when I come to a conclusion that maybe we'll have to do this or maybe we'll have to do that, I do say it—I say, "You know, I think that you know, maybe we'll have to cut back on this," and then I'll say, "But I'm going to talk to my preceptor right now and... he'll make the final decision of what he wants to do." So I let them know what I'm thinking. Then I'll go back, whether I'm right or wrong doesn't matter—my preceptor helps me make the right choices and then we go back and finalize it with the patient.

An important point to consider is that it is not necessary for the student to have a definitive answer. Treatment is usually trial-and-error, and there is often more than one option. The student learns to use her knowledge and applies it to a particular case in time for a particular patient. The student talks with the patient to obtain information, considers options, and then solicits input from the preceptor. During the interview, the student recounts the critical thinking process that was used. Also she is talking with the patient—obtaining information and soliciting input.

Patient care may be optimized when the patient is part of the decision-making team. Consistent with situated learning theory, Antonia is negotiating her learning in this rotation with her preceptor. Antonia may not realize all of this at the moment but over

time, as a result of her increasing participation, she will have a chance to reflect on her experiences and appreciate the many subtleties of this type of learning. This type of learning, however, may not occur if, for example, she sat off to the side while the preceptor interacted with the patient or the event was discussed solely as a case study. Increasing legitimate peripheral participation requires that a student serve as both a teacher and a learner, both as a participant and observer, and certainly within the context of the case and as a member of the team.

The following excerpt is an example of a situation where true participation did not occur. I asked Jen how she felt about her assignment of only observing and shadowing and whether or not she has been able to contribute to the team. Jen is very succinct with her answer about her learning opportunity and its outcome: "Not really, no."

In that same interview, I asked Jen about my observation concerning how she often waited around for her next assignment. She says, "I mean, it makes me feel a little stupid just standing there like you're not contributing anything but I don't know... that's medical stuff—I mean, it's expected, I guess."

Jen has resigned herself to the fact that "waiting" for an activity to occur is to be expected and should be tolerated. However, from observations of the students and interviews with the preceptors, this was the intended design of the rotation. Some preceptors feel that during a short, four-week rotation, they should try to expose the student to as many experiences as possible, which means that the students often can only observe and shadow as part of the learning strategy. However, on some occasions, students find this approach to be frustrating, counterproductive, and a waste of time.



Students state that they want to participate and make a contribution to the practice while they are learning.

In contrast to Jen's experience, Lana talks very positively about the level of participation during her second rotation:

I like the way the preceptor designed this rotation. I just think it's great because we get to work with the patient directly. We actually get to give our input, see how everything is, and we actually do monitoring and follow-up and stuff like that, and it gives you also the opportunity to work with other professionals. We get to work with medical students. We get to work with nurses, case coordinator[s], pretty much everyone. And definitely the type of patient that we work with here too is a very special population because it's an inner city. So there's some underserved patient populations where they don't get adequate health care, and it's unfortunate, but a lot of people come in here and I just find that it's a rewarding opportunity that you get to work with the patient, the type [of] patient population and the community, the medical community here.

Lana is fortunate in that she has been placed in a rotation that offers many of the components of learning. Her preceptor has allowed her to participate fully in the activities. In addition, she has direct contact with patients and access to the tools that she needs to contribute and learn such as the patient medical record. This provides her with a high degree of context where she can apply her knowledge. She talks about interacting with a number of medical professionals. This constitutes a true community of practice,

where each individual has a role and together they all coordinate their efforts on behalf of the patient.

Lana is very well-suited to be in this environment. In her narrative in Chapter 4, she revealed that she has a strong sense of patient advocacy. Where other students might find this underserved patient population more of a challenge, because of her identity, Lana seems to flourish. The context of the social environment enhances her learning.

Likewise Ned, in his second rotation, participates at a higher level and feels that the learning opportunity has great potential. During one of the interviews during the second rotation, I asked Ned to compare this experience with the previous rotation. Ned explains:

I definitely prefer it this way, yes, for a couple of reasons. Last month it seemed like you were going into rounds blindly. I mean, you're not really sure what patients you were going to have and therefore you couldn't really prepare with certain with recommendations, and not knowing everything about the patient until after the fact was a huge hindrance to figuring out [how to] contribute anything. So you felt kind of like you were in the way on rounds. Whereas here you feel like you're part of the team because you talk about the patient ahead of time, you're familiar with the patient, and then any pharmacologic issues that you may have noticed or may not have noticed have been discussed. And you know that they're sound because there's five people talking about it at the same time. I think it makes for better medical rounds and a better learning experience, but it also contributes to the team, I think, which I like.

Ned reveals the fact that the rotation has better structure because he is informed ahead of time which patients will be visited. This allows him to review the charts and think about any related pharmacy issues. Thus he participates in two ways: First, he is contributing to his own learning, and second, he is contributing to the team, which allows him to feel more like a member. Ned also assists the team in delivering better services. In this environment the learning process benefits both the student and the practice as a result of full participation where Ned serves both as a learner and a teacher.

Full participation not only provides students with access to a detailed view of each patient and their specific medical case; it also helps a student view things more holistically. They begin to look at patients not as cases but as unique individuals. This helps a student develop communication skills with people and facilitates the encounters where often the key to successful treatment is for the patient to assume part of the responsibility for their own care. Antonia, for instance, has developed that insight and talks about it as one of her goals during one of her interviews:

... Probably to start paying more attention to looking at the bigger picture. So not focusing on just one particular disease state or just what drugs to look at, but also looking at the patient as a whole and [seeing] what else is going on with the patient—like seeing if all the meds have a purpose and what else can we use, and interactions and stuff like that.

In this study the data clearly show that the greater the level of participation, the more opportunities there are for the student to learn. A student's ability to co-construct a social identity will play an important part in determining at what level he or she

participates. Participation, as we have seen, is ultimately dictated by the clinical instructor, and in the next section the various forms of pedagogy that have been utilized to teach students in the field are discussed.

### **Practice and Practitioners**

In this section the data findings related to the clinical preceptors are analyzed and discussed. Previously it was stated that the inability to learn by newcomers or novices can be traced back to specific events during legitimate peripheral participation. Experts or full participants in communities of practice must consider the political and social organization, its historical development, and their own effects in providing continued opportunities for participation and learning by students. Often peripheral participants or newcomers may find it difficult to gain access to full participation when masters or experts assume the role of "pedagogical authoritarians" (Lave & Wenger, 1991, p. 76). Ironically, experiential learning sometimes attempts to adopt a more traditional classroom-style form of instruction that is not student-centered in design or does not allow for true participation.

Practice environments provide a certain "pattern of learning" that allows goals to emerge for the learners, who come to appreciate the holistic perspective and what specific learning should occur. For newcomers, learning seems to be an improvised and not a defined set of activities that are provided by the master or expert. Learning during rotations occurs through practice activity as opposed to a classroom environment where learners are the object of a practice.

The clinical instructors or preceptors play a key role in students' learning in the field. This may seem like an obvious statement, since faculty in any learning situation can be assumed to play that role. However, as the data show, other factors also play a prominent role in a learning outcome. The identity of each student and his or her level of participation, which is a negotiated process, are the factors that emanate from the student. The pedagogy of the clinical instructor—along with context, which is the contribution made by the environment along with the entire practice—form the counterbalance to successful experiential learning.

What are the various approaches that were used by preceptors during clinical teaching? In this study I observed a number of examples of "situated pedagogies" that were used, and I have included a list of the most common ones with descriptions.

#### **Question-and-answer sessions.**

Q&A, as it is known, is the most common technique that was used. Diagnosis and treatment of patients are done by obtaining information, including or excluding possibilities, and eliciting the opinions of others, including the patient. It also serves as an excellent teaching tool because it engages the student and helps to tease out factors that need to be considered. Finally, it teaches students how to ask the right questions at the right time and allows participants to reflect on the issue at hand.

#### **Demonstrations (with or without hands-on opportunities).**

Experts usually demonstrate an activity so that newcomers can observe and learn. If it is a common activity and would be useful to the learner, then the learner may have the opportunity to try the activity. With pharmacy students this is often seen with

measuring blood pressures, or listening to heart and lung sounds. Other times it may be a more involved procedure where a newcomer would not be allowed to participate nor would it be relevant. For example, a patient may have a diagnostic test where a tube with a scope may be inserted into the stomach. Although the pharmacy student does not perform the procedure—and would never need to—the student will benefit from looking into the scope and viewing what an ulcer may look like. The student can then connect this back to the patient's other tests, symptoms, and drug therapy. This experience enhances the learning process because there are so many levels of context that play a role.

### **Shadowing and observation.**

This approach is useful for introducing students to an environment or situation. They may progress and participate more fully in subsequent rounds if applicable (such as interviewing a patient), or it may be solely an observation that will enrich the experience (such as observing surgery). As is discussed in this study, shadowing and observation become problematic when they serve as the sole method for the learning process. In order for learning to occur, the process must allow a student to move from peripheral to full participation to the point where they act as part of the practice during that rotation (Lave & Wenger, 1991).

### **Case studies and medical record reviews.**

This pedagogy, which is universally used in medicine and business, originated in the 1960s at McMaster University in Canada. The case study is a specific type of problem-based learning. Students attempt to problem-solve by using content information, in this case a medical record. The process teaches students several skills such as looking

at the patient holistically, sorting through extensive data, and identifying only the relevant data. Students learn to develop a framework that they can then apply to any circumstance in order to solve a problem.

**Presentations (both individual and group).**

Students are required on multiple occasions every day to present informally to their preceptor and fellow students. Depending on the type of rotation, students may also formally present once weekly to a larger audience. After obtaining assignments in advance, a small group of three or four students learns to work together, research a topic, develop a formal presentation, and then make the presentation to a group of peers. The group must do this within a certain time limit and then must respond to questions. Students learn, among other things, to sharpen their research and technology; but most importantly, they learn to improve their communications skills among themselves as well as with an audience.

