

FACTORS THAT PREDICT SUCCESSFUL COMPLETION
OF A PERINATAL CONTINUING
EDUCATION PROGRAM

By

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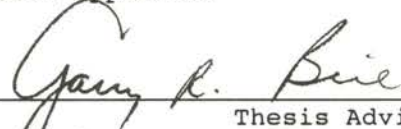
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CHAPTER I

INTRODUCTION

Lifelong learning through professional continuing education has been accepted as important by most professions (Cervero, 1988). Accrediting bodies in both the medical and nursing professions have made statements on the importance of continuing education to enhance practice (Accreditation Council for Continuing Medical Education, 1990; American Nurses Association, 1980). The major group accrediting hospitals in the United States, the Joint Commission on Accreditation of Health Care Organization (JCAHO), also emphasized the importance of continuing education for all who provide care in a hospital as one way to document competency in providing care (JCAHO, 1993). All fifty states use continuing education for relicensing in some professions (Cervero, 1980; Phillips, 1983). In 1994 continuing education was mandatory for reregistration and licensing of nurses in 22 states. Nineteen professional organizations certifying boards required continuing education for certification and/or recertification (Yoder Wise, 1993). Twenty-eight states require physicians to have continuing medical education (CME) for reregistration for a license to practice (American Medical Association, 1992). Nine state medical societies, including six in states not requiring CME for renewal of a license, require CME for membership in the society (American Medical Association, 1992). In Oklahoma, continuing education has not been required either by the

state licensing boards or professional associations for nurses or physicians. However, members of those professions may be required by organizations which certify them in their area of specialty practice to document continuing education hours for recertification.

Several factors make lifelong learning necessary in the health care professions. Among those are the increased rates of change brought about because of increased knowledge and increased technology that have characterized this century (Toffler, 1970; Cetron & Davies, 1989). The rate at which new knowledge is generated and reported has increased geometrically so that in the next ten years the amount of "raw knowledge" will double (Cetron & Davies, p. 4). It has been estimated that by the time a child who is now five years old completes secondary school the amount of new knowledge in the world will have doubled four times (Cetron & Davies). Creation of technology has increased as knowledge generates technology and new technology generates more technology. There also has been a decrease in the time of introduction of technology to adoption from approximately 40 years to five. Cetron & Davies stated that 85% of the information in the National Institutes for Health is updated every five years. Those phenomena accentuate the need for lifelong learning to keep up with changes.

Coupled with the increased knowledge, technology, and change is the increase in the cost of health care in this country. The United Way of America's Strategic Institute estimated that costs for health care in the United States will triple between 1987 and the year 2000

to approximately 15% of the gross national product. Today it is approximately 11%. There has also been an increased emphasis on accountability for spending of public funds in general and funding for health care, much of which is paid for with public funds. Part of the cost of health care is education needed to keep up with the increased knowledge and technology that leads to change. The cost of training for employees has been calculated by the American Society for Training and Development (ASTD) in Alexandria, Virginia and the United States Department of Labor (Carnevale & Gainer, 1989) as approximately \$210 billion per year. Of that amount \$30 billion was the direct cost of formal training courses supplied by the employer or others in 1983. This was 1-2% of the payroll. Hospitals were one of the highest users of training of all industries. Hospitals spent approximately \$396 per employee per year for such education for a total of \$1.92 billion.

Health care providers receive their preservice education in many places at many different times. Houle (1981) pointed out that this education varies in length of time as well as the type of setting for the education, i.e. education for a medical doctor may take six, seven, or eight years beyond secondary education. Education for a registered nurse may take place in a community college (two years), hospital (three years), or a college or university (four or five years.) Paraprofessional health care providers, such as licensed practical nurses, emergency medical technicians, and nursing assistants, also vary a good deal in their education in regard to their roles in patient care. Yet all of

those providers work together to care for patients and desire the best outcome possible. A special task force made up of representatives from dentistry, pharmacy, medicine, nursing, and physical therapy concluded after three months of analysis that it was desirable and feasible for health professional of different disciplines to have collaborative study (University of Illinois, 1966). This has rarely been done. Most continuing professional education for health care providers has been directed at one specific discipline rather than interdisciplinary.

Research on which professionals participate in continuing education generally has focused on one discipline at a time. Few studies were found that had more than one type of health care provider taking the same educational program at the same time. Reports on results of continuing education tend to focus on one or more of the following, participation, motivation for participation, satisfaction, and/or knowledge gained. A few report changes which came about as a result of education. Most did not attempt to study an interdisciplinary group of providers taking the same program and working in the same setting.

Research has been reported which indicated that reasons for participation differ significantly with the type of profession, career stage, and personal characteristics of the professional (Cervero, 1988). Methods chosen for continuing education may also differ between professions and differ by location of the practice. In order to effectively foster participation in continuing

education, educators must have a clear concept of the characteristics of the learners (Knox & Associates, 1980).

Personal, professional, and environmental factors can be examined to determine those factors that are related to completion of a continuing education program. Rather than focusing on just one type of health care provider, looking at all providers of care in one type of practice may provide information more directly applicable to the way health care is given.

The care provided to women who enter the hospital to have a baby and to the newborn is concentrated into a relatively short period of time. It is carried out by several health care providers, though most are nurses or physicians. They work together toward a common goal, the best possible outcome for mother and baby. An educational program targeted to those providers focusing on critical information has been developed and in use since the mid 1970's (Kattwinkel, et. al, 1979). This program has been updated periodically to include new information, technology, and changes in delivery of care. It was evaluated for its effectiveness in increasing knowledge, improving facilities, improving patient care, and the rate of completion in two different states (Nowacek, et. al, 1983). Those studies and others in the literature reported that not all who began a program of continuing education completed them. They have not, however, described factors which might predict which health care providers are likely to complete a program. Knowledge of this can be applied to effective use of resources for continuing education in hospitals and may ultimately lead to increased

competency and improved care which are the ultimate goals of continuing education for health care providers

Statement of the Problem

Advancing technology and growing information bases make it imperative that health care providers engage in continuing education. The problem is to predict who will successfully complete a systematic continuing education program in one area of health care delivery, in this case perinatal care, in order to improve the delivery, efficiency and effectiveness of health care services.

