THE ROLE OF LISTSERV PARTICIPATION IN THE PROFESSIONAL DEVELOPMENT

OF A NURSING COMMUNITY OF PRACTICE

by

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(Under the Direction of Sharan B. Merriam)

ABSTRACT

The purpose of this study was to determine how listserv membership fosters practice and identity in a community of practice of advanced practice nurses. The investigation was guided by four research questions. First, what is the nature of the learning that results from participation in the listserv of a professional nursing community of practice? Second, what is the nature of the interaction between members and the community? Third, in what ways does participation in a professional listserv impact professional practice? Lastly, in what ways does participation in a professional listserv impact professional identity development?

This qualitative case study included face-to-face interviews of ten advanced practice nurses who were members of an advanced practice listserv. In addition to interviews, listserv documents were downloaded and analyzed for content. Four categories of interrelated findings were inductively derived from the data using the constant comparative method of analysis.

The participants of the study learned about legal issues affecting practice, the political process, research applicable to practice, educational programs, job negotiations, and about medication and treatment protocols from their listserv participation. This learning occurred through discussion, questioning, networking, mentoring, observation and face-to-face meetings.

Varying levels of participation characterize the nature of the interaction between the individual and the group. The membership is characterized as possessing energy. The community guides normative behavior and is synergistic. Professional practice is strengthened through the listserv, tacit knowledge becomes visible, research studies are conducted, leadership is fostered, and advocacy for clients and the profession is strengthened. The online community facilitates professional identity development through political activism, critical reflection, increasing professional power, and fostering pride in the profession.

Three conclusions were reached; 1) that communities of practice can be fostered in online environments, 2) online environments can enhance professional practice, and, 3) online environments can nurture professional identity development. Online communities of practice can be a source for continuing professional education of advanced practice nurses by promoting both professional practice and professional identity development.

INDEX WORDS: Communities of Practice, Professional Identity, Professional

Development, Online Communities, Advanced Practice Nurses, Listservs

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DEDICATION

This research study is dedicated to Doug, Matt and Kate, for their patience and understanding throughout my doctoral study. I hope they will continue their enthusiasm for lifelong learning, zest for living and love for mankind. To my parents, thank you for providing me opportunities to see the world through the eyes of those less fortunate and for all you have done to support me during this time of exploration and growth. You are my foundation!

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CHAPTER 1

INTRODUCTION

The United States is currently experiencing a severe shortage of professional nurses. One

cannot listen to the nightly news or pick up a newspaper or journal without being exposed to this

fact. The statistics documenting this condition are alarming! The total population of registered

nurses is growing at its slowest rate in 20 years. The American Hospital Association, long touted

as the watchdog for healthcare in the United States, estimates that 126,000 nurses are currently

needed to fill vacancies in our nation's hospitals (American Association of Colleges of Nursing,

2002). According to the latest projections from the U.S. Bureau of Labor Statistics, published in

the November 2001, *Monthly Labor Review*, more than one million new nurses will be needed

by the year 2010. The U.S. Department of Labor projects a 21% increase in the need for nurses

nationwide from 1998 to 2008, compared to a 14% increase for all other occupations projected

during this same period (American Association of Colleges of Nursing, 2002).

The current shortage is evidenced by fewer nursing graduates and fewer nurses entering

the workforce. Enrollments in all basic registered nurse (RN) preparation programs have

declined each year for the last five years. Consistent with the decline in enrollments is a decline

in graduation rates. Presently only 32% of RN's are prepared at the baccalaureate level and an

additional 10% at the master's level.

The total number of candidates taking the National Certification Licensing Exam for Registered Nurses (NCLEX-RN) for the first time in the United States has declined from a high of 96,438 in 1995 to 68,759 in 2001 (American Association of Colleges of Nursing, 2002). With fewer new nurses entering the profession, the average age of the RN is climbing. It is estimated that about one half of the nursing workforce will reach retirement age in the next 15 years (Sigma Theta Tau, 2002).

The nature of the care environment in which nurses practice significantly contributes to the shortage of professional nurses. The nursing shortage has resulted in higher nurse/patient care ratios, longer work hours and job dissatisfaction. These unfavorable work conditions are driving nurses to leave the profession. A recent survey reported in the Journal of the American Medical Association reports a shocking relationship between these factors and increases in patient deaths. This report found that 40 percent of the nurses working within the hospitals surveyed reported dissatisfaction with their jobs, a rate that is four times greater than the average for all US workers and that one in five nurses plans to leave their job within the next year. Unless issues related to the care environment are addressed, strategies to decrease the national shortage of professional nurses will not be successful (Aiken, Clarke, Sloane, Sochalski & Silber, 2002).

Managed care provider reimbursement policies create incentives to move patients quickly through healthcare. Healthcare settings are paid for providing patient services according to national standards for each diagnosis, and, a ratio of average length of stay per diagnosis. When healthcare settings discharge a patient in fewer days than the national recommended standard, they are able to increase profit margins. This system has fostered decreased lengths of stay and early discharge of patients who are sicker and who require more highly skilled nursing while in the hospital as well as upon their return to the home environment. This present shortage is not

just about numbers of nurses but having nurses with the needed specialties, skills and experiences to meet the health needs of the population who are affected by the healthcare reimbursement policy.

The traditional method for increasing the skill levels and knowledge of professional nurses has been through continuing professional education and the continuation of formal education. Today, healthcare providers cannot afford to allow professional nurses to leave floors already short-staffed, or to hire replacement nurses to provide relief for full time nurses to pursue the continuing education necessary to gain the skills needed to meet current healthcare needs. Many hospitals are paying salaries in excess of $50.00 per hour for agency nurses to meet existing critical shortages. As a result, hospital administrations, while admitting the value of continuing education, are often unable and unwilling to support the costly budgetary item of continuing professional education.

Technological advances also impact the nursing shortage. There has been a literal explosion of readily available medical information via the Internet. Life-saving machines are becoming increasingly sophisticated requiring continuing training and advanced skill levels. Computerized charting and the paperless patient record are common. The short half-life of professional and technical knowledge necessitates that professional nurses develop learning skills that enable them to adapt to these changes, and to practice within an environment rich in information (Cheek & Doskatsch, 1998; Simpson, 1999; Waddell & Hayes, 2000).

The shortage of nurses and the demands of a sophisticated healthcare system significantly impact the practice of nursing. There are declining numbers of nurses required to practice at increasingly higher skill levels, fewer nurses practicing in the clinical setting, and, there is less time once in the practice setting for the professional to continue professional education and

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development. One means of addressing this problem might be through technology, and in particular online communities of practice.

Online Education

Online learning is significantly impacting education. It was estimated that approximately 70.2 million Americans older than age 16 used the Internet in 1998 (Nielson Media Research and CommerceNet, 1998). This number is growing every day, as learners are able to access journals, search databases, and contact experts and colleagues via computer technology. Today thousands of nurses nationwide are participating in degree completion programs (Registered Nurse – Associate Degree to Bachelor of Science in Nursing [RN-BSN], Registered Nurse to Master of Science in Nursing [RN-MSN]) as well as completing continuing education programs via the Internet. Nursing care is intricately connected to information technology and it is a logical progression for the professional nurse to utilize this resource for continuing education. The basic functions of charting patient care, medication management, coordinating team efforts, determining staffing needs and patient acuity are all mediated through information technology systems, specifically computer technology.

Much literature exists that addresses formal learning in structured online environments in university settings (Carty & Rosenfeld, 1998; Cragg, Plotnikoff, Hugo & Casey, 2001; Kaas, Block, Avery, Lindeke, Kubik, Duckett, et al., 2001; Lyons & Milton, 1999; Madorin & Iwasiw, 1999; Meeland & Volden, 2001; Palloff & Pratt, 1999, Soon, Sook, Jung & Im, 2000). Concepts such as the ideal class size for online classrooms, community building, management of the course sites, and evaluation of online courses are discussed. There are also countless resources available that address learning outcomes that result from the combination of technology and teaching and learning principles in online environments in general (Benigno & Trentin, 2000;

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Billings, 2000; Cahoon, 1998; Cartwright, 2000; Eastmond, 1998; Jacobson, Maouri, Mishra, & Kolar, 1996; Leasure, Davis & Thievon, 2000; Lyons & Milton, 1999; Morss, 1999; Rouse, 2000; Spiro, Feltovich, Jacobson, & Coulson, 1995; Sternberger & Meyer, 2001). Overall, this body of literature suggests that there are "best practices" for designing online learning environments that result in optimum learning. For example, learning environments that are designed to facilitate collaborative learning, whether through synchronous or asynchronous learning environments, have been shown to foster construction of knowledge.

Evidence suggests that it is possible to create community without face-to-face interaction (Palloff & Pratt, 1999). A conscious community can be developed through the "initiation of and participation in discussion about goals, ethics, liabilities, and communication styles, that is, norms" (Palloff & Pratt, 1999, p.23). Thomsen (1998) creates a unique analogy between a community as a place of idle talk and banter between friends that was once experienced at cafes, barber shops, pubs, and the community that is created when one logs onto the Internet to visit chat rooms, view email or surf the net. What are required are new definitions of community, social interaction, and social bonding. Palloff and Pratt identify collaborative learning as a key element in the learning process within computer mediated environments. They state that the "most powerful experiences [of learning] are those in which interaction occurs throughout the group instead of between one participant and the facilitator within the group setting" (Palloff & Pratt, 1999, p 19).

Online communities of practice have been studied through an analysis of patterns of communication that have been identified in the literature as central to community building (Haythornthwaite, 1998; Herrmann, 1998; Jarvela, Bonk & Lehtinen, 1999; Thomsen, Straubhaar & Bolyard, 1998). In a recent article describing social interactions in a computer-

based environment, Jarvela (1999) concluded that computer technology can enhance reciprocal understanding in social interactions and address mutual concerns in learning. Thomsen (1998) concludes that online communities of practice are indeed "real" in that they reflect the changing nature of human relations and human interactions.

The literature addressing the use of online environments in continuing professional development is growing (Bergren, 1999; Billings & Rowles, 2001; Brown, 1998; Cheek & Doskatsch, 1998; DiMauro, 2000; Ellerton & Curran-Smith, 2000; Hayden, 1997; Kenworthy & Dearnley, 2001; Menz, Surdick, & Stewart, 2000; O'Brien & Renner, 2000; Warn, 1999). The foci of this body of literature is on online learning as a strategy to increase access to and participation in continuing professional education, on online learning as a means to foster lifelong learning behaviors, and on online learning as a cost-effective organizational budgetary strategy.

As early as 1994, Sherwood, Armstrong, and Bond identified distance education as a cost- effective tool for facilitating continuing professional education for nurses. In 1991, Texas enacted mandatory continuing education for relicensure of nurses. In the aftermath of this edict many formal education settings initiated programs to assist nurses in obtaining the education needed for relicensure. However, the educational settings were not prepared to meet the nurses' needs for accessibility and accommodation of learning. In detailing their experiences with satellite telecommunication models for delivery of continuing professional education, the author's stress that nurses at outreach sites achieve similar or higher grades than their counterparts in traditional face-to-face classes on the campus and that distance learners do indeed meet program goals satisfactorily.

O'Brien and Renner (2000) propose that the current nursing shortage creates an opportunity for educators to develop innovative approaches to career mobility for registered nurses. The influences of the current healthcare environment, inadequate staffing, high patient acuity, accessibility, and lifestyle concerns for current practicing nurses are mentioned as impacting the current status of continuing education in nursing. The authors suggest "the most efficient method for meeting this current high demand is to develop effective methods to foster career advancement within the existing nursing work force" (O'Brien & Renner 2000, p. 14). They propose that learning in online environments is a solution to the continuing education needs of the professional nurse and suggest that the adult learning principles of situated learning, collaborative learning and community building can be incorporated into online learning experiences.

Warn (1999) suggests that training efforts alone are not sufficient to prepare professionals to meet the needs of clients today. In discussing instructional strategies and distance technologies that support lifelong learning, she describes the professional of tomorrow as one who collaborates and networks with colleagues, clients, and other community resources toward gaining practice expertise in a rapidly changing world. An in depth qualitative investigation into an online master's level rehabilitation counseling program proposes that a professional rehabilitation network is created among faculty and learners in an online learning community and that instruction that is personalized and established in world settings can be directly applied to the work setting. "Learning in groups not only stimulates an exchange of ideas and resources between individuals, but strengthens the interpersonal network between colleagues within and outside of the organization" (Warn, 1999, p. 49). However, despite an abundance of research into the areas of access, lifelong learning and cost-effective organizational strategies of online

learning, we know little about how online communities might support and advance professional nursing practice.

<p align="center">Communities of Practice</p>

People form many interpersonal networks and relationships throughout their lives. Through shared practices and varying levels of participation in these networks, we learn who we are, form identities, and learn to survive in the world. The learning that occurs within these networks can be described as "collective" and results in practices that reflect our life goals and social affiliations (Stamps, 1997). A framework for studying the learning that occurs during practice within networks has come to be known as "communities of practice." All people belong to communities of practice whether through formal learning environments, civic organizations, family structures, work groups or social and professional affiliations. Communities of practice are groups of people who share insights and ideas and help each other solve problems and develop a common practice or approach.

Communities of practice theory has its origins in situated cognition and social learning theory (Lave & Wenger 1991; Wenger, 1998). Wenger (1998) describes social learning theory as located at the intersection of two axes. As can be seen in Figure 1, the vertical axis represents the dynamic tension created between theories of social structure and theories of situated experience. The horizontal axis depicts the tension created between theories of practice and theories of identity.

This theory of learning starts with the assumption that engagement in social practice is the fundamental process by which we learn (Wenger, 1998). "Communities of practice are the building blocks of a social learning system because they are the social 'containers' of the competencies that make up such a system" (Wenger, 2000, p. 229).

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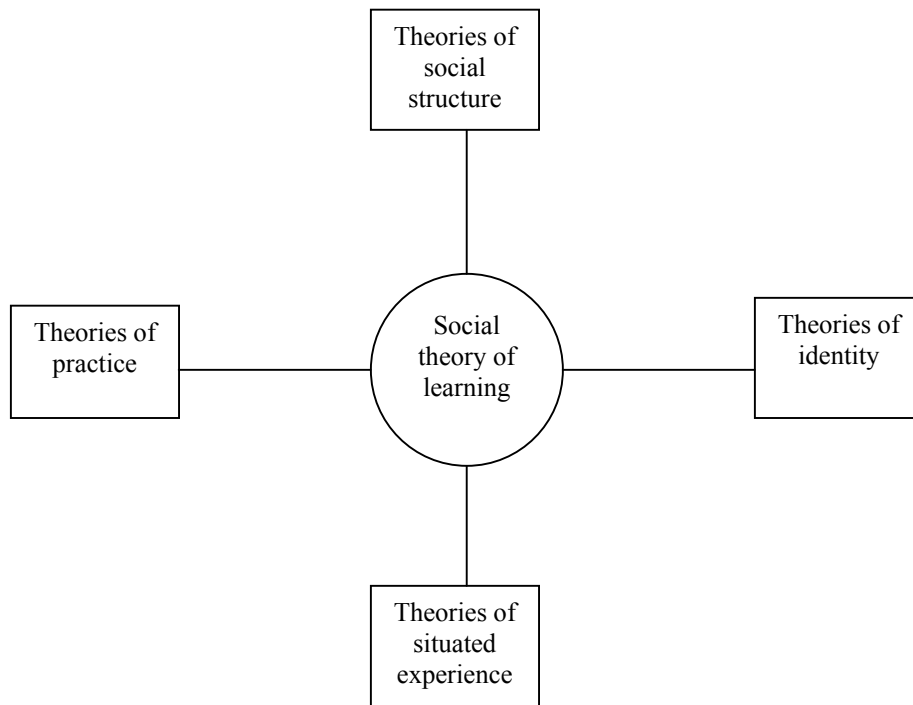
Figure 1.   Social Theory of Learning, Wenger (1998, p.12)

Learning in communities of practice "involves an interaction between experience and competence" (Wenger, 1998 p. 214). Holding to the tenets of social learning theory, Wenger (1998) states that learning is not just an accumulation of skills and knowledge, but rather a process of continued personal development. It is this process that so intimately ties practice to identity. Participation in communities of practice and reification or valuing the practice of the community assists in one's development of identity. Learning is therefore a process and a place. Learners participate in communities at different levels of knowledge and as they move toward full participation in the practices of the community they become more competent. As members

of a community gain competence in the skills associated with that community, they gain a sense of identity of what it means to belong to the group.

Wenger (2000) identifies three phases to identity formation in a community of practice: engagement, imagination, and alignment. Engagement includes doing things together, talking, producing artifacts such as nursing notes, or use of the nursing diagnostic categories used in care planning, or helping a colleague with a problem. Imagination is the constructing of a new image of our community and selves, and alignment is characterized by a mutual process of coordinating perspectives and actions toward attainment of a higher goal, for example, developing codes of practice or ethics. These phases of identity formation describe components of professional practice.

<div align="center">Professional Identity</div>

Professional identity occurs when an individual places positive personal value and takes ownership of the norms, characteristics, behaviors and outcomes of a selected career. Careers are more than a collection of activities and positions that can be carried out by an individual. They are reified, result in commitment to the career norms, and become a major source of one's lifework and ones relationships with society. Professional identity is characterized by the development of altruistic beliefs regarding the value and worth of the service over the immediate gains that one could receive from relationship with the profession (Schon, 1983).

There are many definitions of professionalism and professional practice. Professional practice can be defined as the negotiation of a shared enterprise and the building of a repertoire of behaviors, routines, tools, histories, stories, and ways of doing things (Wenger, 1999). According to Houle, Cyphert and Boggs (1987), a major criterion for defining a profession is that the profession possesses a specialized body of knowledge and skill that is acquired during

education and training at higher institutions of learning. Cervero (1992) states that professional practice assumes that professions are necessary because, "important structures and functions in society depend on their special knowledge and competence" (p. 93). A characteristic of professionals is that they value the knowledge acquired from their practice more highly than the knowledge gained from formal education. Cervero (1992) further contends that this viewpoint is contradictory to society's traditional belief that formal, abstract knowledge is most desirable. This traditional belief that formal, abstract knowledge is most desirable, whether correct or incorrect, has directed past educational efforts toward formal professional education rather than toward efforts to learn from practice. However, nursing is one profession that has relied upon learning from practice.

Researchers in education have long attested to the value of learning from practice (Benner, 1984; Cervero, 1987; Cervero, 1992; Houle, 1970; Lave & Wenger, 1991; Wenger, 1999). Benner (1984) supports this view of professionalism in her work with professional nursing. She affirms that the profession of nursing has been studied primarily from a sociological perspective, providing information regarding role relationships and socialization. This perspective provides little about the knowledge required for actual practice, the knowledge that builds over time in the practice of "nursing." In her seminal work, Benner (1984) identifies behaviors characterizing growth within the nursing profession through qualitative analysis of the transcripts of professionals using "exemplars" or descriptions of challenging clinical situations. Through this analysis she has developed categories of "growth" from novice to expert, from entry into the profession to mastery levels of participation.

Statement of the Problem

Continuing professional education has become a luxury for nurses. Now perhaps more than ever before, the sophistication of the healthcare system requires that nurses be able to practice at increasingly higher levels of skill and competence. As a result of a severe shortage of nurses nationwide there are fewer nurses to work in clinical settings and those who are working carry a high patient load with many responsibilities. Nurses find little time to pursue continuing professional development opportunities. Online learning might be an option for nurses to access continuing professional education that is both cost effective and time efficient. Through the Internet, nurses are able to learn at their convenience both on and off duty.

However professional practice requires knowledge of skills, as well as the development of professional identity. Both of these together serve to define and reify the individual profession and ensure its survival and adaptation to the changing needs of the world. One method of characterizing professional nursing practice behaviors has come from observation of clinical practice (Benner, 1984). Online learning for continuing professional education creates new learning issues. Professional practice in the future will be carried out in cyberspace as well as in the traditional face-to-face classroom and at the patient bedside. Therefore, new definitions of professional practice are needed to evaluate and address both the practice and the learning that occurs within such online learning environments.

In this study, communities of practice are defined as social learning systems that have the potential to exist in online environments. All people belong to communities of practice and it is the interaction of the individual with the community that defines the practice of a community. Research exists describing how communities of practice foster professional identity; however, much of this research is found within the business arena focusing on outcome attainment and

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employee work environments. In addition to the business applications found in the literature,

scholars are applying Wenger's (1998) framework of communities of practice to faculty

development, classrooms and online courses. Little research exists that addresses the role of

communities of practice in continuing professional education outside the business and formal

university educational settings.

Online learning communities have become a means for increasing access to and

participation in continuing education. Based on their unique characteristics, these communities

might play a significant role not only in helping nurses stay up-to-date in their clinical area of

expertise, but it can also be speculated that such communities promote professional identity as

well. However, while there is a significant amount of research in the areas of online learning and

continuing professional education, and a growing body of research into communities of practice

in online environments, no studies were found that address the role of communities of practice in

online environments specific to nursing continuing professional education. The shortage of

nurses is projected to continue for the foreseeable future. The continuing professional education

of this group of professionals is critical underscoring the urgency of investigating alternatives to

the traditional methods of obtaining continuing education.

<center>The Purpose of the Study</center>

The purpose of this study is to determine how Listserv membership fosters practice and

identity in a community of practice of advanced practice nurses. The investigation will be guided

by the following research questions:

1.   What is the nature of the learning that results from participation in the Listserv of a

        professional nursing community of practice?

2.   What is the nature of the interaction between members and the community?

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3.   In what ways does participation in a professional Listserv impact professional practice?

4.   In what ways does participation in a professional Listserv impact professional identity development?

Significance of the Study

Healthcare reform has resulted in many changes for the health professions. The subtle change of healthcare from an altruistic profession to one characterized by a business attitude and "bottom line" mentality has threatened the identity of nurses and other health care providers as they struggle to deal with declining financial resources for education and practice. Given the ever- changing context in which nursing is practiced, maintaining professional identity is a major task for survival of the profession. Educators of adults have a vital role in assisting this process.

 In addition, the country is currently experiencing a significant nursing shortage and professional nurses are desperately needed to fill many vacant health care positions. Nursing education programs, both formal and continuing professional education, are fast implementing online learning in an attempt to capture and retain students looking for accessible learning options that fit into their work, family and social worlds, and, which meet the critical need for healthcare personnel by preparing professionals in a timelier manner. However, virtual learning further reduces the time spent by a learner in the clinical environment, possibly reducing the professional identity development gained through apprentice learning. The application of the theoretical framework of communities of practice to social learning in nursing has not yet been investigated. By adding the third component of online learning this unique study will incorporate three very current trends in nursing education into one study that will have significant impact on meeting both social and professional needs.

Initially, the findings of this study will contribute to the understanding of professional identity as it is developed in non-traditional learning environments. If professional nursing identity can indeed be fostered in online learning environments, then additional support is lent to the recent changes occurring in nursing education. Validity of professional education provided in university settings, shortened clinical practice affiliations, and the use of the current technology of online learning will be strengthened. In an environment where there is a severe shortage of professional nurses, it is hoped that professionalization might be nurtured through online communities of practice. If this is a finding of this study, the length of formal nursing education programs could be reconsidered. Shortening formal education programs would go far in alleviating the current and projected continuing nursing shortage. Senior nurses as mentors to the new nurses entering the profession might play a major role in socialization and professionalization of the new nurse in online communities of practice. Therefore, professional nurses can take an active role in maintaining the stability of the profession in a time of severe shortages and need.

Second, the theoretical framework of communities of practice, as defined by Lave and Wenger (1991, 1998), provides a vehicle for studying professional identity and the theoretical application of situated cognition. This framework has only recently been applied to professional development in online communities. Third, the findings of this study will be directly applicable to current educational practice. It is likely that the findings of this study will suggest that professional identity can be developed in online learning environments through communities of practice, suggesting that characteristics of professional communities of practice can be replicated or encouraged, and that professional identity can be fostered outside traditional frameworks.

Professional Nurse

A professional nurse is a nurse who is licensed by successful completion of the NCLEX -RN examination to practice nursing.

Community of Practice

A community of practice is a set of relations among persons, activity, and world, over time and in relation with other tangential and overlapping communities of practice. A community of practice is an intrinsic condition for the existence of knowledge, not least because it provides the interpretive support necessary for making sense of its heritage. Thus, participation in the cultural practice in which any knowledge exists is an epistemological principle of learning. (Lave & Wenger 1991, p.98).

For the purposes of this study, communities of practice are defined as formal or informal networks or groups of nurses engaged in an online professional relationship/interaction.

Professional Identity

Professional identity, for the purposes of this study, is the process in which the nurse becomes socialized into "nursing" and therefore identifies him/her self as a nurse.

CHAPTER 2

REVIEW OF THE LITERATURE

The purpose of this study was to determine how Listserv membership fosters practice and identity in a community of practice of advanced practice nurses. The literature that relates to this study falls into a number of categories. First, the area of theory related to online learning in adult education, specifically in continuing professional education will be presented. Secondly, the theoretical framework of "communities of practice" as related to professional development, and finally, the areas of professional development and professional identity formation will be presented.

For the purposes of this study a distinction is made between distance learning and computer mediated learning. There is an extensive body of literature discussing distance education and its influence in adult learning. Distance education has been available for many years in the form of correspondence schools and programs for working professionals. Distance education has taken the form of learning guides, textbooks and classes conducted over television phone connection or satellite that have resembled the traditional classroom with students studying that which is prepared by the teacher in essentially a one way method. Online learning by contrast, is defined as learning specifically through computer-mediated technology either in synchronous or asynchronous formats.

Online Learning

Andragogy views the learner as an active participant in learning, assumes that the learner's life experiences influence the individual's identity, and, contends that each adult can be a rich resource for other adult learners (Knowles, 1984). Adult learners are self- motivated and come ready to learn when they experience a need to know or a "gap" in what they know and what is required to successfully meet the specific situation in which they are currently involved.

This "gap" is often initiated by career transitions. For example, entrance into a profession and moving from one status to another within the profession are situations that require the acquisition of new knowledge and skills for success. Often these transitions experienced by adults in professional environments require adjustments in practice. Organization wide adoption of a new software program or corporate buyouts resulting in staff and management reorganization and layoffs are examples of conditions requiring such a rapid change in behavior for success. Emphasis on strategies of learning that make use of the adult's life experiences and that assist the adult toward re-framing knowledge to fit changing life experiences is characteristic of adult learning. Computer mediated learning environments provide a rich source of learning that is "on demand" and situated in the work world.

Characteristics of Online Learning Environments

There are similarities and differences between traditional face to face classroom learning environments and online environments. Similarities include the issues of access and participation, the necessity to address the individual learners' needs (physical, emotional, etc.), creating content and selecting an optimal delivery method, implementing the process of learning, and planning methods of evaluating the learning that has occurred.

Two reasons often cited for lack of adult participation in learning opportunities are lack of time and lack of money (Merriam & Caffarella 1999). Online learning environments can increase participation through facilitating access. Learners are able to access courses at any time from many environments whether at home or work. Adult learners with full and busy lives can enter a learning environment when it is convenient for them. Computer technology has precipitated learning that can be independent of time and space, meeting the individualized learning needs of the participants. In addition, many online learning opportunities such as Internet "chat" rooms and group ListServs, are provided at low to no cost to the learner. Those adult learners who do not yet have home personal computer systems have opportunities to access computers at local libraries, schools, and businesses.

Learning environments, whether face to face or computer mediated, must be physically adapted to meet the needs of the adult learner. Normal aging characteristics of the adult can be incorporated into online learning environments. While all sensory functions decrease with age, vision and hearing deficits often have a direct impact on learning. Printed material becomes more difficult to read. Peripheral vision, depth perception, and color acuity also decrease with age. The older adult also experiences alterations in touch and sensation. The adults' hands, feet, and fingers become less sensitive to light pressure, temperature, texture, and pain. Decreased memory function is a barrier to learning in the older adult as well (Schaie & Willis 1996).

Learners can experience problems associated with repetitive motion such as carpal tunnel syndrome. Long hours sitting at the computer can lead to back problems, headaches, and eyestrain. Psychologically, learners can become addicted to the technology, and they can experience altered personae as they present themselves to a class that cannot see them.

As accommodations are made in a traditional classroom, so can they be made in online classrooms. Many technological solutions are now available to compensate for these physical learning limitations. For example, there are ergonomic devices including correct posture seating, large monitors to assist with decreased vision, font sizes and styles that are easier to read, wrist and arm supports to reduce repetitive motion injuries and sound systems to facilitate the communication of those who are blind or speech- impaired. As the teacher and the students are physically separated from each other in an online classroom, assisting the student with physical limitations becomes more difficult yet can be achieved through teacher attentiveness. Both classroom styles incorporate structure and evaluation pieces. Faculties continue to prepare course syllabi, course content outlines, and develop evaluation criteria such as assignments and testing requirements. However, the style of such documents differs in online learning environments. The principal difference, based upon research into online learning, suggests that constructed learning (creating knowledge and meaning through experimentation, exploration, and testing ideas in reality) and community-building activities are crucial to learning in online learning environments. Evaluation of learning is based on individual participation and outcomes, rather than universal curricula and age/level objectives.

Differences occurring between face to face and online environments include physical space issues. Time and space in online classrooms separate the teacher and learner. Neither place nor time any longer binds course attendance. Learning can take place at any time. Online resources are essentially unlimited as one has access to the world through the World Wide Web. The online environment is seen as a great equalizer of diversity eliminating boundaries between cultures, genders and age. Within asynchronous learning environments student characteristics

such as race, ethnicity, gender and economic status are confidential to others. Assumptions and biases related to diversity are less likely to emerge in the online environment.

As in all classrooms, learners have different styles for learning. Some students are more successful in online classrooms than in a traditional classroom. Research suggests that students who are attracted to online learning and who are most successful are older than the average student, are voluntarily seeking further education, are motivated and self disciplined, and tend to possess a more serious attitude toward their classes (Palloff & Pratt, 1999). A majority of authors addressing online learning today identify that the educational process of online learning is learner centered. As active learners, students are expected to participate with minimal guidelines, interact and engage with one another, speak up if the course is not meeting their needs, and take responsibility for formation of online communities. Learner motivation and self- direction are essential. The role of the instructor in online learning is that of facilitator and a mutual learning environment between instructor, learner and other classmates is fostered. Palloff and Pratt (1999) describe this networking, as "a web of learning" in which knowledge is collaboratively created. Learners are expected to work together and share resources.

The evaluation process in online environments is ongoing and constant, both formative and summative. Formative evaluation can be achieved by analysis of the number and quality of postings submitted by each student, participation within "chat" sessions, the quality of written assignments, and analysis of dialogue for evidence of understanding, reflection and critical thinking. Interaction and feedback from others indicates the accuracy of thinking and validates student understanding of course content. Learners interact with the knowledge, the environment, and with other learners. Summative evaluation can take the form of formal questionnaires allowing students to both select a response and to offer comments regarding the many aspects of

the course, and discussion. Adding questions about the computer assisted learning process; the effectiveness of this type of learning for the individual learner, and learner satisfaction levels with technology and software enhances this traditional process of completing final course evaluations.

Teaching and Learning in Online Environments

The computer is ideally suited for fostering cognitive flexibility, knowledge construction, and knowledge transfer. Two theories applicable to hypertext environments are constructivist learning and cognitive flexibility theory (Jacobson, Maouri, Mishra, & Kolar, 1996; Kochtanek, & Hein, 2000; Spiro, Feltovich, Jacobson & Coulson, 1995). These theories, developed out of social learning theory and situated cognition theory, suggest that learners actively create knowledge and meaning through experimentation, exploration and the manipulation and testing of ideas in reality. To construct personal meaning, authentic situations should be embedded in context, giving learners the ability to apply what they are learning to their daily lives. This strategy of situating learning facilitates knowledge transfer. Through immediate application of theory learners are able to better retain concepts and to test the concepts for applicability to their real world situations.

Constructivist learning theory emphasizes the real world complexity and ill structuredness of many knowledge domains. Professions such as medicine and nursing exemplify ill-structured knowledge domains. Practice in these professions requires the learner to make many interconnections of information and knowledge to address the uniqueness of each presenting situation. Decision-making is not a direct process from stored knowledge to application. Constructivists hold that learning environments can be developed that present multiple perspectives on reality. This type of learning environment supports the contention of

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constructivists, that values inform all knowledge constructions whether consciously or explicitly, and that from a constructivist perspective, knowledge is socially constructed (Lauzon, 1999). Lauzon further identifies the importance of developing a community of practice to facilitate this socially situated learning.