**Consultations.**

The most common type for pharmacy students is drug information consults. Students must learn to respond to the request by asking the right questions so that they can research the correct references. They must also understand how to develop their responses: are they responding to a question from a physician or from a consumer? The level of detail and use of jargon will vary considerably. Students must also form their responses based on whether the request was written or oral. If it was oral, then the response must be concise and cogent and often a written reminder may be indicated. If it

is a written request, then the physician may need charts or tables and consumers may need visual aids.

### **Reading and research assignments.**

Students learn quickly on rotation that the textbooks that they relied so much on during coursework are rarely used in practice and are only a secondary or tertiary source. Changes in medical information are so frequent that textbooks are usually outdated when they are published. For this reason students must learn to use electronic resources to find primary literature that have been recently published and provide the most up-to-date information about a procedure, diagnosis, or therapy. Students learn to interpret the statistics that have been published in the article, and put the results in perspective. Students typically have to read six to 12 of these articles each week.

### **Patient encounter.**

In this practice environment, the ultimate learning process is being involved in a direct patient encounter. Students learn that a medical record, diagnosis, or treatment plan is really about taking care of another person. Students realize the responsibility that a provider has for the health and safety of the patient. Students learn that patients not only have medical problems but also that gender, race, culture, economics, education, religious beliefs, and other characteristics of the patient figure prominently both in the care plan of that patient and the possible outcome of that plan.

Each of these approaches, when well-designed and applied, present learning opportunities. However, there were many factors that came into play and determined if and how the opportunity for the student would be a positive one.



Some of the many factors observed that play a role in student learning include the following: the clinical site, including policies and routines; the preceptors and their level of involvement based on their overall workload; motivation to teach or level of development as a preceptor; the educational institution that the student came from in terms of duration of the rotation curriculum; evaluation and policies; the identity of the student including motivation, time management skills, level of preparation, and goals; and lastly the culture of the various practices, especially around their understanding of the roles and goals of the pharmacy student.

In this particular study one of the learning obstacles that occurred on more than one occasion involved the unmet expectations of the students. Usually this was due to the fact that students were expected to be involved in activities that they believed were unrelated to the training of a pharmacist. As was previously mentioned, one of the experiential models used in pharmacy education is requiring students to attend medical rounds with medical students and medical residents. These rounds include a number of lectures and in-services on different medical topics. The goal is for students to gain further insight on how and when drug therapy is integrated in diagnosis and treatment, to experience additional perspective in providing patient care, and to be initiated into a model that fosters interdisciplinary care.

As well-intentioned as this approach is, the data show that unless the process is well-developed, students often feel lost in the shuffle or complain of wasted time. Students feel that they have a small window of opportunity since each rotation lasts for only four weeks. They become anxious since, as Antonia states in her interviews, "There

is a lot to learn." Antonia talks about this issue during the second rotation that was part of the study:

Tuesday, we meet there again and it's pretty much the same kind of deal in the morning. You're not really quite sure what you're doing, and then at 12 they have these lectures that they give to med students and if I had wanted to go to med school, or if I was in med school, I'd be in one of those lectures. But I'm a pharmacy student and neck trauma, or how to read [x-rays], whatever, I don't need to know that either so that's a waste of my time too. And I'm not learning anything pharmacy-oriented in that time and that's really upsetting because here I am, nine months away from getting my Pharm.D., and I want to learn what I need to learn. I don't want to sit there learning on how to make a hole in someone's trachea to make them breathe. I don't need to know what nurses need to do to improve a patient's experience in the ER. That's not my field.

So we sat through that last week, Tuesday, and we were pretty upset about it so we left after the second one even though there's three, because you know, we were pretty upset about it. So yesterday we went to the toxicology fellow and we were like, "Can we not go to these? Because they have nothing to do with us. We'd rather work on our project." So she's like, "Okay, why don't you guys go ahead and work on your project but don't be late for the attending physician's lecture," which was at 2:00.

So then we had to go back at 2 and he gave a lecture about—I forgot what it was because I fell asleep but we were here for that and we were there for the

next guy's lecture on EKGs [heart monitoring] and that's not what I'm here for, so it's just torturous.

Antonia is obviously frustrated about this experience and goes on to explain how difficult it was to be a student in this situation and not be able to negotiate her learning activities:

I kind of think that I'm venting to you but you are a faculty member, and I think it's kind of an eye-opener for you too—your students may be stuck in the same kind of position that I am where it's just really frustrating and they can't really do anything about it because they're just a student.

When I asked for her opinion about how she would like to see the rotation designed, she replies, "I would probably not include a rotation that does not have a pharmacist in it because here we are, we don't have a pharmacist with us, we don't know what the role of a pharmacist would be."

I was not able to interview her again during that rotation, but one more interview was scheduled during the next rotation. In that instance Antonia talks about her experience in dramatic contrast:

For two days I sat with him almost for eight hours listening in on him interview[ing] patients. And, with me paying attention, trying to get as much information as I can, I was able to kind of focus on the information that he wants to get out of the patients. So basically my role kind of evolved. First it was more like I get all the background information from the patients—what their current blood sugars or blood pressure [were], take their blood pressure—and then I'd go

report back to the preceptor and then he'd talk to me about it for a few minutes and he'd formulate a plan... "We need to change something or not, add a drug increase, doses or not," and we'd go back and talk to patients together. Now it's more like I get all the information and I tell the patient "Well, I think we're going to have to go up on this or I think we're going to have to increase your NPH [insulin]," and then I go back to the preceptor [and tell him] that I think that this person needs [to] go up a few units on their nighttime NPH or we need to take off of this drug and put them on that drug. So I'm more active. I actually have a voice there. And oftentimes I'll be right and he'll [say] "That's a great idea—let's do that."

Antonia's account of this particular encounter underscores the fact that her identity has reemerged: She is fully participating in authentic patient care. She uses her existing knowledge in context and based on the lab results, patient interview, and preceptor feedback she is further developing her knowledge, honing her skills, and gaining the ability to handle more complex problems that will be sure to arise. Not only does the preceptor spend the time with her, but he also trusts and encourages her to achieve—and seemingly she is. Students on rotation bring their identity to the practice in terms of who they are, what their goals are, and their willingness to put themselves on the proverbial spot for the purposes of their learning. They learn best when they are allowed to fully participate as newcomers. They understand that as students, their scope of practice is limited but the learning is potentially limitless.

However, the key to this successful learning includes the practitioner and how the practice is set up to accommodate the rotation. In the previous case Antonia was a non-player, at best a passive bystander, and her learning did not progress. In the current case her learning accelerates. This is what it means to be a member of a community of practice (Lave & Wenger, 1991) where "newcomers" like Antonia and "old-timers" like her preceptor come together to learn from each other, teach each other, and provide a service or benefit for the patients. Ironically, good experiential teaching in this example requires a minimal increase in an instructor's workload. As a matter of fact, the instructor's workload can be decreased if the student is able to make an important contribution.

The data reinforce this point with the other students. During Lana's second rotation, she also expresses a high level of satisfaction with her learning opportunity:

Probably by the second week, which is the upcoming week, I should be able to work on my own, in terms of seeing patients and stuff like that, because that's what the preceptor wants us to ultimately achieve—because she want us to take this opportunity to be able to learn while at the same time to become more independent. Because once we become pharmacists, you have to be independent. I mean, there's not going to be someone who's going to hold you by the hand and [who] tells you what to do. So that's the ultimate goal of what she's working us towards.... If there is a pharmacy appointment, on the clinical side we're able to have an interview with the patient, assess what type of things that the patient is going through, and be able to come up with a plan of how to *per se* treat the

patient, and how to follow up and things like that. So that's like the goal that she's working all of us towards.

Lana, like Antonia, is with a preceptor who allows her to legitimately participate and to work independently. Yet the preceptor is nearby to facilitate Lana's learning and provide feedback. It is important to note that when Lana was observed during her first rotation of the study, she lacked confidence and was unsure of her knowledge base. In this rotation, she was observed during case studies with other students and the preceptor. Whenever she would hesitate or give the wrong answer, the preceptor would engage in a question-and-answer session, sometimes for several minutes. Many times Lana would produce the correct information after these probes, and I noticed a marked improvement in her confidence. This translated well since as part of assignments, she interviews and interacts with a patient. Her identity becomes stronger as her participation increases in this context-laden environment and as the preceptor increasingly empowers her to learn.

Previously, a list of teaching approaches that I observed was provided. Depending on the circumstances, any one of these techniques could be used and could certainly be effective. However, if the student's identity is not allowed to flourish, if they are not invited to participate fully, and if the preceptor does not facilitate these components properly, then the teaching approach will not matter because learning will not adequately occur. The learning opportunity occurs in the midst of a real practice, with real patients with real medical problems. In these examples there is a significant level of context to serve as the foundation of the learning. Context, which is the fourth dimension of situated learning, an important finding in this study, is discussed in the next section.

## **Context**

According to the literature, situated learning emerges from, and is applied to, a social environment where context serves as the vehicle for learning. Lave and Wenger (1991) have argued that the traditional learning environment of the classroom, in contrast, emphasizes the transmission of abstract, "decontextualized" learning devoid of any context.

In this study, students have continuously been submerged in a context-laden environment and as a result, the data show that significant learning has occurred. However, the presence of context alone does not guarantee learning—much the same way that Dewey (1938) and Moore (1999) note that not all experiences educate.

Earlier in this chapter, analysis of the data resulted in findings that linked successful learning to students' identities and their level of participation. It was also shown that the preceptor's role and the design of the practice figured heavily in the opportunities of the student. Although context is always present, I have observed that student truly benefit from context-based learning when their personal identity is taken into consideration. When this occurs, participation can be maximized and the preceptor together with that student can come together and use the ever-present context to facilitate learning. In situated learning, the acquisition of knowledge and skills is a negotiated process dependent on the presence of identity, legitimate participation, and the social environment of practice.