Purpose

The purpose of this study was to identify relationships among selected personal, professional, and environmental factors present in an interdisciplinary group of health care providers and to determine which of those may predict successful completion of a comprehensive perinatal continuing education program. Personal factors included age, personal motivation for participation in the continuing education program, change in level of knowledge, and satisfaction with the education. Professional factors were discipline of practice (nursing or medicine), the length of time in the area of practice, professional motives for participation, and whether they took an earlier version of the program. Environmental factors included location of the health care facility (metropolitan or non metropolitan area), size of the obstetrical service, presence of a policy which encouraged or required enrollment, and sources of

funding for continuing education. Determining relationships between those factors and completion of a program which was designed to be taken by an interdisciplinary group of health care providers may provide information to assist in developing programs which are likely to have a high rate of completion and greater accountability for outcomes.

Research Questions

The following research questions were examined:

1. What personal, professional, and environmental factors correlate statistically with completion of a systematic continuing education program in perinatal care?
2. What group(s) of factors is (are) most predictive of completion of a systematic continuing education program of perinatal care in Oklahoma?

Definitions of Terms

Perinatal: Refers to the time surrounding the baby's birth. It includes both the last part of pregnancy, the delivery, and the first part of the baby's life (Kattwinkel et. al, 1993)

Perinatal Continuing Education Program (PCEP): A comprehensive continuing education program consisting of the following elements:

1. Self instructional manuals (the basic course is three books, four books are used by those who provide specialized newborn care in neonatal intensive care or special care nurseries), 2. A 100-item comprehensive pre test, 3. Audio-visual material, anatomical models,

and skills workshops, 4. Unit pre and post tests, and 5. A 100-item post test. The program was developed and distributed by the University of Virginia Health Sciences Center.

Metropolitan Area: The geographic area consisting of a large population nucleus (250,000 or more) that have a high degree of economic and social and integration (Dictionary of U.S. Government Statistical Terms, 1991). For this study that area shall be the metropolitan area of Oklahoma City.

Non Metropolitan Area: The geographic area outside of the metropolitan area. It may consist of large towns as well as rural areas. Generally they were outside of the Oklahoma City and Tulsa metropolitan areas.

Participant: Any perinatal health care provider taking the PCEP as offered by the University of Oklahoma Health Sciences Center in 1993. In order to be considered a participant at least the self instructional manuals must be available to the person and the comprehensive pre test must have been completed.

Completor: Any participant, as described above, who returned a completed 100-item pre test, demonstrated completion of course material by turning in answer sheets for unit pre and post tests, demonstrated appropriate skills, and completed the 100-item post test.

Size of Perinatal Service: The annual number of deliveries in a hospital with an obstetrical service. For this study, figures from 1992 were used.

Scope and Limitations

Health care providers working in selected hospitals throughout the state of Oklahoma and providing care for pregnant women and newborns in those hospitals were offered the continuing education program. Data were collected on the factors listed above. Data were analyzed for relationships between the factors which are the independent variables and completion of the program. Analysis of covariance and discriminate analysis were carried out to analyze data.

The study dealt with health care providers in only one state during 1993 and caring for only one type of patient. Only 18 of the approximately 100 hospitals delivering babies in the state took part in the study.

Assumptions

It was assumed those taking the continuing education program were representative of all those providing perinatal care and the hospitals were representative of those which have a delivery service.

Organization of the Study

Chapter I of this study includes an introduction to the problem, a statement of the problem, the purpose of the study, the research questions, definitions of terms, the scope and limitations of this study, and the assumptions underlying the study.

Chapter II is a review of the related literature that is pertinent to the research problem. This chapter is divided into the following headings; continuing education, continuing professional education, and continuing education in the health care professions.

Chapter III outlines the methodology that was used in the study. This includes the research design, a description of the study population, sampling techniques, the procedures for data collection, instrumentation, protection of human subjects, and how analysis of the data was carried out.

Chapter IV presents the findings of the study relevant to the research questions.

Chapter V summarizes the study, presents conclusions, and makes suggestions for practice and additional research.

CHAPTER II

REVIEW OF LITERATURE

Literature was reviewed in the areas of continuing education in general, continuing professional education, and continuing education related specifically to health care professionals for the period of 1961 through 1993. Overall, the review included information concerning who participates, reasons for participation, mandatory versus required continuing education, evaluation measures, and interdisciplinary continuing education in the health care professions. Within the area of continuing education for health care professionals literature related to nurses and physicians was reviewed in the most depth. Much literature was found related to one type of health care professional (either nurses or physicians) participating in a program. Scant literature was found pertaining to interdisciplinary continuing education for health care professions.

Continuing Education

When searching the literature it was important to differentiate between continuing education related to work and that taken for other reasons. Cross (1981) and Merriam and Caffarella (1991) pointed out that the many reports on participants in adult education are difficult to compare due to the differences in the way concepts were defined and the way data were collected, however, the majority

of adults who participated in continuing education did so for reasons related to work. *Continuing education* as defined by the Dictionary of Education (1973) as

any extension of opportunities for reading, study, and training to young persons and adults following their completion of or withdrawal from full-time school and college programs . . . education for adults provided by special schools, centers, colleges or institutes that emphasize flexible rather than traditional academic programs (p. 133).

This definition covers all types of continuing education and not just that related to work. The interest in this paper was work related continuing education.

Participation in continuing education has been one of the central concepts of research in the field of adult education (Rubenson, 1982). This has been important due to the voluntary nature of adult education and the need for adult educators to understand reasons for participation. Those reasons were based on psychological and sociological factors.