Educators can design constructivist learning experiences by clustering ideas and concepts around a central activity. For example, the learner may be asked to read a certain chapter in the textbook, review identified web sites corresponding to the content and participate in a synchronous chat on the topic. Such learning environments can also be identified as hypertext environments which present learning stimuli in a nonlinear manner by interconnecting and providing access to a wide range of knowledge represented in a variety of formats such as text, graphics, audio, and video. Teachers become facilitators and strive for a democratic learning environment in which learning objectives are negotiated between the learner and the facilitator. Cognitive flexibility theory, a theory extending constructivist theory, proposes that complex knowledge may be better learned and transferred to new situations by implementing case-based learning environments (Jacobson, Maouri, Mishra, & Kolar, 1996). These cases would include multiple knowledge representations, the linking of abstract knowledge to practice, demonstrations of the interconnectedness of concepts, emphasis on knowledge assembly and promotion of active student learning.

In a study that evaluated knowledge transfer in an online environment, Jacobsen et al. (1996) compared the learning that occurred among three groups of student learners exposed to different learning activities in an online class. Methodology included two treatment groups and a control group. The treatment and control groups were manipulated in two ways, 1) the amount of scaffolding and modeling that was provided to the students as they studied the knowledge

presented in the course, and 2) by the degree of learner control they were given in selecting the activities that were most beneficial to their learning. The hypothesis was that those students having more control over their learning would have more positive attitudes towards the online learning environment and demonstrate increased learning transfer. The researchers found that a high degree of learner control was not enough to facilitate knowledge transfer. Students in a study group in which the student selected the treatment or learning strategy were less successful in answering complex knowledge questions than those with more experience and practice in the field. The researchers suggest that this group of students was less successful because as non-experts they lacked the ability to make the interconnections of information and knowledge that were gained by the other treatment group who received guided learning activities. A recommendation from this study is to include the presence of expert guided learning to facilitate knowledge transfer and deeper understanding of complex knowledge domains. Support for this study's recommendation is evident in the literature, particularly in the work of Benner (1984) as she describes the transition of nurses from novice to expert, in the concept of legitimate peripheral participation as described by Lave and Wenger (1991) and as learning trajectories and legitimate peripheral participation within communities of practice as presented by Wenger (1998).

Herrington and Oliver (1999) investigated student's higher order thinking as they used an interactive multimedia program based on a situated learning approach. The learning environment design incorporated nine situated learning strategies such as coaching, scaffolding, collaboration, reflection and authentic assessment. The researchers defined higher order thinking as non-algorithmic, complex, often yielding multiple solutions, involving nuances in judgment and interpretation, involving uncertainty and self regulation and as imposing meaning and finding

structure in disorder. These characteristics of higher order thinking were used as the template for qualitative analysis of student communications within the course site and student communications were considered as "outward representations of thought" (Herrington & Oliver 1999, p. 404). Higher order thinking as defined by the characteristics mentioned, was found to be a substantial component of student's communication, exceeding 70% of the total talk. An additional finding of this study was that the students who developed stronger social relationships online experienced a greater degree of collaboration facilitating higher order thinking. Students were described as developing collaborative rather than argumentative or critical relationships.

Traditionally, professionals were prepared for the workplace through skill preparation alone. Professional learners were exposed to a variety of situations and learned response patterns after repeated observations of their mentors. Today this concept is being replaced by a broader concept of work preparation that emphasizes curriculum integration with learning of higher order thinking skills. Professionals now are required to construct meanings from their environments and to engage in metacognition, setting experts apart from novices. Beginning professionals need to be able to perform the same skills that experts are performing within the same situation for learning to be facilitated. According to Herschbach (1998), learning environments will need to change in the way they are structured and learners will need to be engaged in the construction, use and reformulation of knowledge across fields of inquiry.

While online education cannot completely replace clinical experience in professions such as nursing and medicine, online simulations have been found to increase learner performance in critical thinking. The literature examining development of critical thinking in professionals via online environments is scarce.

The majority of the research being done in nursing is situated in the arena of undergraduate formal education. In a quasi-experimental study, a selected sample of BSN (Baccalaureate Students in Nursing) students was exposed to an online clinical simulation. All groups were given pretests and posttests using a scale designed to measure self efficacy, or confidence level in completing a clinical procedure in a medical surgical setting. Findings indicate a statistically significant increase in self- efficacy scores among the experimental group immediately following participation in the online simulation (Madorin & Iwasiw, 1999). Kowalski and Louis (2000) measured critical thinking in BSN students exposed to online learning and found that 70% of the students surveyed determined that the online instruction was beneficial in increasing their critical thinking skills, while 83% indicated that they preferred computer mediated instruction over traditional classroom experiences. While the results of this study are questionable as little information is provided to the reader regarding test reliability and study controls, it does lend support to online environments as instrumental in developing critical thinking skills.

Developing Community in Online Environments

Online environments are most supportive of learning when they are designed to incorporate social interaction and foster communities of learning. Ongoing online activities assist learners in forming and negotiating bonds with classmates, foster a richness and diversity of experience, and encourages learners to discover the expertise in others. Criticism of online learning environments has included concern that learners will miss out on social interaction when working in an online community. Communities of the past were considered to be "place" based. Cyberspace communities, while virtual and difficult to place boundaries upon, do indeed exist and their creation facilitates professionalism. How are communities created electronically?

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Palloff & Pratt (1999) state that, because humans generate communication online, this communication is, therefore, human. Participants in online learning environments create electronic personalities. Participants have the ability to create communities online by carrying on internal dialogue, creating a private space, dealing with emotional issues, and creating mental images of other classmates. Such a cyberspace community differs from the classroom in several ways. Participants cannot see facial expressions and gestures that are so important in communication. There are no "normal hallways" for students to gather in and talk before and after class. Even though online communities are deprived of physical cues to communication, students can communicate as much and as often as they wish. There is recognized etiquette for Internet communication including slang and abbreviations. In an online environment personal issues of the learners are allowed to emerge to assist in the creation of community. Members will share responsibilities, create roles and discuss psychological and spiritual issues.

Studies investigating the communication patterns of communities of practice in online settings support that communities of practice can exist in online environments (Haythornthwaite, 1998; Herrmann, 1998; Jarvela, Bonk, & Lehtinen, 1999; Thomsen, Straubhaar, & Bolyard, 1998). Online groups coalesce and exist over time and can be defined as geographically disconnected people connected for a purpose. Herrmann (1998) uncovered the factors important to the birth and nurturing of an online community of practice: birth of the community, naming of the community, development of a common language among participants and conflict resolution. His subjects were 400 academics working in related fields of expertise. Using standard ethnographic procedures of participant observation, Hermann gradually increased his levels of participation into this group becoming more involved with the group, interviewed selected group

members, and conducted an online survey of participants to identify patterns of community building.

Palloff and Pratt (1999) believe that a "conscious community" can be created. Recognized steps needed to build a community include developing a clearly defined purpose of the group, creating a distinctive gathering place for the group, promoting effective leadership from within, defining norms and conduct, allowing for many roles, allowing for and facilitating subgroups, and allowing members to resolve their own disputes (Palloff & Pratt, 1999). In one of the few quantitative studies of communities among distance learners, Haythornthwaite (1998) describes the growth of such communities through the variables of centrality and isolation and proposes that these two variables are influential in performance and satisfaction levels of participants in online communities. The concept of centrality is used as a measure of the participants' place in the network or community. It is defined as a measure of how well positioned the actor is to both receive and disseminate information to all other members of the network, and as an indication of how central to the community organization the participant is. At the other end of the continuum is isolation.

Continuing Professional Education in Online Environments

The literature addressing the use of online environments in continuing professional development is growing (Bergren, 1999; Billings & Rowles, 2001; Brown, 1998; Cheek & Doskatsch, 1998; DiMauro, 2000; Ellerton & Curran-Smith, 2000; Hayden, 1997; Kenworthy & Dearnley, 2001; Menz, Surdick & Stewart, 2000; O'Brien & Renner, 2000, Warn, 1999). This literature focuses on online learning as a strategy to increase access to and participation in continuing professional education, online learning as a cost-effective organizational budgetary strategy, and on online learning as a means to foster lifelong learning behaviors.

Increasingly, professionals are taking advantage of continuing education offerings via the World Wide Web for obtaining both formal and practice knowledge. Eastmond (1998) states that in 1997, over half of the full time workforce in the United States used computers routinely on their jobs. In addition to this widespread use of computers in the workplace, it is estimated that over 30 million people accessed the Internet in 1997 (Hayden, 1997). Business and industry today are characterized by rapidly changing environments demanding that employees participate in continuous learning. To be successful, the employee learns to integrate specific job skills with other abilities such as decision-making and management into the context of their family, social relationships and the many other facets of their life. Warn (1999), in illustrating instructional strategies and distance technologies that support lifelong learning, describes the professional of tomorrow as one who collaborates and networks with colleagues, clients and other community resources toward gaining practice expertise in a rapidly changing world.

There is evidence that computer mediated communication is a viable source for continuing professional education. Benigno and Trentin (2000) state that computer mediated communication has significantly enhanced distance education through two processes. First, the interaction between learners in computer mediated communication facilitates social learning and psychosocial development. Second, asynchronous environments allow the learner time to reflect upon the topic being discussed and to formulate more complete and thoughtful responses.

Fung, Norton, Ferrill and Supernaw (1997) studied the development of professionalism via the Internet among first year pharmacy students. Based upon the hypothesis that mentoring has been an effective method for fostering early professional growth of students 99 pharmacy students were paired with professional pharmacists working in a variety of settings for a period of one year. Weekly topics for discussion were posted to an email listserv. During these

discussions mentors were able to share ideas and experiences and most importantly, share practical work related issues with the students. Upon completion of the academic year students and mentors were asked to complete a survey identifying their experiences. Mentors and students reported that they found the relationship enjoyable and rewarding. Interestingly, 100% of the mentors reported that they would like to see the project continue whereas only 56.6% of the students recommended continuing the project. The students felt that the project required too much of their time and that the mentors were too controlling of the discussions and assignments. The students did identify that the mentors provided a much more realistic picture of the "real world" than did their faculty and many planned to continue their relationships with the mentors following graduation from their program of study. Finally, findings from the study suggest that increased frequency of Internet discussion resulted in an increase in professional growth in students as measured by the students understanding of the profession, work related issues, and expressed feelings regarding the value of their chosen profession.

Findings from a research study investigating the nature of electronically facilitated study groups suggest that deliberation does occur in online environments, and that it can be measured by evaluating the patterns of communication and participation of the participants (Holt, Kleiber, Swenson, Rees, and Milton, 1998). The researchers facilitated a Web based conferencing program for three national issues forums supported through the Charles F. Kettering Foundation and the Public Agenda Foundation. Each forum lasted for six weeks and was facilitated by an online moderator. Each participant was provided with a handbook describing the research, the rules for Internet communication, and guidelines for online discussion. Following an analysis of the discourse generated from these forums the authors suggest that online environments provide several advantages. They allow for visual sequencing of ideas, for people who are

uncomfortable in face to face participation to express ideas more freely, for more reflection between responses, and for participants to create a group knowledge base by building on the work and ideas of each other.

Yakimovicz and Murphy (1995) present findings of a study of adult learners in an online class studying distance education. The authors describe the learning that occurred as collaborative and as characterized by a collection of differing perspectives in which individual experiences were shared to create an enriched learning experience that fostered construction of personal knowledge. In this well triangulated study, researchers collected data from student's journals, verbatim transcriptions of end of semester interviews, messages from the online class site and student course evaluations for eleven students. Using the grounded theory approach to data analysis, the data were entered into the qualitative data analysis software program, Ethnograph. Two themes emerged from the data, process management and meaning-making. The students described a learning process in their efforts toward working together in the new online environment. The process included working together, sharing adversities and successes, constructing communication, and building a new sense of self. In addition to class related activities students were able to expand their existing awareness and to develop meaning from the sharing of their knowledge.

In writing of continuing education within organizations, Gilbert (1998) suggests that computer-mediated learning programs are being used in business to build open-ended learning environments that encourage exploration and problem solving. She describes an electronic performance support system as providing integrated, on-demand access to information that is needed for an employee to perform their job. Employees have access to checklists, procedures, information databases and resources. Such systems, while designed for performance, situate

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learning in a work context providing a natural opportunity for learning to occur. Gilbert suggests that such systems allow less experienced workers to perform advanced tasks sooner than expected, freeing more experienced workers to concentrate on the tasks where their expertise is needed. Gilbert cautions that even fancy performance systems do not guarantee that learning will occur in the work setting and suggests that learning requires not only experience but also reflection.

An investigation into recruitment and training of a workforce providing community-based rehabilitation programs describes the development of an online learning program to replace face-to-face seminars that were becoming costly to the organization in both time and money (Menz, Surdick, and Stewart, 2000). Three levels of training were developed: foundations acquisition (primary job skills), secondary development (breadth and depth of skills and attitude development for workers with at least 6 months in a job), and continuing education. The goal of the program is to prepare non-college trained staff more efficiently through the use of mentoring and professional support. While the authors do not present significant findings or conclusions based upon the design of workplace education in their article, the information serves to support the trend of workplace use of online learning for budgetary reasons.

Online Continuing Professional Education in Nursing

The vast majority of articles addressing continuing professional education of nurses in online environments are informative, and testimonial, based upon the author's opinions. The research articles available discuss graduate student learning conditions and experiences of degree completion students. Graduate study and returning degree completion programs, while still a component of the formal education system, address the needs of the adult, post entry level

graduate and findings from these studies may have some application to continuing professional education.

Gwele (2000) describes conclusions she reached as a result of implementing a Web based course in the education of graduate nursing students in Natal, Africa. The objective of this program was to prepare specialist educators for community health promotion. Students enrolled in the online course in the second year of their two-year formal education program. Anecdotal program evaluation revealed many suggestions for future implementation. While the researcher does not indicate a method of data analysis, she concludes that the student responses in online discussions were in opposition to those expected: the student remarks were found to be superficial and criticizing. Course topic discussions could not be completed in a timely manner and students were not compliant in preparing for this new learning format prior to beginning the class. However, Gwele adds that facilitator intervention, lack of experience on the part of the faculty members in use of Web based learning environments, and curricular design might have contributed to this finding.

A study examining the professional socialization of returning degree completion students in an RN-BSN distance education program compared professional values of students who had completed a formal BSN program by distance education with those of students completing the same program in a traditional face-to-face program (Nesler, Hanner, Melburg & McGowan, 2001). The researchers surveyed 1,194 participants in a variety of educational programs including traditional and online programs and found that nursing students near completion in distance education programs had significantly higher scores on measures of socialization than campus based students. Two inventory scales with tested reliability were used for data collection. An interesting finding revealed that many students selecting online learning opportunities work

at least part time while continuing their education. The authors conclude that students in distance education programs receive socialization from sources in addition to faculty, and that working with mentors and having significant real life experiences while studying contribute to professional socialization. Findings of the study indicate that graduates of all programs have significantly higher scores of professional socialization than do entering students. In addition, the RN-BSN graduates who used online education formats had higher scores of socialization than all other groups.

In an attempt to increase educational access for potential nursing students, faculty at the Thomas Jefferson University, College of Health Professions, developed a web based graduate epidemiology course (Rose, Frisby, Hamlin & Jones, 2000). Two groups of students were evaluated during this study, one in a traditional face-to-face classroom and the other participating in a web based course. Course content was identical, and classes ran concurrently. The online course was piloted with 14 graduate nursing students. Pre and post test data collected on a Likert scale (1 equated to least satisfied and 5 equated to most satisfied) indicate that students in the online class expressed slightly lower levels of satisfaction in all areas of the survey than did the face-to-face class. However, the authors identify that the findings were not statistically significant. The researchers also reported that there was no statistical significance found between the confidence scores of the two groups.

Nursing faulty at the Ball State University School of Nursing developed and implemented an Internet based continuing education program designed for graduate and RN to BSN completion students in response to a recognized need for continuing education programs for advanced practice nurses (Ali, Hodson-Carlton & Ryan, 2002). Participants completed a Likert type questionnaire designed to elicit feedback regarding pedagogical issues related to

participation in the Web based course such as active learning, time on task, feedback, student-faculty feedback and collaboration among peers. Pre and post test scores were obtained over a two tear period from 208 students evenly distributed in face-to-face and Web based classes. Findings suggest that the participants were satisfied with the content presented and the currency of the content and that critical thinking was stimulated in the Web based course. The most common response to open ended questions regarding the positive attributes of the course was the convenience of the course and the ability of the participant to learn at their own pace. The authors summarize that web based learning provides "opportunities for practicing nurses to pursue advanced degrees who do not have easy access to graduate nursing programs" (Ali, Hodson-Carlton & Ryan, 2002, p. 37).

Studies investigating online learning in formal settings are becoming increasingly proliferate. However, research investigating online continuing professional education for nurses remains scarce. Cheek and Doskatsch (1998) posit that the short half-life of professional and technical knowledge necessitates nurses having the generic skills that will enable them to "adapt to technical change and cope with an information overabundant environment" (p. 243). Accessing information and the use of the Internet are such skills. Bergen (1999), in discussing online continuing education, suggests that courses offered on the Web should be examined for the extent to which they meet the criteria as continuing education. Online courses and Web sites should "provide information and skills beyond initial licensure, support the professional body of knowledge, and enhance professional practice" (Bergen, 1999, p. 32).

A descriptive comparative survey was conducted by Hegge, Powers, Hendrickx and Vinson (2002) to determine continuing education needs of South Dakota's nurses. A survey consisting of questions regarding access to continuing nursing education, self reported nursing

competence and computer usage was pilot tested and mailed to a statewide sample of 2,500 nurses. The response rate was 25%. Findings of the study indicate that 13.2 % of the respondents felt that competence in clinical settings depended upon continuing education, and another 54.6% were somewhat convinced of this connection. Independent t-tests were conducted on interval data and nominal data was compared using chi-square analysis. In addition nurses with less than 10 years of practice were significantly different from those nurses with more than 10 years of experience.

Those nurses with less than 10 years of experience were less convinced that continuing professional education was meeting their needs and were slightly less competent. Only 17.9% of this sample reported using computers for continuing education and gave lack of knowledge about computer continuing education programs, lack of access to computers, lack of Internet access, lack of time, and preference for books or other written material as reasons why they did not use computers for continuing education purposes. These findings suggest that systematic planning for continuing professional education including education in the use of electronic programs and computers is necessary before online continuing professional education for nurses can be fully utilized.

Ellerton and Curran-Smith (2000) surveyed 714 participants regarding their preference for various means to obtain continuing professional education. Seventy-five percent of the nurses indicated that they preferred face-to-face or correspondence classes despite the convenience of online computer learning options. In concordance with Hegge, Powers, Hendrickx and Vinson (2002), the authors suggest that lack of comfort with computer applications beyond home usage may be a deterrent to technology based learning.

Charles and Mamary (2002) surveyed the entire population of advanced practitioners of nursing in Nevada to assess preferences and barriers to use of various delivery modes for continuing professional education and found that computer based modes of continuing education delivery, including the Internet was among the least used method for learning. A self administered questionnaire was mailed to the participants with an overall response rate of 54%. Participants rank ordered which methods they had used for obtaining continuing professional education in a 12 month period prior to the survey and means compared. Participants identified lack of knowledge or computer skills as the main reason for not selecting continuing education via the Internet or by the use of CD-ROMs.

Harrington and Walker (2002) investigated how computer based training affected the knowledge, attitudes and practices of nurses completing a fire safety training in-service class in a life care community facility. Participants (N=141) were randomly sorted into one of three groups: computer based training, instructor led and control. The control group received no training until the completion of the study. Pre and post test data for a Likert type survey were calculated using a three way ANCOVA. Results of this study were that on pretest the correlation between knowledge and attitudes was strongest and the correlation between knowledge and practices and the correlation between attitudes and practice was unrelated. At posttest the relationship between knowledge and attitudes continued to be significantly related. The correlation between knowledge and practice was still insignificant but the correlation between practice and attitudes was significant. The researchers identify limitations of the study that could have influenced the findings and suggest that methods for measuring the effects of computer based training on practice requires continued research and development.

In an article describing how electronic connectivity facilitates professional communication, Patricia McCartney (1999) describes the origin, development and professional benefits of a Listserv for perinatal nurses. This Listserv comprised of over 800 nurses from around the world was established as an avenue for discussions of perinatal nursing practice, education, research and sharing of information. Analysis of the Listserv discourse identified that practice issues are discussed, members shared industry resources, members provided collegial support, experienced nurses shared reminiscences of old practices, and undergraduate perinatal nurses as members of the Listserv enjoy responses from practicing nurses. While the author does not describe the research methodology behind her findings, this anecdotal account of her personal experience does provide evidence of the values possible from online continuing education.

Communities of Practice

Introduction

Studying the interaction between adult learners, their environment, their behavior, and their mental processes, provides us with a comprehensive view of how adults learn (Merriam & Caffarella, 1999). Such a viewpoint of learning implies a dynamic process of interactions between the learner and their environment in which the learner actively participates in and contributes to the learning process. Learning occurs not as a result of reinforcement or punishment but from observing, analyzing, and placing value on the behavior of others as they function in the world.

Learning is defined as adaptation to one's environment. It is a lifelong process influenced by developmental stage, culture and society, health status, environment, biological factors and individual thinking processes. The scientific field of human development offers many

explanations or theories about why people behave as they do. No one theory can explain all of human behavior and learning, thus much of the research in the field of learning combines these variables to address different aspects of what it means to learn. The conceptual framework of communities of practice has developed from social learning theory, situated cognition, apprenticeship theory and constructivism (Lave & Wenger, 1991; Wenger, 1998). Following is a review of the literature relating these theories to the study of online communities of practice.

Social Learning Theory

It has been suggested that genuine education comes about through experience (Merriam, 1999). Dewey argues that two principles are necessary for learning to occur as a result of experience: continuity and interaction. Continuity implies that the learner takes something from each experience and that each experience will influence the quality of the events that occur later in successive experience. The principle of interaction states that the quality of an experience results from the interaction between the individual and the environment in which the interaction occurs (Merriam and Caffarella, 1999).

Merriam and Caffarella (1999) present Jarvis's model of the learning process as one of the most thorough. Jarvis's model states that all learning begins with experience. The disequalibrium felt when the individual is in a situation for which he has no established successful problem solving behavior makes the experience a learning one. The model begins with the individual moving into a social situation in which learning might occur. From an experience there are nine different routes that the person might take. The six learning responses of preconscious, practice, memorization, contemplation, reflective practice, and experimental learning represent learning responses, while presumption, non-consideration and rejection indicate that no learning has occurred. These nine responses form a hierarchy from non-learning

on the lowest level to reflective practice at the highest level of learning. Strengths of this model are that Jarvis deals with learning itself, presents both positive and negative consequences of each step, and situates learning in social context. He includes both experimentation and reflective practice in this model.

Social learning theorists regard the learner as an active participant and contributor to learning, contend that people act upon the environment, and in fact, create and mold the environment. Social learning theorists maintain that cognitive response to perceptions rather than reflexive responses to reinforcement or punishment is central to development. Social leaning theory describes learning as a process of observation and modeling of others' behavior. Social learning theorists state that behavior is the result of a reciprocal interaction between an individual, the environment, and behavior, and that behavior is enacted and modified in accordance with society's beliefs of correct or acceptable behavior.

One means for determining and enacting what is correct or acceptable behavior is through symbolic modeling. Social learning theorists posit that symbolic modeling allows the individual who is observing the behavior to acquire new responses vicariously, thus eliminating the long process of trial and error learning in which each behavior must be tested by actual performance and then evaluated. The emphasis is on interpersonal relations involving imitation and modeling and focuses on the cognitive processes by which observation can become a source for learning.

Four related cognitive and psychomotor processes are necessary for successful observational learning through symbolic modeling. The first process, the attentional process, involves the ability of the learner to differentiate the features and quality of the behaviors being modeled. This ability allows the observer to match or model behavior at the sensory level

(Bandura, 1977). The ability to retain the observations in imaginal or verbal form is the second

process. Behavior can be learned symbolically because people have the ability to code observed

stimuli into meaningful thoughts and response patterns. The symbols used by people for the

coding process may be verbal, written, or in the form of concepts, and when processed in the

brain, provide a collection of actions for future reference. The processing of these symbols

requires the ability to retain codes and the ability to convert the symbols into action.

Once the behavior has been coded, cognitive and psychomotor processes are elicited to

direct enacting of the behavior. The cognitive process consists of evaluative thoughts about how

the behavior will be reinforced and the value of the behavior to the individual if it is enacted.

The psychomotor process involves motoric reproduction of the new behavior (Bandura, 1977).

The final stage of learning involves reinforcement and motivation. Bandura (1977)

identified that replication of modeled behavior occurs in close proximity to reinforcement. It is

the anticipation of reinforcement that influences the observer's attentional processes. If the

observer is aware that accurate modeling will produce positive social reinforcement, his

attentional abilities will increase. Thus, the major function of symbolic modeling, which is the

transference of information concerning behavior to an observer, occurs as the result of the

interchange between social reinforcers in the individual's environment and the individual.

Bandura's theory has relevance to this study in that it accounts for both the learner and the

environment and identifies a reciprocal relationship between the learner and the environment in

which the learner affects the environment as well as being affected by it. Opponents to this

theoretical stance suggest that social learning does not take into consideration the role of

cognitive processes in learning and would identify learners as purely social beings. Situated

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cognition is a variation of social learning theory that attempts to satisfy this identified theoretical deficiency.

Situated cognition emphasizes the idea that much of what is learned is specific to the situation in which it is learned, and that learning and the situation are intimately connected. Learning is not seen as a separate process from the event. According to Merriam and Caffarella (1999) this implies two other key ideas. Learning is not only a process of memory, and information processing, but also one of perceptions and settings. The learning that occurs happens in culturally organized settings with established sets of learning tools and boundaries of content. This would imply that humans are more than social beings and that cognitive brain activity occurs in situated cognition.

Cognitive theory can be described as inductive and anchored in biology (Moore, 1998). On the other hand, situated cognition is situate, deductive and emerges from the many developing relationships of individuals with their environment. Knowledge is embodied in activity that can be defined as perceiving, reasoning and talking (Cobb, 1999). The emphasis in situated cognition is on providing authentic, real- life experiences. How educators create authentic situations that challenge problem solving and the gaining of awareness of what is relevant and what is not relevant can be accomplished through cognitive apprenticeships.

One major criticism of situated cognition theory is based on the concept that transfer of knowledge is difficult if learning and knowledge are context specific (Anderson, 1996). Current advances in brain based research have determined active responsiveness of the cognitive system to external stimuli. This suggests a closer link between neural processing and involvement in the world. The research supports that cognitive processes in situated cognition are more than serial in nature (that supports notions of sequential transformation of mental representations), and that

there are found to be parallel patterns of neural firings that facilitate transference of learning to many variable stimuli.

Cognitive apprenticeship is a method of studying the effect of experience on learning. It has developed as an attempt to teach learners different ways of thinking, as well as teaching the learner about the skills, tools and language necessary for success in the situation. The desired outcomes of cognitive apprenticeship are: 1) that the learner is able to internalize the skills necessary for success and then implement them on their own and 2) to prepare the learner to take the next step toward generalizing what they have learned to similar situations and as a starting point for further learning.

Traditionally, apprentice models of learning have been identified as examples of social learning. Attwell (1997) describes apprenticeship learning as work-based learning. Despite the lack of formal curriculum, task learning was designed to be progressive in which the apprentice moved from simple and often repetitive tasks to more complex work. Masters appreciated their important role in initiating apprentices into a craft and passed on both the formal skills and the tacit knowledge as well as provided socialization into the rules of the community. This model was effective in developing work process knowledge. Work teams developed methods for solving problems of a particular task; and individual team skills were linked to create the final product. Criticisms of apprentice models of learning include questioning if the rapid rise in technology and communication networks has required a broader base of formal knowledge that is not supplied through a model of master and novice. It is also questionable if the training that takes place by the master is sufficient to meet the highly technological quality control standards of today. For example, increased technology requires the development of extensive and often complex training manuals, diligent pursuit of continuing professional education to assist the

master in keeping pace with the changes, and in new languages and terminology necessary for effective communication in this technologically advanced world. Scholars also question if the knowledge gained from apprenticeship learning is transferable to the degree suggested. It is hypothesized that the skill aggregates in a trade might be so similar that learning transfer to more complex situations is not required.

Legitimate Peripheral Participation

Lave and Wenger (1991) state that successful learning is not merely the result of the expert imparting skill and knowledge upon the novice, but is the result of the organization of the community of practice of which the expert or master is a part. The learners ability to participate in communities at different levels, and mastery of knowledge requires newcomers to move toward full participation in the practices of the community (Hay, 1993). Hay describes this process as movement of the newcomer from the periphery of a socio-cultural community of practice to its center. As the learner moves centrally, he/she becomes progressively more engaged and active in the practice both learning and sharing information with other members, constantly reframing what they know.

Lave and Wenger have written extensively on the topic of communities of practice as a framework for social learning. The framework for "communities of practice" extends the traditional postulate of social cognition and describes learning as: 1) knowing how to communicate and share information within a community of practice, 2) knowing how to change one's level of participation within the community, and 3) experiencing identity transformation within the community (Lave and Wenger, 1991).

Lave and Wenger (1991) diverge from the theoretical foundations of constructivism. A tenet of constructivist theory is that learning is a process of constructing meaning from

experience. It is an internal cognitive process that is guided by those more skilled. The focus in constructivism is on the student. Lave and Wenger build upon this model focusing on the learner in process with the community. "The learner's participation and thus their learning are based on constant negotiation of meaning within the community as it relates to the world" (Lave & Wenger, 1991, p. 51). The curriculum of the community is therefore dictated by its practice, not by the master or teacher.

This seminal work presents the concept of legitimate peripheral participation as the bridge linking individual solitary learning and learning through participation in social communities. The authors propose that changing levels of participation, or *legitimate peripheral participation,* is the phenomenon that results in the reproduction and redefinition of communities of practice. Legitimate peripheral participation is the process by which newcomers become members of a community of practice.

Lave and Wenger (1991) define legitimate peripheral participation as a descriptor of engagement in social practice. The constituents of this term, *legitimate*, *peripheral* and *participant* contribute inseparable aspects that when combined create a "landscape" of community membership. There is no single core or center but rather varied ways to engage the complex differentiated nature of communities. Lave and Wenger suggest that legitimate peripheral participation should not be defined as an educational form or pedagogical strategy but rather a viewpoint of learning (Lave & Wenger, 1991).

Literature suggests that students are learning at incredible rates but researchers find that what is learned is not always what we plan for or expect. Legache (1993) describes this as a difference between normative goals and actual practices of a community and adds that there is a need for a more systematic account of learning within the larger social context. He posits that

the social world is populated with naturally occurring "microworlds" or communities of practice. Legache (1993) cites results from his informative and creative study into legitimate peripheral participation of newcomers to the hobby of scuba diving. Based upon his findings of the scuba diving community, he hypothesizes that specialty communities of practice can support only a limited number of newcomers. He further suggests that it might indeed be pointless to engineer communities of practice solely for the newcomer's benefit while ignoring the social networks within communities of practice, as it is the social networks that determine the nature of the community and its product.

Lave and Wenger have been criticized from scholars within the field of cognitive psychology. Criticism has centered on the fundamental philosophical differences between cognitivism and situated learning theory. Kirshner and Whitson (1998) criticize Lave and Wenger's use of anthropological field study methodology to investigating humans within complex environments. They critique this methodology by adding that Lave and Wenger do not mention constructs relating to cognition and the human mind such as concepts and mental representations (that constitute the usual focus of cognitive study). Anderson, Reder, and Simon (1996) argue that much of the research into cooperative learning (communities of practice) has not been well controlled. They cite nonrandom assignments to treatments, and uncontrolled teacher and treatment effects to support their contention. They also argue that few studies have documented a significant advantage to cooperative learning versus individual learning. They identify that several detrimental effects of community behavior such as the "free rider," the "sucker," and "ganging up" have been documented in some studies. They state that in colleges group projects are becoming increasingly popular among instructors, but state that some of the difficulties encountered show that groups can be counterproductive. I would suggest that Lave

and Wenger would counter these criticisms by saying that communities of practice are not group organizations following group behavior but rather a framework for evaluating learning.