In the following examples, the role of context is further explored. In the first instance, Antonia is using "tools" during a patient encounter, and although she is

struggling, all of the elements that were discussed above to help her learn seem to be present:

I could hear slightly, but the doctor said that there's like a high-pitched kind of wheeze. I couldn't really pick that up. I think the heartbeat was kind of getting in my way of hearing it. I suppose I'm sure if I had been able to listen to her lungs on her from the back then maybe it would have been a more clear sound, but as far as identifying them as a wheezing or crackles, I don't think I'm—I can't make that distinction yet.

Antonia seems to be comfortable in her role and she certainly is participating. The fact that she is listening to the breathing sounds of a real person provides authentic context as compared to when Antonia only read about breath sounds in her anatomy and physiology class. The physician is nearby facilitating her activity, and although the student has difficulty differentiating the sounds, she is able to think about it critically. She even thinks about a different way to approach it. This is authentic learning in progress because all of the components are coming together and as a result, Antonia will develop the skills and knowledge not only to master this type of activity but also how to problem-solve in general. She is being encouraged to participate and utilize her knowledge. She is benefiting from the experience so that this practice or a future practice that she may be involved with will also benefit.

In the following data, also involving Antonia, when asked about the next steps in her learning goals, she is able to differentiate between different levels of context that can be experienced in the clinical environment and thus can better negotiate her own learning.



... Probably to start paying more attention to looking at the bigger picture. So not focusing on just one particular disease state or just what drugs to look at, but also looking at the patient as a whole and [seeing] what else is going on with the patient—like seeing if all the meds have a purpose and what else can we use, and interactions and stuff like that.

Antonia states that she is looking at the "big picture" now. This is another positive outcome of situated learning. Due to the empowerment of participation against the backdrop of context, her emerging identity as a future practitioner allows her to put her learning and the needs of the practice in the proper perspective.

Jen has a similar viewpoint about how context has reshaped her thinking over time and has allowed her to assume a more global view of pharmacy practice than when I first interviewed her:

I think on this rotation we focused a lot more on—well we looked at drugs a lot, but I think there was a lot of focus on the actual disease state as a whole as opposed to my last rotation, [where] we would really just look at drugs pretty much. I mean, I think both are useful. [But] I like learning about the disease states because you get a better understanding of how drugs work and why they're used.

I mean it's hard to change just because material presents itself in a totally different way than when we were in school. So I guess I'm learning more by experience and remembering things because I saw it in real life.

You see such a broad range of patients that you kind of get a better understanding of what disease states look like, and there are little bits of

information that you learn along the way—like what they look for in each kind of patient. Like the system that they'll look at for, say, a patient with liver disease, the signs, the stuff that they'll look for in that patient [versus what they look for in] a diabetic patient. You learn what's important and how everything works.

In the context of the practice environment, Jen and Antonia are both able to connect their drug therapy knowledge to, on a micro level, the patient and, on a macro level, their disease state. This contributes to them becoming better practitioners since a successful patient outcome is predicated not just on choosing and monitoring the right drug but also in understanding the factors, including obstacles, that affect the ability of patient to adhere to their therapy.

This finding concerning the role of context specific to the clinical environment was consistent over time. It is important to note that context is not unique to a rotation. Certainly the classroom or laboratory back on campus provides its own context. However, the role of a pharmacist is to ensure the health and safety of the public when medications are involved. Consequently the level of context in the rotations best simulates the practice situations that students will be involved in after graduation. Jen, when interviewed in the next rotation, continues to support her claim about how context has supported her learning. In the following excerpt she provides an update on her learning experiences. It is now two months later:

I think it's been really good. I definitely learned a lot more in the past four rotations than I did in five years of class, so I just have been retaining a lot more information. I think just being able to apply what you learned in the classroom

helps it to stick in your mind better... being able to apply what you've learned to actual patients and seeing how pharmacists do work in real life.

I think I've gotten a good insight into the pharmacist's role in multiple situations. I definitely [think] my medication knowledge has expanded. I feel more confident than I used to in what I know. But I think that I still have a ton to learn. But I still have five rotations left....

I mean, we learned pretty extensively about Tylenol and liver dysfunction, but what the main thing is, that in a healthy patient it's not going to hurt you unless you're taking it in over the current recommended max dose of four grams. Unless you consistently, everyday, take over four grams, then you shouldn't really have that much of a problem. The main problem comes with people that have preexisting liver dysfunction or elderly that already are going to have some liver dysfunction. I think it's important to not apply that to everybody that's taking it.

In the first excerpt, Jen indicates that she has benefited more from her rotations as compared to several years of coursework. She doesn't state that she didn't learn in the classroom; what she states instead is that what she learned in the classroom became important once it had context. The other point for her, besides the clinical information having perspective, is the fact that the preceptor also serves as a role model for her as she moves toward becoming a practitioner. This turning point for Jen is consistent with what ideally occurs in Lave and Wenger's (1991) community of practice model.

The second segment above reflects the development of Jen's identity. Her confidence improves and she has the metacognitive insight to know that although she has

learned much, there is much more to know. As postulated previously, context supports the development of identity, allows practitioners to be role models, and provides the student the ability to gauge her own learning.

The last example above shows how Jen is able to take a simple, everyday remedy such as Tylenol and critically apply the correct information to the correct situation. She has learned how the drug was dosed in context in the clinical setting based on its toxicity profile at high doses or among particular patients. She seems well-equipped to now utilize this drug or make recommendations based on context. Without context, the drug can be viewed as a completely safe substance that can be used without monitoring *or* as an extremely toxic drug that will lead to liver failure. Both views concerning the safety of Tylenol are correct; but based on the circumstances, the practitioner, by using context, has to decide whether to use the drug or not.

All four students agree on the crucial role of context. Here is Lana's response during one of her interviews during the second rotation included in this study:

I feel like rotation is important because this is where you're actually putting yourself in an actual live scenario where okay, there is a patient here and she's having these complications. You've got to be able [to] judge and determine whether or not it's related to the drug or if it's a new onset of something else. So it's important for you to have that knowledge. Then, once you figure that this is entirely related to the drug, from then you've got to try [to] match up with "okay, so these are the things that she's having now, those are like the adverse effects of the drug" ... [and then think] "What can I do to fix this problem?" You probably

are going to be looking at okay, what other drug is she on. Is there interaction going on, or is it because the dose is too high, or is it because she's having an allergic reaction to this drug? Then from then on it branches off and you try and figure out what the problem is.

I observed Lana's reticence during the first rotation; yet now, with additional experience and a preceptor who facilitates full participation, she is able to speak with confidence and consider the many context-based factors that lead to a decision in practice.

Ned is also successful in using context to make decisions about patient therapy. The following data also come from the second rotation included in the study. He echoes the same point about context as the other students did:

In a pediatric therapeutic class they just say "dosage-adjust renal impairment, these are the levels," but they differ from drug to drug so you're not really expected to memorize it. It's good that it's adjusting renal impairment but it's not really until you see a patient with renal impairment that you're like all right, how bad are these kidneys, or how bad [is] this person's kidney function, and then it's a lot more applicable. [You realize] the reason he was underdosed is that they knew that he had renal insufficiency. What they miscalculated or maybe neglected was just the severity of the impairment, because if that had been taken into account then they would have seen that it wasn't bad enough to dose-adjust. That's a difference, I think, between reading bullet points about renal impairment and actually applying it to a patient.

Ned thinks critically, at a high level. He exudes confidence about his knowledge, he is legitimately participating, and he is able to put the many factors that need to be considered in context. He does mention that because of the customized patient dosing, he does not memorize certain "content"-based information due to the variation of each patient, drug, or level of kidney failure.

What is the role of "content" knowledge among the other components of learning? Where does content fit in situated learning theory in practice, and particularly in the findings of this study? In the next section content is discussed relative to these questions.

### **Content**

As the literature stated in Chapter 2, situated learning theory (Lave & Wenger, 1991) disregards the sole reliance on "decontextualized" learning. Instead the theory supports the role of content when it is a part of context-based learning. According to Lave and Wenger's theory, learning derives from context and culture and not from the classroom, where learning is about abstract concepts that have no context.

In this study, students came to the field equipped with pharmacy content knowledge that had been obtained in the classroom. They also obtained content knowledge that was situated in the practice. Students sometimes had difficulty using the classroom-based content knowledge in the clinical environment; but the data show that when the preceptors employed various pedagogical strategies that incorporated the context of the practice, then students developed a learning process and made connections between content and context.

In professional programs such as pharmacy and medicine, content is taught during the didactic portion of the curriculum with qualifications. The instructors emphasize that the theoretical information being taught has application later in the field, and students are asked to put a marker on it for the future. In addition, many of the instructors in the classroom actually have practices in the field and are able to illustrate their points with real-life examples. Many programs use a problem-based approach that uses cases, real or contrived, to provide a vehicle for application in the field. This "contextualized content" becomes important during rotations since it provides students with a baseline of knowledge to support them. They draw from this knowledge base to support their learning, make connections, and eventually become immersed in context, which is the model for practice-based learning. The other important function of "contextualized content" is related to the culture of the practice.

Based on observations and interviews with the preceptors, students cannot typically enter a community of practice and legitimately participate without content knowledge. Content knowledge is a necessary factor for newcomers to obtain membership to the practice; that is, because most of the "old-timers" (Lave & Wenger, 1991) were initiated in the same way, this tradition continues to be supported in the field. Also, practitioners view the content knowledge that students possess as a catalyst for the ability to learn in the field. Preceptors feel that they are able to teach student to use their content knowledge in an applied manner that "old-timers" feel is a major difference between them and the "newcomers." Newcomers always possess the "newest" version of content. They have recently participated in coursework that covers the latest

developments in their field. However, old-timers know that the skills and knowledge that they have allow them to use any new content information. On the other hand they feel that students must prove that they are able to take their up-to-date, newly acquired knowledge and apply it in the clinical setting.