Houle (1961) in the seminal work related to motivation to participate in adult education stated, "If we are ever to understand the total phenomenon of continuing education, we must begin by understanding the nature, the beliefs, and the actions of those who take part to the highest degree" (p. 10). From his descriptive study of 22 men and women who were participating in continuing learning he described three subgroups of participators. Those subgroups were differentiated by their perceptions of the purposes and values of continuing education. The three types were; *goal oriented*, *activity oriented*, and *learning oriented*. Houle

stated "the best way to represent them pictorially would be by three circles which overlap their edges" (p. 16). Even though those three types overlap, Houle saw each as having a clearly discernible central tendency. Goal oriented learners "are those who use education as a means of accomplishing fairly clear cut objectives" (p. 15). They are motivated by traditional ideas of what education should do and they wish to get ahead. They engaged in learning to achieve a specific goal. Learning was episodic and began with the realization of a need or identification of an interest. They satisfied the need or interest by pursuing an educational activity to meet the need or interest. Activity oriented learners "are those who take part because they find in the circumstances of the learning a meaning which has no necessary connection, and often no connection at all, with the content or the announced purpose of the activity" (pp. 15-16). The social contact created by the educational experience was more important than the content under study. They were course takers and group joiners. The third type, the learning oriented, engaged in education "to seek knowledge for its own sake" (p. 16). Those learners were avid readers and have been so throughout their lives. They were continuous learners and join groups and classes or chose leisure activities for educational reasons. It has been stated (Peters, Jarvis & Associates, 1991) that Houle's work "stimulated more research, both quantitative and qualitative, on participation in adult education than any other book in the history of the field" (p. 102).

Boshier (1971) reported on an Education Participation Scale (EPS) based on Houle's typology. Designed to explain participation and drop out of continuing education it was developed and first tested in New Zealand. The scale gave 48 reasons for participation which were classified by Houle's three types of learners and 10 which could not be classified. Fourteen factors or motivational orientations were used in analysis of the data. Means of many of the individual items were low indicating little influence on the decision to participate. This model was developed to explain participation and drop out. The model was based on Maslow's hierarchy of needs. The assumption was made that humans are motivated to seek homeostasis. In that sense, all activity was goal oriented and both participation and dropout derive from an interaction of internal psychological and external environmental variables. People were viewed as either being growth motivated or deficiency motivated. The growth-oriented person satisfied Maslow's hierarchy and was open to new experience. Deficiency-oriented people were engaged in satisfying lower order needs and were more influenced by their environment. Those factors were further tested by Boshier in New Zealand and Canada (1973, 1977). While he was able to find support for prediction of drop outs related to incongruence between the self and others, there was less support for variables related to social class. This research and other research using the EPS scale led to its refinement to a 40-item scale with six factors which are: (1) Professional Advancement, (2) Cognitive Interest, (3) Community

Service, (4) External Expectations, (5) Social Welfare, and (6) Social Stimulation.

The EPS was first tested in the United States by Morstain and Smart (1974) with adults in evening adult courses. They found the most consistency in the factors with the Social Welfare and Cognitive Interest items. Morstain and Smart then categorized their factors of motivation for participation as: 1) Social Relationships, 2) External Expectations, 3) Social Welfare, 4) Professional Advancement, 5) Escape/Stimulation, and 6) Cognitive Interest. They found younger adults scored relatively higher on the Social Relationships scale, men were relatively higher on the External Expectations scale and women scored relatively higher than men on the Cognitive Interest Scale. Men had relatively similar scores on the Social Welfare scale at each age level while women tended to decline in this area with increasing age. They were the first to try to relate the factors to gender and age.

Boshier and Collins (1985) reported on a large study conducted to determine whether Houle's three factor typology of learners could be supported when all reported studies using the EPS were analyzed by cluster analysis rather than factor analysis which had been used in the individual studies done by earlier researchers. They believed cluster analysis would be more congruent with Houle's original conceptualization of three separate but overlapping orientations. It was found that a three-cluster solution was "loosely isomorphic with Houle's typology" (p. 125). "Cluster I consisted of the Cognitive Interest items and was congruent with

Houle's Learning Oriented." Cluster II, the Activity Orientation, was multifaceted and composed of items labeled by Boshier as Social Stimulation, Social Contact, External Expectations, and Community Service. Cluster III resembled Houle's goal orientation and consisted of Professional Advancement. Since two of the six clusters matched Houle's typology closely, and the third part of the typology encompassed the other four factors in the EPS, Boshier and Collins concluded that "Houle's intuition had been partly collaborated" (p. 127).

It is apparent that Houle has inspired much work in the area of motivation of adults to continue learning. The work of Boshier and others in development and testing the EPS has also added much to the literature. While most later research supported more than three motivations to learn, Houle's original typology still has validity. All research based on Houle's work supported at least three types of adult continuing learners but categorized their motivation into more areas. As was pointed out by Furst (1986), the type of analysis of the data, factor analysis or cluster analysis, can affect the outcomes. It is also difficult to scale items to test quantitatively. Therefore, the studies carried out to quantify Houle's descriptive work do add to the understanding though they cannot be entirely equated. Houle did not state the three types were equal in variability within them, only that learners had a central tendency to fit into one type or the other. The complexity of motivations of adults to continue learning is pointed out by these studies.

Houle (1981) using data from Educational Testing Service some of which was published by Carp, Peterson, and Roelfs in 1974 and part of it which was not previously published discussed content, motivation, and barriers to learning. The sample was approximately 104 million persons between the ages of 18 and 60 in the United States who were not full-time students in 1972. "Would-Be Learners" were identified by a response of "yes" when asked if there was something they would like to know more about. Seventy-seven percent responded in the affirmative. From this, further questions identified "Learners" as those who had actually taken part in some kind of activity which could be classified as continuing education. Thirty-one percent were classified as "Learners". The groups were further divided into "Professionals" and "Nonprofessionals" by reported occupation. None of the data were tabulated in terms of education which took place only because of employment. Thus, the data differentiated professionals who partook in continuing education for all reasons and not only continuing professional education. Motives for learning were derived from expressed interest in the subject matter. There was a wide range of motivation when expressed this way. Professionals had a narrower range of interest when selecting learning activities than the total group of Learners and Would-Be Learners. It was found that adults in the United States who engaged in learning activities tended to be people who were already relatively well educated and represent professionals more than unskilled workers. Among Learners and Would-Be Learners, the Professionals were less interested in getting

a new job, working on certification and licensing, in meeting external requirements and being better family members but more interested in advancing in their present job than the total group of respondents.