While some authors criticize Lave and Wenger for ignoring the negative aspects of communities of practice, Hay (1993) commends them for acknowledging and dealing with some of these negatives such as sectarianism and exploitation of members. He states that Lave and Wenger re-conceive these negative issues as opportunities for newcomers to configure their own learning and to frame a negative situation as "unworthy" of imitation. Hay (1993) does see the notion of "community of practice" as somewhat problematic. His interpretation of the theoretical framework is one in which the newcomer (student) is unable to impact the community until he or she reaches a certain station in relationship to the center of the community. He states that Lave and Wenger focus on the community rather than the learner with the negative result that the learner's knowledge and authority in the learning process is decentered. Lave and Wenger (1991) would argue that learning within communities of practice is not as a result of the learners' participation only, but rather is the result of an ever-changing relationship pattern between the learner, the community and the situation. Lave and Wenger go beyond the theoretical premises of situated cognition and present learning as not simply "situated" in practice but to be a result of an integral relationship between the participant, the practice and the world.

Practice and Identity

In his work, *Communities of Practice: Learning, Meaning and Identity,* Wenger (1998) continues to develop the theoretical framework for understanding and interpreting this phenomenon of communities of practice, extending the initial work on legitimate peripheral participation, and providing a richer and more complete explanation in response to prior

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criticism. Wenger describes in detail the components of the theoretical model and includes

implications for educational and organizational design.

> There is a profound connection between identity and practice. Developing a practice
>
> requires the formation of a community whose members can engage with one another and
>
> thus acknowledge each other as participants. As a consequence, practice entails the
>
> negotiation of ways of being a person in that context (Wenger, 1998, p. 149).

This description of communities of practice as integral to identity further ties the framework to

the role of professional organizations or communities of practice in socialization of the learner.

We define who we are by what is familiar and what is foreign. Identity is crucial to social

learning in that our identities combine competence and experience into a way of knowing.

Wenger (2000) describes this learning phenomenon as opening oneself to alternate thinking and

behavior in response to an ever-changing world.

In recent writings expanding his theoretical framework, Wenger (2000) identifies three

phases to belonging or identity formation: engagement, imagination, and alignment.

Engagement in a community of practice includes doing things together, talking, producing

artifacts, or helping a colleague with a problem. Imagination is the constructing of a new image

of our community, and ourselves, and alignment is characterized by a mutual process of

coordinating perspectives and actions toward attainment of a higher goal. Wenger summarizes

the connection between practice and identity in Table 1 below.

As shown in Table 1, practice is the focal element of the theoretical framework for

communities of practice.

Table 1: Parallels Between Practice and Identity

Practice	Identity
Negotiation of meaning	Negotiated experience of self
Community	Membership
Shared history of learning	Learning trajectory
Boundary and landscape	Nexus of multimembership
Constellations	Belonging defined globally but experienced locally

* Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity.* Cambridge: Cambridge University Press.

Wenger (1998) defines practice as consisting of six interconnecting concepts. The first*, practice as meaning*, can be conceptualized as follows; through participation in a community of practice, the practice is shaped and the meaning of the community is secured over time. Wenger calls this shaping of meaning, "reification." He contends that the concepts of participation and reification form a duality (what it means to be a person and what it means to be a thing- making people and things what they are) that is characteristic of communities of practice. The second interconnecting concept is, *practice as community*. A community is more than culture, activity or structure. It is characterized by mutual engagement of the participants, a joint enterprise, and a shared repertoire, in which each participant finds a unique place and gains a unique identity. Communities of practice develop negotiated responses to situations and create relationships of mutual accountability. It is created from negotiated responses to situations and thus belongs completely to the members. What make engagement possible in communities are diversity,

complementary contributions and overlapping forms of competence. *Practice as learning* is observed when the community of practice develops a shared history of learning. Practice is an ongoing, social interaction of reproducing membership in the same way that it came about in the first place.

Communities of practice create *boundary* objects such as artifacts, documents, terms and concepts, and they negotiate relationships between and among other communities of practice. Boundaries and *locality* thus characterize communities of practice as members create "bridges" linking communities of practice together. The final interconnecting concept is that of *practice as knowing*. For learning in practice to be possible, members must share a common understanding between an experience and the practice competencies related to the experience. However, the understanding may not be congruent and it is this imbalance that requires communities of practice to constantly redefine and transform themselves. Therefore communities of practice form local and global relationships and connections. Inherent in this relationship is the connection between the practice of a community and the member's identity with that specific community of practice. Members must learn how to relate with each other in the community (Wenger, 1998).

Online Communities of Practice

Much of the research and literature related to communities of practice has come from the business world (Knechtel & Leithwood, 1995; Mc Dermott, 1999; Stamps, 1997; Wenger, 2000). The focus of this literature has been to evaluate how people learn and problem-solve in the work setting. Knechtel and Leithwood (1995) present a framework for evaluating workplace problem solving that includes the components of memory, understanding and solving. When applied to settings of cooperative education, strategies such as memory performance activities, mentorship

activities, apprenticeship activities, and the use of unstructured problem solving activities all facilitate learning.

Stamps (1997) presents case studies of organizational projects used to develop communities of practice in major corporations, and describes positive employee responses to these management strategies such as increased satisfaction and goal attainment. The goal of researchers has been to design learning and training curriculum that will foster efficient problem solving skills to increase organizational effectiveness based upon the condition that globalization and economic conditions world wide are forcing companies to accelerate their product development.

Management has considered that an effective way to accelerate and disseminate learning is to build communities of practice around key issues and topics of organizational need (McDermott, 1999). Tacit knowledge is identified as a product of communities of practice that is difficult to document and articulate, but invaluable in achieving the product of the community. McDermott (1999) describes a situation in which members of a community of practice (within a corporation) attempted to document all of the knowledge needed to achieve a specific goal in a database for new employees. The community members found that new employees were unable to learn the skill without interacting with the actual community. This example further supports Lave and Wenger's hypothesis that tacit knowledge is a key characteristic of defining communities of practice.

Recent literature is identifying that communities of practice cannot be built but rather should be identified and nurtured. By understanding the characteristics of communities of practice, communities will be able to design themselves and participants will be able to identify a dynamic set of communities they should belong to, enhancing global networking and

effectiveness (Wenger, 2000). A review of the literature supports the theoretical framework of communities of practice within the business and organizational world further validating the characteristics of these communities as defined by Lave and Wenger. A significant question is whether or not these characteristics can be identified within the online environment.

A current educational trend is the phenomenon of online learning in educational settings. A common belief of the technology age is that by increasing connections among groups of people, collaboration will increase. Sharp (1997), in a review of the literature relating to communities of practice, identifies that past literature has identified online communities as "weaker," and labels them as "discourse" communities. Discourse communities are defined as background communities that support conversation but are not an end to themselves as communities of practice are defined.

Hay (1993) describes that online environments arise from the capacity of computer technology to make connections between the students' activities of knowledge construction and communities of practice. He equates this process to legitimate peripheral participation in the following manner: "While the connection of newcomers to anything is a difficult task, it can be facilitated by computer technology which affords two things: fast electronic connections and the facility to make limited interpretations of students' actions" (p.37). An example of how the computer interprets student activities is spell check programs that interpret what the student is attempting to spell. He adds that the computer not only links the student to a community of practice but to multiple communities remote in locale, further developing apprentice relationships.

Online communities of practice have been studied through an analysis of patterns of communication that have been identified in the literature as central to community building

(Haythornthwaite, 1998; Herrmann, 1998; Jarvela, Bonk & Lehtinen, 1999; Thomsen, Straubhaar & Bolyard, 1998). Researchers identify these patterns of communication as socialization, emotional support, collaboration, centrality, and isolation. Herrmann (1998) describes findings resulting from a five-year ethnographic study of the activities of an online international community of practice supported through Listserv technology. His subjects were 400 academics working in related fields of expertise. The purpose of his study was to uncover the factors that were important to the birth and nurturance of an online community of practice. Constant comparative analysis of the data (200 400K diskettes and one 35 MB tape of messages) yielded the following findings: the birth and naming of the community, civil language patterns for sustaining growth, encouraging development of the community and, resolving conflict, and finally the development of a virtual space of locality via computer technology. The author concludes his article by saying that the degree to which activities are used to build the online community of practice is the degree to which it can become the source and outlet for its own activity.

In a recent article describing social interactions in a computer based environment, Jarvela (1999) found that computer technology can enhance reciprocal understanding in social interactions and address mutual concerns in learning. This qualitative study conducted with elementary age children identified goal directed activities, externalization of ideas for problem solving, socially supported talk, and evidence of high level cognitive activity demonstrated through rich explanations, collaborative planning and directed document revision. While this study focused upon young children, the findings approximate those of studies conducted with the adult population.

Thomsen (1998) concludes that online communities of practice are indeed "real" in that they reflect the changing nature of human relations and human interactions. He argues with previous findings that claim online communities of practice are only "pseudo" or "imagined" communities. Through the study of language (telelogic communication) found in Listservs, the author identifies understandings of what it means to be a member of a cyber community. Findings from this well triangulated qualitative study of interviews and message content identify associational behaviors, definition of social bonds, development of self esteem, and self validation as evident in online communities.

In one of the few quantitative studies of communities among distance learners, Haythornthwaite (1998) describes the growth of such communities through the variables of centrality and isolation and determines that these two variables are influential in performance and satisfaction levels of participants in online communities. The concept of centrality is used as a measure of the participants' place in the network or community. It is defined as a measure of how well positioned the actor is to both receive and disseminate information to all other members of the network, and as an indication of how central to the community organization the participant is. At the other end of the continuum is isolation. The authors' use of this concept is intriguing and similarities to Lave and Wenger's (1991) concept of legitimate peripheral participation are apparent and warrant further study. This study is perhaps the closest to describing the measurement of centrality or legitimate peripheral participation in defining communities of practice in online communities of practice. Preliminary findings of this study also support the hypothesis that familiarity with technology and with other students in the course affects the interaction patterns and satisfaction levels.

In an article differentiating between true communities of practice and quasi-communities of practice in online environments Hung and Nichani (2002) write of their experience in analyzing online communities of practice. The theoretical framework organizing the authors position is Lave and Wenger's communities of practice. The authors propose that what has occurred to date in online community development is that groups of people are coming together through question and answer forums for specific knowledge acquisition. They describe this type of community as a quasi-community in which participants are principally involved in discourse for obtaining knowledge. The authors contend that true communities of practice are different. A true community of practice is formed for the purpose of learning "to be," or for identity formation. The activities that occur within a true community of practice to ensure its development and maintenance include face-to-face interaction, the formation of tightly knit groups, mutual sharing and learning leading to a rich flow of knowledge, time and space to grow the organization, and technological support. Hung and Nichani (2002) suggest that true communities of practice should be nurtured and developed in online environments and can serve as a source for learning "to be," a criteria for professional practice and identity development.

In summary, while additional research is needed in the application of Lave and Wenger's theoretical framework of communities of practice to online environments, it appears that current research into online communities does indicate the presence of many of the characteristics of communities of practice as described by Wenger in his book, *Communities of Practice: Learning, Meaning and Identity* (1998). The literature presents analysis of online communities of practice from a variety of frameworks such as ethnomethodology, centrality and isolation, and message content analysis. The findings of these studies indicate the following conditions which are characteristic of communities of practice as defined by Wenger:

- there is evidence that sustained mutual relationships exist that have characteristics of both harmony and conflict

- communities of practice have shared ways of engaging

- there is rapid flow of information and propagation of innovation

- there exists a sense of knowing what others know, what they can do, and how they can contribute to an enterprise

- there are mutually defining identities of group members with specific tools, representations, and other artifacts

- there are certain styles recognized as displaying membership

- there is a shared discourse reflecting a certain perspective on the world

It appears that online environments are a rich source for investigation into communities of practice and will provide much data for future research into identifying, nurturing and building effective learning communities of practice.

Professional Identity

Professionalism and professional identity are processes of the interaction between a practitioner and society. In the process of developing a professional identity the practitioner experiences a transformation from skill performance to professionalism. Professional identity occurs when an individual places positive personal value on the norms, characteristics, behaviors and outcomes of a selected career. In understanding this concept a critical distinction must be made between a "job" and one's "career." Careers are more than a collection of activities and positions that can be carried out by an individual. They are reified, result in commitment to the career norms, and become a major source of one's lifework and relationships with society. Professional identity is characterized by the development of altruistic beliefs regarding the value

and worth of the service over the immediate gains that one could receive from relationship with the profession and implies a self-reflective process (Schon, 1983).

Professionalism is a condition that is unique to individuals. It identifies processes in which individuals are trained and socialized in a recognizable service, and in which the individual adopts the attitudes, behaviors, and values of the professional peer group (Cervero, 1987; Cragg, 2001). Professionalism signifies the formal recognition of mutual trust between the professional group and the larger public (Sullivan, 1999).

In a recent article evaluating the current state of professionalism in medicine, Sullivan (1999) describes three trends of professionalism found in the literature during the last century. Two of the three trends emphasize the strategic side of professionalism. These trends stress the economic dimensions of professionalism gained because the group has claimed superior knowledge and moral integrity as a means to gain control of the market for their services. Cervero (1987) would suggest that this perspective more accurately defines the process of professionalization rather than professionalism. Professionalization is the process in which the producers of a specialized product create a recognized need for the product and control the market for their service. It is a term relating to the occupation itself, not the individual. Sullivan's third trend in theory development emphasizes the emergence of professionalism as an ideology of social reform. Through professional altruism members meet needs of the culture rather than needs of competitive economic interests.

Early writings from the fields of sociology and management describe professionalism as comprising three characteristic qualities: organization of the membership, learning of a specified body of knowledge by the practitioners, and public service by the professionals. In 1915 Abraham Flexner suggested that in addition to the above characteristics, teachable techniques

and activities that are practical rather than academic, and continuing advancement of knowledge should also characterize a profession. His model is often used in discussions of professionalism and, despite its age and application to an industrial setting, has remained popular today. The literature also characterizes professionals as possessing accountability, pursuing knowledge in institutions of higher education, performing public service, possessing altruism and autonomy, following a code of ethics, possessing a strong professional identity, demonstrating a commitment to the development of the profession through continued education, and possessing a legally recognized license.

Others see professionalism as a perspective transformation process. This process begins with a disorienting event (disparity between currently held assumptions and new information related to a specific problem resolution) that is followed by self -examination and problem resolution. During the transformative process the professional will compare personal experiences with others, explore options for new ways of acting, build competence and self confidence in new roles, plan a course of action, acquire knowledge and skills for implementing one's plans and try out new roles. Finally the individual will experience a reintegration into the existing society (Schon, 1983). Occupations move along a continuum from craft to possessing characteristics of a profession as they develop methods and knowledge for problem solving.

Schon identifies limitations to reflection in action that have implications for continuing professional education: 1) limited knowledge may limit the professionals ability to reflect and 2) as professionals move toward new competencies they will give up some control of what they knew in the past. Knowledge required for professional development must include both formal and practice knowledge, and professionals must be exposed to continual practice knowledge as technology and social conditions influence situations. In this perspective, knowledge and

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expertise are never simply cognitive or purely technical. They have moral and ethical

dimensions and affect the quality of relationships between people. Professionals will begin to

question practices, as they become more self aware of their community of practice. Through this

practice of self-awareness citizenship becomes integral to the profession.

Professional practice is comprised of two types of knowledge, formal and practical

(Cervero, 1992; Schon 1983). Formal knowledge is that which is gained in institutions of higher

learning and provides the learner with the theory and guidelines that frame the profession.

Practical knowledge is knowledge that is situated in action and socially constructed. It is

knowledge of how to do something and implies active dynamic learning (Cervero, 1992).

Apprentice models of learning have been a traditional means of learning professional

skills and knowledge. Historically, situated cognition theorists held that learning occurred in the

real world under the guidance of masters or expert craftspeople. Apprenticeship has evolved in

response to economic, political and social changes since the time of the pre-industrial guild

system. It is perhaps the one education system that has survived the divergence of educational

philosophy that occurred during the industrial revolution in which a separation occurred between

preparation for vocational training and preparation for professional education (Attwell, 1997).

Apprenticeship has been defined as craft production, a relationship between master and student

that emphasizes the small group nature of production, and as consisting of a division of labor and

distinct power relationships.

Apprenticeship learning is still implemented in both initial professional nursing education

programs and continuing professional education. It can be described as an appropriate

preparation for professional practice as it integrates knowledge, the conditions under which the

knowledge applies, and the culture in which the knowledge is based (Taylor & Care, 1999).

Through this interaction practitioners can acquire the tacit knowledge of professional culture that provides a basis for a collective values system. Criticism of apprentice models of learning professional practice centers on the belief that successful learning is not the result of the masters' skill and knowledge, but is the result of the organization of the community of practice of which the master is a part (Lave & Wenger, 1991). Learners participate in communities at different levels and mastery of knowledge requires newcomers to move toward full participation in the practices of the community (Lave and Wenger 1991). Hay (1993) describes this process as movement of the newcomer from the periphery of a socio-cultural community of practice to its center. As one moves centrally, he/she becomes progressively more engaged and active in the practice.

When one considers the profession of nursing it becomes apparent that the conditions of humanness dictate variety in situations. For example, each individual's unique life and health conditions influence how they will present to the health care practitioner. I would contend that no two individuals presenting with the same diagnosis are exactly alike. Professional nurses are required to extrapolate knowledge, to reflect on each situation as unique, and to reconstruct new meanings from mental schema as they are interacting with the individual and the situation. Many professionals believe that the learning they gain from practice is far more useful in problem solving than formal education. Learning from practice is a significant way for people to create meaning in their world. A consensus commonly held is that the difference between novice and experts in any field is that the experts possess far more practical knowledge.

Practical knowledge is divided into knowing in action and reflection in action. Knowing in action will not completely solve a particular problem. The professional needs to construct new models from existing cognitive schema to resolve each situation, or reflecting in action. Schon

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(1983) contends that reflection in action is the core of professional artistry. Through reflection in action, professionals reshape practice as it is occurring. Schon (1983) suggests that professionals learn to reflect in action by going through a developmental sequence. In the first step professionals learn to recognize and apply standard rules, facts and operations. Secondly, they learn to reason from general rules to problematic cases, and finally, they test new forms of understanding and action in practice. Professionals constantly make judgments about appropriate courses of action depending upon the specific circumstance constantly improving practice as it is being conducted.

Patricia Benner (1984) is well known for her extensive qualitative study of developmental stages in professional nursing practice. She investigated nursing practice and the knowledge imbedded in that practice. The theoretical framework for this seminal work is the practice model developed by Dreyfus and Dreyfus which describes that in the acquisition and development of a skill, a student passes through five levels of proficiency: novice, advanced beginner, competent, proficient, and expert. Each level represents changes in three domains of the learner. In the first domain, the learner progresses from reliance on abstract principles to the use of past concrete experience as paradigms. Second, the learner experiences a change in perception of the situation in which the experience becomes seen as a complex whole rather than parts. Third, the learner progresses from a detached observer to an involved performer. Through the use of critical clinical incidents, Benner identified that expert behavior can only be acquired by engaging in practice or at least through simulation of practice. However, she cautions that case studies used in this learning can be too complex and that simulations of practice are not as effective as real world practice. She identifies the importance of the interaction between the learner and the situation reinforcing the role of the learner's prior knowledge and experience as

influential to the decision making of the specific situation. The transactions created by this personal knowledge and the clinical situation then determine the actions and decisions that are made. This is why a clinical discipline needs expert clinicians to model this dynamic transaction between personal knowledge and the clinical situation.

Barbara Daley (1997 & 2001) has extended Benner's work linking expert professional practice and continuing professional education. She agrees that what nurses learn, how they construct this learning and their actual practice, are influenced by individual work settings, or contexts. Daley frames her research from the constructivist perspective on learning which contends that learning results from linking new information together with past experiences, reflecting upon past assumptions, and evaluating these assumptions for relevance to the current situation. A purposeful sample of nurses having attended continuing education workshops 9-12 months prior to the interview process was selected. Using semi structured interviews the researcher asked participants to identify what they had learned in the continuing education program they had attended, how they had used the information and to describe specific situations in which they were able to use the information that they gained. Participants were also asked to identify any factors within their work environment that had assisted their learning. Daley (1997) discovered that the social, symbolic structural and political design of the organizations in which nurses' work has an impact upon how the knowledge they gain becomes meaningful to their practice. Nurses in this study reported that mentors (preceptors, nurse managers, colleagues) within their work setting had the most influence on how they worked with the new knowledge gained. In addition, nurses in this study identified that specialist knowledge (such as critical care nursing) is more valued than general knowledge and that nurses working in chronic health care environments feel less valued.

Daley (2001) in continuing her research suggests that nurses link new learning to patient care situations creating a "web" of information that facilitates the integration of new knowledge into their practice. In order for knowledge to become meaningful they needed to take action on what they had learned and actually apply it to real life patient situations. Making knowledge meaningful occurs through a process of thinking about the information, having feelings about it, applying it to practice and evaluating the results as evidenced by improvement in their patient's health status.

Continuing professional education has focused historically on preservice knowledge, the knowledge that is formal, abstract, and general. It is critical that continuing professional education facilitate reflection in action through a change of focus to learning from practice (Cervero, 1992). Cervero suggests that learning from practice become an essential focus in continuing professional education based on three propositions: 1) the goal of professional practice is wise practice, 2) the knowledge acquired from practice is necessary to achieve this goal, and 3) a model for learning from practice should become the centerpiece of systems of continuing education for the professions. Continuing professional education must go beyond mere credentialing and accrediting organization requirements. Meeting credentialing standards such as the mandate that all professionals completed a facility wide environmental safety course or an infection control program to ensure safe and effective practice is not enough.

All professional groups provide continuing professional education to members in some format. Houle has proposed three modes of learning that describe a professional's education activities (Cervero & Dimmock, 1987). The inquiry mode is one of seeking new ideas, techniques, strategies and actions. Instruction, the traditional dissemination model, suggests that the teacher establishes learning goals and objectives, imparts the knowledge and evaluates

learning according to the students progress on meeting the established objectives. This model implies that the teacher has the expertise and knowledge necessary for effective learning. The third model, performance, describes the process of internalizing knowledge and skills, making the knowledge part of one's repertoire for problem resolution, and the permanence of the learning based on reinforcement by peers and others.

A reliable and valid instrument to measure the "job time participation" in continuing education by staff nurses was administered to two groups of nurses. Results of the study suggested a revision to Houle's typology. Four modes of learning were uncovered: inquiry, performance, group instruction and self-instruction. The authors suggest that the instruction mode can be differentiated into group instruction and self-instruction. This study suggests that there are two forms of professional learning, that which is deemed necessary to know for practice or knowledge that is imparted or formal, and knowledge that is sought by the professional for improvement of practice and self (Cervero & Dimmock 1987).

In a recently published descriptive article, Menz, Surdick and Stewart (2000) suggest a continuing education model for entry level non-college trained rehabilitation staff that is built on skills and practice as a method to retain employees. While this study is not situated in professional continuing education, findings suggest that self-reflection is important for novice workers as well. Through the use of seminars, sequenced training online course work, primary job skill training, and continuing education, the educators sought to bring the training as close to the workplace as possible.

How is continuing professional education for the practicing nurse described in the literature? The literature describing the development of nursing professional identity in graduated and practicing nurses is limited. With the exception of Benner's work, most of the

literature focuses of professional socialization of baccalaureate nursing students, suggesting a need for investigation into the development of professional identity in the professional nursing population.

Cragg (2001) reports findings from a study that examined perspective transformation (or professional resocialization) in RN-BSN students obtaining their degree by distance education. A Likert type scale measuring professional values was administered to compare newly admitted and graduating RN-BSN students who had taken their courses onsite, by distance education, or by a mixture of both. The purpose of the study was to determine if RN-BSN graduates have different professional attitudes when they have taken a program by distance education based upon the hypothesis that there is a change in professional attitude when going from diploma to degree preparation in nursing. Findings of the study indicate that RN-BSN students using distance education had higher scores in all professional qualities than all of the other groups. Multiple regression analysis was conducted with the three groups to determine the presence of predictive variables to explain perspective transformation. The findings indicate that the number of years since RN graduation and employment status were significantly associated with higher levels of professionalism as measured by the selected scale. In addition, all graduating RN-BSN students no matter which type of study selected had higher scores on professional value scales than generic students, strongly suggesting that active involvement in nursing over time promotes perspective transformation. The researcher concludes that there is a readiness for change that comes with experience. Nurses with more experience are more likely to internalize the new points of view to which their education exposes them.

Nesler, Hanner, Melburg and McGowan (2001) identify that socialization is an important process in allowing the individual to function in a professional role, and thus must become part

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of the professional nursing education process. The hypothesis of this study was that students in distance education programs might experience lower rates of socialization into the profession as a result of limited face-to-face encounters with their mentors. In this study, 1,194 students were administered two inventories, the STONE Inventory and the NCROS Inventory to assess professionalism and to measure the nurses' orientation to the nursing care role. When comparing the results between the campus based student class and the distance education students the researchers found that students near completion of distance education programs had significantly higher scores on two measures of socialization. In addition they found that experience in health care settings is associated with higher scores of socialization. The authors concluded that students enrolled in distance education might achieve socialization through alternate routes.

Their findings support the work of Cragg (2001) and indicate that experience in the professional role positively influences scores of socialization. A lack of socialization can lead to dissatisfaction on the part of the employee and result in turnover, high attrition rates, and decreased productivity. Mentors and preceptors have been identified as a rich source for facilitating socialization as they provide a combination of both formal and practice knowledge to the learner. The literature has found that preceptors have both positive and neutral effects on student self perceptions of nursing performance. Despite evidence into the effects of mentoring, preceptorships, and socialization as positively affecting professionalism and professional growth, the evidence of practice based professional education, its implementation and evaluation is limited in the field of nursing.

Schon (1983) stresses that practice is different than preparation of professionals, and that as educators we need to develop new methods of facilitating the differences. Nurse educators will need to have an identifiable specialized body of knowledge to provide skill training as the

profession matures. They will need to develop relationships with learners as equal partners toward developing learning communities and communities of practice. The power of knowing must be shared. Schon (1983, 1987) has argued for a new kind of professional- a reflective practitioner. The future of continuing professional education will include members of several professions working collaboratively (Houle, 1987). Today the university professional school has become the gateway to the profession. Preservice education in formal education settings and socialization can continue to provide a solid foundation for professionalism. However, to meet the ever-changing needs of a dynamic healthcare system, professional education in nursing must not only provide knowledge, skills, and professional identity development, but, be accessibly, cost effective, and accommodating of the learning needs of the adult learner.

Summary

Online learning is rapidly gaining popularity. One of the many advantages of online learning is its accessibility. Adult learners with busy lives are able to access education practically anywhere and at any time. In addition, online learning is economical and cost efficient. Computer hardware and accessories can address almost any learning need. For example, ergonomic furniture, keyboards and voice-activated software are available for learners with physical needs. However, not all adult learners are equally successful in online learning environments. High levels of motivation and self-direction characterize successful online learners. The successful online learner tends to be older than the average student, an active seeker of education, and serious about learning. It is widely believed that education for adult learners should be applicable to work or life problems, foster collegial relationships and encourage creative, collaborative problem solving.

For online learning to be valuable to the professional, knowledge should be transferable from the classroom to work or life situations. Theories frequently applied to knowledge transfer in online learning environments are constructivism and cognitive flexibility theory. These theories are based on the tenet that learners create meaning from studying real world situations in context. Proponents of these theories contend that online learning environments can be constructed to facilitate knowledge transfer. Strategies to accomplish this include clustering ideas and concepts around a central activity, presenting learning in a nonlinear manner by interconnecting many related concepts, using a wide variety of learning formats, and, by using case studies. Much of the learning that occurs in online environments is situated in the real life experiences of the learners. Online learning environments have received criticism for promoting social isolation. However, research supports that online environments can be designed to incorporate social interaction among participants. Social interaction allows learners to develop bonds, share experiences and discover the expertise of others.

The literature addressing online learning in continuing professional education is rapidly growing. Much of the literature focuses on strategies for teaching, access issues, and the cost benefits to organizations. The business literature tells us that success in work depends upon maintaining a balance between the needs of the workplace and the worker's social and family needs. Evidence is suggesting that online learning communities are supportive of continuing professional education. Colleagues of varying expertise can be networked and experiences shared to create enriched learning experiences that foster construction of knowledge. The literature addressing continuing education via online learning experiences in nursing is primarily anecdotal. The majority of the research that is available is in the area of formal education programs for undergraduate and graduate nurses.

A theoretical framework that applies social learning to practice learning is communities of practice. Learning in communities of practice involves participating in the activities of the community at differing levels of ability and skill. Learners practice communication with community members, share knowledge, and develop identity transformation. The community is in a constant state of redefinition as its members interact, adapt and learn. Practice and identity are therefore closely connecting concepts. Identity is defined as a "tendency to come up with certain interpretations, to engage in certain actions, to make certain choices, to value certain experiences" (Wenger 1998, p. 153). The way in which one creates an identity is through interaction in various memberships over time. Interaction between local communities and global communities facilitates identity development.

Online learning environments are ideally suited for bringing together the local and the global. However, it takes more than just a connection with experts to facilitate learning. There is a body of literature that suggests that communities of practice do indeed exist in some online environments. Researchers have studied patterns of communication from electronic documents and report evidence of socialization and instances of emotional support, collaboration and isolation within the membership.

Professional identity in nursing has traditionally been nurtured through apprenticeship once the nurse entered the work environment. The new nurse practiced behaviors, problem solving, and critical thinking under the watchful eye of an experienced nurse. With the current severe nursing shortage lengthy orientations are a luxury. Staff attrition rates and dissatisfaction are high. Time for reflection and processing knowledge and information in the work place is limited. Adult educators, writing in the field of professional practice, caution that the education required for professional development must include both formal and practice knowledge. How

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will professional nurses achieve and retain a professional identity in an environment that is not conducive to fostering attainment of professional knowledge? It is critical that alternative methods for providing continuing professional education be investigated.

CHAPTER 3

METHODOLOGY

The purpose of this study was to determine how Listserv membership fosters practice and

identity in a community of practice of advanced practice nurses. This chapter describes the

design of the study, including how the participants were selected and the methods for data

collection and analysis. The conceptual framework for the study draws from communities of

practice, online learning environments, continuing professional education, and the development

of professional identity. The study attempted to identify the characteristics of professional

learning, practice, and identity development in an online community of professional nurses

through the use of qualitative methodology using personal interviews and document analysis.

Design of the Study

Investigation into social and situated learning within online communities of practice and

the development of professional identity has resulted in basic assumptions that framed this study.

Three basic assumptions were: 1) knowledge is constructed through social interaction, 2)

communities of practice are bounded groups of people sharing insights and ideas, and, 3)

communities of practice assist in the development of a common practice or approach to a job,

task or problem. The design of this study was to investigate the professional practice;

professional identity development and learning in a specific online environment of advanced

practice nurses. A qualitative approach to this study allowed the participants to relate their

unique perspectives on membership in the community of practice and to uncover the meanings

that this membership had to their professional development and unique practices. It was

theorized that the study would generate findings that would serve to improve professional practice within an ever-increasing technologically advanced world.

Qualitative research has several characteristics that differentiate it from quantitative research. First, a basic philosophical assumption of qualitative research is that reality is constructed by individuals in interaction with their social worlds, and the purpose of qualitative research is to study how people make sense of and interpret their lives (Merriam & Simpson, 1995). Qualitative research assumes "that meaning is embedded in people's experiences" (Merriam, 1998, p.6). In this study I collected the words of the participants and listened to their thoughts, feelings and beliefs as they described their participation and experience in the online community, gathering a composite of how they perceived the reality of the Listserv and its role in their lives.

A second characteristic of qualitative research applicable to the design of this study is that I, the researcher, was the principal instrument of data collection and analysis. I conducted semi-structured interviews with each participant. My analysis of participant responses as I conducted each interview guided the interview process and led me to ask somewhat different questions of subsequent participants depending upon the responses I received. I taped each interview and transcribed it verbatim into a text file. The text files were then imported into The Ethnograph v 5.0 (1998) a computer program for the analysis of text based data.

Qualitative research usually involves fieldwork. In fieldwork the researcher physically goes to the setting for data collection. While the setting of this study is considered a "virtual" setting, meaning that it is an online environment as opposed to a physical place, I "visited" the setting through communication and observation. I analyzed the setting through two formats, interviews and analysis of actual written communications posted to the Listserv by the members.