Finally, possession of content knowledge demonstrates, in a preceptor's mind, that the student has made a commitment to learning about the profession and has put the time and effort into it. However, preceptors may be disappointed by students who have a significant content knowledge base but can't apply it in a context-based manner or, worse, students who have an excellent content base and believe that they are established practitioners as a result. Unfortunately a student in either of these situations may be categorized in a negative way by some preceptors, which may result in lost learning opportunities for that student.

In fairness to these students, they have been taught content all through their educational careers and even in the didactic portion of their professional education—ironically sometimes by the same preceptors that now judge them in the field.

Despite these cultural challenges, the four students that were observed and interviewed all possess an appropriate level of knowledge, and no learning opportunities were lost due to a perception that any of the students were unprepared. More importantly, as the students move from the periphery to full participation, context becomes the focal point for learning with "contextualized content" serving in a supporting role. Lana discusses content-based learning in the classroom and how it compares to learning on rotation:



In class, you don't really learn the practicality of the drug, where is it used, and what type of side effects to expect. You don't really learn about the dosing. You're just like okay, this is the pharmacology of the drug and these are the side effects. You don't really make the connections where okay, this is a centrally acting drug, therefore it should have these central nervous system side effects. I mean, I feel like we're missing that really important connection—that kind of linkage between the mechanism of action versus side effects, learning by association. Versus here, you are making that type of connection and it makes the learning... stick to you more than versus it's giving you an understanding of the subject matter. Versus when in school we're so concerned with memorizing as much information as we can that it doesn't really facilitate learning as well, I don't think.

In her own words, Lana is speaking about the decontextualized nature of content. Back in the classroom the emphasis was only memorizing instead of understanding. Context is especially important to Lana since a big part of her identity has to do with caring about patients. This level of context should serve her well in her context-based learning.

Context, in some ways, serves as a motivating factor for learning. It gives learning meaning and purpose, and the goal is genuine: the caring for the patients. The wish to provide care for others is a core value in the medical profession and it is acquired through acculturation, which is a component of situated learning theory. This is another advantage of learning in a context-based, social setting: Students look outward to offer a contribution both for assistance and to be part of a team as well as to care for others. In

contrast, content-based learning focuses on competition and obtaining good grades and requires that a student be self-centered.

Ned offers the same view as Lana concerning content- versus context-based learning:

It's different because now it's more of an understanding of why you know.

You have to understand why they do things if you're going to remember it whereas in school it was rote memorization, memorize it for two weeks, spit it out on the bubble sheet exam and that's it. You're not going to use it for three more years. It's gone!

Ned laments the fact that learning content through memorization was inadequate.

Yet each of the students possesses a good content knowledge base. However, after observing and interviewing these particular students, it appeared that content became useful in context when it had been taught in the classroom in a case study format, and then in the field content often emerged when students were able to make the connection to the case at hand. In both cases content appeared in the form of "contextualized content" and not as an abstract entity. This form of content, with its overtones of context, would be consistent with situated learning theory.

### **Summary of the Findings**

Using situated learning as the theoretical framework, this ethnographic study was designed to answer a number of research questions that had been posed. In this chapter the data collected were analyzed, interpreted, and presented in an attempt to answer those research questions.

The research questions that were asked at the onset of this study were as follows:

**Main question.**

What factors in a social practice support the knowledge-construction process of pharmacy students during their experiential rotations?

**Supporting questions.**

How do students contribute to their own learning during their rotations?

Which teaching strategies within the practice facilitate student learning?

What role do context and content play in experiential learning?

The discussion in this chapter emphasized the fact that a number of factors need to be in place in order for students to succeed in their learning. To reiterate, there were four factors consistent with situated learning theory, and one that was not addressed by the theory, that were present and facilitated experiential learning. The four factors consistent with the theoretical framework are:

1. Level of student participation
2. The involvement of the practitioner and the practice
3. The context of the social environment
4. Content and the relationship with context

The presence of content as a positive learning factor was qualified and categorized as "contextualized content."

The fifth factor, that of identity, involved two pathways. In the first instance, students and preceptors often came together and formed a social identity within the practice. In the second instance, the personal identity of a student sometimes served as a

hindrance and certainly had to be considered as a facilitating factor. The former version of identity was consistent with the theoretical framework. In the latter case, personal identity is not considered at all by the theory.

Three other research questions had been advanced previously in support of the main research question and asked specifically about:

1. Moving from the classroom to the rotation
2. Teaching strategies of the preceptors
3. The degree to which learning was context-based

Students were able to develop a knowledge-construction process during their rotations when their identities were allowed to emerge. When student goals and learning preferences were considered, the students gained confidence and made progress to the point of knowing what they now knew and what they still needed to learn. The emergence of each student's identity was guaranteed if the students were allowed to, as Lave and Wenger (1991) have claimed, begin to participate legitimately from the periphery and eventually move into full participation.

Naturally, consideration of their identity and access to legitimate participation could only occur if the preceptor facilitated the process within the practice site. This community of practice (Lave & Wenger, 1991), existing as a social entity, was a rich, context-based environment that also allowed the student to develop their practice skills and where identity, participation, and negotiations with practitioners all came together to form a true community of practice.

## CHAPTER 6

### DISCUSSION

*Experientia docet: Experience is the best teacher.*

—Proverb of Ancient Rome

#### **Introduction**

This ethnographic study attempted to understand how students constructed knowledge during their clinical rotations. Situated learning theory was used as the theoretical framework, and the research was conducted to explore what role it played in explaining the experiential learning activities of the four pharmacy students who participated in this study. Several research questions based on this theory were proposed to guide the research and led to a number of findings. Based on these findings, I have arrived at a number of conclusions that I believe provide us with a better understanding of situated learning theory in knowledge-construction. These conclusions are based on the five factors that guided the data collection.

The factors that played a role in this study are (a) personal identity, (b) participation, (c) practitioners and the practice, (d) context, and (e) content. First I discuss my conclusions in detail and outline what I believe are the implications for practice. I

then suggest opportunities for further research in this area. Finally, I share my thoughts and reflections about my experiences during this research journey.

### **Towards a New Understanding of Situated Learning Theory**

In the previous chapter I stated that the most common manifestations of the students' identity that I observed were their goals, level of confidence, presence of metacognition, and self-awareness of their learning preferences. Learning occurred when students were able to recognize the importance of these characteristics within their personae and when they were allowed to include them as part of the learning journey by their instructors.

**Conclusion 1: Students must be aware of the components of their own identity in order to initiate a learning process. Development of this identity aids in the growth of critical thinking skills.**

When I speak about identity here, I am referring to personal identity. Although not a part of situated learning theory, it did play an important role in the development of the learning process of the students. Students have to know themselves in terms of their own learning identity. Preceptors as well should understand and consider the components of their student's learning identity that relate to the knowledge-construction process.

Preceptors may have more than one student on rotation at the same time. Even though the *outputs* or learning *objectives* of the rotation should be standardized, the *inputs* or the learning *identity* of the students should not. Each student is different, and it is this difference that is the core component of this aspect of experiential learning. Students and preceptors may develop relationships over the course of a rotation, but

given the importance of learning, this relationship is best accomplished up-front as part of a negotiated learning plan by both student and preceptor. In this way, their mutual identities define the rotation.

The students that I followed all had formed their own learning goals and learning preferences at the beginning of the rotation. Depending on how well the rotation activities unfolded, I could observe the development of a student's confidence. It was at this point that students clearly articulated what they already "knew" and what they still had to "know." This was a key milestone for the students because at this point they were able to communicate and help set the stage for further learning on that specific rotation as well as on future rotations. It has been said that "we define who we are by where we have been and where we are going" (Wenger, 1998, p. 149).

The importance of identity was also observed in other ways. When identity becomes grounded as part of a student's learning, a student demonstrates the ability to function at an advanced level where the student becomes a "teacher" and utilizes critical thinking skills. At this level students begin to assess not only themselves but peers, instructors, the clinical site, and rotation objectives. They start to compare previous coursework and lab work to their current rotations. They assess the various teaching styles of the instructors, including their rotation instructors who may have previously served in the role of didactic instructors. They compare context and content, their own development, feedback from various sources, and their own knowledge including what they knew but did not realize previously, what they were learning, and what they still

needed to know. They evaluate each other as students, which they are not able to do in the classroom.

A similar phenomenon has previously been described in the literature as students having "new modes of thought" (Bailey et al., 2004, p. 151). These students, while on their clinical rotations, developed critical thinking skills and problem-solving skills that they just cannot develop in a traditional classroom setting. However, this is not an automatic process. Students' identities strengthen in this manner when they are allowed to move from introductory types of activities to advanced levels of participation.

This study has demonstrated the importance of a student's level of participation. Ideally, they should move from legitimate peripheral to full participation (Lave & Wenger, 1991). If the participation activity is not "legitimate" in its design, and does not lead to greater and greater levels of participation, then a student's learning will be adversely affected. Occasionally the inability of a student to learn may be caused by the student's own inability to participate.

The newcomer must continually assume more responsibility by performing more difficult and risky activities. Along with this commitment, the novice or apprentice must assume a sense of identity consistent with the master-expert. In one of the narratives, Jen stated that she resigned herself to the fact that "waiting" for an activity to occur is to be expected and should be tolerated by the student. In this case, not only was she not able to participate at the appropriate level of learning but her learning expectations, a characteristic associated with her identity, were diminished.



**Conclusion 2: The lack of effective student participation is most often related to practice issues.**

My second conclusion relates to the fact that the lack of real participation was often caused by a poorly designed experiential curriculum, or the inability of the clinical site to provide the appropriate learning opportunity within the practice. I observed the experiential clinical instructors adopting a more traditional classroom-style form of instruction that is not student-centered in design and excludes true participation. Preceptors sometimes felt that during a short, four-week rotation, they should try to expose the student to as many experiences as possible, which meant that the students often could only observe and shadow and not actively participate. In this case the *quantity* of activities is great but the *quality* of the learning is unsatisfactory.