Houle's analysis of the Educational Testing Service data added to the knowledge on continuing education in general. While it focused on continuing education other than that related to work, it demonstrated that professionals participate at a high rate in continuing education throughout life, were likely to focus their educational interests into smaller areas, and participate in work related continuing education though it was more related to their current work than changing work. Perhaps the time spent in preparation for and practice of their profession was a factor in this. All of the research that has been done pointed out the complexity of the issue of participation in adult education. It seems apparent that individual adults participate or do not participate for many reasons.

Knox (1980) in writing of adult education in general pointed to the need of adult education practitioners to identify new ideas and programs which are used in determining objectives, marketing of programs and determining how resources will be spent in this area. He viewed matching of adult education agency purposes and societal needs as critical. He posed several research questions of high-priority in the areas of the setting of objectives, organization and development of content, evaluation of offerings and programs, participation, staffing adult education, and the leadership and

organization of adult education agencies. In doing this, he proposed more research was needed to determine the cognitive and non cognitive measures which predict adult participation, persistence, and achievement in systematic learning activities and on the personal and situational correlates of adults decisions to participate in systematic leaning activities. Knox stated emphasis should be on incentives for participation and structuring the environment to be supportive of participation.

Cross (1981) reviewed research related to barriers to participation and classified them into three classifications. Those were *Situational*, *Institutional* and *Dispositional*. Situational barriers were those which came from one's situation in life at any given time. Those included finances, time available, geographic and location considerations and attitudes of friends and family towards participation. Institutional barriers included those practices and policies that keep adults from participating or make it inconvenient. Examples are requirements and procedures for enrollment, scheduling, and courses available. Dispositional barriers were those that came from within the individual. Those included attitudes toward self and learning, past experience with education and interest in continuing learning. Situational barriers generally were given most often for lack of participation followed by Institutional and then Dispositional.

A recent study by Garvino (1992) looked at persistence of adult students in high school completion programs. This study looked at persistence and drop out in relation to the Institutional,

Situational and Dispositional barriers which existed. It was found that one difference between the two groups was a difference in the perception of the various factors in regard to the types of barriers. Difference in staff support, relevant curriculum, logistical convenience, time, health, personal attitudes, academic preparedness and expectations and satisfaction were statistically different between the groups. There were no differences between the two groups on the importance of student support services, friend and family support, and employment.

In developing theory related to participation in continuing education, Scanlan and Darkenwald (1984) studied the underlying structure of the reasons adults gave for not participating. A Deterrents to Participation Scale (DPS) was developed and administered to a large random sample of health professionals (physical therapists, medical technologists, and respiratory therapists). The principal components found by factor analysis were six orthogonal factors. These were labeled: 1) Disengagement, 2) Lack of Quality, 3) Family Constraints, 4) Cost, 5) Lack of Benefit, and 6) Work Constraints. Individual items on the DPS had low means indicating the majority of items were reported to have relatively low influence on the decision to not participate in continuing education. Multiple regression analysis indicated that the factors were strong predictors of participation. One of their conclusions was that non participation was multidimensional.

It can be seen by the literature related to continuing education that theory related to the participation of adults in

lifelong learning began to form after Houle's work in 1960. Prior to that time, statistics on who participates were collected without much attempt at developing theory related to participation. Theory related to participation was developed more fully in the last thirty years as quantifiable scales were developed to examine participation and non participation. Studies found a complexity of factors related to participation and non participation of lifelong learning in general. The studies did not necessarily focus on work related continuing education or continuing professional education, though often the participants in the research were professionals. There has been much literature in this area in the last two decades.

Continuing Professional Education

One of the first issues in relation to Continuing Professional Education (CPE) is the definition of the word *professional*. There has been some disagreement regarding the definition of a profession. It has been commonly used very loosely as there are "professional hair stylists" and physicians and lawyers who are described as professionals. Houle (1981) described several characteristics of professionalization. Those were: 1) Members of a profession should be concerned with clarifying its defining function or functions, 2) Mastery of theoretical knowledge, 3) Capacity to solve problems, 4) Use of practical knowledge, 5) Self-enhancement, 6) Formal training, 7) Credentialing, 8) Creation of a subculture, 9) Legal reinforcement, 10) Public acceptance, 11) Ethical practice, 12) Penalties, 13) Relations to other vocations, and 14) Relations

to users of service (pp. 34-78). Those characteristics and other definitions are still open to discussion and debate (Woll, 1984). Friedson (1986) discussed the difficulty in coming to consensus on the definition of a profession but settled on a definition that included a need for higher education, a prerequisite for employment in positions in the job category as given in the 1986 United States census. The categories included: architects; engineers; mathematical and computer scientists; natural scientists; health diagnosing occupations; health assessment and treating occupations; teachers at all levels; counselors, both educational and vocational; librarians, archivists, and curators; social scientists and urban planners; social, recreation and religious workers; lawyers and judges; and writers, artists, entertainers and athletes. Using Friedson's criteria of the need for higher education, all but the last group would fit the category of professional and most likely to be clientele for continuing professional education.

Houle (1983) described eras of continuing professional education. During the first era, it was expected that practitioners would continue to learn throughout life. Learning might have been through books, periodicals, meetings, courses, case study, supervised practice or other means. This era represented the dominant behavior for many years and persisted from the beginning of an understanding of professions and professionalism until the mid 1960's. The second era was characterized by a focus on a minimum level of competency and tendency to enforce the need for life-long learning through mandatory continuing professional education. There

was a growth in government and professional associations requiring continuing education and a concurrent expansion of ways to meet the educational needs. The third era began in the early 1980's and is continuing to evolve. It focused on "raising the optimum level of performance of all practitioners" (p. 257). This might be done through self-appraisal, examinations, and learning designed to meet the specific areas of knowledge deficit of the individual as well as more traditional continuing professional education methods. Houle emphasized the need for development of more flexible ways of discovering and fulfilling educational needs to reach the optimal level of performance. He stressed learning should occur under real or ideal work conditions. "In the fourth era the central aim may be to refine continuing education so it meets the specialized needs of many different groups within a profession" (p. 258). This type of education would provide instruction relevant to different phases of a career or location of practice. There would be more focus on learning related to every day work. There would be less emphasis on prescribed courses and didactic methods and more on a mode of inquiry that may use peer interaction and collaborative analysis to improve performance.