The use of inductive reasoning is another characteristic of qualitative research. The phenomenon of the UAPRN of GA listserv was the focus of the study. The phenomenon was not manipulated or tested, but rather observed for understanding and meaning. The intuition and understanding of the researcher as I interacted within the setting of the study guided the development of themes, concepts and hypotheses arising from the data collection and the constant comparative method of data analysis.

A fifth characteristic of qualitative research is that the data resulting from the study was rich with description. The actual words, thoughts and feelings of the participants were used as the source for data and analysis. Rather than being used as a measurement of the extent to which something exists or doesn't exist, the words of the participants described in many dimensions the actual state of the phenomenon in which they were participating. In this study I used actual quotations resulting from verbatim transcription of interviews to exemplify and clarify the themes and categories that emerged from the data.

This study was concerned with the process of professional identity development and learning of professional nurses within a purposefully selected bounded Listserv. Such a phenomenon is best described as a case study. A case study "is an intensive, holistic description and analysis of a single instance, phenomenon or social unit" (Merriam, 1998, p.27). A case study is an intensive exploration and analysis of a single unit or case over time. In a case study, the researcher immerses him/herself in the phenomenon being studied to investigate the many variables or themes that may surface during the study of the selected unit. The arising themes or concepts are grouped and sorted until common patterns emerge that define the phenomenon.

Case studies can have their theoretical origins in a variety of disciplines including education, political science, philosophy, and medical or nursing science. The use of case studies

in medicine and nursing has long been recognized as a valuable learning strategy to improve critical thinking. As health care practitioners are aware, there are no two cases that are exactly alike. Professionals must learn to critically analyze what they "usually" do in order to extend and shape professional knowledge to meet the ever-changing conditions of society and humans. Case studies are based in inductive reasoning and require the learner to gather many related bits of information or "knowledge" into new patterns and meanings, increasing learning transfer and hypothesis generation.

Three special features characterized the case study. It was described as particularistic, descriptive, and heuristic. This case study was particularistic because it focused on a specific phenomenon. It was descriptive because of the rich description of the case and it was heuristic because it added to the reader's understanding of a phenomenon and brought about discovery of new meaning. Debate exists in the literature between considering "the case" as worthy of investigation due to its unique characteristics (intrinsic case study), and, in the framing of "the case" as a methodological design in which the issue under study is illustrated through the case (instrumental case study) (Creswell, 1998). According to Merriam (1998), "the single most defining characteristic of case study research lies in delimiting the object of study, the case" (p. 27).

The case, or "bounded system," may be an event, an activity, a program, or individuals and is purposefully selected by the researcher. The boundaries of this case could be defined in terms of time, events and processes. If the boundaries of the phenomenon being studied cannot be identified, than the object under study is not a case. The data collection was in-depth and detailed and involved multiple sources of information. This information included observations, interviews and documents. The context of the case involved situating the case within its setting.

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In this study the researcher explored and uncovered the nature of online communities of practice in nursing within a bounded Listserv.

Sample Selection

The goal of the study was to gain the greatest understanding of the role of listserv participation in the professional development of a nursing community of practice. Therefore purposive, nonprobability sampling was used to select the case. This study was an in-depth investigation into "the case," the United Advanced Practice Registered Nurses of Georgia (UAPRN of GA) Listserv and its membership, through an analysis of the participant's online interactions and interview responses. The UAPRN of GA Listserv was formed in the spring of 2000 by a small group of advanced practice nurses. The goals of the Listserv are 1) to serve as a communication network for discussing practice issues, 2) to provide a venue for continuing education, and, 3) to serve as an environment in which to foster professional growth of the participants. During the interview process it was uncovered that face-to-face meetings do occur among the membership of the Listserv. A semi annual face-to-face membership meeting is held for the entire membership and some of the regional subgroups hold periodic face-to-face meetings. These multiple levels of interaction among members of the UAPRN of GA Listserv resulted in a unique opportunity to uncover the characteristics, interactions and learning within a professional Listserv in which not all of the interaction occurs in a virtual environment. The boundaries of the case were expanded to include not only the interaction of the members in the virtual Listserv, but the phenomenon of the organization of members as well.

Wenger (1998) identifies that practice can serve as a source of its own boundary. Participants in specific practice form close relationships, have a complex understanding of their practice, and have developed a repertoire of shared experiences thus developing idiosyncratic

ways of communicating with each other that outsiders cannot easily enter into. Members of this Listserv share the common practice of being advanced practice nurses and came from a variety of practice areas such as physician offices, private practice, community health, and formal education. Practice specialties of this group included acute care nursing, community health, family practice, women's health, education and research. The Listserv is open to all nurses in advanced practice roles in Georgia. Current membership in the Listserv is approximately 400.

There were two main criteria that guided participant selection. First, the participants had at least one year of practice as licensed registered nurses. Clinical practice experience of at least one year would provide the ability for members in the community of practice to share lived experiences. It was possible that an advanced practice nurse could have entered an advanced practice education program after practicing as a registered nurse for less than one full year. Most graduate programs require one year of clinical practice however this requirement is not guaranteed. Wenger (1998) states that it is important for members of a community of practice to know each other, to have a history, to develop lore, stories and jokes, and to share a living experience. Expected characteristics of the participants were that the majority of members would hold a masters degree in nursing and work as nurse practitioners in private practice, as nurse educators, as researchers, or as clinical nurse specialists in acute or chronic care settings. It was possible that some participants could be members of the Listserv and functioning in an advanced practice role yet may not hold a master's degree. In the early years of the development of advanced practice roles some nurses were granted the "title" of nurse practitioner without formal attendance in a master's degree in nursing program.

The second criterion was that participants would be selected that represent a variety of practice specialties and settings. This variety was expected to add richness and depth to the data.

A third, less rigid criterion for participant selection, was that both male and female participants were included in the study.

Ten UAPRN of GA Listserv participants were interviewed for this study. The number of participants was determined when saturation of themes and findings was reached. Saturation exists when all of the data that the researcher decides is important can be placed within existing categories or subcategories, when no new findings are apparent, or when further data collection produces scant new data. It was anticipated that there would be differences in computer technology skill, in years of experience, and in length of participation in the UAPRN of GA Listserv but these are not conditions that excluded any participant.   A component of Lave and Wenger's (1991) conceptual framework for effective communities of practice addresses this concern. The authors propose that the learning that occurs within communities of practice is a result of the varying levels of participation of the members. A member of a community of practice may be a newcomer or novice in the community in one instance but may serve as an expert in another instance.   This process, known as *legitimate peripheral participation*, can be defined as the changing levels of participation of community members. It is held that this phenomenon results in the reproduction and redefinition of communities of practice.

Participation in the study was solicited through the Listserv. First a letter of invitation and information about the study was posted to the Listserv membership asking for volunteers. The initial response from this request for participation resulted in three volunteers. As participants responded I contacted them by telephone and arranged the interview schedule. I also located some participants through snowball sampling. As I completed each interview I would ask the participants if they could suggest someone from the Listserv that they thought would be interested in participating in my research. I found some additional participants by paying

attention to who were the primary posters on the Listserv and by observing the nature of their interactions. I then sent individual emails to these individuals seeking their participation. All were most gracious and agreed to be interviewed. Finally, I attended a local face-to-face monthly meeting of the Middle Georgia chapter of the UAPRN of GA Listserv and solicited two final interviews.

<div align="center">Data Collection</div>

A variety of forms of data collection are recommended in developing an in-depth description of "the case." Data for this study was collected through observation, interviewing selected participants of the Listserv, and analysis of the actual documents of the Listserv. By using multiple sources of data collection the researcher was able to develop a more complete description of the actual phenomenon and cross check findings among sources to add validity and richness to the findings of the study.

<div align="center">*Observation*</div>

I acted as an observer in the Listserv for six months. Observation serves as a research tool when it is deliberately planned and systematically recorded (Merriam 1998). Participants in the Listserv were aware that I was researching the phenomenon of the Listserv; however, I did not post or respond to emails, participate in meetings, or interface in the decision-making of the group. Observational data was collected on the participants through analysis of the issues that brought the members of the Listserv together for communication, the rules and norms of the Listserv, the content of conversations, and the symbolic language used among the members.

I observed the Listserv daily. Historically communication via the Listserv has been sporadic. This communication has been focused on job-related issues, legislative issues and political action, and meeting issues. The Listserv has not been characterized by daily "chatting."

It was discovered that the majority of the communication via the listserv dealt with legislative issues and prescriptive authority and was therefore most active during the period from December to April, the timeframe for the state legislative session. Throughout the period of observation I recorded my thoughts about what was going on. Thoughts and feelings regarding the Listserv were recorded soon after the observation. I attempted to document substance and impressions from communications rather than verbatim comments.

Documents

In data triangulation the researcher uses as many different data sources as possible that relate to the problem situation. These data sources include time, space and people resources. During this study I analyzed downloaded documents that captured the discussions and dialogue of the participants in the Listserv. The downloaded documents included email communications and attachments that were specific to the study. Such documents were considered as a primary source of data as they were written by the initiator of the document "recounting firsthand experience with the phenomenon of interest" (Merriam, 1998, p.122). The documents were retrieved directly from the Listserv and were therefore considered to be a record of the actual phenomenon being studied.

The documents were analyzed using the constant comparative method of data analysis. For time purposes the documents were not retyped into a text file and imported into The Ethnograph data analysis software program but were analyzed directly by the researcher. In addition to dialogue, any additional communication, such as "netiquette" (smiley faces, laugh out loud (lol) frowning faces) and symbolism or word connotations were added to the database. Word connotations and professional jargon are indicators of common experience and are a

characteristic of communities of practice. I analyzed these documents and my field notes for emerging patterns and themes.

Interviews

The interview is a purposeful interaction between the researcher and the participant, and allows the researcher to gain insight into the participants' perspectives, feelings and thoughts that cannot often be conveyed through online discourse. The sharing of thoughts and ideas about the subject help people being interviewed make new and deeper connections to their experiences (Toma, 2000).

I conducted ten semi-structured interviews with Listserv participants. During the interviews I followed a list of questions prepared in advance that were designed to guide the conversations toward discussion of online communities of practice and professional identity (See Appendix A). However, in order to access the participant's perspectives on the phenomenon, I was careful not to lead the participant's response or to limit the breadth of response regarding a specific topic area. Semi-structured interviewing allowed me to "respond to the situation at hand, to the emerging worldview of the respondent, and to new ideas on the topic" (Merriam, 1998, p 74).

Some of the questions were quite specific such as questions about years of practice and practice environments. The majority of the questions were open ended in order to allow the participant to reflect upon the answers before responding. Several of the interviewees asked for questions to be repeated or for me to provide examples of what I was looking for. I did not ask all of the questions in the same order but rather followed the conversational lead of the participants. Each participant signed a consent form for participation and verbalized understanding that the interview would require approximately one hour of their time. Each

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participant was informed that I might need to contact them following the interview in order to clarify my understanding of their comments. The interview schedule can be found in Appendix A.

I conducted all of the interviews face-to-face. Interviewing was based upon personal interaction. Factors significantly impacting the quality of an interview included the personality of the interviewer, rapport between the interviewer and the participant, the ability to interpret nonverbal gestures and body language and the ability of the interviewer to explore the subtle, intuitive feelings that emerged during the interview. All face-to-face interviews were recorded with the participant's permission and transcribed verbatim shortly after the interview.

Data Analysis

The constant comparative method of analysis was used to derive the findings of this study. This analysis method is compatible with inductive reasoning and concept building both of which are characteristic of qualitative research (Merriam, 1998). The constant comparative method of analysis began with the first interview, first field notes or first document that generated an idea, concept or intuitive feeling about the phenomenon. Incidents and findings were then compared, tentative categories and/or properties of the phenomenon were identified and common patterns were coded.

First, each interview was analyzed for meanings, understandings or concepts that typify the participants understanding of the phenomenon. As I read each interview I made notations in the margins of the document as I encountered something of interest or a particularly insightful comment. Second, these categories and meanings were compared across successive interviews. In addition to comparing findings across interviews, I performed a similar process with the documents and field notes collected during the study. After comparing categories among all of

these sources, findings were aligned with possible properties of each category, categories were then reduced or collapsed into fewer conceptual themes, and finally, findings were recorded. Each interview provided the researcher with an opportunity to test and revise understandings of the similarities and differences between interviews.

Each verbatim interview transcript was loaded into The Ethnograph v 5.0 (1998) software program. The program itself does not code data but allows the researcher to enter codes by naming the code and the lines of each corresponding transcript to which that code applies. The software then allows the researcher to combine and print all sections of all transcripts coded in a similar manner for comparison. The researcher can compare the feelings generated by reading each coded sample to determine if subtle differences exist between documents. The researcher can also compile several related concepts or themes for analysis to determine if the various concepts can be further collapsed or are indeed conveying different meanings. Initially I had 107 different code words describing data. As the interviews were conducted these codes began to coalesce. For example, I first coded sections of the interviews related to learning using the codes of global awareness, lifelong learning, mentoring, networking, participating, interaction, questioning, role modeling and the sharing of information. As additional interview data was collected I began to see that global awareness was really more closely related to interpersonal networking than to international outreach and came to the conclusion that networking was the more appropriate term. The code "networking" also subsumed the codes of participating and interaction. I was then able to pull all of the transcript sections dealing with networking from all of these perspectives, collapse the groups and rename coded areas of the transcripts to be more correct and consistent.

Also as I progressed with identifying the themes emerging from the data related to professional practice, I found that I had initially identified categories of advocacy, updating knowledge, sharing protocols, and conducting research. Further analysis across interviews led me to consider "updating knowledge" was not quite correct and that what interviewees were saying was really more closely aligned to "practice being more informed." The concept interviewees were relaying went deeper than just learning more information toward refining of their practice. Final analysis further characterized this category to be one of "strengthening practice." Also, as I progressed in analysis across interviews I found that advocacy was a theme that emerged strongly and repeatedly and that upon further analysis, this advocacy was divided into advocacy for the profession and advocacy for the client.

During the data collection phase I submitted sections of my data to a group of colleagues attending a qualitative research workshop. These colleagues were instrumental in assisting me in the naming of categories, confirming my findings and categories and in suggesting alternate frames for interpretation. The workshop format followed the method of constant comparative analysis. During our first session together I provided my colleagues with a transcript from an interview that I had not yet analyzed. As they read my transcripts they noted concepts or large categories in the margins of the transcript. We then compared descriptors with transcripts that I had previously coded. During the second session I presenting a data display of my findings from several interview transcripts and another section of transcript which I had coded for review by my colleagues. Lastly I provided a data display of the findings for all four research questions along with a preliminary summary of findings. My team members read my summary, reviewed my data categories and offered some final suggestions for collapsing several of the categories.

Pilot Study

I conducted two interviews of professional nurses participating in two different professional online communities of practice to test my interview questionnaire. Each participated in a professional Listserv but neither nurse was a member of the UAPRN Of GA Listserv. There were two main criteria that guided the selection of participants in this study. First, the participants were nurses participating in communities of practice in online settings. The participants were both female. Both of the participants were between the ages of 35 and 50. Initially the participants were asked to reflect upon their common experience in an online nursing class. As the participants began to describe their experiences in this environment, it became apparent that they participated on a regular basis in other communities of practice, including online professional communities. These participant responses led the investigator to ask questions specific to each person's participation in the professional online communities of practice. The second criterion of sample selection was that the participants had at least one year of practice as a licensed registered nurse. Following the interviews, the audiotaped transcripts were transcribed verbatim.

The first participant, Mitts, has been in nursing working in a variety of settings for 15 years. She owns and operates a business in legal nurse consulting, providing services for insurance companies, lawyers and physicians. She actively employs technology in her daily practice, and is very comfortable with its capabilities. Both Mitts and Ray, the second participant, have participated in online learning environments in their nursing education. Ray currently works in nursing administration in a small hospital in rural Georgia. She has over 20 years of experience in nursing. Ray does not use the computer regularly in her daily practice;

however, she has had two class experiences using online learning, and uses the computer in her home and for email purposes at work.

The source of the data for this study was verbatim transcriptions from taped semi-structured interviews with each participant. The interviews contained both structured questions and less formal questions that resulted from the various directions taken by the participant during the conversation. The interviews resulted in over 20 pages of rich descriptive data from which themes emerged. The transcripts were analyzed using the constant comparative method of data analysis. Each transcript was carefully read. As classifications and categories of data emerged, notes were made in the margin of the transcript at the location of the dialogue that evoked the classification. The notes were consolidated and defined as succinctly as possible. As the second transcript was read, the researcher looked for similar categories as well as for any new categories or themes that emerged. The results were a set of categories that described the online nature of communities of practice from these two interviews.

Through an inductive analysis of two interview transcripts three major categories and several sub categories emerged to describe the characteristics of online communities of practice in which these professional nurses participated. These findings were as follows: First, the data indicate that the affiliation with a community of practice is based on shared interests and identity with the goals and practices of the community. I termed this category "Want-Needs Driven." Second, there is a great amount of interactive communication within a community of practice. This mutual and reciprocated communication forms the guidelines for the processes of engaging in the community, setting boundaries of communication within the community, and, networking among the members. Third, the data indicate that communities of practice found in nursing online environments are self-perpetuating. Both interviewees addressed the growth of the

community of practice through synergistic activity and critical self-reflection of the members. This pilot study enabled me to refine the interview questions and to begin to explore the connections between actual online communities of practice and Wenger's (1998) theory. For example in the pilot study one question asked was, "How did you know what you needed to know for your job?" Both participants indicated that they learned their job through a process of trial and error and that there were many people along the way that encouraged and supported them in their professional careers. These responses led me to consider more thoroughly the aspects of professional nursing practice and to consider the possible role of online communities in fostering nursing identity.

Validity and Reliability

Internal validity is strength of qualitative research. Internal validity is concerned with determining how close the findings of the study are to the actual reality of the phenomenon. In evaluating internal validity one can consider that reality is a concept most difficult to define. Reality is constantly changing and evolving; it is multidimensional and is not a single entity waiting to be measured. The people within the phenomenon determine reality. It is what they believe it to be. In transcribing the actual words of the participants interviewed, I recording the reality of the experience as defined by the participants. Strategies that I used to strengthen internal validity were triangulation, member checks, peer examination, and developing an awareness of my biases at the beginning of the study. I used three forms of data for analysis. In addition to the actual verbatim interviews I collected email documents from within the Listserv and completed field notes as I conducted my study. Throughout data collection and analysis I consulted with representatives from my dissertation committee regarding the findings of the study for their thoughts and comments. In addition, participants were provided an opportunity to

react to findings through the technique of member checks when I presented a preliminary report of my findings to the members of the Middle Georgia chapter of the UAPRN of GA Listserv during a July face-to-face meeting. Several of the members present had served as study participants. The members could easily agree that they had experienced learning, that the Listserv was a supportive environment, and that they had become more politically active, but were surprised at the extent to which their practices had been influenced by their association with the Listserv.

The ability of the findings from this study to be replicated indicates the degree of reliability of the findings. Reliability is somewhat problematic in qualitative research in that reality is understood to be ever changing. How can one ensure that the reality of a phenomenon is predictable in an ever-changing world with an ever-changing reality? Qualitative researchers prefer to think of reliability as consistencies of findings, that is, are the findings of the study consistent with the data collected? Techniques that I used to strengthen reliability of this study included presenting my position regarding the theoretical framework of the study and an audit trail. An audit trail is a detailed documentation of the data collection process used and the steps of data analysis as well as a reporting of my decision making process throughout the study.

External validity is a determination of the extent to which my findings can be applied to other situations. This study has limitations in how the findings of this study can be applied to other situations. This study was concerned with the thoughts and feelings of a very select few participants within a very specific case example. This study has no plan to generalize findings in the statistical sense: rather, to facilitate understanding of a specific learning environment for a specific group of professional nurses. The participants of the Listserv came from a variety of practice settings; from hospitals, physician practice and from universities and colleges. A unique

characteristic of this community was the face-to-face meetings which appeared to foster the relationships among members. This indicates that this group is not strictly an online community of practice. However, the strength of the professional identity development among its members suggests that this component of face-to-face meetings might be valuable for professional identity development. The participants were members of many communities of practice and while the findings of the study were specific to the Listserv, it was found that there is application to other settings as well. The rich, thick description of the role of online communities of practice in the professional development of nurses is a strength of the study that will aid in reader generalizability. Generalizability is ultimately found within the reader's perspective. Despite these attempts to increase the validity and reliability of my study and its findings, it is the reader who will make the final judgment about the applicability of the findings to his or her own context.

Researcher Bias and Assumptions

The researcher is a professional nurse with 25 years of practice in the profession. This experience has been in the areas of both clinical practice and nursing education. While in practice I experienced critical nursing shortages but none that compare to the severity of the current shortage. Currently I am a faculty member of a college-based nursing program. In my teaching of undergraduate students I am tasked with the responsibility of preparing students to adapt to the rapidly changing healthcare environment and to develop strategies for successful professional development. It has become obvious to me during my career that the universities as well as the healthcare facilities should support continuing professional education, and that continuing education must be provided for nurses to remain competent. The questions posed by

this research study have grown naturally out of my professional experience and career development.

I have been trained in effective communication skills by virtue of professional education curriculum and practice. As a professional nurse, I am aware of the language and lore of nursing and was therefore familiar with many of the experiences cited by the participants. As a professional nurse, I also had familiarity with the clinical practice issues discussed in the Listserv. I first became aware of this Listserv through my work environment. I am a subscribed member of the Listserv but have never participated in the online community or in the monthly meetings of the local chapters. This sample was selected because of my interest in the education of adults in the nursing profession. I received my initial induction into professional behavior through the traditional apprentice model of social learning. This model no longer exists in a fast paced and cost conscious healthcare environment. I recognize the value of professional socialization, but also realize that newer models must be implemented. I am a member of many communities of practice such as professional nursing organizations and professional Listservs. My experience has been that communities of practice are effective learning environments and I am most anxious to formally study this phenomenon in a scholarly manner.

I have only recently become comfortable with the online environment for learning. I value the Internet as a tool for learning, use the Internet in my own teaching and participate in online communities of practice. However, not everyone is enamored of online learning environments. As the participants share their experiences with an online environment there is room for bias and subjectivity by virtue of the medium itself. Each form of computer communication has a unique effect on the type of information it transmits (Merriam, 1998). Jargon used in online communication may limit the richness of data. The online environment

may affect the openness of the interviewees concerned with disclosure and privacy issues, and

they may be hesitant to participate in online or audio taped interviews. Despite these limitations,

it is felt that the design of the study provided a variety and richness to the findings of the study. I

have attempted to present the data and findings of this study in enough detail to assure

understanding by other readers.

CHAPTER 4

FINDINGS

The purpose of this study was to determine how Listserv membership fosters practice and identity in a community of practice of advanced practice nurses. This qualitative case study included face-to-face interviews of ten Advanced Practice Nurses who were members of the United Advanced Practice Registered Nurse (UAPRN) of GA Listserv. In addition to these face-to-face interviews, 65 listserv documents were downloaded and analyzed for content. The interviews took place in a variety of settings including participant offices and homes, clinics, restaurants, and faculty offices. The investigation was guided by four research questions. First, what is the nature of the learning that results from participation in the Listserv of a professional community of practice? Second, what is the nature of the interaction between members and the community? Third, in what ways does participation in a professional Listserv impact professional practice? Last, in what ways does participation in a professional Listserv impact professional identity development? In response to these questions four sets of interrelated findings were inductively derived from the data using the constant comparative method of analysis.

This chapter is divided into two sections. The first part describes the case, the UAPRN of GA Listserv, and the profiles of each participant. The second part presents the findings of the study.

The Listserv

The goal of the study was to gain an understanding of how a community of practice of advanced practice nurses uses a professional Listserv to benefit their professional practice and identity development. This study was an in-depth investigation into "the case," the United Advanced Practice Registered Nurses of Georgia (UAPRN of GA) Listserv and its members, through an analysis of the participant's online interactions, analysis of online documents, and interview responses. The UAPRN Listserv was formed in the spring of 2000 by a small group of advanced practice nurses. The purpose of the listserv is to address legislative, political, and practice issues of advanced practice registered nurses. As stated in the Listserv by-laws, "The UAPRNs of GA will be a collective voice for APRNs and will promote the professional role identification of the APRNs of Georgia" (http://bellsouthpwp.net/l/e/lenda47/bylaws.htm.).   The goals of the Listserv are 1) to serve as a communication network for discussing practice, management and legislative issues, 2) to provide a collective voice for the advanced practice nurses in Georgia, 3) to educate the public regarding advanced nursing practice and to advocate for quality health care for all Georgians, and 4) to serve as an environment in which to foster professional role identification and provide mentorship to nursing colleagues, students, and new advanced practice nurses.

The priority goal for the Listserv membership at this time is to obtain prescriptive authority. Prescriptive authority would allow advanced practice nurses in Georgia to write and sign prescriptions for the patients under their care. At this time Georgia is the only state that does not allow advanced practice nurses to sign prescriptions. Currently the Georgia legislature has granted full prescriptive authority to physicians, dentists, podiatrists, veterinarians, and partial prescriptive authority to optometrists and physician assistants. Advanced practice nurses are

allowed by law to order a drug by phone under the supervision of a physician but are not allowed to sign a written prescription.

The staunchest opponent to prescriptive authority to date has been the Medical Association of Georgia (MAG). Physicians in Georgia are concerned that advanced practice nurses are not adequately prepared through their formal education programs to be competent to prescribe. A second concern expressed by the physicians is that they will be legally liable should the advanced practice nurse make a prescription error. During the legislative session members of the UAPRN Listserv have been meeting with MAG representatives to reeducate the physician group concerning these two areas of concern.

The Prescriptive Authority Coalition of Georgia has been working for more than eight years to pass prescriptive authority legislation. Since its inception the UAPRN listserv has joined forces with the Prescriptive Authority Coalition of Georgia toward achieving this goal. The majority of the participants discuss this goal and the part they play in the political activity underway to pass the "Right to Write." However, this is not the only goal of the Listserv. Recently a "Grassroots" committee was formed through the listserv that is focused upon educating the public regarding advanced practice nurses and on obtaining the highest quality of health care possible for Georgia citizens.

Listserv membership and professional qualifications define the "boundedness" of the case. Membership is open to advanced practice nurses in Georgia and auxiliary members. Advanced practice nurses as defined by the state of Georgia include nurse practitioners, certified nurse midwives, certified registered nurse anesthetists and clinical nurse specialists. Advanced practice certification is obtained through a national testing process following advanced formal graduate education programs specific to the specialty. Auxiliary members are any interested

registered nurse or advanced practice nursing student. Members pay annual dues and have the

right to vote and hold office. Auxiliary members may join for a reduced membership fee and

cannot hold office. Quarterly face-to-face meetings are held at locations throughout the state.

Standing committees have been formed and include legislative, public relations, education,

membership, program, database and fundraising. Upon joining the group, new members are

asked to join a standing committee of their interest to support the activity of the listserv.

The Georgia Board of Nursing identifies that there are currently 4,000 advanced practice

nurses in the state. Some of these are no longer practicing yet continue to carry a license and

certification. There are approximately 400-500 advanced practice nurses who are currently

members of the UAPRN of GA Listserv. This membership is further divided into regional

listserv subgroups. Each region elects a slate of officers and these groups meet face-to-face

quarterly or monthly depending upon membership interests and activities.

Interview participants relate the history of how the subgroups originated. Marianne,

president of the Savannah Advanced Practice Nurses group in 2000, spoke with me about the

commitment made by her group to support and foster the development of the Middle Georgia

UAPRN group. She informed me that an advanced practice committee under the direction of the

Georgia Nurses Association existed in the state but that this group had never seemed able to

coalesce and when actions were decided the dissemination of this information was poor. Alison

recalls how that initial call for creating the statewide listserv came from the Savannah advanced

practice nurses organization.

> The initial request for forming the listserv came from Savannah, and a group approached
>
> some people in Macon and wanted to know if they thought that people from Middle
>
> Georgia would be interested in. And of course, we just happened to have some of the

most involved, interested, and energetic people in Middle Georgia who have really gotten

on the bandwagon with this thing. And, I think their energy and their input and their drive

drives the whole organization. And again, I really hadn't thought so much about it till this

but really the listserv is the only way to keep this many people tied.

The timing of the Listserv's formation appears to have been optimal. The idea caught on

quickly and membership grew. Sandra, a member of the Middle Georgia group, remembered the

first meeting as a "whole bunch of people getting together for coffee," but by the second

meeting the group had compiled a listserv membership, elected officers and planned educational

programs for the remainder of the year. Since the formation of the Middle Georgia APRN group

three other regional groups have formed as well.

The amount of activity and size of membership vary among regional subgroups.

Occasionally participants talk about competing with other groups to have the highest

membership increase or to be involved in the most creative projects and fundraising activities.

Participants also identify that the communication among subgroup membership is greater than

the communication between individual members and the UAPRN of GA listserv. Alison's

perception is that "we communicate more frequently and there is more information shared" on

the regional listserv. She adds that this may be related to the fact that one unique characteristic

of the UAPRN Listserv is that the face-to-face periodic meetings help to solidify the

membership. Alison describes how her participation in a listserv of school health professionals

differs from her participation in the UAPRN listserv:

I am also on a listserv for student health center people. And while I have contributed a

couple of times to that, I mostly read it. But I have no sense of community with these

people. I have never met them and I don't know them. So I think the big difference with

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this group, the advanced practice group is that not every single soul but a big core have

met face to face. So it is like you know them.

Regional subgroups have held fundraising events such as hosting a Pampered Chef event,

organizing a flower sale and compiling a cookbook that have served to increase the cohesiveness

of the subgroups. These activities have fostered a sense of social community among the

members.

In addition to the subgroups that have formed from the UAPRN of GA listserv,

participants report that they also belong to at least one other professional listserv.

Information gained from the participation in these other listservs finds its way onto the

UAPRN of GA listserv and facilitates practice and professional development of the

listserv participants. For example, Kate has provided information on prescriptive

authority, turning breech babies, and gonorrhea treatment protocols gained from the

Nurse Midwifes listserv to the UAPRN Listserv membership. Marianne describes this

phenomenon as follows, "So you know it all fits together. All the little listservs and the

big UAPRN listserv. One giant communication."

The UAPRN of GA Listserv has done much to solidify the advanced practice nurses from

across the state. Alison talks about the disunity of nurses in the past and how the Listserv has

benefited nursing today. She says,

> The last thing we needed to do was to have two different factions going to the capital.
>
> Nursing has shot themselves in the foot too many times before with lack of unity on
>
> issues. But those people (legislators) have seen what this group (UAPRN) is doing; we
>
> are more of like a joint thing now. There is communication, the president there are
>
> officers, we have conference calls with group officers so it is unified now because I think

that would have destroyed the whole picture if we had had two factions trying to get

something passed. That would have been feed for the opposition.

Another example of this advocacy for the profession is the television commercial created by

members of the listserv in which representatives from the advanced practice disciplines talk

about advanced practice nursing. This commercial was aired in the fall of 2002 and again in the

spring of 2003.

Communication on the Listserv has been characterized as friendly, informational, helpful,

and convenient. Participants commented on the ability to receive instant information adding that

it has greatly reduced the time and expense of the mail and telephone communication of the past.

Alison describes that the listserv is a good way to post urgent requests when assistance is needed

for pushing through a bill in on the floor of the House or for global outreach projects such as

sending medical supplies to Afghanistan and the call for advanced practice nurses to care for the

sick and injured following the 9-11 disaster. The UAPRN of GA Listserv provides many

personal, practice and professional benefits to its membership.

Participant Profiles

Ten interviews were conducted for this study. The majority of participants is between 40

and 60 years old and has 20 to 25 years of nursing experience. This is characteristic of advanced

practice nurses. It is common to find that nurses obtain their initial registered nurse license early

in their career, work while their children are young, and then pursue their graduate education

after their children have completed high school and their family commitments decrease. Jamie

and Amanda are the exceptions to this. They have been in nursing for less than 10 years, are in

their 20's and have young children at home.

All of the participants interviewed from the UAPRN listserv hold a Master's Degree in Nursing. Their practice specialties include women's health, family practice, adult health, nurse midwifery, pediatrics, research, and teaching. Some of the participants work for large health care provider contract corporations whereas others work in small rural practices under the supervision of a Family Practice physician or in private practices caring for the homeless and indigent populations. These practice settings include both rural and urban locations.