Preceptors play a significant role in determining the level of participation for each student. Along with the classroom-style approach that some preceptors utilize, others use the role of "pedagogical authoritarians" (Lave & Wenger, 1991, p. 76), which results in restricting both the identity and participation of the students. Alternatively there are preceptors, such as one in Lana's case, who allow students to participate fully in all activities; Lana had direct contact with patients, access to all of the tools that she needed to perform her tasks, and a preceptor who remained nearby to support her learning.

Proper communication and preparation at the beginning of the rotation is needed so that students can assume the important role of participant and succeed in making advancements as they take on more challenging activities. This process also requires ongoing mentoring by the instructor. In Chapter 4, Ned revealed the fact that his current

rotation had better structure because he was informed ahead of time concerning which patients will be visited. This allowed him to review the charts and think about any related pharmacy issues. In this way, he participated in two ways; first, he contributed to his own learning and second, he contributed to the team's focus of patient care. This allowed him to feel more like a member and subsequently, the team was more likely to treat him like a member since he provided important contributions. In these particular rotations, the convergence of a student's emerging identity while participating fully in conjunction with support from the preceptors constitutes a true community of practice where each individual has a role and together they all coordinate their efforts on behalf of the patient (Lave & Wenger, 1991).

I have demonstrated how the clinical instructors have impacted a student's learning both positively and negatively. Clinical instructors play a central role in experiential teachings and have a significant impact in facilitating student learning. They serve as gatekeepers for the institution and for the clinical practice when a newcomer enters the clinical site. They control the students, schedules, activities, and rotation grades. Another factor that affects the outcome of experiential learning is the competing priorities that the clinical instructors must balance each day in their practice.

In this study, authoritarian instruction or a heavy reliance on lecture-style experiential activities were much less of an obstacle than the problem of competing interests. All clinical instructors have a practice to manage that revolves around patient care. Additionally they all provide service in the form of committee work and often must engage in some sort of research. Some preceptors are administrators, such as department

or program managers. All of these responsibilities have an impact on how much time a preceptor can spend with students.

Preceptors have varying levels of experience or training as clinical instructors. During the first rotation in this study, the four students were all assigned to the same two lead preceptors. One of the preceptors had significant experience and the other was a new practitioner. More than one student realized this and commented about it during the interviews. During my observations, it became clear to me that the most successful rotations were those in which the preceptor's practice and the student learning activities occurred in tandem. These rotations were efficient for the instructor and welcomed by the students, who had the opportunity to practice in the same manner as the "expert." This parallel processing of practice and clinical instruction was not an easy undertaking and required significant experience and skill. More experienced preceptors performed this task easily and effectively since they had developed both their practice and teaching methods. New preceptors, on the other hand, were in the developmental stages of practice and teaching and thus challenged when undertaking the responsibility of student rotations.

**Conclusion 3: Learning is adversely affected when a student's expectations and goals are not considered during the rotation.**

The issue of the students' unmet expectations emerged from the data as a significant obstacle during the rotations. In this study, one of the learning obstacles that occurred on more than one occasion involved these unmet expectations. One reason was due to the fact that students were expected to be involved in activities that they believed

were unrelated to the training of a pharmacist. An example from one of the narratives involved Antonia, who claimed that she felt like a non-player and a passive bystander. In that instance, her learning did not progress because she felt lost in the practice activity, which she described as a waste of time. In contrast, on her next rotation, she talked about how positively she regarded her new preceptor and how she valued the relevancy of the activities. As result of that opportunity, her learning accelerated.

The findings also confirm the importance of context in situated learning theory. The students claimed that when context was used to teach content, such as in case studies, learning was enhanced, and the data consistently reflected this notion. It is important to note that even though a clinical site may be a context-laden environment, all context-based experiences do not automatically result in knowledge-construction. The factors operating in concert, however, served as the catalyst that did lead to knowledge-construction.

**Conclusion 4: Although always present, context alone does not ensure experiential learning.**

This conclusion has been identified by others and has been discussed in the review of the literature. (Dewey, 1938; Moore, 1999). The acquisition of knowledge and skills is a negotiated process and is dependent on the presence of identity, legitimate participation, and the social environment of practice. Context is not an independent factor but rather is the result of the other three factors coming together. I have presented data involving each of the students that confirms this claim. In Antonia's case, her learning greatly progressed and she began to use the clinical tools in an advanced fashion. Antonia

had been quite outspoken about a previous experience when these factors were not in play, which caused her to feel that she was "wasting her time" and "not learning." As manifestations from the four factors of identity, participation, the practice, and context converge, not only does knowledge-construction process improve, but also we see the student and members of the practice come together in a new way to form a community of practice.

According to the data in this study, when students participated with preceptors at a certain level and made a contribution to the practice, they became part of that community of practice even if it was for a very short period. Preceptors would ask that student more questions or provide them with unique assignments. Sometimes it would just be a verbal acknowledgement of approval.

**Conclusion 5: Students who are able to make a contribution gain acceptance to that community of practice.**

When the ideal learning process unfolds, the student is able to make a genuine contribution and begins to be treated as a member of that community of practice. Throughout the presentation of the data, I stated that the preceptors have always welcomed the students. Teaching is an important aspect of their job and they generally try to give back to the profession. Preceptors have told me that having students "keeps them on their toes" since they must update their knowledge base in order to interact effectively with the students.

Students begin their rotation equipped with content; preceptors expect this and it serves as the "admittance card" for the student. However, this does not guarantee student

acceptance in the community of practice; students must first prove that they are worthy of this acceptance. The test comes after a period of time in the rotation where the students demonstrate that they are making progress by applying the knowledge that they have developed in the practice. The more the students are able to contribute, the more preceptors will call upon them to make additional contributions.

When students make significant contributions they are treated as "new members" of that particular community of practice. The fact that this "membership" may only exist over the course of a few weeks or less does not matter because the community of practice model (Lave & Wenger, 1991) is a dynamic and fluid structure where members move from one community to another or maintain multiple memberships with practices that are either totally separate or overlap with each other. The more students contribute, the more they will be asked to contribute. This ongoing exchange serves as the passageway for a student to gain acceptance into a community of practice.

The fifth important factor that emerged from the findings was classroom-based content. I refer to the type of content that I found to be relevant in experiential learning as "contextualized content." Consistent with the theory, content does contribute to knowledge-construction under the right circumstances and certainly the situated content within the practice plays a key role. My findings indicate that classroom content must come to the field "anchored" in context or become "contextualized" content if it is abstract in order to play a role. Another way to think about it is that content is a raw building material that requires refinement before it can contribute to the "construction" of knowledge.

**Conclusion 6: When aligned with context, content does play an important role in experiential learning.**

In this study, the importance of content manifested itself in two different ways. In the first instance, something important occurred to the students with respect to content use on their clinical rotations. This content knowledge, which they already possessed and were able to recall but could not previously utilize, became activated and applicable due to the presence of context. With the help of the right pedagogical approach, a student's abstract content knowledge is reshaped into the applicable knowledge-in-use. Content knowledge is what students first bring to the field as part of their identity. Possessing content knowledge provides them with a resource that they can use in the practice and therefore boosts their confidence to participate.

In the second instance, content played an important role as part of the culture of the practice. Students cannot typically enter a community of practice and legitimately participate without possessing content knowledge. Preceptors themselves were initiated in the same way, so they have the same expectations of the newcomers and thus continue that traditional initiation. Also practitioners view the content knowledge that students possess as a catalyst for the ability to learn in the field. Preceptors assist students in utilizing their content knowledge in an applied manner. Finally, possession of content knowledge by the students demonstrates, in a preceptor's mind, that the student has made a commitment to learning about the practice.

Content knowledge becomes important when it is contextualized. When students focus solely on content, all content is equal in their minds and they cannot prioritize their

content-based learning. Context facilitates the application of content. The relationship between content and context has been previously identified by others researchers. In one study, the goal was to create a model to understand how students created knowledge at the intersection of experiential activities and the didactic setting. The researchers found that learning was enhanced when it was presented as a real-life situation or problem and when students were allowed to actively participate in their own learning process (Bransford et al., 2000). Students were able to see the relationship of theory and practice; and between content and context; but only if the content was contextualized. Contextualized content in this study stands as a premise that is as important as the other four factors in facilitating the knowledge-construction of the four students in their experiential learning. It is not just that this type of content is different than abstract content; rather, it is the way in which this content is able to play a role in experiential learning that the original theory may not have considered.

I observed this content-context relationship as contextualized content on several occasions. In the following example, the student, who was being allowed to legitimately participate, used content that she possessed previously in the appropriate way now that she was situated in a context-laden environment:

[That rotation helped because half the day we spent shadowing and seeing patients, seeing their disease states, and then the other half of the day we spent with our preceptor talking about it all. And here at my current rotation it's the same thing: seeing the patients, talking about it, and closing the loop.



Notice also in the data how her identity strengthened from the experience and how the preceptor facilitated the activity. This process allowed her to gain acceptance into the practice.

Figure 1 illustrates the various relationships of the five factors with each other and outlines the process that occurs when a student-newcomer is able to gain acceptance to that community of practice.