Evaluation in each of the eras differed. In the first era, there was no formal evaluation. In the second era, evaluation focused on attendance and satisfaction with the courses. In the third era, which is still evolving, evaluation focuses on performance which can be measured by skills, knowledge, attitudes and practice. During this era there is a need to demonstrate that

continuing professional education makes a difference in practice and is cost effective. Studies which demonstrate change in practice due to continuing education are inconclusive. There are many which demonstrate it has made a difference and just as many which indicate it has not.

It appears the role of continuing professional education may be changing. The way programs are designed to meet specific needs of a more complex and specialty oriented society, the evaluation of the education to determine what, if any, changes occur as a result of the education, and the cost effectiveness is open to more research. Fitting continuing professional education into individualized needs of the learners also means more information is needed on the learners themselves. This needs to be not only information related to attendance and satisfaction with continuing education programs, but characteristics of the learners, preferences for learning methods, and perseverance in learning activities.

Mandatory Continuing Education

As Houle (1983) indicated in describing the eras of continuing professional education, mandatory continuing education (MCE) has increased since the 1960's. MCE may be generally defined as continuing professional education (courses, programs, reading, self-study or scholarly writing or presentations), beyond the entry-level educational requirements. Those requirements are usually expressed as contact hours. One contact hour may be 50 to 60 minutes in length. Impetus for MCE has come from federal and state

government through licensing boards, professional associations and consumer groups. The trend to MCE increased in the 1970's and slowed in the 1980's. Phillips (1983) stated that because few professions have identified specific competencies for experienced professionals, MCE has increased. It was through mandating continuing education that there may be some mechanism of assuring that there was an effort to keep up with basic and changing knowledge, skills and performance and so offer the public some protection.

MCE is required for relicensure in various trades and professions in all 50 states (Phillips, 1983). Its legality has been upheld in courts in several states. Various professional associations have also established continuing education requirements for specialty certification or recertification. Some of the objections to MCE have been that it should not be seen as the sole criteria for relicensure as it does not insure competence, may not be cost effective, and may put a burden on state licensing boards to judge the quality of hours submitted. Various studies have been conducted to assess the acceptance of MCE and habits of professionals regarding continuing education, whether it is mandated or not.

Knox (1980) stated "mandatory continuing professional education is an issue that appears to evoke a programming response but has more disadvantages than advantages" (p. 250). Support for MCE from those required to have it has been inconsistent. A 1978 survey of pharmacists in twelve states with MCE found support for the

principle of requiring continuing education, but uncertainty as to how useful it was in day-to-day practice (Kushner & Feierman, 1978). A survey of licensed practical nurses (Freidman, 1980) found thirty-seven percent of respondents favored mandatory continuing education. Reasons given for negative responses included high costs and inaccessibility of programs. Cross (1981) noted that "organized opposition (for MCE) comes largely from adult educators" (p. 41). The controversy persisted because of the lack of data to fully support that mandating education assured an individual practitioner was really competent. Sitting in a class or workshop does not necessarily translate to changes in practice. Questions were also raised by Cross as to how much coercion toward education can be done in the United States and who would be charged with the development and enforcement of standards and professional accountability.

Knox (1980) when he presented those issues stated that requiring all members in a field to participate in education

does not in fact protect the public against substandard performance by a few members of a profession and leads to some undesirable by-products such as more rigid and unresponsive programs, less public esteem for adult education, and avoidance by professional associations in dealing directly with substandard performance (p. 250).

Knox saw a need for more research on the impact of MCE on the level of participation, types of participation, program topics and the level of performance when taking programs. Other research questions posed were in the area of the use of resources for continuing professional education and policies and practices which were

associated with effectiveness in reaching persons targeted for education.

Motivation for Participation

Houle (1980), in his effort to bring about conceptual coherence to the practice of continuing professional education, described three modes of learning to explain structural forms of professional continuing education. Those were *inquiry*, *instruction*, and *performance*. Inquiry was described as:

The process of creating some new synthesis, idea, technique, policy, or strategy of action . . . More frequently in this mode learning is a by-product (though sometimes and intended by-product) of efforts directed primarily at establishing policy, seeking, consensus, working out compromises and projecting plan (p. 31).

Instruction is:

The process of disseminating established skills, knowledge, or sensitiveness. Those who use it assume the teacher (a person, a book, or any other source) already knows or is planning to convey everything that the student will learn . . . The degree of success of the mode of instruction is measured by the achievement by the student of goals that are usually known to the teacher at the beginning of a learning episode (p. 32).

Performance was defined as "the process of internalizing an idea or using a practice habitually, so that it becomes a fundamental part of the way in which a learner thinks about and undertakes his or her work" (p. 32). Clinical practice was given as a major way of using this mode. It was evaluated "in terms of the nature or caliber of actual performance as judged by peers, by

supervisors, by external examiners, and occasionally by the courts" (p. 33).

Cervero & Dimmock (1987) applied Houle's modes of instruction to a Job Activity Survey (JAS) developed by Bevis in 1971. The survey was sent to staff nurses (the same type of population used by Bevis in development of the JAS). Responses were factor analyzed. It was concluded that a four factor solution was better than the three-factor solution. While the modes of Inquiry and Performance remain the same (though the Performance mode was changed to the term Reinforcement), the mode of Instruction was split into Self Instruction and Group Instruction. Continuing learning activities are further categorized as Deliberately Educative and Secondarily Educative. They could have been Self Planned or Other Planned. Self Instruction and Performance could have been either deliberate or secondary and was self planned. Group Instruction and Inquiry also may have been deliberate or secondary, but were Other Planned.