All of the participants are employed full time. Several still have small children at home and others have grown children and grandchildren. An interesting observation was that in several instances the participants' spouses were retired and yet the participants expressed enthusiasm about continuing their employment and careers indefinitely. Again, this may be related to the finding that many advanced practice nurses (APN's) are entering practice later in their careers as a result of earlier family commitments. Several of the participants mentioned that they had received their advanced practice standing after they were 50 years old and that they are finally doing what they have wanted to do since becoming a licensed registered nurse.

A characteristic of the participants is that all of the UAPRN Listserv members are also members of at least one other professional listserv. The participants mention these listservs within their interviews and suggest that while the other listservs provide them with specific practice information, the listservs are not as valuable to them professionally as is the UAPRN listserv.

<div align="center">Individual Participants</div>

Alison

Alison is a Family Health Nurse Practitioner and is on the nursing faculty at a central Georgia university. She teaches in both the undergraduate and graduate programs and manages

the student health services for the university. In addition to teaching she practices in the student health clinic at least two days each week.

I have known Alison for five years. She and I were colleagues in the mentioned university's nursing program. When she read my request for participants on the UAPRN Listserv she was the first to volunteer to be interviewed. We met in my office on the campus for the interview. This interview turned out to be the longest interview of all and provided rich data. Alison was eager to provide me with helpful information and often asked, "Is that enough?" Her ability to articulate her thoughts assisted me in labeling the themes that emerged from our interview and these labels have remained fairly constant throughout the data collection process.

Alison has been very active in forming and nurturing the UAPRN listserv. She is a member of the statewide listserv as well as the Middle Georgia UAPRN subgroup listserv. She has assumed leadership roles within the organization and was instrumental in organizing the relief project for Afghanistan refugees that was a major project of the UAPRN listserv this past year. She is most enthusiastic about the value of the Listserv to her practice and professional development.

Sandra

Sandra currently works in an Internal Medicine practice in Macon Georgia. This practice employs three physicians and one Physicians Assistant in addition to Sandra. She is the only female practitioner in this practice and as a result is building a practice in women's health issues. As the only female practitioner she encounters gender bias and patient confusion as to role behaviors on a regular basis. It angers her that the physician's assistant in her office is able to not only sign individual prescriptions but is able to sign her clients prescriptions as well. She deals with the issues of prescriptive authority daily and as a result has become actively involved in the

quest for legislative approval of prescriptive authority. She describes herself as very assertive and outspoken, almost to the point of aggressiveness. During our interview, at her kitchen table, she openly discussed a situation in which she was censured for her assertive nature within the listserv but adds that by voicing her opinion the Advanced Practice group was able to retain the services of an expert lobbyist. I have known Sandra for 20 years and similar to Alison, she was eager to provide me with a rich full interview.

Sandra has been an advanced practice nurse for six years. Sandra identifies that while she benefits from participation within the UAPRN listserv she still prefers face-to-face meetings and activities to computer interaction. She is very active within the local Middle Georgia UAPRN subgroup and attends their face-to-face meetings regularly. She has remarried during the past year following the death of her first husband to cancer, and has become a stepmother as well as a grandmother as a result of this marriage. She describes her participation as variable and depending upon her commitments to her new family.

Brenda

Brenda works in a small family practice office in rural South Georgia. She has been an Advanced Practice nurse for three years. Alison suggested that I contact Brenda for an interview. She thought that Brenda would have some interesting information regarding her use of the UAPRN listserv because of her remote geographic location and distance from other APN colleagues. The interview did indeed generate many examples of how the UAPRN listserv had helped Brenda learn her role during that first year of practice in such a remote geographic area.

Brenda was enthusiastic about our interview. She downloaded and printed several documents from the UAPRN listserv to illustrate her participation. She currently is the secretary of the Middle Georgia area chapter of the UAPRN and was eager to show me the list of members

and discuss her active role as secretary for this group. We met at a Hardees restaurant near to her office. Her mother who was visiting from the Midwest accompanied her and during lunch she responded enthusiastically to my questions. Several times during the interview her mother would interject with questions about Brenda's role in the listserv and it was apparent that Brenda's mother was impressed with her daughter's work in the UAPRN group. Brenda is currently involved in the online coordination of a statewide educational conference for Advanced Practice nurses initiated through the UAPRN listserv.

Jamie

By far the most energetic and enthusiastic participant was Jamie. All of the participants had mentioned Jamie during their interviews with me, so I was excited to meet her and to hear her story. Jamie had been described as "political," "energetic," "enthusiastic," and as a "great leader." Many of the participants even suggested that their involvement in the listserv resulted from her encouragement and enthusiasm. Jamie is the youngest of the participants. She also has been a professional nurse for less time than the other participants. The fact that she has achieved advanced practice certification at such an early age speaks to her motivation and abilities.

Jamie has been working in a family practice office in a middle Georgia community of 55,000 inhabitants. Recently this office was closed. She was fortunate to find a position in a Women's Health practice in the same community, and she is currently pursuing continuing formal education to obtain certification as a women's health nurse practitioner. She has been married for three years and has a one-year-old child.

Jamie has assumed several leadership roles within the UAPRN. During her first year of membership she was elected to be the state president. After the birth of her first child she wanted to reduce the amount of time she was spending with the UAPRN Listserv. Her enthusiasm is

again apparent in that her idea of reducing her commitment resulted in her election as president of the local Middle Georgia UAPRN group! She actively supports legislative and political endeavors of the group, and during her interview often spoke of her growth in political activism.

Marianne

One of the most pleasurable experiences that I have had collecting data has been the opportunity to visit the practice settings of the participants. I marvel at the creativity, commitment and dedication of all of the participants as they practice in their expanded role, but the most unique experience for me was to visit with Marianne at her office in a large historic community in South Georgia. Marianne and her colleagues (another APN and a program director) provide direct care to homeless and indigent people. She described for me how the program is funded through grants and federal financing and explained that the purpose of this center is to reduce the financial burden carried by the local community in providing health care to this population.

Marianne is soft spoken and wise. She demonstrates a sincere commitment to the profession in her actions within her practice and her participation in the UAPRN listserv. She is currently acting as the liaison between the Prescriptive Authority Coalition of Georgia and the UAPRN listserv members. She is actively involved in legislative issues affecting advanced practice nurses and is recognized throughout the state for her expertise in this area. She posts regularly on the listserv and is seen as one of the consultants for questions related to legislative issue within the state. In addition to her active participation in the listserv she is a wife and mother of two teenage children. She offered many suggestions during the interview for maintaining a balance between leadership and participation in an active listserv, and family responsibilities.

Kate

Kate is a certified nurse midwife who works in a large multi-physician practice in Atlanta. In addition to several physicians, this practice employs three nurse midwives and a physician's assistant. This progressive practice has provided Kate with opportunities to explore and expand her practice and to gain much independence as an advanced practice nurse. She feels respected among her colleagues and she often posts information about practice related issues to the UAPRN in addition to current information regarding legislation that will impact advance practice nurses in Georgia.

She is a member of the Prescriptive Authority Coalition of Georgia and is the Georgia representative for the American College of Nurse Midwives. She represents both the UAPRN and the Nurse Midwife professional organization in political and legislative issues at the State and Federal levels. During our interview, held at her Atlanta office, Kate talked about her role as legislative liaison, a role she takes very seriously. She commented that she believes the communication skills she has developed as a result of her participation in the UAPRN listserv have been instrumental in her gaining membership into the prestigious legislative and political coalitions mentioned above.

Amy

As a student in an advanced practice nursing program, Amy was able to offer me significant insight into the nature of the interaction of newcomers within the listserv. She thought that the listserv served as a valuable resource for her, and commented that she often emailed information from the listserv to her fellow students. Amy exhibited great enthusiasm for the future of the UAPRN listserv. She told me how she had used the postings of job announcements and the listserv discussions on salary negotiations as well as the information provided on the

listserv of how to determine gross patient revenue to assist her in negotiating an increase in her benefits upon graduation.

Amy brought the critically reflective perspective of a student to our interview. As we sat comfortably in my car in the parking lot of an outlet mall outside of Atlanta, she described the benefits of Internet communities as well as the possible problems such as privacy and confidentiality. Amy has found great value in the collegial relationships that developed for her as a member of the listserv and felt that the listserv assisted her in gaining a more realistic picture of the practice environment. As a student she had an appreciation for the research activities on the listserv and stated that she felt she had kinship with me as a fellow student and that she should help me out by volunteering to participate in my study. As a result of this bond she was contemplative and thorough in all of her responses. Amy currently practices in pediatric gastroenterology and is actively involved in research related to this specialty.

Elaine

Elaine has been a registered nurse for over 35 years and is the oldest participant in the study. However, she demonstrates the highest level of enthusiasm for her role as an advanced practice nurse. Throughout the other interviews I had heard the participants mention her name repeatedly, and I felt that I should contact her for an interview. When I arrived at her home, she greeted me warmly and welcomed me to her dining room table where iced tea was already poured. Talking with Elaine was like hearing a history of nursing. And I was amazed to learn that she had been an advanced practice nurse for only three years! Elaine lives and breathes her practice. She currently is employed by a small rural hospital in middle Georgia as the nurse practitioner for two separate family practice physicians. Many of her patients are of lower

socioeconomic means and she works diligently as a client advocate to obtain quality health care for them. She believes that her participation with the UAPRN group has facilitated this goal.

Her enthusiasm for the UAPRN listserv is infectious. She currently is the secretary of the state organization. In our discussion she informed me that her goal for the year was to start one more spin off group in the Columbus area. It is not uncommon for her to hook up her camper and travel to other areas of the state in an effort to increase the membership in the listserv organization. As a result of her work, she has been successful this year in developing groups in three areas including Columbus. She describes herself as having been a shy person and applauds the listserv as being instrumental in increasing her assertiveness. As a past neighbor to the current Governor of Georgia, she finds herself talking with him about advanced practice issues on a regular basis.

Tonya

On the day that I interviewed Tonya she was immersed in job negotiations with the health care provider company's management team and was anxious to hear about possible salary adjustments. As a mother of two young children she had arranged for a babysitter while we conducted the interview in her home. During the interview she received several telephone calls from colleagues and her employer and it was apparent that she is a strong advocate for the advanced practice group. Tonya has been a registered nurse for 11 years and an advanced practice nurse for three years. She practices as a Family Nurse Practitioner in a multi-physician practice in a large urban community in North Atlanta.

In contrast to the other participants, Tonya does not actively participate in other listservs. While she is a member of the "Grassroots" listserv that has spun off from the UAPRN listserv for the purpose of promoting public education regarding the role of advanced practice nurses, she

does not participate in this listserv to a significant degree. She has been very active in posting information related to successful job negotiations and has advocated for increases in salary and compensation for advanced practice nurses across the state. She has participated in the prescriptive authority legislative campaign through listserv discussion, contacting her legislators, and attending local negotiating sessions with the lobbyist.

Amanda

I met Amanda when I attended a face-to-face meeting of the Middle Georgia Chapter of UAPRN where I was speaking to the group and thanking them for their support during my research study. Immediately after the meeting, Amanda approached me and asked if she could participate in the study. She had just accepted her first position as a Family Nurse Practitioner in a large cardiology practice and was anxious to share with me how the UAPRN Listserv had helped her during her formal program of study.

Amanda's husband and one year old child, having accompanied her to the interview, went outside my office to have a picnic by the campus pond while Amanda and I talked.

Like Jamie, Amanda has achieved certification as an advanced practice nurse at an early stage in her career. She has a young child and an active home life. Amanda's enthusiasm for the UAPRN Listserv was infectious as she answered the interview questions. She spoke often of the support she received from the Listserv membership during her education and the value of the information she received from the Listserv as she negotiated her first contract. Perhaps more that any other participant she talked about the value of the Listserv in mentoring new nurses into the profession.

Table 2 describes the characteristics of the interviewees including the number of years each participant has been a licensed registered nurse, their age range, professional degree and area of practice.

Table 2: Participant Profiles

Participant	Years in Nursing	Age Range	Degree	Practice Specialty
Alison	31	50-60	MSN	Nursing Faculty Student Health
Sandra	30	50-60	MSN	Adult Health
Brenda	30	50-60	MSN	Family Practice
Jamie	9	20-30	MSN	Women's Health
Marianne	20	40-50	MSN	Family Practice Homeless/Respite
Kate	28	40-50	MSN	Nurse Midwifery
Amy	23	40-50	MSN	Pediatric/ Gastroenterology Research
Elaine	35	50-60	MSN	Family Practice
Tonya	11	40-50	MSN	Family Practice
Amanda	6	20-30	MSN	Family Practice Cardiology

Findings

The purpose of this study was to determine how Listserv membership fosters the learning, practice and professional identity development in a community of practice of advanced

practice nurses. Four research questions were developed to reveal the nature of this phenomenon and were specifically related to learning, interaction among members, professional practice, and the nature of professional identity development. Findings are presented with each specific question.

Nature of the Learning

The first research question was framed toward determining the nature of the learning that occurs in the UAPRN of GA listserv. Wenger (1998) identifies that learning occurs along two dimensions in communities of practice and that because learning transforms who we are and what we do, it is an experience of identity. The first dimension is that of individual learning through trajectories of participation within a community of practice. A learning trajectory describes that learning is temporal and constructed in social context. The "work" of learning is ongoing, but also includes consideration of past learning and future goals (Wenger, 1998). The second dimension of learning is that of learning as being a characteristic of practice, or as a mutual process occurring between members of a community of practice in pursuit of a common goal. Learning through trajectories of participation was found to be characteristic of the UAPRN listserv in that all of the participants stated that they had experienced individual learning as a result of their participation within the UAPRN Listserv. Eight of the ten participants have been members since the inception of the listserv. The remaining participants, students, have been members for one year.

Two categories of findings describing the nature of the learning that occurred from participation with the UAPRN of GA Listserv emerged from the data. The first category defines what was learned and the second category describes how the learning occurred. Table 3 lists the findings from data and interview analysis.

Computer skills, communication skills and practice based information emerged as categories describing what was learned by the participants of the study. The participants learned this information through discussion on the listserv, networking, mentoring, and lurking.

Table 3: The Nature of Learning in a Professional Listserv

What is Learned
    Computer Skills

    Communication Skills

    Practice Based Information

        Political and Legal

        Continuing Education

        Job Opportunities and Job Negotiation Skills

How is it Learned
    Discussion

    Networking

    Mentoring

    Lurking

What is Learned

The findings that emerged from the interviews when investigating the learning that occurred within the UAPRN of GA Listserv can be divided into two major categories. The first category identified what the participants learned. Three subcategories describing the nature of

this leaning were identified: computer skills, communication skills and practice based information.

Computer skills

A learning experience common to all of the participants was that of gaining computer skills. These skills include creating attachments, use of document programs such as MS Word, creating email lists, "surfing" the Internet, and learning listserv communication etiquette. Jamie mentioned twice in our interview that she did not even have a computer before she joined the listserv and that she can certainly say that membership in the listserv has saved her time as well as money:

> Personally I never realized how important computers were. I didn't even have one. We didn't get one till a year and a half ago and then I don't know how I ever lived without it! I would have never thought that emailing and computers would have been so important in my everyday life as they have been.

Jamie previously had served as the secretary of a face-to-face local chapter and was spending countless hours writing to the members and had incurred significant postage expenses when mailing notices and information out to the membership. Marianne informed me that when her chapter in Savannah took on the goal of uniting the state in listserv membership, her chapter was spending $800.00 in postal fees.

When asked to describe the differences she sees in herself as a result of her participation in the Listserv, Brenda stated: "I wasn't very computer literate before. I didn't use the computer very much and now I am using it daily." Kate discussed her learning regarding how to establish an email list and identified that she was becoming skilled enough to be her own Webmaster:

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Yes. I am learning little by little. I certainly am not the most knowledgeable. But I know

enough to have all of the names of the members on there and to be able to keep them

updated. And, that makes it much easier to just click one time and be able to send out to

everyone versus the old way.

She adds that her Internet provider has "shut her down twice" for spamming. Because of her

newness to Listserv skills she did not even consider that this would be a potential problem. She

described with pride how she then contacted the Internet provider and negotiated for special

email privileges.

Amy talked about how she had to get used to the fact that when she replied to an email

posted on the Listserv that her response went to the entire Listserv group rather than to the one

person who had posted the initial inquiry. She described how she modifies her responses

knowing this fact and wonders if "you may lose some of the information in such an exchange."

Communication skills

Participants also identified that they had to learn skills for managing the amount of time they

spend each day reading and responding to the email communication they were receiving from the

listserv. Communicating through Listservs has similar characteristics to face-to-face

communication. Kate described how she has to process incoming information from the several

Listservs she belongs to each day, sift through the repetitive information, formulate responses

and determine which emails are the most important for her to address. She and Marianne both

talked of the difficulty they experience in responding to emails when they cannot see the

individual's facial expressions, identifying they cannot always determine the emotions behind

the posting over Internet communication.

Marianne, one of the three strong political activists on the listserv, stated that she has become overwhelmed with the communication that has come to her since joining the listserv and she informed me that she has developed new life skills as a result of her participation in the Listserv. She described the volume of information she is processing through the listserv, which includes not only the information that she receives, but also posting legislative updates and in answering questions from the membership regarding legislative issues. The processing of all of this communication has affected her life by consuming many hours of her day. She has learned to prioritize her participation and to manage the processing of information in a meaningful way. She has had to develop a system for reading and responding to all of the emails that come to her in a day's time so that she can carve out quality personal and family time:

> And every time you start a new group it is very time consuming. It kind of takes over your whole life. So I have learned how to stop letting everything take over my life during the past year. I have learned how to separate myself from some of the information that you can get. And you have to learn how to take it in and how to keep up with it all.

Kate talked about how she believes that email communication has changed the perceptions of listserv members toward believing that the responses they receive back from her should be instantaneous. She likened this phenomenon to what has happened with other forms of mass communication describing how we have become a society of instant connectivity through personal pagers and mobile phones. Marianne describes that during the state legislative session she posted daily updates of the status of the prescriptive authority bill. She describes her feeling that the UAPRN Listserv members came to rely on this information and a type of bond and relationship was developed between Marianne and the readers. She added that many listserv participants now expect immediate answers to their questions and can become anxious if they do

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not hear a response from her within two days, "so they got spoiled and now they want information the day before you actually do anything. They want instant gratification!" In an attempt to communicate more effectively with the members Marianne has developed the habit of posting a weekly legislative update for information purposes.

Participants learned communication skills through their participation on the listserv. The majority of the participants describe that communication "etiquette" exists within the Listserv and that these rules for communicating must be learned by the participants in order to support effective communication. Marianne spoke of a recent personal experience when she became a new member of another professional listserv and described how she initially took some time to "get her feet wet," in learning the topics and etiquette of this new listserv before actively participating. She thinks that this is a characteristic of the discussion within the UAPRN Listserv as well:

> I think it is basically a learning process for a new person coming in. They need to learn what is the best way to interact what is the best way to ask questions. I think that they need to get through that sometimes. I think people feel a bit intimidated when they first start on the listserv or in a chat room or whatever. They don't really feel comfortable yet with their interactions. But I think over time they do become comfortable. I think they ask a lot better questions and they have a lot better input than they did before.

> Comments such as "you have to be careful when you respond because members cannot see you face," and "remember not to use all capitals," are examples of Listserv etiquette that is also addressed in the literature for online communication. Jamie described her experience this way "I have learned how to bite my tongue." Marianne adds:

And that makes you grow as a person when you swallow your pride and you let go of the anger you feel because here you are doing the best that you can, trying to do something good and people think you are doing something bad and are mad. So where did that come from? So you have to learn to deal with those kind of issues. And go forward and not let it bother you. And realize that in any election even if you get 60% of the vote and you have a landslide victory there are still 40% of the people out there that still don't like you. So that is an important lesson that I learned. That there are always going to be people out there no matter how hard you try, no matter how hard you work that are not going to like you so I think the interaction on the listserv with these folks really helped me to deal with some of that. I never had to deal with any of that before. I had always been this nice sweet little nurse always nurturing everybody you know and to have somebody really get angry with me I was like WELL…I was just shocked. So it was hard for me, it was real hard, it was a growing thing. What is that thing they say? If it doesn't kill you it will make you stronger. I believe that. So that was my experience that was a growing thing with the listserv and the Internet.

Practice Based Information

A third subcategory of learning was uncovered from interview data. The participants discussed learning information that assisted them in improving their practice as advanced practice nurses. Three subcategories of practice based learning were identified: political and legal knowledge, information of continuing education opportunities and information about job opportunities and job negotiation skills.

Political and legal. Political information related to the status of legislative bills and prescriptive authority is often posted on the listserv. Participants accessed information about

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professional nursing organizations, information on obtaining legislative support for prescriptive authority for advanced practice nurses in Georgia, and lobbying senators and representatives.

Kate, acting liaison between the UAPRN of GA Listserv and the Prescriptive Authority Coalition, posted a concise summary of the history of Georgia's quest for prescriptive authority at the beginning of the legislative session in January 2003. She believed that all Listserv members should have access to this information as the members were writing to individual senators and representatives regarding support of the bill. In addition to this document she provided the Listserv members with hints for writing effectively to legislators and for meeting with legislators face to face. Kate also posted information on "ideas and perspectives on ways to go about improving UAPRN lobbying power in Georgia," and has developed a "2 year plan to move the new ideas forward."

Amy, an advanced practice nursing student described how Kate's information assisted her as a student in gaining a wider perspective on prescriptive authority as she was preparing to write a term paper on this topic. In her interview she hints at how she had a narrow perspective on the issue of prescriptive authority, and even suggests that her perspective was based upon those of faculty and not based in real practice. She talks about the value of the opinions of listserv participants in reshaping her thinking:

> Somewhere along the way in between it sort of not changed but I felt that there should be some way, not really monitoring, but sort of giving us more education out there to make sure that we know enough to be competent enough to start prescribing. It is hard when you just throw someone in the training to actually do that. Well, around this time was when I actually felt, well, ok, there is a lot of that sort of information out there and it helped and piggybacked, in terms of writing my paper. So, in that instance it did. It sort

of stimulated me in terms of getting my paper done and in terms of what I needed to put in and looking at the pros and cons of having that privilege here in Georgia.

The political platforms of individual representatives are posted to the Listserv. In a posting before political elections in the fall of 2002, Rose, a listserv member, provided information on the representatives from her region and their support of the prescriptive authority bill. Kate also posted information on political fundraisers being held in Atlanta for the representatives who supported the prescriptive authority bill and called for support of the Nurse Reinvestment Act that provided $20 million for nursing education and loan repayment. The call for support of the Nurse Reinvestment Act occurred on January 23, 2003. On January 24, 2003, The American Nurses Association lobbyist responded to the UAPRN Listserv reporting that the bill had passed the U.S. Senate and made this comment, "We won! Thank you for all your calls and faxes, they made the difference!"

A Listserv member, Sarah, posted a legal question regarding prescriptive authority. She posted that the management divisions of two major drug companies had informed their drug representatives that advanced practice nurses in Georgia could write prescriptions. The result of this misinformation was that these representatives were pressing the advanced practice nurses to sign for drug samples when they would visit physician offices. She received immediate feedback from the listserv membership that prescriptive authority was not yet approved by the state legislature and that advanced practice nurses should not be signing for any medication samples.

In addition to political information, documents describing the establishment of UAPRN of GA Listserv bylaws and organizational structure are posted to the listserv membership.

Working committees such as fundraising, public relations and legislative have been structured and membership elicited via the listserv. Quarterly minutes are posted for all members to view.

Continuing education. The Listserv has been an effective vehicle for posting information regarding continuing education offerings, reminders of legislative workshops, information regarding medications, and Internet information sources. Brenda has taken advantage of professional online journal articles, professional online continuing education courses and spoke of learning about bio-terrorism through listserv postings. Alison is a faculty member teaching advanced practice nurses and said that she uses the listserv as a resource for upgrading her knowledge to improve her teaching:

> I probably get at least 10 different journals monthly plus all of the stuff that is online through the listserv. When we first started this course (FNP program), there was no textbook for advanced practice; there was nothing much on the Internet, very little information anywhere. So the first few years teaching was difficult. Students had to read hundreds of articles that we scrounged around and found; now we do have some books, of course multiple things on the Internet. But I guess what I am trying to say is that it takes constant upgrading yourself to keep up.

Alison and Sandra identified that they learn about medication issues that affect daily practice and share practice protocols over the listserv. Allison mentions how the listserv communication manages issues such as this:

> The listserv is available if we needed to communicate about something. Um, if, like I said, I'm also on the global list from AANP, and frequently things that come through that are also put on the listserv like medication recalls, product recalls that affect daily practice in some cases.

Sandra discussed an instance in which an advanced practice nurse was seeking advice over the listserv regarding a particular patient case. Listserv members responded to this practitioner relaying their professional experiences with similar cases. All of the participants mention the growth they have experienced through participation in the Listserv. Brenda describes the growth she has experienced through participation in the listserv as she has gained knowledge and describes her learning as having opened many doors for her:

Oh, no, we learned a lot more. For example, we learned how to put on a television commercial, how to go about setting up a conference from people who have done this, some of the political issues have been just incredible. I thought I knew how politics worked but I certainly didn't and just watching this, and also it is not exactly through the listserv but it is through email, I email back and forth to several of the legislators and they have emailed me back so it does open up new doors for you. And you definitely learn about new things that you wouldn't necessarily know about until you get involved in them.

Job opportunities and job negotiation skills. Opportunities for employment are also posted to the listserv. Sandra has used the listserv to locate a potential job on two separate occasions. Amy passed along employment information to fellow students when she realized that she would not be able to consider relocating for the employment opportunity. Amy also recognized the role that the listserv could play in assisting a new graduate in negotiating for job benefits:

And then earlier back in December a few job postings came up on it. Which I sort of looked at and forwarded on to other fellow students who might have been living in those areas and looking. But I guess if I was to use it actively I could actually put forth

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questions like I am a new nurse practitioner, can anybody give me any hints in terms of

negotiating? And using it as a way to get information from a lot of professionals who

have been in that area or a means to get information.

Jamie adds that students have posted surveys to the listserv asking questions about

advanced practice, the work environment, and salary of the members. She mentions that listserv

participants are always willing to support newer members in their learning. When Tonya was

negotiating her personal employment contract she recognized that other advanced practice nurses

might benefit from learning how to estimate their gross patient revenue for use in negotiating

their salaries. She believes that if advanced practice nurses can demonstrate the financial impact

of their practice for an employer they would strengthen their negotiating position. Tonya

prepared a document with the instructions for determining gross patient revenue, supplied

specific examples from practice, and posted this document to the listserv. She shared with me

that she received many email responses to her information citing how beneficial it had been in

for other listserv members.

How the Learning Occurred

The second set of findings related to the learning of advanced practice nurses in an online

community of practice identified four methods of learning. Learning was facilitated in the

listserv through discussion, networking, mentoring and observation (lurking).

Discussion

Posting questions, answering questions and providing information characterized Listserv

discussion. Participants described the discussion on the Listserv as occurring on multiple levels.

There is discussion within the UAPRN of GA Listserv membership, within and among regional

UAPRN subgroups and between UAPRN of GA Listserv members and members of other

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professional listservs to which the members might belong. Jamie describes UAPRN Listserv communication as, "informative, and just helpful, and just FYI type of information." Marianne sees that the discussion of the Listserv has been an effective tool:

> So it has really been an effective tool to get information about legislative things or about the group itself. Or about anything that is of interest to UAPRN be it about the nurse anesthetists, what is going on with them. It doesn't matter; any of the four advanced practice groups can get information back and forth. So I think it has been real instrumental in answering a lot of questions for people.

Elaine, the secretary of the state-wide Listserv membership describes that the majority of her discussion involves planning and organizational activities with the other officers of the Listserv. Brenda, who is currently organizing a statewide educational conference, has found that she is currently posting more discussion to the listserv as she is developing the conference agenda and brochure. She is actively seeking feedback from the Listserv members on her ideas and voices frustration when the membership does not provide her enough feedback to be helpful: "And I get some answers, "oh, very good", but that is not what you want. Some have given me details, like, "Brenda, we need to change this or that," what I really want is feedback."

Participants suggest that this varying participation is related to their current life situations and commitments. Sandra and Jamie have both had family circumstances that have reduced the level of their participation during this past year. Sandra is newly remarried and Jamie recently gave birth to her first child. Marianne sees that the topics discussed on the listserv and the status of membership also influence who participates in the discussions. She identified that the legislative issue of prescriptive authority has been important for many advanced practice nurses in a variety of practice settings and has served to draw members into the listserv.

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Networking

Perhaps one of the most interesting findings that emerged from the interview data is that all participants of the listserv also belong to smaller committees that have spun off of the listserv and meet face-to-face. There seems to remain a need for participants to interact with each other in the "real" world in order to maintain the energy that is characteristic of the UAPRN listserv. Alison states that although members of the listserv "know" her and recognize her signature on the listserv postings that there is a closeness that occurs within the face-to-face meetings that unites members. Brenda identified this feeling as the "human spirit" that is present when groups get together. Alison also comments on the "human spirit" of networking with UAPRN Listserv members in a face-to-face environment:

> One example may be that we have our Middle Georgia group, had a booth at the National fair recently. For some reason I dreaded going. We had to sign up for periods of time where we would be there and I just envisioned being so bored and having to sit there for hour and do nothing. Well. It was totally different. It was non-stop business. And we signed up in two and threes and it was a wonderful time to get to know someone you don't normally, I worked with a friend from South Georgia who I see at meetings but seldom get to be together. Um, but getting back to the community aspect, um, many people who came by were people you knew or former students or people who knew her and it was just a good time to share information.

> Kate was enthusiastic about the networking that has occurred for her as a result of her participation in the Listserv. She has "enjoyed learning about practices that are different from her own," has met people on the Listserv that she never would have known, and, believes that she has gained "a greater more objective world view of advanced practice nursing in Georgia."

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Sandra describes this as follows: "Individual members have become more aware of each other and just knowing there are other people who face the same things everyday as I do really is supportive." As advanced practice nurses and nursing students network they are forming relationships, learning, advancing the practice and profession.

Mentoring

Mentoring is another way in which participants learn within the listserv. Alison is a teacher of advanced practice nurses. She believes that mentoring student members on the listserv will assist their learning. She states that when the student members see a faculty member participating actively it demonstrates professionalism, and that this "goes a long way in telling students that this (professional practice) is not just words, but that it takes a lot of hard work." Alison stated that she frequently invites students to ride with her to the face-to-face meetings and adds that this action has encouraged the advanced practice students to become active members.

Brenda spoke at length about mentoring of the advanced practice nursing students through the Listserv. She informed me that there is an area on the UAPRN Website listing the names of advanced practice nurses who have agreed to mentor new students and new practitioners outside the listserv. She sees this as an important role for members, and believes that mentors should require new students to become members of the listserv saying, "if this is mentoring then we should do it right." Amanda described how she was mentored as a student in the Listserv:

> I didn't feel like I was just a student. Even though many of my teachers are members of the Listserv, I didn't feel like I was a student. I felt like I was more on a professional level, that we were more lateral, rather than someone being over me as a student.

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Jamie has started the practice of welcoming new members to the listserv by calling them and taking them to lunch. As new members sign on as participants of the Listserv, she identifies them and initiates contact as soon as she can to begin the mentoring process. She believes that as a result of the mentoring within the listserv that "individual members have become more aware of one another."

Marianne described mentoring of the new listserv officers when the group was initially formed. She said that the original officers of the Savannah group acted as the officers of the first listserv group to assist in the transition of new members into leadership positions. Elaine has developed a notebook containing helpful hints for starting a new UAPRN subgroup that she distributes to new groups. Marianne comments on the value of mentoring newcomers by saying:

> Well, I think a lot of times when you have somebody new, especially someone who is a student, or a new nurse practitioner, or a new anything in their field they really don't understand the legislative process for instance and they come in, they really think they know the answers. And I think that one way I see is that they learn as they go that there are people there that have the knowledge that they don't have and they eventually begin to understand that a little bit better as they interact more and more. But a lot of times when people come in and they question why aren't we doing it this way why shouldn't we go up here and do this or that? And you have to explain to them that no, that wouldn't work in Georgia because of certain "good old boys" issues and basic politics.

Mentoring has also occurred across Listservs. Kate explained to me that she was invited to join the UAPRN Listserv by Marianne. Kate has been and continues to be active in the Nurse Midwives Listserv and as an advanced practice nurse she had communicated occasionally with Marianne regarding legislative issues. Marianne felt that Kate would have much to contribute to

the UAPRN Listserv and as a result of Kate's membership in the UAPRN Listserv she became the legislative liaison for the Listserv. Kate reciprocated by submitting Marianne's name to the National Prescriptive Authority Coalition. Marianne has since become active in the Prescriptive Authority Coalition Listserv on both a state and national level.