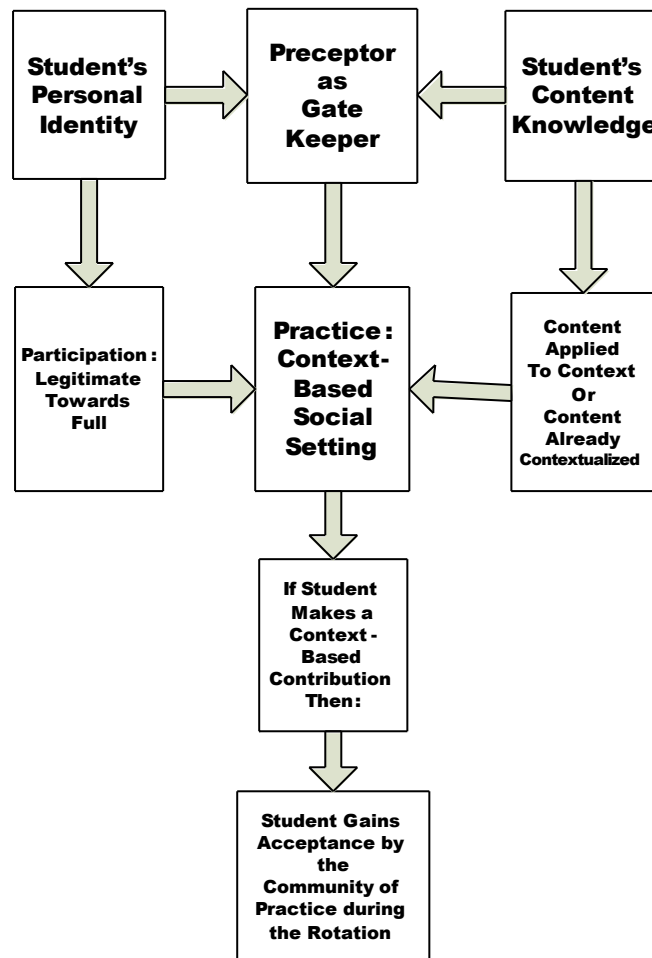


Figure 1. Knowledge-construction pathway: Acceptance by a community of practice.

## **Implications for Practice**

The five factors work together to provide us with an updated version of situated learning theory. This new version, as represented in Figure 1, informs us about how these pharmacy students were best able to construct knowledge during the learning process of their clinical rotations. I conclude that the fifth premise, that of content, plays an important role in knowledge-construction. This is a significant finding because of the important role content has been shown to play in experiential education. The student also possesses some form of content knowledge in advance of the rotations. The preceptor, who is assigned to that student, serves as a gatekeeper on several levels. On one level they are responsible to the site and practice; on another level they are responsible for the education of that student. Based on the pedagogy, availability, or experience of that preceptor, the student would ideally move from legitimate peripheral participation toward full participation (Lave & Wenger, 1991) or, alternatively, have an experience that is less than ideal.

At the same time, the student's content knowledge is assessed by the preceptor and redirected into an applied format if it is content that is "decontextualized," before that student can participate in the practice. If the student possesses "contextualized content," the preceptor will allow the student to apply it directly. This "application" process plays out in a context-laden social setting with multiple players and complex processes.

It is here where the student is able to benefit from the knowledge-construction process because methods of thinking through a problem and providing a unique solution have been developed. The unique solution results from processes or frameworks that a

student learns to utilize. Students are no longer reliant on the abstract, linear, and orderly learning processes of lectures and textbooks. They now learn "out of order" because their experiential knowledge base is flexible and dynamic and mediated by the context at hand (Bailey et al., 2004). The student is now able to make a contribution to the practice.

This contribution becomes the highlight of the experience. The student and the practice both benefit, and this outcome serves as the accelerant for more learning. Various members of the practice who witness this transition and now see the student as a resource will begin to treat the student as not just a newcomer but also as a member of that community of practice.

Although the model and description of this process has been simplified to illustrate the point, the effect is not diminished. When this model is in effect, students, practitioners, the social setting, and contextualized content all form a dynamic that leads to a positive learning outcome not only for the student but also for the community of practice.

This new understanding of situated learning has implications not only for pharmacy practice but for the entire field of experiential education. Although these findings are not generalizable, the lessons learned here can be transferred to other types of programs such as internships, service-learning activities and cooperative education. Since we live in a social world, learning is constant and continuous. The construction and re-construction of knowledge does not stop when a rotation or an internship ends. Learning and life are experiential activities. The four walls of the classroom do not form the frame that exclusively defines learning, nor are they the limits of the learning

experience. A person's education does not end at graduation—it is just beginning, and it continues for our entire lives largely as an experiential process. It can occur whether it is in a classroom-like setting, online on the internet, within one's community, or at the workplace. Therefore identity (both personal and social), participation, the social practice, context, and content always matter in experiential learning and have to be considered when working with learners and instructors.

Rotations, internships, and other forms of field education are perfectly poised to integrate didactic learning and experiential learning; to connect abstractions and theory to context and life. The experiential model is in play not only as a part of formal education but as the manner in which practitioners learn for the many decades of their careers. The important caveat reflected in the findings is that the five factors serve as a guide that affect the learning process both individually and collectively.

While collecting data, I noticed that some of the preceptors were already using some of the situated pedagogies that I have identified. Exemplars of practice such as these could be used as case studies for orientation and development for other preceptors. Each of the five factors on its own can provide useful insights that might help develop a meaningful experience for students. For instance, the findings about *identity* reflect the fact that all students are not the same on rotation. It would be a good first step if preceptors discussed the components of identity with each student beforehand. Issues such as confidence, learning preferences, and rotation goals of the student, when considered, will allow students to progress and participate properly.

The entire concept of *participation* is also worth reviewing with practitioners. There are multiple approaches that instructors take when allowing students to participate in practice. Exclusive use of teaching activities such as "shadowing" or "sitting in" on meetings already in progress are less effective unless one allows a student to move from introductory to full levels of participation. Equally as important is that participation must be real and meaningful and should lead to a contribution on the part of the student. If preceptors commit to student learning by valuing a student's identity and by allowing that student to appropriately participate, then the learning process is enhanced. Students will use content that is anchored in context and will be able to contribute to and be a part of the social practice.

This process may also hold true for students in practices other than pharmacy, on rotations in health care such as nursing and medicine. My observation of pharmacy students also included observations of medical students and medical residents (medical doctors who are still in postgraduate training). The residents had a good deal of autonomy in terms of their learning preferences and learning goals. They all seemed to exude a great deal of confidence, which probably stemmed from the cultural teachings at medical schools and their autonomy and authority. The residents were given significant latitude in their activities but were available for consults and feedback. Most importantly, however, the residents and medical students were fully participating in a context-rich environment and engaged with a host of other practitioners. However, according to a recent study, medical education also requires some redesign including in the area of experiential

education, and the model that has emerged in this study could make a contribution toward addressing that area (Carnegie Foundation for the Advancement of Teaching, 2006).

The experiences from this ethnographic fieldwork and the findings from the data will enrich my own practice. For instance, based on what I have learned from the personal identity of the students, I plan to adjust the activities of the earlier required introductory rotations so that students can provide more input into the process. I have already had discussions with colleagues about adding several seminars prior to the advanced clinical rotations that will focus on the socialization process for students. We will use the case study format with the students to facilitate the often difficult transition from classroom to rotations.

Since part of my responsibilities is to also provide developmental programs for our preceptors, I will focus on two topics: (a) the need for students to move from peripheral to full participation and (b) the introduction of the many situated pedagogies that have demonstrated so much potential in the learning process. I look forward to positive student outcomes.

### **Recommendations for Further Research**

Since the purpose of this ethnographic study was to explore how students constructed knowledge during their clinical rotations using situated learning theory as the theoretical framework, there are two ways in which we can think about additional research opportunities. The first recommendation I would make is to use the findings from this study and expand the focus of the research. This study exists as a snapshot of a particular group of individuals engaged in specific activities in a certain time period.

Expanding the study to other populations, other settings, and most importantly to other forms of field education such as internships and cooperative education programs, could provide additional insights that add to our understanding of experiential learning.

The second recommendation would be to change the emphasis of the study by utilizing a different methodology without a theoretical framework and instead rely on an inductive approach. Ethnography was selected for this study since I was interested in studying learning from the perspective of a group culture. However, another approach would be to use phenomenology as a methodology and focus instead on the students and their "lived experiences" while on their rotation (Moustakas, 1994). The results of that type of study could provide us with another perspective concerning the role of student identity in experiential learning and what it means to be a newcomer to a practice.

Still another approach would be to use a variation of situated learning theory such as distributed cognition (Hutchins, 1995). The central theme of this theory is that knowledge is situated and distributed among many members of a practice. During my observations I noticed that when students and preceptors met to solve problems, solutions were often negotiated among the group since different members had different parts of the answer or provided a different perspective. It was as if a "human jigsaw puzzle" was coming together. Not one person had all the "pieces" of the puzzle; instead the pieces were "distributed" among the group. Furthermore, I noticed that sometimes a member did not know that he or she possessed a piece of the puzzle until that member interacted with the others and that interaction identified the presence of the missing piece. It is worth mentioning that the students struggled with this process initially but eventually were able

to participate consistent with the findings related to identity and participation. The findings in this type of study could provide us with new perspectives about group dynamics and learning in these team-based environments.

This leads to the third recommendation, which would be to conduct a study of work-based learning. The discussion thus far has revolved around the fact that students are required to learn in the classroom setting and also in the experiential setting. The four students that participated in this study have since graduated and therefore have become entry-level practitioners. For these students, the discussions of the pros and cons of the classroom versus the practice site are now moot. From here on, their learning environment and practice environment are one and the same. There is a significant body of literature that exists for workplace and organizational learning that has not been reviewed for this study but may be the starting point for further research into this area.

There are a number of research possibilities that may provide a broader understanding of how learning unfolds as one moves from the classroom to rotations and eventually to becoming a practitioner. A number of questions immediately emerge that deserve to be researched further, such as: How do graduates continue to learn when they become new practitioners given the fact that the support systems that students enjoy are no longer available? How do newcomers and old-timers learn from each other? When new graduates first become clinical instructors, do they use what they have learned from their recent experiences as students or do they repeat the same mistakes that their preceptors may have made? These and the many other questions that arise could be



addressed if a study is designed that follows a group of students during the transition from clinical rotations to licensed practitioner.

Students making the transition to practitioner could be surveyed for the answers since the environment in which this transition occurs still exists as a social environment with a unique culture. A qualitative approach, therefore, would be best so that we can try to understand the phenomenon. As for this study, a qualitative approach, using an ethnographic methodology, was the right approach. The lengthy time in the field and multiple encounters with all of the study participants produced extremely rich data that greatly aided my understanding of how the students constructed knowledge. Even in a different setting where this type of professional curricula is not so formalized, such as general internships, exploring the formation of a student's identity and the corresponding learning process amidst a social, work-based learning environment would produce equally rich data.