Two other reports of testing of this conceptual model were found in the literature. Powlette and Young (1989) used Houle's conceptual framework to study business education instructors. A special tool, Instructor's Activity Survey, was designed based on guidelines established by Bevis in her JAS. The findings also supported a four-factor model. Those factors were Instruction, Inquiry, and Reinforcement, as described by Houle and the fourth factor, Inquiry/Reinforcement. A recent study by Verhey used the four factor model as described by Cervero and Dimmock (1987), the

JAS and a Demographic Data Questionnaire to examine self-directedness in learning of psychiatric nurses. The findings were a preference for the Performance and Self-Instruction modes of learning. Nurses who participated in a high number of educational activities did not differ from those who participated in lower numbers of educational activities in their preference for these modes. Both groups were low in the Group Instruction mode.

Houle (1981) perceived continuing professional education as an extension of the education continuum which began with general education, extended to pre-service specialized education, followed by competence and induction into a profession. Thus lifelong learning was viewed as essential to professional practice. The ultimate goal of "every advanced, subtle, and mature form of continuing education is to convey a complex attitude made of a readiness to use the best ideas and techniques of the moment but also to expect that they will be modified or replaced" (p. 75). Put more simply, the goal was to have one's professional practice reflect current knowledge. Houle proposed a classification of the members of a profession according to the extent of adoption of innovations. At extreme ends of a curve which resembled a normal distribution bell curve were the *innovators* and *pacesetters* on one end and *laggards* on the other. The largest number fall into the *middle majority*. Innovators were those who created new ideas and ways of doing things, they were high participants in education. Pacesetters were progressive in practice but waited to change until

ideas and practices were tested. They were leaders in professional groups and strongly supported educational endeavors. The middle majority were slower to adopt new ideas and practice. The rate of participation in educational activities varied. Laggards were very slow to change. They had a resistance to learning. MCE was seen as important for the latter group.

Grotelueschen (1985) reported on the development and research related to a Participation Reasons Scale (PRS) which was a Likert-type scale of relative importance of reasons for participation in a specific continuing education activity. Reliability and validity were analyzed for internal consistency of the cluster of reasons or factors that came from the data for various professional groups. Reasons for participation were classified in five general areas: a) Professional Development and Improvement, b) Professional Service, c) Collegial Learning and Interaction, d) Professional Commitment and Reflection, and e) Personal Benefits and Job Security. The studies reviewed indicated that across many professions the most important reasons for participation in education were related to professional improvement. The descending order of the others were: Development and then Professional Service, Collegial Learning and Interaction, Professional Commitment and Family/Personal Benefits and Job Security. The research indicated the reasons can differ significantly according to the type of profession, career stage and personal characteristics such as type of practice setting and number of years in the profession. For example, nurses and social workers rated the improvement and

development and service clusters significantly higher than physicians and business executives did. There was also a different rating pattern for the personal benefits and job security cluster for nurses and business professionals who rated those items higher than judges and physicians. When analyzed in regard to age, younger physicians and judges rated those items higher and younger nurses and business professionals lower than did their older colleagues. Physicians in government hospitals were more likely to rate personal benefits and job security higher than physicians in proprietary or voluntary hospital settings.

Cervero (1988) in studying participation in continuing professional education, noted that even with the many studies and publications on the topic, no workable model of participation existed though there are good beginnings. He viewed Houle's three modes of learning as better describing modes of participation rather than learning. Cervero stated that they describe "the types of activities in which professionals participate that are potentially educative" (p. 61). Learning was viewed as the cognitive process involved. Reviewing studies which examine types of potentially educative activities in which professionals participate, Cervero found validity in Houle's typology. The factors that affect professional participation were grouped into personal or situational categories. Personal factors included internal zest for learning (as described by Houle), age, and career stage. Situational factors included the nature of practice settings and the level at which people are required to participate. Deterrents to participate were

categorized into personal and situational factors. Those deterrents in order of importance were found to be; 1) a general apathy toward participating in continuing education, 2) the cost, 3) family and other responsibilities which act as constraints, 4) lack of benefit, 5) dissatisfaction with the quality of programs available, and 6) conflicting demands on time related to work which made it hard to schedule continuing education into the work schedule. "A nearly universal finding is that older professionals tend to participate in fewer formal educational activities than younger professionals" (Cervero, 1988, p. 70).

The literature on CPE has greatly advanced our understanding of who participates, why they participate and why they fail to participate. That is important to understanding how to design programs to be targeted at specific groups of professionals. However, no generally accepted theory of motivation for participation has been developed, but several scales were used to describe factors and propose models. Health care providers comprise a large number of persons who are classified as professionals. There is a wealth of literature related to continuing education for health care professionals.

Continuing Education for Health Care Professionals

Referring back to categories of professions, there are two categories which include health care professionals. Those include the health diagnosing occupations and health assessment and treating

occupations. In the first category are physicians, dentists, and others. In the second are registered nurses, pharmacists, dietitians, therapists, and others. Continuing education may be required by any of those professions for relicensure or recertification.

In a report by the Center for the Study of Medical Education at the University of Illinois, (1966) it was noted that "the health needs of society can no longer be met by physicians alone, but require the concerted attention of a growing band of related health professions" (p. 1). It was the premise of the study group that it is important for health professions to work together and also to consider what they should learn, how they should learn, and whether they can learn together. To the extent that health professions act interdependently toward a unified end, they may be referred to as a health care team. Representatives in this study group from medicine, nursing, dentistry, pharmacy, physical therapy, occupational therapy, and mental health determined there was a common knowledge base on which interprofessional offerings could be based. It was noted, however, that there were few programs which seek to have participation from more than one profession even though they share the same clientele.