Lurking

Lurking is actually a form of participation that is characterized by reading of postings without posting replies. Lurking can facilitate learning among the members of the UAPRN Listserv. Sandra informed me that at this time she does not actively participate in Listserv discussions. She describes the majority of the discussion as political and legislative at this time. She adds that the information has been helpful to her and that she has sent letters of support for prescriptive authority to her legislators, but describes herself as "having too much going on right now to be politically active." However she can definitely see that the Listserv is evolving and is looking forward to increasing her participation. Amy describes that as a student the majority of her participation has also been in the form of observation or lurking: "I have been pretty much sort of standing by, so to speak. I am just sort of looking in from the outside rather than being an active participant in the exchange of information." She adds, " I may have responded to one or two emails, like I said when I was trying to get more information from the UAPRN official Website…just maybe being an intermediary and passing on the information to other students."

Learning in the UAPRN of GA Listserv did occur for the interview participants. The nature of Listserv communication is that of computer or online communication. Online communication while having similarities to face-to-face communication also requires unique skills for mastery. The participants learned how to use the computer to manage email documents and create attachments and email lists. They learned communication skills for processing,

interpreting and responding to volumes of email communication and how to effectively respond to virtual emotions. Information and knowledge valuable for guiding practice was also learned. For example, participants learned practice applications for some medications, learned of continuing education offerings, and learned about political and legal issues that affect their daily practice. Practical knowledge regarding job opportunities and job negotiation skills was also shared among the members of the Listserv. The learning that occurred was facilitated through Listserv discussions, networking both virtual and face-to-face, mentoring, and observation.

The Nature of the Interaction between Members and the Community

The second research question seeks to identify the nature of the interaction between members and the community. The concepts emerging from the interviews indicate that members energize the community and there is a synergy among members of the listserv, that there are normative activities that occur among members and that new members are supported by the membership. Practice in a community of practice occurs when members of the community have sustained enough "mutual engagement in pursuing an enterprise together to share some significant learning" (Wenger, pg. 86). This occurs through participation and reification of the many facets of the community that influence the evolution of the practice. Three major categories of findings emerged from the participant interviews that characterize the nature of the interactions among members and the community.

Table four summarizes the findings: members possess energy, participation is regulated, and members feel supported.

Table 4: The Nature of the Interaction between Members and the Community

Energized and Synergistic

Normative

Supportive

Interwoven throughout the interviews there is evidence that the learning that occurred in the UAPRN listserv can be characterized by learning trajectories. There is energy within such trajectories that characterizes the interaction among members in communities of practice. Wenger (1998) defines learning trajectories as a process of continuous motion in which the learner constructs an identity by negotiating past, present and future connections within communities of practice. They give significance to events, influence the attention we pay to a concept, and assist us in determining the particular significance of each event. The significance of information to us determines in turn our degree of participation within the community of practice. More experienced participants serve to provide not only knowledge but they also represent the history of the practice an0d represent examples of what is desired and expected.

Amy summarized the concept of trajectories well when she stated that her participation has been shaped by her comfort level with the content being discussed. She tends not to send out replies to questions just for the sake of interaction, but rather if she feels that she has something to add to the discussion. In this quote Amy conveys how one can be a novice in one content area of the listserv, and yet act as an expert in another area depending upon experience and background: "The research portion of it interests me simply because I am in research now for my

job. And that would be a way for me to get involved in helping someone because I know how hard research can be."

Members Energize the Community and Activities Are Synergistic

A theme emerging from the data was that the membership of the UAPRN of Ga Listserv energizes the community of practice and that the UAPRN of Georgia Listserv fosters the participation of new members. The active membership recruitment, the development of three new regional subgroups and the mentoring program are evidence of this. In order for individuals to join and participate they must see that they are working toward a common goal with the established membership. One means to develop mutual engagement is through a shared and common history. Alison summarizes this simply by saying that "we are similar in the fact that no one has enough help, everybody is overworked, that kind of thing."

Alison describes this energy as instrumental in driving the whole organization. She believes that "we just happen to have some of the most energetic people in Middle Georgia who have really gotten on the bandwagon with this thing. I think their energy and their input and their drive drives the whole." A characteristic of the Middle Georgia group is that newcomers actually assumed the leadership of this group as soon as they became members. Alison comments upon the energy of these newcomers as follows:

> Before the change in officers the president was from Savannah and just like everyone else
> was overworked and stressed. . . The combination of personalities who are now in major
> offices, they are just absolutely wonderful, as far as dynamic, they are not going to give
> this up, they are energetic, just think constantly of things we can do.

Marianne commented that as the listserv begins to address more of the topics that frame the advanced practice role, there is a related increase in membership as advanced practice nurses are finding similar ground and mutual understanding:

> I think that as the listserv, what happens is, as the UAPRN grows so the listserv grows. As that grows you have more and more people that are networking from different parts of the state and you have a much stronger grass roots group of people. And I think that inevitably over time, and it is like a process like anything else. And I think that a lot of people just don't choose to do the listserv for what ever reason. But I think that as this grows and as this becomes bigger and bigger and bigger, I think it will have a huge impact on nursing and change nursing practice in Georgia, yes, I do. I think it will have a big impact of professional and practice issues and legislative issues and all of the things we concern ourselves with as a profession.

Sandra stated that she believes that individual members are more aware of their colleagues. She adds that before the listserv formed she was not even aware of fellow advanced practice nurses living in the same community. Amy, an advanced practice nursing student stated that she became motivated to form a local group of her peers as a result of her participation in the listserv. She also identified that there remain many advanced practice nurses who do not belong to the listserv and she would like to share her time to increase membership. Sandra also adds that the listserv membership has created a commercial for educating the public on the role of advanced practice nurses, has held health screenings at the national state fair, and has conducted many fundraising activities to pay the salary of the lobbyist hired to advocate for prescriptive privileges.

Jamie adds that:

> I am young. And I am in the advanced practice role at a very young age. Most people are much older than I am. I have always been one of the youngest. I don't feel like a baby. I definitely have the energy.

During her interview, Marianne described her many public speaking activities and added that she constantly advocates for membership:

> Over time it (Listserv) will have a big impact but people are so slow about doing what they need to be doing so you have to be patient with that process. They are not all as energetic as I am. That gives great expectations. I think it will have great impact over time. I think not only will it unite the state, we will all be pretty much on the same page, and um, we will have the power to push forward more of the things we need.

Alison spoke often during the interview of the synergy among the members of the Listserv. In discussing the smaller group face-to-face meetings, she emphasized that all of the efforts of the smaller groups were "for the good of the whole." She illustrated this by describing how the listserv organized a medical supply shipment for Afghanistan by beginning in the local smaller groups and then organizing the collection and sharing the outcomes via the larger listserv.

Marianne and Alison both describe that the purpose of the listserv is to unite all specialty advanced practice nurses throughout the state. Alison adds, "We have tried to make it very clear that we are advocating for all advanced practice nurses." Both Marianne and Amy mentioned that there are currently over 4000 advanced practice nurses in the State of Georgia. Amy describes the synergy of such a group this way:

I was going through that Georgia website and started thinking that we are coming from

different practices. You have people coming from west, north, coming to here (listserv)

so there is great potential to share ideals, different ways of doing things. There is always

room for improvement. There is always room for growth and learning new ways of doing

things.

Jamie believes that even though there is a handful of members who are participating in the

majority of the work of the community of practice, all members are benefiting "and that is ok. I

don't care. I am just glad to have been a part of it." Brenda addresses synergy as empowerment

in which the ideas of the listserv members play off of one another and the increased knowledge

from this enables and empowers the listserv to do more.

Normative

All of the participants mentioned that normative activities occur within the

Listserv. Normative activities are defined as behaviors that are either implicit or explicit that

occur among Listserv members that attempt to regulate, govern, or sanction the behavior of other

members. Sandra, Jamie, Brenda, and Marianne spoke of the non-participation of some of the

members and of the sanctioning that occurs within the listserv regarding this. Sandra relates that

a listserv member volunteered to fill a position as vice president. During the election process she

was contacted several times by phone and by email but the recruit never responded to her emails

or telephone calls from the president. Sandra adds that this noncompliant individual "received

what I am told was 'you said you were going to do this, so now do it and if not then we prefer

that you resign by email'." Sandra concludes her story by saying that since the public censoring

this member has been very active.

Setting group rules for communication on the listserv was a theme that emerged during several interviews. Marianne provides an explanation of the potential repercussions of ineffective communication:

Because if you don't come across the right way people will not listen to you at all. They are not going to want to interact with you at all. So it is real important. So I think there is some etiquette and discipline. Like I said, the webmaster looks at things and if she thinks it is something that should not go on she used to call me and say "I don't know about this, and it might upset some people," and then we make a decision whether or not it should go on the listserv. And sometimes things like that can cause trouble and just get people mad! And so you don't want to lose your core group because you have somebody who is just blowing off some steam. I think we watch that pretty carefully. Because that is not the purpose. The purpose is to recruit, the purpose is to interact and to communicate and to be able to network with your peers. And you can't do that if you have people blowing off steam and sending angry emails. It won't work.

Participation of members is expected. As previously stated, the Listserv members feel strongly about cohesiveness. Alison expresses this clearly when she comments, "one thing that has come out of this group is if you haven't done anything to help then don't complain." Kate relates an experience with lack of membership response and the normative action that resulted. Kate posted an email to the Listserv asking each member to contribute $25 to support the salary of the lobbyist that had been hired by the UAPRN Listserv group. After receiving a response from 98 individuals she sent another email stating, "I have received 98 responses and there are over 4,000 advanced practice nurses in the state and this $25 is spent to improve your practice." One month later she sent out an email stating, "thanks to the 127 APRN's that have donated. I find it

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amazing that there are only 127 willing to invest $25.00 toward the future of their profession." Almost immediately she received responses back reprimanding her for coming across as a disciplinarian. Kate followed her email up with an apology and as so often happens when apologies are made, the individuals who had sent her this reprimand ended up apologizing to her.

Supportive

While there is normative behavior occurring within the listserv, participants do not describe it as being disempowering or restrictive of their participation. Rather they find that the Listserv is a supportive environment. Sandra felt that "there was never anything that I could not say as a new member." She mentioned a time when she communicated to the group that she did not feel that the current lobbyist for the UAPRN was effective. Sandra shared that although this was not a popular comment, she was listened to in a professional manner and felt that she had a venue for relaying her concerns. She also adds that "at the meetings . . . everyone is free to make suggestions any comments and some of us have more comments to make than others." Participants feel that the listserv allows them to convey their thoughts in an open forum.

Jamie spoke of her intention to assist the advanced practice nursing students with surveys, research or practice questions:

Sometimes students will post a study that maybe they are doing, like could you fill out this survey and email it back to me and it might be questions about advanced practice, your work week, what is your salary range, something like that. One of the Master's students in a NP program might do that. And we always try to help out the students.

Brenda and Elaine both work in isolated rural communities in Middle and South Georgia. As new advanced practice nurses they relied on the UAPRN of GA Listserv to provide them the support of colleagues and knowledge for practice. Brenda feels that the Listserv helped

her to feel more confident as a new practitioner and that the support she felt from the Listserv "enabled her" in her practice. She has nurtured others within the Listserv as well, telling me of times when members have lost family members and she has informed them of grief support groups or provided an email of encouragement. Elaine also comments that she is able to pass on the support she received as a new member to others in need and describes the community as follows:

> Another thing is sharing new grandbaby pictures on the listserv. And it wasn't just, the thing that brought us together was the commonality of being advanced practice nurses, but now we have become more than that and it is a deeper friendship.

Kate summarizes the support of the Listserv membership as follows: "under crises you always see the community."

The overarching impression one receives from the participants is that the UAPRN of GA Listserv is comprised of an energetic group of professionals. A unique finding was that new members often take leadership roles within the Listserv and that they are known for their energy and enthusiasm. Newcomers are welcomed and membership recruitment is a major goal. New members engage in the Listserv because they find they have commonalities of practice, goals, and beliefs with the other members. This Listserv has developed an effective method for sustaining the energy of the group. This is accomplished by the formation of regional subgroups that occasionally develop competitive behavior for increasing membership and fundraising activities. The subgroups meet face-to-face on a regular basis for educational activities and organizational activities such as the election of officers and program planning.

There is a synergy between the membership in that each member contributes for the benefit of the entire group of advanced practice nurses. The participants believe that the

members of the Listserv are more aware of their colleagues as a result of their participation and thus provide a support network for each other. This feature has been particularly helpful to those advanced practice nurses working in rural areas in providing them with practice and professional information and support. While the Listserv is described as supportive, members regulate the "written" correspondence and attitudes of the Listserv and provide structure and guidelines for effective communication.

<div align="center">The Impact on Professional Practice</div>

The third research question of this study focuses on how and in what ways participation in the UAPRN listserv impacted the professional practice of the interviewees. Table five summarizes the findings of the impact of listserv participation on the professional practice of the interviewees. Three categories of findings emerged from the participant data. Participation in the UAPRN of GA Listserv helped to strengthen practice, promote advocacy, and foster leadership for practice.

Table 5: The Impact of Listserv Participation on Professional Practice

_____

Strengthens Practice

Promotes Advocacy

Fosters Leadership for Practice

_____

<div align="center">*Strengthens Practice*</div>

Participation in a professional online community of practice assists in the generation of ideas and knowledge for strengthening practice. Amy describes the generation of ideas as resulting from the input of many participants. She likens this process to an "exponential growth of ideas," where written communication may reach only one person at a time but listserv

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communication is able to reach many more. And, as the discussion continues, the ideas generated

expand again to create a net of ideas in response to the original question.

Information gained through the listserv also assisted participants in performing patient

care building upon the knowledge base of the participant. Sandra remembered an incident in

which a listserv member posted a clinical treatment question to the membership. This

practitioner was requesting disease specific treatment information for a patient. Sandra

summarized that such information adds to every member's knowledge base. Sandra also talked

about how much she is learning about medications. She told me that representatives from the

major drug companies sponsor the monthly face-to-face meetings held by the Middle Georgia

group and that as the representatives detail their products each month she learns much about the

pharmacology of each medicine and its uses. Alison mentioned that while prescriptive authority

is a major topic of the listserv at this time, Listserv discussions about reimbursement issues,

Medicaid and insurance and billing issues are increasing her awareness of the financial

components of practice as well. Brenda commented that she was able to gain practice related

knowledge from reading the results of a research study conducted via the listserv. The

information from this research study informed practitioners of the most common prescribing

practices among advanced nurse practitioners. Marianne supports these findings with the

following statement:

> Probably yes, somebody will send in some information on a letter to the editor, or an
>
> article and then you look that up and a lot of times you get the website or whatever and
>
> then you look that up and you get information and it can, and has been information about
>
> different things I actually deal with here. Some people will send me information about
>
> the homeless and different websites where you can get grants and information about that.

So, yes definitely, I have used this information in actual practice and it helps me to

implement what I do here in a better way. For sure!

Elaine related an interesting perception. She told me that her patients are becoming more

knowledgeable of how to use the Internet for health related knowledge and that they frequently

come to her with erroneous information that was obtained through web sites of questionable

integrity. Through her participation in the UAPRN Listserv and her own increasing skill in

Internet use she has compiled a list of reputable health related websites that she posts on the

office bulletin board for her patients reference. She adds that her patients "have access to as

much information as I do. And it has made me be much more on my toes."

Several research studies have been conducted through the listserv. Student

advanced practice nurses have requested information on salary and job duties, research

participants have been sought through the listserv and one researcher actually gathered data

through the listserv to determine the prescribing practices of advanced practice nurses. Alison

currently works in a student health setting and found participation in a recent research study most

informative to her daily practice:

> I don't know if this fits here or not but currently one of the members in the South Georgia
>
> area, she and some students are doing a major study about drugs and through the listserv
>
> they sought participation for people who were willing to do that. So our clinic is
>
> participating in this study and what has come of it is prescribing practice. Again
>
> information that will be very, very useful to the legislative community as we fight for
>
> prescriptive authority.

Brenda participated in the research activities mentioned above and adds that she has also been

able to implement the findings recently posted to the listserv into her daily practice.

Elaine describes two examples of how she has been able to increase her efficiency in her office practice through the assistance of the listserv. When she first began her practice she was unable to complete all of the charting tasks required each day and to be able to leave for home before 7:00 in the evenings. She asked her colleagues on the Listserv how they scheduled their patients to be efficient and from the information she received she was able to develop a schedule that allowed her to complete her tasks in a timely fashion. In addition her colleagues shared with her the benefits of a documentation checklist form that allowed Elaine to check mark normal physical findings and write narratives only on the abnormal findings rather than writing narratives on the entire physical form. Elaine has since shared this with her physician and he has adopted this suggestion as well for his patient charts. She adds, "we can both get home on time!" Finally she has used the information she has gained in computer skills gained through active participation on the Listserv to begin "virtual office hours" with her homebound patients. She routinely communicates with her homebound patients by email reducing the office visits they have to make for supportive care.

Brenda has worked in a rural and remote area of South Georgia since receiving her advanced practice formal education. On many occasions during the interview she talked about this separation from colleagues and about how she was the first advanced practice nurse hired in the county in which she lives. She had to define her role in isolation without the benefit of colleagues to help her along the way. She discussed how the listserv helped her develop her practice. She describes the listserv as a support group and as a vehicle for framing her practice. It has provided her with a sense of "connectedness" to her colleagues:

> It helps you define who we are better than you were before. And just really decide that
> yes this is the role I want. It is not as a physician's helper but more as the role of the

nurse practitioner. Probably in that way. And then the connectedness with the other nurse

practitioners is such a valuable thing.

Nursing has been defined as having two professional components, the art of nursing and

the practice of nursing. The art of nursing can also be identified as the tacit knowledge that is

understood between members of the same profession, but not documented or quantifiably

measured in the way outcomes can be measured. Wenger (1998) would say that this tacit

knowledge is practice. It is the stories and artifacts of a profession and if tacit knowledge can be

identified, it can be used to strengthen practice.

An example of this is from Sandra who talks about nursing war stories very similarly to

how women who have delivered children talk about the labor and delivery experience. It is

something that everyone having had the experience can relate to, and common bonds of

understanding are created through the experience:

> Because eventually the camaraderie is good. Just being able to be with my profession.
>
> We interact. We can tell war stories about how we work and what we do, our different
>
> patients, um, so yes; in that respect it has been very positive on my practice.

Amy, a student advanced practice nurse, talks about tacit knowledge. She tells of her

experience using the listserv to help her write a paper on prescriptive authority. As she tells her

story she comments that she began writing the paper from a very factual, scholarly perspective

according to the guidelines provided to her by her faculty. But as she interacted within the

listserv, she began to see the issue played out in real practice. She was able to learn how the lack

of prescriptive authority affects patient care and growth of advanced practice. She ends by saying

that she finally wrote her paper from a very different perspective than when she began. This was

as a result of how her listserv participation and learning had "grounded her in a much broader

understanding of what it was all about." Brenda conceptualizes tacit knowledge as "being in the real world of nursing." These statements support that reality is more than what can be found within textbooks and procedures.

A theme emerging from the data is that UAPRN listserv participants are able to define their role more clearly. They know what being an advanced practice nurse is and can clearly articulate this to other professionals, the community and to their patients. Jamie talks about the value of being able to define her practice:

> Because I have to be convincing when I speak to other people and I have to identify how it is that I am different than a doctor. You have to be able to answer those questions and to make sense to a legislator in order for them to be willing to support you. So I think that I have gotten better at explaining what it is I do as a nurse practitioner.

She adds that when a practitioner has a clear understanding of the role of the advanced practice nurse and promotes this role in their individual practice settings patients are able to understand and better appreciate advanced practice nursing as well.

Promotes Advocacy

All participants have addressed how their participation in the listserv has provided them with advocacy skills that they are using for both the development of the profession as well as for improving patient care. The term "advocacy" is predominant in the data and is addressed from a professional perspective as well as a patient perspective. Amy mentions repeatedly throughout her interview that her participation in the listserv in a student role has prompted and stimulated her toward actions that she will undertake as a new advanced practice nurse that could improve and strengthen the profession. An example of this is her eagerness to locate classmates who have also just graduated from an advanced practice nursing program and encourage their

participation in the listserv. She also plans to participate in forming a more cohesive local

Atlanta face-to-face group. Alison addresses the role of the listserv in promoting advocacy for all

advanced practice nurses:

> That is a major focus of the group to begin with. And we have tried to make it very clear
>
> that we are advocating for all advanced practice nurses. You know in Georgia there are
>
> only certain ones recognized by the Georgia Board as advanced practice nurses, and we
>
> are all committed to helping change that.

Alison discussed her perception that lack of cohesiveness among advanced practice nurses has

negatively affected practice in the past. She uses this statement to illustrate her perceptions:

> I think I even made this comment at another meeting that the last thing we needed to do
>
> was to have two different factions going to the capital, that nursing has shot themselves in
>
> the foot too many times before with a lack of unity on issues.

Jamie describes that listserv participation has "probably taught me the most about the power of

numbers, and also, you know the networking, that as a group we can become powerful."

Another example of promoting the profession of advanced practice nursing can be seen in

a series of emails among the Listserv membership that occurred in May 2002. Rose, a member of

the Listserv, posted a discussion related to an article that she had read in a nationally distributed

health magazine for the public. The magazine article featured advanced practice nurses and

attempted to define the role of APRN's. Rose was alarmed at the inaccurate description found in

the article and immediately responded to the assistant editor of the magazine. Rose's email to the

Listserv included her concerns, the assistant editors response to her and requested the Listserv

membership to write to the editors as well to voice their concerns. Rose received several

responses and enthusiastic support to her request. One such response came from Brenda, one of

the interview participants of this study. Brenda demonstrates the professional advocacy that exists among the members of the Listserv:

> I read the article and was furious at them. Not only do I subscribe (to this magazine) but, I had given my sister a subscription. What about their emphasis on prevention? To me that should go hand in hand with advanced practice nurses. I haven't written to them yet, but I will. I think we need a letter to the editor! "

In addition to developing advocacy within professional practice, listserv participation has also increased advocacy for the clients served by advanced practice nurses. Alison mentioned the advantages she gained from participating in a research study about prescribing practices and how her practice with student clinic patients will be enhanced. Brenda has used the information gained from the listserv to provide better care for her patients:

> I think it has provided me some education on the political process, and how to go about getting what you need, in order for me to provide better care for my patients as the nurse practitioner. And I think our nature is that we are not political. And that it has made me more political in order to get what our patients need from us we have to become more political. And, I had no idea about this whole process until this came about. So that is an application for me that I can think of.

Amanda stressed how participation in the UAPRN of Ga Listserv has shifted her entire practice orientation away from acute episodic care toward prevention and alternative health care measures.

> Elaine poignantly describes her metamorphosis into becoming an advocate for her self and her patients. She was explaining that her shyness in her role as an advanced practice nurse limited what she was able to learn about new medications when pharmaceutical representatives

would come into her office to detail these new medications. Her growing sense of professional and patient advocacy is apparent from this comment:

> I was shy, shy being in that new role, and I would just sort of inch up to them and listen over the doctor's shoulder. Not anymore! I stand right beside them so I can hear everything important and ask my own questions.

In February (2/20/03) a call for increased participation in a program that assists underprivileged women in obtaining a free mammogram was issued. A website was given to Listserv participants along with an explanation that corporate sponsors/advertisers use the number of daily visits to the site to donate a mammogram in exchange for advertising. All the members had to do was to take less than a minute of their time to visit the website and "click" on an area of the website called "Fund Free Mammograms."

Elaine told me of a new patient advocacy group that has been created through the listserv. This new group is called the "Grassroots APRN's " and was formed to meet the health care needs of clients who live in underserved and rural communities to receive quality health care from advanced practice nurses. Both patients and professionals are members of this group and it is hoped that through the collaboration of these groups advanced practice nurses will have a stronger voice in the legislation that will enable them to provide quality health care to these populations of underserved.

Fosters Leadership

All of the participants have said that they have grown in leadership abilities and skills as a result of participation in the listserv. This leadership development has been both formal and informal. For example, Sandra and Alison discuss in detail how they have witnessed the leadership skills of the officers of the organization develop. Marianne discussed that she

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developed leadership and communication skills, Jamie talks about becoming more assertive in her profession and practice, Brenda talks about becoming empowered and Amy discusses that her leadership abilities changed as she went from student to practitioner. Alison describes the leadership growth of the officers as follows:

> I think part of it in Middle Georgia is the combination of personalities who are now in major offices. They are just absolutely wonderful as far as dynamic; they are not going to give this up. They are energetic just think constantly of things we can do. It is just a wonderful, wonderful group of people. Two of these people are our own graduates. One isn't, but she is a very close friend and I think the blending of these personalities is magnificent as far as this issue.

Jamie characterizes leadership as selfless: "Leadership? I have given of my time, I have given money, I have given my Saturday's, and I have given family time away."

Listserv participants have also become nationally recognized. Marianne and Kate are members of the American College of Nurse Practitioners Public Policy Committee, Marianne, Jamie, and Brenda are members of the Georgia Prescriptive Authority Coalition and Alison, Jamie and Brenda have served as officers of the listserv since its inception.

Informal leadership was discovered in online interactions among members. Alison describes an incident in which communication and leadership skills online facilitated resolution of a potentially negative situation. This situation involved dissent and disagreement among some members of the listserv during the time when the listserv was seeking lobbyists for representing their interests at the state level:

> This may not fit anywhere at all in this, but one issue and it was sort of a negative issue that the group had to deal with but I am saying this because I think this is a sign of the

group as a community. When Savannah came up and asked us to join the group, they had

hired a lobbyist so he became the lobbyist for all of us. Well, right immediately, there

were people who were not impressed, did not think this was the correct person for this.

Well. You have to bear in mind we had several times where this was discussed, and I

guess I always try to give people a chance and my point was we had no money, and a

lobbyist can be very expensive, and they had already hired him and offered him and he

was sort of like a gift. And we didn't particularly think he was the best one so for that first

year that was my stance and, most people agreed with that. And we did have some

people who were very verbal, very aggressive, um, confrontational, I thought, to his face

and that kind of thing. But anyway, we resolved the issue, and I think there was a very

mature meeting of the minds not just well, I don't like how he speaks, or how he looks or

whatever, but that issue has been resolved and we were able to come up with other people

we feel are better suited for the group than this person was. That is an example oh how

we all had to come together to take a sort of a touchy situation and fix it.

Jamie talked enthusiastically in describing how several members of the Middle Georgia

chapter have traveled to other areas of Middle and South Georgia to assist in the formation of

new UAPRN subgroups. These colleagues travel together in the camper of one of the members

and have formed lasting friendships during their leadership activities. In addition to specific

chapter development activities, Jamie has also learned group process skills. She has learned how

to form a group, how to listen, and, most importantly, "I have learned how to bite my tongue!"

Kate has encouraged members to assume leadership roles for developing the local

consumer groups of the "grassroots" committee that has recently been formed. The "Grassroots

APRN's" was created during a November 2002 meeting of the UAPRN. The purpose of the

"Grassroots APRN's" committee is to identify "power players" to assist the UAPRN's in advancing the practice statewide. In January Kate emailed the Listserv membership to discuss the progress of the "Grassroots APRN's". She referred the membership to a Website created by the Texas Midwives describing the Texas group's success with a grassroots coalition. Kate received minimal email communication regarding interest in establishing the "Grassroots APRN's" and thought that perhaps the membership did not fully understand the intent of this new group. In February (2/24/03) she emailed the membership regarding the history of the idea, the purposes of the group, and provided some specific examples of how the group could benefit consumers as well as advanced practice nurses in Georgia. The participation in this new endeavor increased dramatically and within one week Kate (3/2/03) was able to announce to the Listserv membership that two regional groups were planning to hold meetings for the "grassroots APRN's" before the end of March 2003. Kate has realized that as a Listserv leader she cannot assume that "everyone understands my vision," and that clear communication is a leadership skill.

Participation in a professional online community of practice assists in the generation of ideas and knowledge for strengthening practice. Practice was strengthened as the participants learned knowledge of statewide nursing prescriptive practices, solutions for efficient management of patient appointments, new charting procedures, and medication and disease related facts. Participants gained an understanding of the tacit knowledge underlying advanced practice nursing and stated that they were able to identify with the role of advanced practice nursing more clearly thus expanding their repertoire of practice skills. The participants have become advocates for the profession as well as for the client developing strong partnerships

toward improving health care for Georgia citizens. Finally the members are experiencing growth in their leadership skills in formal and informal settings.

<div align="center">Professional Identity Development</div>

The previous research findings have uncovered tangible learning, characteristics and specific examples of Listserv participation, and insight into how the practice of advanced practice nurses is impacted through their participation in the UAPRN of GA Listserv. The fourth research question sought to uncover the ways that participation in a professional Listserv impacts the professional identity development of a community of practice of advanced practice nurses. Four major categories emerged from the data that describe the nature of professional identity development in the Listserv. Participants gained more pride in the profession, became more politically active, became more powerful and became more critically reflective. Table six summarizes these findings.

Table 6: Professional Identity Development

Increases Pride in the Profession
Increases Political Activism
Increases Professional Power
Increases Critical Reflection

Increases Pride in the Profession

The pride expressed by the research participants is directed toward the profession of advanced practice nurses and toward the individual members of the Listserv. All of the participants spoke with pride about how advanced practice nurses provide quality health care for clients. Jamie, Kate, and Elaine, and Amanda explained that while advanced practice nurses

recognize their value in health care, the public is still not able to articulate the differences between advanced practice nurses and other expanded role health care providers. They believe that once the public is educated regarding these differences, the impact of advanced practice nursing care will be realized. Jamie states: "we want people to understand what we do and how we do it, and what impact we have on patient care."

Pride in the Listserv membership is also apparent. Alison and Brenda talked to me about their responsibilities for organizing an upcoming statewide educational conference. During their discussions of this program they mentioned that the keynote speaker for this conference, a nationally known educator and writer in advanced practice nursing, is also a member of the UAPRN of GA Listserv. Elaine, in discussing her interactions with new members, states that she sends new members an email informing them that they have just joined the "most progressive and assertive group in the state."

Alison spoke of her previous experiences in professional organizations as being disappointing, adding that the groups never seemed to "get off the ground." Her experience with the UAPRN Listserv is very different. She adds that the enthusiasm among the membership of the UAPRN Listserv has "refreshed her" and it has "reinforced the fact that there are dedicated people and that there are people willing to participate." She continues to describe her pride in the members of the UAPRN group this way after attending a quarterly face-to-face meeting:

And when I sat there and listened to what these people are doing I guess I felt like a proud Momma. You know when you go into this role you are very green just like when you go into registered nursing. But how they have developed over the few years since they have been out. Oh, that just took my breath away!

Brenda describes her pride in the UAPRN membership this way; "This group of mostly women present themselves well. They talk well and there is discussion going back and forth between them and I am proud to be part of this group. It is empowering!"

Individual Listserv members have been recognized for their accomplishments on the UAPRN Listserv. One member was recognized for her individual independent practice in rural Georgia and the announcement of this recognition was placed on the UAPRN Listserv to be shared by the entire membership. Elaine's practice was also been featured in a state wide nursing publication and notice of the article placed on the Listserv. Kate added that she believes sharing success has been very helpful in developing the cohesiveness of the Listserv membership.

Increases Political Activity

The value of political action is clearly identified by interview participants. All of the participants addressed their own growth in becoming more politically aware and politically active as a result of their participation in the Listserv and recognize that politics "shape and form" the profession. Kate identified that the Nurse Practice Act (the legal guidelines for advanced practice in Georgia) is directly affected by the rulings of the state representatives and senators and therefore the elected officials have significant control over defining the parameters of advanced practice and the profession. Marianne supports this concern stating that unless the members of the UAPRN Listserv become "politically active in informing the elected officials and the public about the values of advanced practice nurses the profession will be directed by non-nurses."

Listserv participants recognize the need to be proactive in educating both the professional health care community and the public about their role in healthcare. Jamie recognizes and

applauds the difference between advanced practice nurses and physician assistants and suggests that advanced practice nurses do have a significant impact upon patient outcomes:

So I think one of our main goals is to educate the public, lay people what we are, who we are, all of the different types of advanced practice. And also to educate the medical people. I can't tell you how many times I have been called a PA (Physicians Assistant) by another doctor. There is a difference. No, I am in nursing. PA's are schooled differently. Maybe the patient can't always tell us apart but there is a difference you know. We work under the nursing model and PA's work under the medical model. So education is big, it is key. We want people to understand what we do and how we do it, um what impact we have on patients.