### **Limitations**

Despite my confidence with this methodology and with my findings, this study had certain limitations that may have affected its outcome. I possess my own world views, perspectives, and experiences, and brought them to the field. These characteristics have guided me in my research; but they also serve as potential biases that may have affected my interpretations. In addition to my own personal biases, there may be some technical reasons that would result in other limitations since despite my best efforts, this study is still a human endeavor.

In terms of the study design, there are several issues that could be of concern including the purposeful sampling method that was chosen and the small size of the participants. Both could affect the data collected. The prescribed time that I spent in the field, although substantial, still meant that on other days there were numerous activities occurring, and none of that data was collected. Although I spent two rotations with the students, that time represented only a small part of their yearlong clinical experience.

The students all were enrolled in one particular school of pharmacy, and they cannot be expected to represent all schools of pharmacy and other health professions. Also, my presence in the practice environment may have caused the participants to act differently during their communications and activities than they may have acted without my presence. It is also possible that students and preceptors told me what they thought I wanted to hear during the interviews. I may have inadvertently asked leading question during the interviews.

Finally, given my personal biases and the possible flaws in the design of the study and data collection, my analysis, interpretations, and conclusions may be different from that of another researcher. However, this is the nature of human sciences research and particularly that of a qualitative methodology. The benefits of conducting such a study greatly outweigh the problems that may arise by its limitations. I took a number of steps to produce a high-quality design and outcomes that are trustworthy. The "rich and thick" data (Geertz, 1973) that I produced have allowed the voices of four students to be heard and contributed to a better understanding of how they constructed knowledge during their clinical experiences.

## **Final Thoughts and Reflections**

The reason I chose an ethnographic approach was that I was able to observe and talk to the students during their learning. I also had the opportunity to talk with them before and after a particular experience. Their experiences were not enacted in a vacuum, so along the way I was also able to observe other activities that were occurring simultaneously. These other activities were sometimes in unison with the students' activities and at other times apart from them. This would occasionally become a distraction that then required discipline and focus on my part. However, a majority of the time, these parallel events served to inform, enrich, and contribute to my research.

Performing an ethnographic study in this particular setting, as necessary and rewarding as it was, was an immense undertaking that presented many difficult challenges as I was preparing to enter the field. I certainly was aware of the many steps that needed to be taken before I was able to enter the field. However, I also knew from a review of the literature (Moore, 1999) that if I had chosen another methodology, such as survey research, I would be unable to produce the vast, rich data that was needed to advance our understanding of experiential learning, and so I was prepared to take on those challenges in the field.

The health care environment, which includes hospitals (inpatient) and health centers (outpatient), has several necessary levels of security. These levels of security include safeguards for confidential and sensitive medical records, protection from communicable diseases, criminal background checks for anyone with access to the facility, mechanisms to ensure adherence to HIPAA, regulations (including a federal

statute requiring secure systems to maintain privacy of patient information that is accessed, communicated, or transmitted on a continuous basis between patient, providers, and third parties), and IRB requirements for those of us who wish to conduct research in this environment.

The lesson here for me was that ethnography is not just time- and effort-intensive during the data collection, but also during the preparation time prior to entering the field. Anyone thinking about using this methodology will seriously have to consider these requirements. If I had to do anything differently, I would have allowed myself much more time. Fortunately for this study I did allow for adequate time, but at certain points the timelines were stressfully tight. That said, as I reflect back on this process and being able to enter the field, I feel it was well worth the effort. Performing this type of research and learning from the students was a wonderful, life-changing experience.

One of the most rewarding parts of the research was spending time in the field with the four students. Over the course of the two rotations, after the many hours of interviews and observation, I developed a positive rapport with them. Although our interactions were tentative at first, over time the students became very comfortable with my presence and trusting of my intentions. Near the end, some of the students, on a few occasions, would volunteer information to me concerning their learning when they thought it was important and without my prompting them.

I learned so much from them and appreciated the way they let me be a part of their experiences for that period of time. I was always respectful of their time and their priority, which was their learning. Here were these four young adults who were

inexperienced and unsure of themselves, who were trying to adapt to a new and challenging environment, and yet they always had time for me. They were not only very professional but also very warm and caring individuals. I can state with confidence that the future of the profession is in good hands.

They are the real stars of this research and I felt strongly that I needed not only to obtain data from them but to also tell their story. Consistent with a social environment, one cannot separate the learning from the individual. For that reason I wrote Chapter 4 as a narrative, a sort of paean to the students, who in essence were my co-researchers. We learned a little about their life history, their educational biographies, and their interests and concerns. Their identity enriches the study and also provides a preliminary glimpse at the factors that allowed them to learn. These factors became the foundation for my findings and conclusions. Thanks to them, I was able to add to what we already knew about situated learning theory.

Since I am reflecting on this study, it is appropriate to discuss reflection as a learning tool for students. Requiring students to engage in critical self-reflection is now a common practice along with maintaining a practice portfolio that includes written reflections. As I have noted in Chapter 2 and to briefly reiterate, in busy practices it is often difficult for professionals to automatically integrate new experiences into a practice. Much of what occurs in practice may go unspoken or unquestioned. Self-reflection allows practitioners to recreate and improve past experiences. Giles and Eyler (1998) have said that learning from experience requires committed and sustained efforts by instructors. Critical self-reflection should be part of this effort.

In this study, although I did not observe students formally maintaining a practice portfolio, I did see frequent examples of preceptors engaging students about a teachable moment. They in turn would reflect on that incident in question at that moment and also at a later time. Additionally, as has been seen in the data, students reflected on their experiences to me during our interviews. Both of these examples underscore the fact that as a situated pedagogy, the "question-and-answer" session has the potential to achieve what Schön (1983) has called reflection-in-action and reflection-on-action.

Based on the findings in this study, I am convinced that situated learning theory continues to be relevant as a lens that can be used to view learning. I believe this despite the fact that one of my key findings contradicts a central concept of the theory. I have demonstrated that content does indeed matter—it does so as a dependent factor in the presence of context, which happens to be the core component of situated learning theory. Situated learning was first discussed in the literature about 20 years ago, and researchers have both supported and attempted to disapprove the theory. Since then, much has been written that has challenged or expanded the original theory, as this study has now done. Given the fact that professional programs such as pharmacy, medicine, and nursing are trending toward more context-based activity and experiential learning, situated learning will continue to be an important framework that guides us in our respective practices.

Since this research was first proposed, two crucial changes have occurred that will affect these practices, especially pharmacy practice. In the last year, Massachusetts has joined a majority of the other states and has implemented collaborative drug therapy management regulations involving physicians and pharmacists. This allows specially

trained pharmacists to expand their scope of practice and form a collaborative practice agreement with an individual physician. Under such an agreement, the pharmacist will be able to initiate, monitor, modify, or discontinue a patient's drug therapy (Massachusetts General Laws, n.d.). In addition, pharmacists now have the authority to administer influenza vaccines (flu shots) and other vaccines, and pharmacies now are the primary access point for the public to obtain these critical immunizations.

On a national level, the federal government has just passed health care reform (2009). The ramifications of this sweeping reform are still being debated, but two things are clear: (a) millions of additional Americans will have health insurance, which will increase the need for pharmacy services, and (b) as the reform places a greater emphasis on primary and preventative care, pharmacists with their new advanced Pharm.D. degree and an expanded scope of practice are well-poised to contribute to the care of all of the newly insured individuals who will be accessing our health care system.

These are significant changes in our health care delivery system that require pharmacists and other health care professionals to receive the best possible training during their clinical rotations. The findings in this study have provided us with a way to think about how to do just that and may help us respond to those challenges moving forward.

## APPENDIX A

### RESEARCH PARTICIPATION CONSENT FORM

My name is Paul DiFrancesco and I am a doctoral student in the Higher Education Administration program in the College of Education at the University of Massachusetts, Boston. I am collecting data for my dissertation research about how learning occurs while pharmacy students are on their experiential rotations.

You are being asked to participate in my research project. If you agree to participate, you will be interviewed about your beliefs on how learning occurs on rotations and you will be observed during your daily activity while on rotation. Your participation does not affect your grade in any way.

Each interview will last one hour. There will be a total of three interviews during the rotation at the beginning, at the midpoint and at the end. If during that time I ask any question that you don't want to answer please tell me and I will move on to another question. If at any time you wish to stop the interview, please tell me and we will stop immediately. The interview will be audio recorded and transcribed into a written copy. The observations will take place once weekly during your rotation activities and each session will last for one-half day. During this time I will be describing the setting and documenting what happens in this setting by taking field notes in my notebook.

The interview transcripts and field notes will be used to analyze the data for the dissertation research. However any identifying information such as your name or the name of the site will not be included in the write up. All of this data will be kept confidential by me and will be locked up in my home. After the dissertation is complete all of the recordings and written materials will be destroyed.

There will be minimal risks to you in this study. Any discomforts that you may experience as a result of reflecting on your beliefs about how learning occurs during rotations will be no more than is experienced in everyday life. Although your contributions will be important, there are no direct benefits to you for participating in this research. You may however find that your own beliefs about how learning occurs during rotations may be helpful to you personally.

Your participation in this project is completely voluntary and you may refuse to participate at any time with no penalty. If you have any questions about this research, you can call me at: 617-732-2299 or email me at [paul.difrancesco@mcphs.edu](mailto:paul.difrancesco@mcphs.edu). If you have any questions about your rights as a participant in this research, you can contact Kristen Kenny, Institutional Board Administrator, University of Massachusetts, Boston, at 617-287-5374, or [kristen.kenney@umb.edu](mailto:kristen.kenney@umb.edu).