Things have not changed much since that time. There is one journal, *Continuing Education for Health Professionals*, which covers continuing education for the wide range of providers of health care. Other journals, such as *The Journal of Continuing Education in Nursing* and *The Journal of Medical Education*, are targeted to just

one type of provider. It was obvious from reviewing the literature, that most programs are also targeted to just one group of professionals. In this section, the focus is mainly on literature related to continuing education for physicians and nurses, since they are the majority of persons that take the educational program under study. Some literature will be cited which reports on interdisciplinary education targeted mainly at physicians and nurses.

Mandatory Continuing Education

For Health Professionals

A common topic of literature for health care professionals is that of MCE. As Phillips (1983) has indicated, it is common for health care professionals to have MCE. Twenty or more states required continuing education for optometrists, pharmacists, and physicians. In Iowa all persons who require licenses to work in the state must have demonstrated proof of having participated in continuing education. Since most health care providers, and all physicians and nurses, require licensure, they were included. Four states (Alaska, Mississippi, New Hampshire, and Oregon) required continuing education only for nurse practitioners. (This nursing professional would be classified in the health diagnosing category mentioned earlier due to the need for additional education and special licensure). In Oklahoma nurse practitioners must be certified to practice at the advanced practice level. All of the boards which certify nurse practitioners require continuing

education, testing, or other options to be recertified. This, in effect, was MCE for advanced practice nurses in the state. Other health care professionals in Oklahoma with MCE requirements were optometrists, social workers and pharmacists. This latter group of workers was not generally involved in direct patient care.

In a study of the nature and magnitude of continuing education by allied health professionals (physical therapists, respiratory therapists, and medical technologists), Scanlan and Blagg (1987) found continuing learning to some extent was engaged in by nearly 95% of the respondents. Self-directed learning was engaged in more than other-directed programs. The most active learners were the most educated and most actively involved professionally. They also tended to hold supervisory and administrative roles in education or management.

In a report nearly two decades after MCE began, Phillips (1987) concluded that MCE has made a difference in several areas. MCE may have affected professionals who are laggards, as described by Houle in 1980. This was measured by attendance at professional meetings. Several licenses of retired or inactive professionals have not been renewed. There was an increase in the number of continuing education offerings in MCE states. Phillips also stated MCE is forcing the issue of continued competence of professionals.

Continuing Medical Education

New Mexico became the first state in the United States to require continuing medical education (CME) (Derbyshire, 1983).

Today 28 states (this does not include Oklahoma) require it (American Medical Association, 1992). This has occurred even though the American Medical Association (AMA) has supported voluntary rather than MCE and actually formally called for a moratorium on MCE for both recertification and relicensure (Derbyshire, 1983). Recertification boards have generally preferred some kind of examination rather than continuing medical education, though criteria for this are variable.

One issue is the cost of the continuing education. There was concern that if it is mandatory, the state should pay for it. Derbyshire stated "from listening to some of them one would conclude that the members of the profession with the highest incomes in the country have suddenly become paupers" (p. 83). He indicated, the issue of who pays is not important because of the history of physicians paying for their own continuing education and their income levels. While it appeared physicians paid for their own CME, it has been common for pharmaceutical companies to contribute heavily toward the cost of CME. The Food and Drug Administration became concerned over the relationship of commercial companies in physician continuing education. In 1991, they published a concept paper as a step in discussion of the rules and regulations to be issued regarding industry support for CME. This has led the AMA and the American Hospital Association to develop voluntary standards for funding of CME and rules for disclosure of conflict of interest by the faculty of CME courses that had their research, and/or expenses paid for by commercial companies, or when specific products are

recommended in professional presentations (Wentz, et. al., 1992).

In order to determine if there were changes in CME activity of physicians during the ten years of MCE, Stross and Harlan (1987) surveyed physicians in a MCE state. They found few changes in the habits of physicians regarding time spent in continuing learning and methods used. They also commented that there was no improvement in patient care demonstrated, decrease in malpractice suits, or reduction in health care costs. They concluded MCE does not achieve the results hoped for by the regulating bodies nor the public.

Early work on the reasons physicians attend traditional CME programs was reported on by Richards and Cohen (1980). They reviewed the literature on this topic and categorized the reasons into five areas. Those were: 1) professional standards which might be from inner standards of achievement or outer forces such as regulation or peer pressure; 2) interest in the subject matter; 3) validation of existing knowledge, review and updating information,; 4) meeting specific objectives which may relate to professional practice and specific situations encountered, 5) a change of pace from usual activities and social contact.

Cervero (1981) reported on a study to assess physicians' reasons for participating in CME. The Participation Reasons Scale (PRS) developed by Grotelueschen in 1979 to assess professionals' reasons for participating in continuing education was used to collect data. The thirty-four items were factored into four general categories. Those were to:

- 1) maintain and improve professional competence and service to patients,

- 2) enhance personal and professional position,

- 3) understand oneself as a professional, and

- 4) interact with colleagues.

They concluded that the reasons physicians participate in CME are more complex than previously thought.

Allington and Kouzekani (1988) reported on descriptive survey research of 451 physicians attending CME activities between 1985 and 1986. Those physicians covered a wide age range and sites of practice. Given the choice of nine sources for identification of the need for additional knowledge or skills the top five sources were: 1) new medical knowledge, 2) interest in related specialty, 3) outcome/complications of care, 4) survey of medical cases treated, and 5) interested in unrelated specialty. The top five of seven choices offered to obtain additional knowledge were: 1) medical literature (journals), 2) clinical conference, 3) discussion with colleagues, 4) formalized CME courses/seminars, and 5) formalized CME workshops. The median number of hours per month spent on obtaining new knowledge and skills was 18. Factors important in choosing formal CME activities included: 1) course topic(s), 2) course location, 3) course date(s), 4) course objectives, 5) course faculty, 6) recreational opportunity, 7) sponsoring organization, and 8) course fee. Approximately half of the 451 respondents felt that CME should be required for licensure or state society membership.