Jamie expands on this theme of education of the public by informing me that she shares the prescriptive authority issues with her patients when they ask her why the physicians name and not her name is on prescriptions that they receive. Her response is, "Well, let me explain…" She also expresses her satisfaction and sense of accomplishment when someone from the public sector says, "Oh, yes, I know what a nurse practitioner is." Sandra describes how the public service announcement created last year to promote advanced practice nursing has impacted her practice by increasing her patient volume. Elaine related a similar experience saying that the increasing awareness of the public regarding advanced practice nursing has also increased her patient load.

An example of how the political activity of the Listserv members is assisting the profession follows. Minutes from a quarterly UAPRN meeting posted to the Listserv in September 2002 describe a discussion between new and old members regarding barriers that are experienced by advanced practice nurses in their practice. It was agreed that the greatest barrier

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to advanced practice in Georgia is the Medical Association. Members were provided statements from the GMA proceedings in which it was apparent that physicians did not clearly understand the implications of prescriptive authority and members were encouraged to discuss the history, purposes, implications and values of prescriptive authority for advanced practice nurses with their physician colleagues. New members were also informed that an interview guide is forthcoming from the political lobbyist that can be used by Listserv members when interviewing political candidates thus providing the members with knowledge about each candidate and enabling a more informed election process.

Most participants have commented that they think that nursing has traditionally been a non-political and non-powerful profession. Jamie frames this perspective using these words, "I think part of it is that we were too busy nursing and caring, you know just being women." Kate sees that the advanced practice nurses in Georgia are naïve and adds:

> We are definitely more naïve than the Medical Association of Georgia is. But we are women. We work full time jobs. We have families. We have a multitude of roles that we play. And having the time to be politically active is not always there. So I think the Internet helps to make that a little more doable for people.

She finishes her discussion by saying, "I think my main contribution has been awakening of political awareness in the Listserv group. Helping them to understand the political process." Jamie explains that she had never really paid attention or cared about politics before her involvement in the UAPRN Listserv but identified that; "now that there is an issue that is of importance to me it puts a new perspective on it all."

The participants are seeing that the process of becoming more political has advantages. Brenda is able to foresee continuing refinement and development of the practice of advanced

practice nursing even though there may still be obstacles. She describes the power of the synergy of the group and describes the support of feeling like there are other practitioners available to help, encourage, and empower her. The empowerment experienced by Jane has allowed her to write to and develop relationships with legislators and she sees this as opening many new doors for her professional development. An example of how the membership of the Listserv has acted politically to affect change for their profession is the card writing campaign carried out by the membership this year. The purpose of this campaign was to inform state elected officials of the role of advanced practice nurses and the need for enacting prescriptive authority privileges for this group. Elaine informed me that, "over 4,000 postcards were sent out to legislators this year." The results of the increased political activity of this professional group is evident in that by the close of the legislative session a bill recommending prescriptive authority was actually sent to the house floor with significant support. Despite the fact that the State Senate did not vote on the bill this year, the Listserv membership is hopeful that the bill will be supported next year by both the House and the Senate. Elaine describes the benefits of political action this way: "I don't want to say they were ignorant, but they were misinformed of what we do. Now they are more informed I think they can make a better decision about our bill."

Increases Professional Power

The two categories of political activism and professional power are closely related yet separate themes. As can be seen above, increased political activity addresses the increased awareness of the role of political activism in advancing the profession and in improving patient care. Political activism will expand and increase the scope of practice for advanced practice nurses from a legislated and formal perspective. The category of professional power is defined by the power achieved when many professionals work toward a common goal, or "power in

numbers." The participants repeatedly made statements such as, "the power of many," "what one does really matters," "power is in the many!" Marianne sees that the power base of advanced practice nursing is increasing as a result of member participation in the Listserv:

> As people join you are going to have more and more people and more and more
> information and more and more power, and, the more people we have the more power we
> have. And I think that is one of the things that nursing has had a problem with. That they
> could not get that power base going and we are still working on that as a process, and that
> is why we don't have prescriptive authority, because we still do not have the power. Until
> we get the power and if we have all advanced practice nurses working together then we
> would have more power.

Alison feels more certain now than ever before in her career that a prescriptive authority bill will be passed because of the united effort of the Listserv membership. Kate attributes the legislative and political success of this year's activities to the fact that," we believe the same way and because of that we have formed a coalition." Jamie's statement that, "we use the Listserv for example as getting a larger number of people to implement whatever strategy we have at that time. As a group we can become powerful because of the power of numbers."

An interesting theme emerged during several of the interviews related to the power of numbers. There appears to be a relationship between membership in the UAPRN Listserv and the sense of belonging to a professional community that is related to identity. For example, Amy stated:

> I guess that maybe because I know that it is a group that I now belong to simply because I
> am an advanced practice nurse now, and so that knowledge of knowing that you have a
> dedicated community of people who are doing the same things that you hope to do in the

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future, and having them as a resource, in itself provides that feeling of community from the Listserv.

Increases Critical Reflection

Critical reflection on the profession of advanced practice nursing changes the profession as well as facilitates change in professional and client relationships. As professionals open themselves up to change, learn new behaviors and practices, and develop new relationships they discover more about themselves and their world. When a professional becomes critically reflective they share power and enable other professionals and clients toward growth. The participants in this study have provided many rich examples of critical reflection on the profession and client relationships. Participants have shared their thoughts on the reasons why nursing has been a traditionally non-political profession and have learned new practices for becoming more politically active. They have described how they learned the steps of the political process and the steps for passing legislation. The participants have spoken of the power of numbers working toward a common goal and have described how they are working to empower their clients through education to become active participants in their healthcare.

A predominant theme emerging from discussions of how participation in the listserv has changed the participant's professional practice is that participants reflect upon and experience an expanding awareness of their profession. This reflection is seen as an increased commitment to fostering awareness in others of the role of the advanced nurse practitioner and as an awareness of the role of advanced practice nursing in health care and society. Sandra describes her experience as follows: "It has not changed the way I individually practice or manage my patients but it probably has changed my philosophy."

Elaine identified that she has become "much more aware of a lot of the public needs where I had not been before." Kate describes how she has changed the way she thinks about advanced practice nursing as a result of her participation in the UAPRN Listserv:

Because you know nurse midwives, any practice group tends to stick with people who are in a similar practice and have very similar ideas and thoughts and common ground in which to discuss things. So that has probably been very rewarding. It changes the way you think about yourself because you are no longer are thinking about yourself as an isolated you know nurse midwife and realizing a greater more objective world view of what advanced practice nurses are doing in Georgia. So, yes. I think it definitely affects that.

Interaction within the community of practice, the UAPRN of GA Listserv, has increased participant's awareness of some of the historical issues that have contributed to the development of their nursing practice as it is today. Brenda states, "The road toward advanced practice nursing has been a bumpy road." As described above, participants recognize that a lack of clearly defined practice behaviors have resulted in a blurring of health care roles for both practitioners and patients; thus members are working toward informing others of the role of advanced practice nursing.

Amanda spoke of her transition toward professional practice resulting from her role change to advanced practice nurse. She frames her transition in relation to her orientation to nursing as a new graduate:

I think it was just a job before. I was just a nurse; I would clock in and do my 12 hours and go home and not think about it again. Advanced practice has become a part of my life. It has provided a holism to my life. And I think my views on nursing student shave

changed as well. When I first became a nurse and oriented students I was just like the rest of the nurses and would think, 'I just don't have time to teach you', and now it is more important because the nursing shortage is unbelievable and we need to get good people in and encourage them, guide them and support them.

In addition, several participants addressed gender as influential in the development of advanced practice nursing. Sandra believes that many of the problems with nursing as a whole today are related to the fact that the majority of nurses are female. She has identified that the UAPRN Listserv has organized and empowered its members and adds, "the problem now is focusing and centralizing the energies of the group into this listserv." Jamie stated:

We are a women dominated profession, being part of a women's profession. If we have a choice of going home to take care of the kids or going to a meeting, we are going to go home and take care of the kids.

Findings from this study suggest that the professional identity of the participants was indeed strengthened as a result of their participation in the UAPRN of Ga Listserv. The participants have developed an affiliation and pride with their profession. Through increasing awareness of the value of political action and understanding of how politics frames their practice they have become active in grassroots and state level political campaigns to work toward advancing their profession and the scope of their practice. They have become reflective practitioners who are able to consider the past and present conditions that have framed their profession and are proactive of future conditions that will impact their profession tomorrow.

Summary

The UAPRN of GA Listserv has provided learning opportunities for its members. Participants learned specific knowledge as well as group knowledge that served to strengthen

their practice as advanced practice nurses. This professional listserv fostered communication management skills and computer technology skills. The participants learned political processes that were then used toward increased political activism for the profession. The online environment served to provide a vehicle for distribution and announcement of education offerings and provided up-to-date information regarding current events and happenings within the profession. Participants commented on the "real world" nature of knowledge and its application to their practice.

The participation among the members was energetic and synergistic. The listserv membership is actively growing and recruitment of new members is a major goal. Participants describe their participation as being like a trajectory, that is characterized by motion and energy and the level of their participation can change as a result of their interest in current issues being discussed, family life circumstances, or membership status (student vs. established member). All of the participants felt that a mutual understanding exists among the membership, that the Listserv is a supportive environment for professional development, and that despite being a virtual environment, there are guidelines for participation that facilitate effective communication and development of the professional group. Unique to this online Listserv is that face-to-face meetings have developed. All of the participants comment that there remains a human component of face-to-face encounters among professionals that is energizing to professional growth.

The practice of the participants was strengthened through participation within the UAPRN of Georgia Listserv. Patient care knowledge, medication management and practice management skills were identified as several of the areas of practice development. Participants spoke of the necessity of keeping current with treatment protocols posted on the Internet as many

of their clients were themselves using the Internet for learning. The participants have increased quality patient care through increased advocacy skills. Educating the public regarding the role of the advanced practice nurse has become a primary goal of the membership based on the belief that patient awareness will serve to unite advanced practice nurses and the public as a greater force toward achieving changes in the health care system. All of the participants commented upon the growth of leadership skills that have advanced the profession and their practices.

Findings of this study support the notion that professional identity development can occur through participation in a professional Listserv. Participants identified that they experienced an increased sense of pride in their profession, that they believe that they are advancing the quality of care provided to patients in Georgia, that they recognize the benefits and results of solidarity toward achieving goals for the profession, and that they are able to critically reflect upon the history of the profession, its current trends and future development.

CHAPTER 5

CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS

This qualitative case study was designed to identify how membership in a professional Listserv fosters the learning, practice, and professional identity development in a community of practice of advanced practice nurses. The investigation was guided by four research questions. First, what is the nature of the learning that results from participation in a Listserv of a professional nursing community of practice? Second, what is the nature of the interaction between members and the community of practice? Third, in what ways does participation in a professional Listserv impact professional practice? Last, in what ways does participation in a professional Listserv impact professional identity development in a community of practice of advanced practice nurses? In response to these questions, four sets of interrelated findings were inductively derived from the data using the constant comparative method of analysis.

Findings of this study suggest that learning did occur as a result of participation in the Listserv and that this learning was facilitated through discussion, networking, mentoring and observation (lurking). Through a process of interaction with the UAPRN of GA listserv membership, participants identified that their professional practice changed and that they developed a strong sense of identity with other advanced practice nurses. The findings of this study suggest that professional practice can be enhanced through interaction with a professional online Listserv.

This chapter contains the conclusions reached at the end of the study, a discussion of the conclusions as they relate to the current literature, implications for practice and suggestions for conducting future research on this topic.

Conclusions and Discussion

The three conclusions of this study are the result of observing the UAPRN of GA Listserv and its membership over a 12 month period, analyzing downloaded documents, and interviewing ten participants, all of who are members of the UAPRN of GA Listserv for advanced practice nurses. The participants represent a variety of practice specialties including women's health, family practice, adult health, nurse midwifery, pediatrics, research, and teaching. The participants practice in a variety of settings, including large health care provider contract corporations, small rural practices, colleges and universities, and private practices. These practice settings include both rural and urban locations. The three conclusions are first, that communities of practice can be fostered in an online environment; second, that an online environment can enhance professional practice; and third, that an online environment can nurture professional identity development.

Conclusion One: A Community of Practice can be Fostered in an Online Environment

The first conclusion of this study is that communities of practice can be fostered in online environments. In reaching this conclusion I determined that the UAPRN of GA Listserv possesses attributes of a community of practice similar to those defined in the literature. As I uncovered the qualities of the UAPRN of GA Listserv I also identified unique characteristics of this Listserv related to the context of nursing practice, or, where nursing practice occurs. This finding suggests that new models for the delivery of continuing professional education will be

needed to meet the changing practice of professional nurses. One alternative could be online

environments that foster communities of practice.

The theoretical framework providing organization to this study is that of communities of

practice. This framework is based upon social learning theory and situated cognition theory,

where emphasis is placed on the relationship between learning, practice and identity. In the

discussion of this conclusion, I will first compare the UAPRN of GA Listserv and its members to

the literature that describes traditional communities of practice and online communities of

practice, and identify similarities. As the process of social learning is integral to the concept of

communities of practice I will also discuss the learning that occurs within the Listserv. Finally, I

will end with a discussion of how the Listserv differs from the traditional framework of

communities of practice.

Characteristics of Communities of Practice.

The UAPRN of GA Listserv membership possesses many of the characteristics of a face-

to-face community of practice as described in the literature. There are twelve indicators that a

community of practice has formed (Wenger 1998). Several of these have similar attributes thus I

have collapsed the 12 indicators into five major categories: 1) evidence exists of sustained

mutual relationships; 2) members have shared ways of engaging; 3) there is a rapid flow of

information and propagation of innovation; 4) there is a common agreement and understanding

of who belongs to the community; and 5) communities of practice are characterized by specific

tools, representations, and other artifacts.

First, there is evidence that sustained mutual relationships exist that have characteristics

of both harmony and conflict. A common finding among the participants of this study was that

the Listserv provides them with support in their practice, nurtures them as they start new

practices in rural areas, that individual members are more aware of each other, that there is a synergy among members, and that members support each other through rough times. In addition, the participants indicate that there are normative activities that occur among members as well. While harmony predominantly characterizes the Listserv, several of the participants spoke of a gentle censuring of their emails by other Listserv members.

Second, members in communities of practice have shared ways of engaging or participating within the community. Members of the UAPRN of GA Listserv engage through various types of email communication, varying levels of participation, and face to face meetings. Participants vary in the type of communication they generate within the listserv. Several participants interviewed are active in posting and discussion as well as reading. There are others who communicate sporadically and only when the topic being discussed is of interest or of direct application to their practice. Perhaps unique to this Listserv is the formation of regional subgroups which can also be characterized as having patterns of communication. According to participants of this study, there was more posting and discussion among the subgroup listserv memberships than on the parent UAPRN of GA Listserv itself.

A third characteristic of communities of practice is that there is rapid flow of information and a propagation of innovation (Wenger, 1998). By virtue of its online design, the UAPRN of GA can be characterized by communication that is electronic and rapid. In addition to the instantaneous nature of the communication, participants commented upon the volume of email information that they receive on a weekly basis from the Listserv, and that they have had to develop processes for the management of this information in order to sort out all of the information they receive. Documents downloaded from the Listserv indicate that appeals for support for legislative or political activities are rapid, and have in one case had a significant

effect on the passing of nursing legislation. Listserv documents reveal that many ideas for increasing political influence have been readily employed and have generated results for practice. Examples of this are the letter writing campaign to inform legislators regarding prescriptive authority and the "grassroots" organization in which patients are assisting in exerting political influence toward improved patient care in Georgia.

Conversations among members are continuous and on-going. This characteristic is supported within an online environment and the UAPRN of GA Listserv in which instantaneous communication occurs and there is the ability to email large numbers of members at one time. Emails can be forwarded to members carrying the entire thread of conversations allowing members to "see" each others' responses, generate responses themselves, and post almost within "real time."

A fourth characteristic of communities of practice is that there is a common agreement and understanding of who belongs to the community. A predominant theme emerging from the data from this study was that the participants have developed a strong sense of identity with other advanced nurse practitioners. They describe how participation within the Listserv and participation in the activities sponsored by the local face-to-face groups has helped them to know who they are as advanced practice nurses.

A fifth characteristic of communities of practice is that they are distinguished by specific tools, representations, and other artifacts, shared stories, a shared discourse reflecting a certain perspective on the world, and jargon and shortcuts to communication. For example a common abbreviation used in the Listserv communication is "the right to write," or gaining the legislative sanction to be able to sign prescriptions. Outside observers would not necessarily know what this shorthand expression refers to, however, it is well understood within the community and carries a

common definition as well as emotional impact when used in discussions and communications. One way to develop mutual engagement is through a shared and common history. Alison summarizes this by saying that "we are similar in the fact that no one has enough help, everybody is overworked, that kind of thing." The commonalities of what it is to be a nurse are present in their discussions. Several participants spoke of characteristics of nursing that have influenced where the profession is today. For example they became aware that as a predominantly female profession nursing, has not strongly influenced the political arena. They spoke of managing the multiple roles of mother, wife, and caregiver, and the basic practice stance of providing quality patient care. Participants of the study also identified the traditional power base of physicians over nursing as a deterrent to obtaining prescriptive authority.

Characteristics of Online Communities of Practice

Wenger (1998) does not address the application of communities of practice to online environments; however, connections are being made in the literature between online communities and online communities of practice. First I will consider the characteristics of online communities of practice as defined in the literature and, second discuss the studies that have methodologically applied Wenger's framework of communities of practice to online environments.

One research approach to identifying the characteristics of online communities has been through studying the patterns of their development. The hypothesis of this approach is that online communities can be created (Palloff & Pratt 1999). Recognized steps needed to build a community include: developing a clearly defined purpose of the group, creating a distinctive gathering place for the group, promoting effective leadership from within, defining norms and

conduct, allowing members to resolve their own disputes, allowing for many roles, and allowing for and facilitating subgroups (Palloff & Pratt, 1999).

Data from this study support Palloff and Pratt's findings. Advanced practice nurses as defined by the state of Georgia include nurse practitioners, certified nurse midwives, certified registered nurse anesthetists and clinical nurse specialists. The advanced practice nurses comprising the membership of the UAPRN of GA Listserv have a variety of practice and educational focuses. Despite this variety among members, all of the participants clearly identified the purpose of the group to be that of supporting the practice of all advanced practice nurses. Participants spoke of "working for the benefit of the whole," and working toward a common goal. Participants said that while prescriptive authority is currently the focus of email communication and local activity, improving quality patient care is the ultimate goal of all members.

The Listserv serves as a distinctive gathering place for the members and membership is open to all advanced practice nurses. It is through the Listserv that members are recruited for local or regional subgroups. The Listserv becomes the focus for information sharing, calls to action and practice development. The leadership within the Listserv is defined and supported. Original leaders within face-to-face advanced practice nursing groups took the initiative to create the statewide Listserv and once the Listserv was formed, leadership has been transferred among regional subgroups and is encouraged in new members. The UAPRN of GA Listserv is also characterized by normative activities among the membership. Participants spoke of learning skills to communicate effectively with each other, and that they felt free to share their ideas in a supportive environment. Finally, the Listserv has created and encouraged the formation of regional subgroups to carry out the work of the community.

In one of the few quantitative studies of online communities Haythornthwaite (1998) describes the interaction among members of an online community and the growth of their feelings of belonging to the group as related to group processes. She characterizes the development of online groups by writing that "groups do not emerge fully developed. They begin their association, develop, experience crises, attend to deadlines, execute their tasks, and conclude their association" (Haythornthwaite, 1998, p. 2). The variables of "centrality" and "isolation" were measured by the frequency and type of computer mediated communication between members of a graduate class over the length of a semester. The concept of centrality is used as a measure of the participants' place in the network or community and is defined as a measure of how well positioned the participant is to both receive and disseminate information to all other members of the network, and as an indication of how central to the community organization the participant is. At the other end of the continuum are those participants who communicate irregularly or not at all.

While these concepts appear similar to the concept of varying levels of participation and legitimate peripheral participation as described by Wenger (1998), they are used by Haythornthwaite as measures of group dynamics and her research is not based upon the theoretical framework of communities of practice. Results of Haythornthwaite's (1998) study indicate that participants' sense of belonging is strongly related to their frequency of interaction and information exchange. Findings from this study contradict Haythornthwaite's findings, in that frequency of interaction with the UAPRN of GA Listserv is not identified by the study participants as related to developing a strong identity with the online community.

There is a growing body of research investigating whether communities of practice can exist in online environments (Borthick, 2000; Herrmann, 1998; Steeples & Goodyear, 1999).

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Borthick (2000) applied the theoretical concept of legitimate peripheral participation from Lave and Wenger's work (1991) and the concept of situated learning of communities of practice from Wenger's (1998) framework of communities of practice to investigate the learning of a group of graduate students in a web based course. The web based course was designed to facilitate discovery learning, or learning that facilitates problem solving through participation, as opposed to passive acquisition of abstract knowledge (Borthick, 2000). Students were given a problem situation common to Information Systems Development and asked to identify the problem, address how the problem impacts an information system, and offer suggestions for correcting the problem. Analysis of synchronous dialogue from the students suggested that understanding of the posed problem was the result of student participation in the synchronous discussions, and that the participation of students negotiating how this problem could be resolved reframed the knowledge of the community.

These findings can be supported by the findings describing the participation of the UAPRN of GA Listserv participants. For example, specific patient treatment protocols were shared and then transferred to the practices of the participants. The participants have become active in the "virtual" environment in learning legislative processes and have transferred this learning to the real world in increased political activism at state legislative forums.

Herrmann (1998) conducted a five-year ethnographic study of the interactions of an international online academic community of practice to uncover the patterns of communication important to community building. Beginning with participant observation, the researcher progressed in levels of participation to voiced participation and eventually joined a small sub-interest group to write a collaborative article generated from one of the topics discussed in the online environment. The researcher analyzed online documents, face-to-face, telephone and

online interviews, and conducted an online survey. Categories of data emerged that characterized the development of the community; naming the community, civility, and conflict resolution. These characteristics of community development are also seen in the UAPRN of GA Listserv. There is a common goal of uniting all advanced practice nurses and there are normative activities and conflict resolution that occurs within the online setting as well as the face-to-face meetings.

In a study to investigate the use of multimedia technology (as a method for teaching, "showing as one talks") in an online community of practice to enhance real world problem solving, Steeples and Goodyear (1999) determined that the use of artifacts common to the profession helped to ground the learning in real practice. The assumption of the researchers is that these social cues (or the cues of the profession) might assist in establishing cohesion among the community. While there were no such technologies characterizing the participation or learning of the UAPRN of GA Listserv, the participants have formed face-to-face educational meetings in which they discuss practice issues and view slide presentations from pharmaceutical representatives on current drug therapies. Perhaps the face-to-face meetings serve to frame their online community of practice in reality and to serve as a common practice setting, suggesting an area for future research.

Learning within Communities of Practice

Wenger (1998) identifies four components that characterize the process of social learning. First is learning in the community which results from belonging to a specific community of practice. In and through the community we identify who we are and what we know. The second component is learning through experience with the community or creating meaning about what we do collectively and individually in the community, or "what we do" together. Third is the learning as doing or the development of practice, and fourth is learning as

becoming by developing an identity with the community. The final two components of Wenger's theoretical framework of communities of practice and social learning, practice and identity, will be addressed under conclusion two and conclusion three.

Learning and participation. Wenger (1998) suggests that participants in communities of practice negotiate their identities by learning what the unique practice of their community is and by distinguishing how these skills and practices fit together with the broader universe of other practices, professions, or groups. Wenger (1998) describes the learning that occurs within a community of practice as having two dimensions; learning through trajectories and learning through developing common understandings and meaning. The first dimension is that of individual learning through trajectories of participation within a community of practice. A learning trajectory is temporal and constructed in social context. The "work" of learning is ongoing, but also includes consideration of past learning and future goals.

Interviewees commonly discussed that they participated in the community in varying degrees. An advanced practice nursing student stated that her participation has been shaped by her comfort level with the content being discussed. She tends not to send out replies to questions just for the sake of interaction, but rather if she feels that she has something to add to the discussion. This varying participation is in no way shunned by the other members of the Listserv. The participants of this study suggest that this varying participation is related to their current life situations and commitments. Family circumstances have reduced the level of participation for Jamie, Amanda and Sandra during this past year due to a marriage and childbirth. One participant commented that the topics discussed on the listserv and the status of membership also influence who participates in the discussions. She identified that the legislative issue of prescriptive authority has been important for many advanced practice nurses in a variety

of practice settings and has served to draw members into the listserv. Marianne spoke of a recent personal experience when she became a new member of another professional listserv and described how she initially took some time to "get her feet wet," in learning the topics and etiquette of this new listserv before actively participating.

Lave and Wenger (1991) have termed this characteristic of participation in varying degrees as, Legitimate Peripheral Participation or "the process by which newcomers become included in a community of practice" (Wenger, 1998, p 100). Peripherality and legitimacy are two conditions that are required to make participation possible. Peripherality is described as "just enough" participation to allow for exposure to the practice of the community. For example, new nursing graduates learn the ways of being a professional nurse from observation, mentoring, special assistance and practice. But for that new nurse to learn the full extent of the practice of nursing, she/he must engage with others in the profession, exchange knowledge, and learn the nuances of what the practice is in reality. While nursing faculty has taught the skills and theory behind nursing practice to students, it is the process of engaging in the practice in the "real world" that results in practice development and professional identity.

Legitimacy, or legitimizing the newcomer to be treated as a member, is also required to make participation possible. If newcomers are not legitimized by the community membership they will not be privy to what the community considers as competent practice. Inherent in the concept of Legitimate Peripheral Participation is the understanding that there is a constant give and take among the members' knowledge, and as practice changes, so does the knowledge that is shared among the members constantly reshaping the practice of the community.

Legache (1993) wrote about the learning that occurred within a scuba diving community of practice. Despite a complex and extensive formal training program, scuba divers tend to leave

the sport in significantly high numbers. Legache (1993) hypothesizes that many divers who leave the diving community do so because they are unwilling or unable to go beyond the periphery of the community. They learn just enough to master the skill but do not form relationships with other community members to the level of learning the nuances of the practice of scuba diving. While they learn the practice of scuba diving they do not become a member of the community and eventually leave the community because they cannot create defining identities with the other members.

The advanced practice nursing students that participated in this study described how they felt welcomed by the community, how faculty treated them as equals, and how they implemented learning gained from existing members into their studies and practice. Participants who have been members for several years spoke of how their participation as a new advanced practice nurse assisted them in understanding and implementing their role when they first started their practices, and that they now recognize the value of mentoring new advanced practice nurses into the professional practice.

Learning through meaning. The second dimension of learning is that of learning as being a characteristic of practice, or as a mutual process occurring among members of a community of practice in pursuit of a common goal. According to Lave and Wenger (1991), successful learning is a building of knowledge that generates within a group as a result of the unique life experiences and contributions of the members. Learning within a community of practice occurs when participants know how to communicate and share information, change their levels of participation within the group, and experience identity transformation as a result of participation within the group (Wenger, 1998).

The members of the UAPRN of GA Listserv come from a variety of backgrounds, a variety of practice settings and possess a variety of practice knowledge and specialty education. They have come together for the common goals of advancing quality patient care in Georgia and uniting advanced practice nurses for continued development of the practice. Participants of the UAPRN of GA Listserv have developed a strong sense of what the "practice" of advanced practice nursing is. They speak of how participation in the Listserv has assisted in the development of the meaning that their practice has to their lives in such statements as: "Participating in the listserv has made me realize that my job is not just a job"; "Before I was just following doctors orders, now my practice is holistic, a part of my whole life"; " I never knew what I didn't know before"; "There are things that are different about me now"; "It is supportive to know that there are people out there who have the same issues that I do"; and " The connectedness helps, especially when you are new and don't really know your role."

The participants interviewed learned new computer skills, new communication skills, and practice-based information through their discussions, networking and mentoring of each other within the community. A unique characteristic of this Listserv community has been the extent of learning in the areas of legislative and political processes that are assisting in expanding and redefining the practice of advanced practice nurses in Georgia. An observer can almost feel the energy and commitment generated within the group toward achieving prescriptive authority. Participants see the direct result that their learning and behavior changes are having upon growth of the practice.

Learning becomes characteristic to the group and the group generates meaning for and of itself, transforming not only the members of the group, but the group as well. For example, when group members know each other very well after many months or years of camaraderie, one

would think that everything pertaining to the practice and community has been thoroughly discussed and negotiated. However, the group still enjoys meeting and in this participation they extend their knowledge and practice, redirect their goals, reinterpret knowledge, and modify or confirm the meanings of their practice that they previously held. "In this sense, living is a constant process of negotiation of meaning" (Wenger, 1998, p. 53).

Differences between the UAPRN of GA Listserv and Traditional Communities of Practice

Several of the newcomers to the Listserv demonstrated high levels of clinical and theoretical expertise upon entering the community. As newcomers to the community these participants assumed both leadership and master teacher roles. This phenomenon contradicts Lave and Wenger's (1991) definition of successful learning as not merely the result of the master teacher imparting skill and knowledge, but rather as the result of the organization and activities of the community of practice of which the master is only a part. Lave and Wenger (1991) state that learners participate in communities of practice at differing levels and mastery of knowledge. A community of practice can be visualized as a circle with many intersecting trajectories in which one begins participation on the periphery as a newcomer becoming progressively more engaged and active. It is this engagement that facilitates knowledge for the individual as well as changes the composition of the community of practice as all members learn from one another.

However, in the UAPRN of GA Listserv it appears that expertise of many types is being facilitated in multiple endeavors; such as the formation of regional subgroups, the development of "grassroots" patient advocacy groups, political activity and leadership, and continuing education. There are many aspects of "what it is to be an advanced practice nurse" that are active concurrently, suggesting that there are many roles being learned within one profession.

Learning emerges as a by-product of participation with the Listserv. The UAPRN of GA Listserv serves as a vehicle for participants to learn "about" aspects of professional practice. The participants then implement this knowledge in their practice settings, share results and implications related to practice with the Listserv community, and thus continue to refine their practice. However, the learning "to be" of advanced practice nursing still occurs within the individual practice settings of each Listserv member and within the face-to-face meetings of the regional subgroups. Hung and Nichani (2002) identify such online communities of practice as quasi-communities. In quasi-communities most members are unknown to each other and come to the online "space" to obtain specific answers to specific needs. In a true community of practice members form tightly knit groups, a strong sense of trust among members, and are bound together by a direct face-to-face flow of knowledge. The authors suggest that many of the social nuances of face-to-face meeting cannot be replicated in online communities, that virtual connections are brief and intermittent, that chance discussion leading to new ideas is limited in online environments, and, that it is difficult to build the strong sense of trust needed for successful community in an online community of practice.

The "Practice" of the UAPRN of GA Listserv. The practice of the UAPRN of GA community of practice is unique. The "practice" of advanced practice nursing (patient care) in the UAPRN of GA Listserv occurs within the virtual environment through discussing common experiences, through education, through planning actions for the continued growth of the practice of the profession (for example achieving prescriptive authority) and through online and face-to-face participation.

A major component of Wenger's (1998) theoretical framework of communities of practice is practice. Wenger defines practice as consisting of the following interconnecting

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concepts; practice as meaning, practice as community, practice as learning, practice as boundary, practice as locality, and practice as knowing. Participation in a community over time and the resulting changes in the community give the practice a community meaning. The shared actions, common goals and mutual engagement of the members gives practice a sense of community. Practice as learning occurs when the community of practice develops a shared history of learning and fosters membership. Objects such as artifacts, documents and terms and negotiated relationships between and among other communities of practice create the boundaries of practice. A community of practice can be both local and global as a result of its interconnections with other communities. And finally, for learning in practice to be possible, members must share a common understanding between an experience and the competencies related to that experience. As the membership negotiates the understandings of this experience, the community redefines itself and grows. Examples supporting each of these characteristics were found during data collection and analysis lending support to Wenger's (1998) framework.

Wenger (1998) posits that practice is the source of coherence of a community and identifies three dimensions of practice that assist in the formation of a community. The first characteristic is mutual engagement. Communities of practice develop when concerted efforts are made to make mutual engagement possible. He suggests that whatever it takes to assist in these efforts is an essential component of practice. "Given the right context, talking on the phone, exchanging electronic mail, or being connected by radio can all be part of what makes mutual engagement possible" (Wenger, 1998, p 74).