*I HAVE READ THE CONSENT FORM. MY QUESTIONS HAVE BEEN ANSWERED.  
MY SIGNATURE ON THIS FORM INDICATES THAT I CONSENT TO PARTICIPATE*



*IN THIS STUDY. (add when appropriate and necessary: I ALSO CERTIFY THAT I AM 18 YEARS OF AGE OR OLDER.)*

\_\_\_\_\_  
Signature of Participant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Researcher

\_\_\_\_\_  
Date

\_\_\_\_\_  
Typed/Printed Name of Participant

\_\_\_\_\_  
Typed/Printed Name of Researcher

APPENDIX B

CONSENT FOR AUDIOTAPING AND TRANSCRIPTION

Study name: **How Pharmacy Students Learn on Rotations**  
Researcher: **Paul DiFrancesco, Doctoral Student at University of Massachusetts,  
Boston**

This study involves the audio taping of your interview with the researcher. Neither your name nor any other identifying information will be associated with the audiotape or the transcript. Only the researcher will be able to listen to the tapes.

The tapes will be transcribed by the researcher and erased once the research is completed. Transcripts of your interview may be reproduced in whole or in part for use in presentations or written products that result from this study. Neither your name nor any other identifying information will be used in presentations or in written products resulting from the study.

Immediately following the interview, you will be given the opportunity to have the tape erased if you wish to withdraw your consent to taping or participation in this study.

**By signing this form you are consenting:**

- having your interview taped;
- having the tape transcribed;
- use of the written transcript in presentations or written products;

**By checking the box in front of each item, you are consenting to participate in that procedure.**

This consent for taping is effective until the following date: July 1<sup>st</sup> 2010. On or before that date, the tapes will be destroyed.

**Participant's Signature** \_\_\_\_\_ **Date** \_\_\_\_\_

## APPENDIX C

### SITE-SPECIFIC INFORMED CONSENT

Principal Investigator:

Co-Investigator: **Paul DiFrancesco**

*You have been asked to participate in the research study, **Context-Based Learning by Pharmacy Students during their Clinical Rotations: The Role of Situated Learning in Experiential Education**. This research study is expected to last three months.*

*This research is **NOT** funded.*

*The principle and only investigator has **NO** conflict of interest with this study and has **NOT** done any of the following: spoken for a fee, been paid as a consultant, or bought stock in the company sponsoring the study. Before agreeing to participate, you may obtain more information about the potential conflict of interest if you wish, by calling the research staff or by calling*

#### **A. The Purpose and procedures of this research**

##### **A.1. What is the purpose of this research?**

*The purpose of this research is to explore learning through the social construction of new knowledge that emerges in the experience of pharmacy students engaged in clinical experiential learning. The context of this experience will be the social environment and social interactions of students and their preceptor.*

##### **A.2. What procedures are involved with participation in this research study?**

**An ethnographic approach will be used in this study. An ethnographic approach allows one to "construct an adequate account of the workplace cultures (social relations, activities, context, and knowledge-in-use) and the induction of students into those cultures. "That means observation and interviews; watching what people do and asking them questions.**

**This study involves the audio taping of your interview with the researcher. Neither your name nor any other identifying information will be associated with the audiotape or the transcript. Only the researcher will be able to listen to the tapes. The tapes will be transcribed by the researcher and erased once the research is completed. Transcripts of your interview may be reproduced in whole or in part for use in presentations or written products that result from this study. Neither your**

**name nor any other identifying information will be used in presentations or in written products resulting from the study.**

**Immediately following the interview, you will be given the opportunity to have the tape erased if you wish to withdraw your consent to taping in this study. The audio taping of the interviews is a required step in the research so if you do not wish to be audio taped then you will not be able to participate in the study.**

**A.3. Which of these procedures is experimental?**

*This is a qualitative study not quantitative. There are no procedures, experiments, control groups, comparisons, or measurements. The objective is to attempt to understand how students construct knowledge on rotations. The data will be collected in two ways: through interviews and by observation.*

**A.4. Where will participation take place?**

*The participation will occur in various locations of the hospitals such as office, conference rooms, and public places. **It will not occur in patient rooms***

**A.5. How long will participation last?**

*This research study is expected to last three months*

**B. The possible risks, discomforts and side effects of the procedures are described below, including safeguards to be used for your protection.**

*There will be minimal risks to you in this study. Any discomforts that you may experience as a result of reflecting on your beliefs about how learning occurs during rotations will be no more than is experienced in everyday life.*

**C. There are possible benefits to you or others to be expected from your participation in this research.**

*Although your contributions will be important, there are no direct benefits to you for participating in this research. You may however find that reflecting on your own beliefs about how learning occurs during rotations may be helpful to you personally. This is not a treatment study. You may choose not to participate in this study without any penalty to you.*

**E. Who can you call if you have questions about this study?**

*You do not have to sign this consent form until all the questions you have at this time are answered. The investigator is willing to answer any questions you may have about the study procedures. Below is a list of contacts if you should have any questions about the study.*

the research, research-related treatments, or a research related injury	Paul DiFrancesco	617-721-2882
your rights as a research participant	An IRB Representative	
the research in general		
a confidential issue that you would like to discuss with someone not associated with research	Patient Relations	

**F. Your participation in the research is voluntary.**

*You may refuse to participate, or withdraw your consent and discontinue participation in the research at any time. You may do so without penalty, or loss of benefits to which you are otherwise entitled. Your decision whether to participate will not affect your future medical care at.*

**G. You will not receive financial compensation for your participation in this research.**

**H. Your confidentiality will be guarded to the greatest extent possible.**

*Hospital will protect all the information about you and your part in this study, just as is done for all patients at Hospital. Your records will be maintained in accordance with applicable state and federal laws. However, private identifiable information about you may be used or disclosed for purposes of this research project as described in the study's authorization form.*

**I. What happens if you are injured as a direct result of your participation in this research project?**

In the event that you are injured as a direct result of taking part in this research, you will receive help in the *following way*:

*If you have medical insurance, Hospital will collect fees for medical treatment at Hospital from your insurance company. If you are not fully covered by insurance or uninsured, the research sponsor of the study or Hospital will cover these expenses.*

*There is no plan for Hospital to pay for your medical expenses at other hospitals or for pain and suffering, travel, lost wages, or other indirect costs of taking part in this*

research. You do not waive any of your legal rights by signing this informed consent document.

**J. Signatures**

You will be given a copy of this informed consent document to keep. By signing below, it means that you have read it, that you voluntarily agree to participate in this research, **Context-Based Learning by Pharmacy Students during their Clinical Rotations: The Role of Situated Learning in Experiential Education**, and that you consent to the performance of the procedures listed above.

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Participant's Signature Date

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*Legally Authorized Healthcare Representative*  
*Date*

---

Person Obtaining Consenter's Signature  
Date

---

*Witness signature*  
*Date*

(A witness is the person observing the explanation of the above information to the participant. A witness to the informed consent process is optional unless presented orally.)

APPENDIX D

INVITATION TO PARTICIPATE FROM INSTITUTION

Dear \_\_\_\_\_

June, 2009

For the next several months starting in July, (institution name) is sponsoring the dissertation research of Paul DiFrancesco, a visiting pharmacist and faculty member. Paul will be working under the direction of (contact name) at (institution's name) and he is interested in learning more about how students learn while they are on their experiential rotations.

As part of this research Paul would like you to participate in this study. Your participation is voluntary and would not affect your grade in any way. If you agreed to participate, you would be interviewed several times over the next two rotations. On other occasions, Paul would also observe you during your normal activities during the two rotations.

Your identity and any information that he receives from you would be kept strictly confidential from anyone, including me. No one will be able to know if you have agreed or refused to participate in the study. If you do decide to participate, this information will only be known by Mr. DiFrancesco for the entire study and afterwards. There are no penalties or consequences for not participating in the study.

The results of the study could help us with a better understanding of the factors that help students learning during rotations and your perspective as a 6<sup>th</sup> year PharmD student would be valuable.

Please read the attached letter from Paul which will provide you with further details. You may contact me at (phone number) or at (email address) if you have any questions. Thank you for your attention.

Sincerely,  
(contact's name)

## APPENDIX E

### INVITATION TO PARTICIPATE FROM RESEARCHER

Dear Student,

June, 2009

My name is Paul DiFrancesco and I am a doctoral student in education at the University of Massachusetts in Boston. I am also a pharmacist and a faculty member at the college. I am conducting a study entitled "*How Pharmacy Students Learn on Rotations.*"

I am asking you to be a participant in this study. If you agree to participate you will be interviewed by me 3 times during each of the two rotations in July and August. I would also observe you while you are performing your daily activities of the rotations for a period of several hours, also 3 times during each rotation.

The interviews would be audiotaped, transcribed and the tapes would be destroyed at the conclusion of the study. The tapes, and transcriptions, would be locked up and kept confidential by me. Also your true identities would not be used in any write up of the research.

No one will know if you have agreed or refused to participate in the study. This includes all faculty and administrators including and. If you do agree to participate, this fact will be kept confidential by me during the entire study and after it has ended.

There are minimal risks to you in this study. Any discomforts you experience as a result of discussing your experiences will be no more than what would occur in daily life. You have the right to refuse to answer any question. I have listed a sample of the types of questions that I would be asking at the end of this letter.

Although your contributions would be important, there are no direct benefits to you for participating in this study. However you may find that your own beliefs about how learning occurs during rotations may be helpful to you personally.

Your participation in this project is strictly voluntary and you may refuse to participate at any time with no penalty. If you have questions about your rights as a participant, please contact Ms. Kristen Kenny, Institutional Research Board Administrator, University of Massachusetts, Boston, at 617-287-5374, or [Kristen.kenny@umb.edu](mailto:Kristen.kenny@umb.edu)

Please let me know if you are willing to participate in this study. If you have any questions or concerns, my contact information is: phone: **XXXX** or email: **paul.difrancesco@mcpshs.edu**

Thanks, Paul DiFrancesco



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