The UAPRN of GA Listserv currently consists of over 400 members. Membership is open to all advanced practice nurses in the state of Georgia as well as advanced practice nursing students. Licensure data from the Georgia Board of Nursing suggests that there are over 4000

nurses in Georgia classified as advanced practice nurses. Therefore the UAPRN of GA Listserv has the potential for a significant increase in membership. If the Listserv continues to grow it will have a large impact upon the practice of advanced practice nurses in Georgia and will be a strong voice for change. As the Listserv membership is growing, regional listservs and face-to-face meetings have been formed. Study participants comment that there is benefit to the face-to-face meetings. They value the sense of "human spirit," that the face-to-face meetings foster, feel energy that is generated from face-to-face encounters and discussed that the face-to-face meetings help to get the work of the organization accomplished. Alison emphasized that all of the efforts of the smaller groups were "for the good of the whole," and she illustrated this by describing how the listserv organized a medical supply shipment for Afghanistan by beginning in the local smaller groups, and then organizing the collection and sharing the outcomes via the larger listserv. Educational programs are presented at each face-to-face session in which pharmaceutical representatives detail new medications, members present case studies and treatment protocols, or information regarding continuing education offerings or research studies is discussed. Perhaps this face-to-face interaction serves to support the mutual coherence of the community and thus leads to practice development.

The second characteristic needed to form a community from practice is joint enterprise. Joint enterprise occurs through a process of negotiation among members and is a collective response to what the members understand to be their practice situation at the time. The negotiated community is not prescribed by outside forces but responds to them in a unique process of negotiating the meaning of these events to their individual community. The enterprise of a community of practice is more than a statement of purpose-- it promotes accountability among members. This characteristic can be seen as the UAPRN of GA Listserv members impact

the legislative environment through bargaining for prescriptive authority. Accountability is also demonstrated through the empowerment they have gained from participation in the listserv allowing them to work toward improving not only practice conditions but their profession as well.

The third characteristic of practice as a source of community is the development of a shared repertoire, or the ability of members to negotiate meaning (Wenger, 1998). Members of the Listserv have developed words and ways of doing things that have become part of the practice of the Listserv. For example, even though they represent many diverse specialties of nursing, they have come together to provide quality patient care. In this endeavor, they have taken diverse practice experience and created one commonality. They react to changing trends by changing their practice. They have mobilized their patients to work collaboratively with them to present one voice to the legislature regarding the quest for prescriptive authority. The Listserv membership could be described as having developed mutual accountability for their practice and its growth.

The UAPRN of GA Listserv community of practice does not exemplify a practice context in the traditional sense. Practice as defined in the literature is comprised of two types of knowledge, formal and practical (Cervero, 1992; Schon 1983). It is practical knowledge that is under investigation in this study, the knowledge that is situated in action and socially constructed. A consideration of this study is whether the learning that occurred in the UAPRN of GA Listserv is situated in action. One could argue that asynchronous environments facilitate problem solving by making communication available all of the time. A member of an online community of practice can request assistance with solving problems immediately as they occur

in practice. Reflection on action can occur as the other members of the Listserv read the posting, consider their response based upon their experiences, and then respond to the need for assistance.

Practical knowledge is the knowledge of how to do something, and implies active and dynamic learning. Nurses practice in health care settings with real patients and face complex patient care decisions in a "real world." This is the historical active and dynamic context for practice. Participants in the Listserv talk about and reflect upon practice online, but do not actually carry out their practice in the Listserv itself. Rather, the Listserv becomes a learning methodology or a vehicle for strengthening components of practice. Theoretical support for defining practice in online communities of practice is limited. Wenger (1998), while suggesting that online communities form when indicated by the community needs and interactions, has not yet dealt with online communities of practice in his research.

It has been proposed that the current nursing shortage creates an opportunity for educators to develop innovative approaches to career mobility for registered nurses (O'Brien & Renner 2000). These authors suggest that the adult learning principles of situated learning, collaborative learning and community building can be incorporated into online learning experiences. Warn (1999) suggests that training efforts alone are not sufficient to prepare professionals to meet the needs of clients today, adding that "learning in groups not only stimulates an exchange of ideas and resources between individuals, but strengthens the interpersonal network between colleagues within and outside of the organization" (Warn, 2000, p. 49).

Findings from this study support that learning and aspects of practice indeed can be fostered within a professional Listserv. The UAPRN of GA Listserv is a source of practice change for advanced practice nurses. Participants are advancing their prescriptive privileges

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through their united efforts, enhancing their knowledge through sharing practice protocols, journal articles and continuing education offerings, sharing past experiences and building new meanings, and, in collaboration with their patients are impacting the quality of health care in Georgia. However, the virtual environment on the Listserv still cannot serve as a hands-on skills development setting. There remains the need for a nursing practice environment to promote psychomotor skill acquisition. I would suggest that online communities of practice are viable options for advanced practice nurses who have already mastered the psychomotor skills of nursing practice. And as nursing practice changes in the future, moving from hospital- based practice to community and preventive practice, new practices of nursing will be needed that meet the needs of clients in these differing practice settings.

Central to this conclusion is an understanding of "contexts of practice." Daley (1997) defines context as a "location, situation or setting" in which meaning is constructed. Considering this definition, the Listserv does qualify as a practice context by providing learning opportunities for application to practice. Findings of this study indicate that new definitions for practice contexts are needed. Daley (2001, p. 47-48) summarizes this in a recent article describing the process of how professionals make learning meaningful by writing, "Nurses identified their work as providing care, and as such, knowledge to them became meaningful when they took caring action with it."

Conclusion Two: Online Environments can Enhance Professional Practice

Participants of this study identified learning to be a result of their participation within the community of practice. A question that guided this study was to uncover if a connection between learning and actual practice could be made. Professional practice is comprised of two types of knowledge, formal and practical (Cervero, 1992). Formal knowledge is that gained in institutions

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of higher learning and provides the learner with the theory and guidelines that frame the profession. Practical knowledge is knowledge that is situated in action and socially constructed. Learning in online communities can be both formal and informal as supported by the findings of this study. Not only did participants learn specific knowledge and skills, such as the legislative process or medication side effects, they learned knowledge that influences how they practice. Findings of this study suggest that participation in the UAPRN of GA Listserv helped to strengthen practice, promote advocacy, and foster leadership for practice.

Professional practice has been studied from many perspectives. Patricia Benner's (1984) sentinel study has greatly influenced the research done in the professional development of nurses. The theoretical framework for Benner's study is based upon a practice model that describes how a learner progresses through five levels of proficiency from novice to expert. In each level of proficiency, the learner progresses from reliance on abstract principles to evolving from being a detached observer to an involved performer. Participants of Benner's study described critical incidents of their practice and using qualitative data analysis of these interviews, Benner identified characteristics of each level of professional development. Benner suggests that the interaction between the learner and the situation is important for knowledge transfer to occur.

UPARN of GA participants discussed their professional development from the first days following their gradation from their advanced practice nursing program. Brenda spoke of being alone in a rural geographical region of the state without role models to assist her in her professional development. She added that if it had not been for the UAPRN of GA Listserv and the support of the membership of this Listserv that she would not have become as independent in her practice as she is today. Elaine demonstrates insight into practice development as she

describes how her journey in advanced practice is similar to Patricia Benner's Model for practice:

> It [Listserv] wasn't that important to me to begin with but that first year out of school I was just trying to find myself and make sure to be sure that I was doing everything that I was supposed to be doing. You know Benner's model I was still in that novice phase … But as I became more comfortable in my own practice I started branching out and began attending the meetings on a regular basis.

Daley (2001) has advanced the study of the professional development of nurses with her research into how knowledge becomes meaningful in professional practice. Central to her hypothesis is that the context or work setting of nurses has a significant impact upon how the knowledge that they learn is constructed, and that for learning to be effective it must be applicable to patient care. Findings from her study suggest that meaning is made by professionals moving back and forth between their learning and their practice and that professionals frame their meaning making through an understanding of the nature of their professional work. The paradigm resulting from her research identifies that nurses construct a knowledge base through thinking about the needs of the client, feeling (that increases confidence and personal growth) and acting on the knowledge through dialogue, and networking to achieve observable results. When they learned something new it was "based on the needs of their clients" (Daley, 2001, p 47).

Findings from this study support Daley's hypothesis. There are numerous examples of how the participants are constantly changing and developing their practices to meet the needs of their clients. Elaine described how she has applied her advancing computer skills to patient care by instituting home visits via email for her patients who are homebound. She also spoke of how

she queried the Listserv for suggestions to increase her efficiency in documenting patient care and how best to organize patient appointments to increase her patient volume. Kate discussed the development of the "grassroots" committee that has as its primary goal improved client care through partnering with advanced practice nurses to affect health care.

An interesting example of how practice and context are connected can be seen in Elaine's discussion of how her patients are becoming more knowledgeable in using the Internet for health related knowledge. As a result of her participation in the UAPRN Listserv she has compiled a list of reputable health websites that she posts on the office bulletin board for her patients reference. She adds that her patients "have access to as much information as I do. And it has made me be much more on my toes." Findings of this study suggest that the online environment of the UAPRN of GA Listserv is a context of practice.

Cheek and Doskatsch (1998, p. 246) suggest that professional power will be awarded to those who "can obtain, evaluate and apply information quickly to problem solving" and Warn (1999) describes the professional of tomorrow as one who collaborates and networks with colleagues, clients and their communities toward gaining practice expertise. The need for professional nurses to obtain the technical and professional knowledge necessary to keep pace in a rapidly changing health care environment implies that computer technology and Internet tools have a place in continuing professional nursing education as well.

Fung, Norton, Ferrill, and Supernaw (1997) studied the development of professionalism via the Internet with pharmacy students and found that increased discussion on the internet resulted in an increase in professional growth as measured by the students' understandings of the profession, work- related issues and expressed feelings regarding the profession. A similar finding in this study was that UAPRN listserv participants are able to define their role more

clearly. They know what being an advanced practice nurse is and can clearly articulate this to other professionals, the community and to their patients. Several of the participants spoke about the value of being able to define their practice. Jamie described the value as one of advocacy for the profession and Kate explained the value as providing credibility to advanced practice in the eyes of the legislators and her patients.

All of the participants of this study addressed how their participation in the listserv has provided them with an increased sense of power that they are using for both the development of the profession as well as for improving patient care. Participants have increased their involvement in the professional group, have developed new regional subgroups, initiated communication with legislators to effect practice legislation, and have created patient advocacy groups. They have networked with other professional nursing organizations and advanced practice through participation in research activities.

All of the participants said they have grown in leadership abilities and skills as a result of participation in the listserv. This leadership development has been both formal and informal. Participants have assumed leadership roles, developed effective communication skills, become more assertive for their patients and their profession, and talked of becoming empowered as a result of their participation within the UAPRN of GA Listserv.

Practical knowledge can be divided into knowing in action and reflection in action. Schon (1983) suggests that professionals reach reflection in action through a developmental sequence. This sequence begins with professionals learning to recognize and apply rules and facts. The second step is the ability to reason from general to problematic and finally, the professional tests new learning in actual practice. Findings from this study suggest that participants did develop reflection in action as a result of their participation in the UAPRN of GA Listserv.

Conclusion Three: An Online Environment can Nurture Professional Identity

Social learning theorists see a close connection between the concepts of professional practice and professional identity. Individuals define who they are by what is familiar and what is foreign, and identities result from a combination of our competence and our experience into a way of knowing. In the process of developing a professional identity the practitioner experiences a transformation from skill performance to professionalism.

Participants of this study reported that they experienced professional identity development as a result of their participation in the community of practice, the UAPRN of GA Listserv. The professional identity of the participants is documented in their statements about 1) developing pride in the profession and its members, 2) seeing the value of taking political action for advancing the profession, 3) recognizing the value of the power of one and the power of many toward increasing the cohesiveness within the profession, and 4) in personal and professional critical reflection.

Wenger (1998) posits that professional identity development is both an individual and a collective experience. "The resulting perspective is neither individualistic nor abstractly institutional or societal. It does justice to the lived experience of identity while recognizing its social character--it is the social, the cultural, the historical with a human face" (Wenger, 1998, p. 145). Individuality is seen as part of the practice of communities of practice. Social learning theorists suggest that we cannot become human by ourselves and that "conversely, membership does not determine who we are in a any simple way" (Wenger, 1998, p 146). Questions and issues of the community are addressed through a relationship among the members and "inevitably, our practice deals with the profound issue of how to be a human being. In this sense, the formation of a community of practice is also the negotiation of identities" (Wenger, 1998, p.

149). The practice of the UAPRN of GA Listserv community has been discussed under conclusion number two. Here I will discuss Wenger's second concept of identity development, that of belonging to a community.

Wenger identifies three modes to belonging to a community of practice; engagement, imagination, and alignment (Wenger, 1998). Engagement involves negotiating the meaning and purposes of the community, producing artifacts, doing things together, talking, helping colleagues with problems, developing the history of the community and forming trajectories of participation and learning. Imagination is the constructing of a new image of the community and the members, and alignment is described as the mutual process of coordinating perspectives and actions of the members toward attainment of a higher goal.

Examples of each of these modes of belonging or identity formation can be seen in the findings of this study. Participants have engaged in the community of practice at varying levels. They have formed subgroups and they hold quarterly face-to-face statewide meetings and monthly face-to-face regional meetings. They have identified regional activities for promoting the purposes of the Listserv. As an example, the Middle Georgia subgroup attends the National State Fair and provides health screenings as a means to teach people about the role of advanced practice nurses. The participants are aware of the history of the Listserv and have goals for its future.

The second mode of belonging, imagination, is also evidenced by the findings of this study. Practice knowledge is shared on the Listserv, established members serve as mentors to new graduates, and normative activities assist in the efficient and effective operation of the Listserv. Participants are changing their practice as a result of their learning from the Listserv. They are able to define their role more clearly and they are actively recruiting patients in

collaborative activities toward improving care. They are reshaping their role as they participate within the Listserv.

Alignment of the study participants to the UAPRN of GA Listserv community of practice can be seen by the following examples. The value of political action is clearly identified by interview participants who spoke of their own growth in becoming more politically aware and politically active as a result of their participation in the Listserv. They recognize that politics shape and form the profession and that increased political activity will ultimately affect how they provide patient care. One participant described how the power base of advanced practice nursing is increasing as a result of member participation in the Listserv.

Professional identity can be characterized by a change in attitude. In a study designed to compare the professional values of students who had completed a baccalaureate program via distance education with students who had completed the same program by on-site courses, Cragg et al. (2001) found that the students who used distance education had higher scores on the selected professional values scale instrument than the generic nursing students. Values measured included commitment and affiliation, autonomy, knowledge and theory and holistic perspectives. When controlling for variables among the groups such as experience and work status, the researchers found that educational preparation, active involvement in nursing over time, and experience are directly related to a higher degree of professionalism.

The participants of this study spoke of changes in their attitudes toward the profession of advanced practice nurses. They spoke with pride about how advanced practice nurses provide quality health care for clients. Brenda is able to foresee continuing refinement and development of the practice of advanced practice nursing even though there may still be obstacles. She describes the power of the synergy of the group as being very comforting and empowering. They

described how they are collaborating with patients in the drive for obtaining prescriptive authority, about the collaborative relationship between patients and nurses in advanced practice nursing, and the need for uniting both groups to ensure quality health care. The participants identified common goals and purposes uniting the community of practice.

The participants also described the affiliation and commitment of the members as instrumental to the success of the Listserv. One participant talked of her previous experiences in professional organizations as being disappointing, adding that the groups never seemed to "get off the ground." She described her experience with the UAPRN Listserv as very different, adding that the enthusiasm among the membership of the UAPRN Listserv has refreshed her and reinforced the fact that there are other people dedicated to the profession willing to assist in any way necessary.

Nesler, Hanner, Melburg and McGowan (2001) identify socialization as an important process in facilitating professional role development. The purpose of their study was to determine whether nursing students enrolled in distance education programs had professional socialization outcomes comparable to those of nursing students enrolled in traditional on campus programs. Their findings indicate that nursing students in distance education programs had significantly higher scores on a survey instrument measuring socialization and professional identity in the areas of lifelong learning, altruism, consumer awareness, critical awareness and compassion. Another finding from their study indicated that health care experience was a critical factor in the socialization process.

Data analysis from the interviews of the participants of the UAPRN of GA Listserv also identified examples of altruism, consumer awareness, self awareness and compassion. A theme which emerged from the participant interviews was a discussion of how participation in the

listserv has changed the participant's professional practice through an expanding consciousness. This consciousness raising is seen as an increased commitment to fostering awareness in others of the role of the advanced nurse practitioner, and as an awareness of the role of advanced practice nursing in health care and society. One participant described how her participation in this community of practice has changed her philosophy of advanced practice nursing and another spoke of how her participation has made her much more aware of public needs.

Kowalski and Louis (2000) measured the comparative outcomes of teaching methods and their effect on critical thinking in BS students using an Internet discussion board format. A comparison of traditional face-to-face classroom teaching with online learning found that 70% of the students in the online learning class agreed that their critical thinking skills increased. Critical thinking was defined as increased responsibility, increased communication and increased participation. In a qualitative study investigating higher order thinking in pre-service math educators as they used an interactive multimedia program, Harrington and Oliver (1999) found through qualitative data analysis of online documents that the participants exhibited non-algorithmic thinking, complex thinking, nuanced judgment and interpretation, and self regulation.

Schon (1983) believes that professional identity is characterized by the development of altruistic beliefs regarding the value and worth of the service over the immediate gains that one could receive from a relationship with the profession group, and that development of professional identity implies a self reflective process on the part of the practitioner. Participants of this study often addressed that they were working toward common goals that can be described as altruistic. The participants' major goal is toward improving quality care for people in the state of Georgia. They recognized the power generated by numbers of professionals working together

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in synergy and several stated that they recognize that while not everyone participates at an equal level, they are working toward the benefit of the entire professional group.

When a professional becomes critically reflective they share power and enable other professionals and clients toward growth. The participants in this study provided examples of critical reflection on the profession and on client relationships. They shared their thoughts on the reasons why nursing has been a traditionally non-political profession. They learned new practices for becoming more politically active, they described how they learned the steps of the political process and the steps for passing legislation, and they addressed the power of numbers in working toward a common goal. Finally, they described how they are working to empower their clients through education to become active participants in their healthcare.

Implications for Practice

Healthcare reform has resulted in many practice changes for nurses. Sharing of practice-based knowledge was traditionally conducted in professional nursing through apprenticeship. Through this learning model newcomers to nursing practice were mentored by expert nurses in the clinical setting. Learning was primarily directed to procedures and tasks and did not generally include formal knowledge development.

As the healthcare environment has changed, nurses are required to practice at ever increasing skill complexity, budgets are lean and financial reimbursement for continuing education is limited. In addition the nursing shortage is requiring nurses to work longer hours and carry higher patient care loads.

Education programmers are also challenged by health care providers to develop creative methods for providing professional education that will allow health care graduates to enter the workforce more quickly as a means to reduce the current severe nursing shortage. However,

opponents of online learning question its value in facilitating learning, its ability to replicate the "real world" of practice, and suggest that virtual learning further reduces the time spent by a learner in the clinical environment, possibly reducing the professional identity development gained through apprentice learning. It appears from this study that professional listservs can promote social learning and that they provide an excellent opportunity for the continuing professional development of nurses.

The development and nurturing of online communities of practice is still "an experiment in progress" but one that should be encouraged (Hung & Nichani, 2002, p. 28). Findings of this study along with those of Hung and Nichani (2002) provide several strategies that could be used by educational programmers in creating viable and true communities of practice in online environments. Strategies that could support online communities of practice include creating online problems that simulate practice situations, integrating real practice-related tools and processes into the online environment, and scheduling routine face-to-face meetings of the membership to facilitate the development of community and trust and to stimulate exchange of ideas.

The theoretical framework of communities of practice, as defined by Lave and Wenger (1991, 1998, 2000), provides a vehicle for studying the theoretical application of situated cognition and professional practice and identity. Central to this theoretical framework are the concepts that learning is the result of social interaction, individuals negotiate life meanings through participation within communities of practice, that practice and identity are closely related concepts, and that communities of practice grow and change as a result of the interaction and practice of its membership.

Wenger's (1998) social learning theory suggests that learning is not exclusively academic and that it involves aspects of our daily lives and circumstances. CPE educators supporting social learning theory would need to consider these two components to learning when designing programs to support professional and identity development.

Analysis of the data for this study identified that the UAPRN of GA Listserv possessed many of the characteristics of communities of practice as cited by Wenger (1998). The "practice" of this community of practice occurred in a unique manner in that participants took knowledge and learning from the listserv community and imported it into their individual practice settings. They "practiced" their learning away from other practice members, yet through the sharing of their experiences and learning they contributed to the growth of the community's practice. However, if practice is more than skills and application and is truly a part of identity as suggested by Wenger (1998), then it would appear that online communities of practice could become valuable resources for professional education and practice development.

The findings of this study contribute to the understanding of professional identity as it is developed in non-traditional learning environments. The study findings suggest that there are alternative methods to ensure professional identity development in nurses that are cost effective and time efficient. No longer do hospitals have the luxury of one-on-one mentoring programs in which new nurses are assigned to a mentor for a lengthy six week to three month orientation before assuming a full patient load independently. Professional listservs appear to be a viable source for developing professional identity and suggest that advanced practice nurses can learn, practice and develop as professionals effectively in an online environment. This finding lends support to the recent changes occurring in nursing education toward the increase in use of online learning courses and shortened professional programs. In addition a professional listserv might

be an environment in which the experiences of the members are used to guide practice

development of newcomers in an efficient and effective manner.

<center>Recommendations for Future Research</center>

This study has provided some answers to the research questions developed to investigate

a very specific environment. This is typical of a qualitative study and the results suggest a

number of possibilities for future research. There are some individual findings that would make

interesting hypotheses for another study using qualitative methods.

First it would be interesting to further investigate how the learning occurred in the

Listserv. The interview questions used for uncovering the nature of the participation were

operationalized by asking participants to describe their interaction with the listserv. These

questions were based on Wenger's framework which connects leaning with social interaction.

Participants answered these questions by describing that their learning occurred on trajectories.

They participated at varying levels depending upon their membership status and personal

interests and life circumstances. They also spoke of the continued value of face-to-face meetings

in their social learning and the role of the regional subgroups in continuing the work and synergy

of the state wide Listserv. Therefore there were many interacting and intersecting events that

made this online community of practice a unique learning environment. It would be interesting to

investigate this Listserv further to gain deeper understanding of the phenomenon of online

learning in a community of practice. By further understanding learning in online communities of

practice educators could replicate the characteristics that are found to enhance online learning

from professional practice and identity development.

Second, I feel that additional research should be conducted to investigate the process of

learning and identity formation. Literature (Schon, 1983) suggests that identity development is a

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process. If learning, practice and identity are as closely interconnected as Communities of Practice theory would suggest, there might be a definable process that could be incorporated into continuing education programs that facilitate this transformation process. Findings of this study identified specific examples of how participants were able to implement their learning from the community into their practice, and specific examples of how their professional identity is evidenced indicating that they did develop professional identity from their Listserv participation; however, the process of how this relationship between practice and identity occurs in an online environment was not fully uncovered.

Third it is recommended that future research on this topic include an investigation into the relationship of gender to nurse's professional identity development in an online community of practice. All of the participants of this study were women. They spoke of the gender issues in nursing history such as lack of empowerment and negative image. This suggests that they are aware of how their gender impacts their decisions about practice and professionalism today, and, that their reported professional identity development could be related to their past experiences as women in professional practice. An interesting question would be if male Listserv participants identify similar examples of professional identity development as a result of their Listserv participation.

Fourth, the "practice" of this community of practice was nontraditional. Participants took learning from the listserv and imported it into their individual practice settings. One could question if practice in the traditional sense indeed occurred in the simulated online venue. Professional practice is not just the application of formal theory and skills but includes the ability to make fine adjustments to knowledge as a result of particular situational circumstances (Cervero, 1989, 1992). This is known as practical knowledge. Continuing professional education

programs could be developed to provide opportunities for both formal and informal learning as participants of this study spoke of gaining both types of knowledge through their participation in the Listserv. This finding suggests that CPE educators could continue to investigate the nature of the interactions of professional listserv participants toward gaining a deeper understanding of how this learning occurs without the direction of a facilitator, specific content or teaching methodology.

Lastly, an interesting characteristic of this professional Listserv is that it appears that face-to-face meetings are an integral component of the activity and synergy of the entire membership. It is recommended that similar research be conducted with entirely online professional nursing communities of practice to determine if findings similar to those of this study are found in groups that do not have face-to-face meetings.

Methodological recommendations for future research on this topic include issues with use of online documents, and the use of online interviews. Online documents were downloaded from the UAPRN of Ga Listserv and were used as a second source of data. The documents supported interview findings and provided a chronology of events that was useful in understanding the communications among the participants. Many of the documents provided web sites for further reference and also provided the investigator with more background understanding of the various issues being discussed. However, they did not provide the richness of data that resulted from the face-to-face interviews.

While the initial methodology called for online interviews and telephone interviews none were conducted. All of the interviews took place face-to-face. During the IRB process several questions arose about how online interviews could guarantee confidentiality. Synchronous interviews could have been conducted but the time required for the participants to type their

responses might be restrictive of how much information they would share. The value of face-to-face interviews was unquestionable! In face-to-face encounters the investigator can construct the interview to follow the lead and specific interests of the participant resulting in rich descriptive data. The sense of personal relationship with the participants is also unique to qualitative research and assists the investigator in maintaining enthusiasm, a sense of being "in the phenomenon" and continuing insight into the complexities of the phenomenon. Therefore, it is recommended that future research into phenomenon such as online learning be conducted using face-to-face interviews as at least one source of data collection.

The purposive sample used for this study was characterized by advanced practice standing. The membership of the UAPRN of Ga Listserv could be described as professional based upon their licensure and certification as advanced practice nurses. The professional development stage of this group might suggest that their commitment and initiative is already strongly developed, and that the findings of professional practice and professional identity might be characteristic only of this group and not applicable to all professional nursing Listservs. Therefore, it is recommended that future research include groups of professional nurses at varying stages of professional development.

It would be most interesting to also revisit this community of practice as a later date to study how the community changes over time. Finally, it would be important to apply this methodology and theoretical framework to online communities of practice found within other heath related professions.

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APPENDICES

The purpose of this study is to determine how Listserv membership fosters practice and identity development in a community of practice of advanced practice nurses. During this interview I will be asking you to describe your experiences in a community of practice. I define a community of practice as a group of people working together who share insights and ideas, and help each other solve problems and develop a common practice.

Name (Coded): _____   Years in Nursing: _____
Age: _____   Practice Setting: _____
Gender: _____   Education: _____

1. How often do you post to the Listserv? Do you generally post questions or answers? (Provide specific examples)

2. How do you use this community to help you with your daily practice?

3. Have you been able to implement any of the information that you have learned from the Listserv in your practice or professional life? (Provide specific examples)

4. Some people believe that experiences with communities of practice change you as an individual. What would you say to this?

5. How would you describe your participation within this community of practice?

6. How would you describe the interaction of members of this Listserv?

7. Describe for me a time, as a new member of this online community that you felt that you were part of a group of people working together for a common goal. (Concrete examples)

8. Describe for me your professional practice.

9. Identify an example of something that you have learned through this Listserv that has contributed to your professional practice.

10. How has participation in this Listserv changed your practice?

11. What experiences have you had in this community that have caused you to know that you were part of this group? Please provide specific examples.

12. What other communication/interactions have you had with Listserv participants?

13. Describe how your practice has changes as a result of participation in this Listserv?

14. Describe the contributions that you have made to the practices of this group and to the profession as a whole.

15. Is there any other question I might ask about your experience with this community?

APPENDIX B

CONSENT FORM

I agree to participate in the research titled ***The Role of Communities of Practice in the***
Professional Development of Nurses which is being conducted by Rebecca Corvey, Adult

Education, University of Georgia, (478) 953-9252 under the direction of Dr. Sharan Merriam,

Adult Education, University of Georgia, (706) 542-2214. I understand that this participation is

entirely voluntary; I can withdraw my consent at any time without penalty and have the results of

the research, to the extent that it can be identified as mine, returned to me, removed from the

research records, or destroyed.

The following points have been explained to me:

1.   The **reason** of the research is to determine how online communities of practice have

assigned in the learning and professional identity development of professional nurses.

2.   The **benefits** that I may expect from participation in this research are my satisfaction in

having the opportunity to express my ideas regarding the role of online communities of

practice in professional nursing, and having the potential ability to contribute to the

understanding of how professionals may benefit from using online communities to

enhance professional development. There are no financial benefits from participation in

this study.

3. The procedures for this study will be:

- The investigator will interview each participant for approximately one hour. This interview will be face-to-face. The interview will take place at a mutually agreed upon time and place. The interview will be audio taped.

- Participants may be asked further questions at a later date that will provide clarification of content arising from the original interview. These meetings may be by phone or email.

- Should follow-up interviews be necessary, the participants will not be contacted more than twice.

- The investigator will analyze downloaded verbatim documents that capture the discussions and dialogue of the participants of the Listserv. The downloaded documents might include specific issue related email communications and attachments that are specific to the study. All downloaded documents will be coded for confidentiality. Participants must notify the investigator at any time should they feel uncomfortable with their online comments being collected for analysis. At this time the investigator will stop the collection of online documents.

4. No **discomforts or stresses** are expected.

5. No **risks** are expected.

6. **All information obtained during this study will remain confidential**. This information will not be released in any identifiable form, without my consent, unless required by law. If information about you is published, it will be written in a way that you cannot be recognized. All data will be stored at my residence. All data, including audiotapes, and email documents will be destroyed within six months of the completion of the study (on

or before 12/1/03). The investigator will delete all email, email attachments, and email addresses gathered from the Listserv from their hard drive within six months of completion of the study (on or before 12/1/03). While the researcher will take the above measures to protect the confidentiality of my participation, I understand that there is a limit to the confidentiality that can be guaranteed due to the Internet technology itself.

7.   I am aware that it is difficult to maintain privacy within Internet communication. All information obtained through this source will be stripped of its identifying information and coded for confidentiality.

8.   The researcher will answer any further questions about the research, now or during the course of the project, and can be reached at (478) 953-9252.

I understand the procedures described above. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form.

 Please sign both copies of this consent form. Keep one and return the other to the investigator.

_____   _____

Signature of Investigator   Date   Signature of Participant   Date

Investigator's Phone: (478) 953-9252

Investigator's Email: bcorvey@yahoo.com

Additional questions or problems regarding your rights as a research participant should be addressed to Chris A. Joseph, Ph.D., Human Subjects Office, University of Georgia, 606A Boyd Graduate Studies Research Center, Athens, Ga. 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu.

APPENDIX C

RECRUITMENT LETTER

The Role of Online Communities of Practice in the Professional Development of Nurses

I am a faculty member in the School of Health Sciences at Georgia College & State University and am completing a doctoral program at the University of Georgia in Adult Education. I am doping a study of nurses who belong to professional listservs. I have been a faculty member at GC&SU for five years. I have personally participated in professional listservs and I have found them to be helpful to my practice as a clinician and as an educator.

I am looking for colleagues such as you to participate in this study. To be included in the study, each participant must have at least one year of practice as a licensed registered nurse. I am also seeking participants that represent a variety of practice specialties and who work in a variety of health care settings. Both male and female participants will be included.

Participation will involve an interview process lasting approximately one hour. This interview will take place within the next several months. The interview will be face-to-face. The interview will take place at a mutually agreed upon time and place. The interview will be tape-recorded. During this interview we will talk about your experiences with the Listserv and the role the Listserv has played in your professional practice. Your name will not appear in any document related to the interview so that your privacy is protected. It is possible that I may need to follow up the interview by email or telephone in order to clarify something from the interview, however, I hope to avoid this as much as possible. In addition to your participation in the

interview, I will be analyzing downloaded verbatim Listserv communications that are specific to the study. This information will not be released in any identifiable form and all of the email documents and email addresses from the study will be deleted from my hard drive within six months of completion of the study.

I hope that you may be interested in participating in this study. You may send me email at rcorvey@gcsu.edu or call me at (478) 953-9252 (home) or (478) 445-5939 (work).

Sincerely,

Rebecca J. Corvey