A major study reported by Fox, Maxmanian, and Putnam (1989) described three elements in a model to explain change and learning in physicians lives. The elements of the model were related to the reasons or forces which acted to cause physicians to change, the processes which bring about learning and change, and the types and magnitude of the change. CME was a major factor in changing and learning. A focus of the study was on learning as a part of the process of change. Findings indicated reasons cited for change related to learning as being part of the professional role, finding the subject matter interesting and validation of previous experience. Forces for change were described as coming from the personal, professional or social dimensions of life. Some elements which influenced learning were the stage of career, interest in the topic, desire for competency, personal and financial influences, site of practice, and regulations. The forces were found to interact with one being more central and powerful than another at any time. Learning was cited by two-thirds of the physicians as important to changing the ways they practiced or lived their lives. Learning was more important in the professional area of change than the personal or social. Learning was most often experiential. Formal rather than informal solutions were used in 75% of the cases when learning was in response to professional needs. Informal learning was used when changes were personal or social.

The literature reviewed on CME emphasized the role of education in the lives of practicing physicians. Education, both formal and informal was frequently used, and was important in both

the professional and in other aspects of their lives. Studies of physicians were generally in agreement with the general studies on continuing education in regard to who participates and why they participate.

Continuing Nursing Education

There was a large amount of literature regarding continuing nursing education (CNE). California was the first state to require CNE for relicensure. This came later than in many other professions. The law was passed in 1971 to take effect in 1975. Due to the complexity and controversy of the issue, there were many amendments and modifications to the law thus delaying the start until 1978. Nursing, as with other professions, saw the increase in MCE with more states requiring and considering it each year. The American Nurses Association has not supported the concept when it has come before the house of delegates. The issues were similar to those stated by other professions (Cooper, 1983).

One of the early studies reported on reasons nurses participate in continuing education was by O'Conner (1979). The sample included 843 registered nurses who participated in CNE. The EPS developed by Boshier and modified for this study was used as a data collection instrument. Seven factors were identified as motivations for participation. Those were: 1) Compliance with Authority, 2) Improvement in Social Relations, 3) Improvement in Social Welfare Skills, 4) Professional Advancement, 5) Professional Knowledge, 6) Relief from Routine, and 7) Acquisition of Credentials. When

data were examined to determine whether MCE influenced participation, there was no statistically significant difference found between those who were from states with MCE and those that were not. Motivations generally were primarily professional rather than social mandates.

Dolphin (1983) also reported on motivation for nurses to participate in CNE. Using a questionnaire designed by Sheffield called the Learning Orientation Index, 377 nurses attending CNE were surveyed. Data analysis revealed there were multiple attendance motivational factors. Many participants ranked more than one factor as being of highest importance. In descending order of importance, the factors were: 1) Increased Job Competence, 2) Documentation of Growth, 3) Peer Learning, 4) Learning, 5) Employer Requirements, 6) Community Improvement, 7) Community Service/Interaction, 8) Employee Benefits, 9) Social ability, and 10) Peer Pressure. There was a statistically significant difference in the responses of nurses who had baccalaureate degrees when compared with those who had diplomas or associate degrees in nursing. The latter group was more likely to be influenced by peer pressure or employee requirements than the former group.

Urbano, Jahns, and Urbano (1988) conducted a survey to determine what motivated nurses to participate in continuing education in a state with MCE for relicensure. The survey was based on the EPS developed by Boshier and a Continuing Education Participation Questionnaire which was used to determine what continuing education activities had been taken in the prior year.

They found that nurses who participated in MCE did so in the same pattern of motivational orientations as those who voluntarily participated in educational activities. They were motivated primarily by cognitive interest and a desire for professional advancement and competency. They were motivated to a lesser extent by a concern for mankind and even less by a need for social contact, social stimulation, or avoidance behavior.

DeSilets (1991) surveyed 866 registered nurses attending a national conference to determine motivations for participating in CNE. She found the most important reasons were to keep up with professional knowledge and skill and to be more productive in their professional role. Five factors emerged from this study. Those were: 1) Professional Improvement and Development, 2) Professional Service, 3) Collegial Learning and Interaction, 4) Personal Benefits and Job Security, and 5) Professional Commitment and Reflection.

A meta-analysis of 22 studies on reasons nurses participate in CNE was reported on by Waddell (1993). The purpose of the study was to aggregate the findings from the CNE participation literature through meta-analysis. All studies examined relationships between several independent variables such as demographics, beliefs, attitudes, motivational orientation (reasons for participation) and educational opportunity. Motivational orientations included external expectation, cognitive interest, professional advancement, social relationships, social welfare, and escape/stimulation. Cognitive interest explained the single largest variance at 12%. External expectations explained 11% of the variance. The other

factors explained an additional 23% of the variance. Overall, motivational orientation explained 46% of the variance. Demographics explained 25% of the variance with income and area of clinical practice explaining more (6% and 7% respectively) than any other single demographic. Personal characteristics explained a total of 12% of the variance and work life characteristics 13%. There was no difference between studies which reported data on states with MCE and those that did not. The study supported the position that motivational orientation influenced participation while other factors such as demographics and educational opportunity may mediate the degree of that influence.

Two reports were found related to reading activities of nurses. The authors were Gessner and Armstrong (Armstrong & Gessner, 1991, Gesner & Armstrong, 1993). The first was a national survey of 1406 Registered Nurses living in 44 sites in 25 states and the District of Columbia. The purpose was to determine what type of occupation-related and general literature they read, what time they devoted to reading, their purposes for reading, and the uses of the materials they read. The survey found that nurses read, purchase and subscribe to many magazines and journals. Seventy-seven percent subscribed to one or more nursing/health care journals, compared with 82% who subscribe to at least one general magazine. In total, they subscribe to significantly more general than professional literature. While libraries are accessible, respondents used them on a limited basis. Time spent on reading professional literature averaged 4.8 hours per week. The RN's also responded that their

supervisors did not support them in their pursuit of reading. Clinical journals, clinical books and health-related newsletters were the most frequent nursing materials read, newspapers and fiction books were the most popular general literature. The second report was on reading activities of 269 staff nurses in six states with MCE and 275 staff nurses from states that do not have MCE. The demographic variable that most influenced the time spent in reading was membership in professional associations. Time spent in reading both professional and general literature was obtained. Nurses spent twice as much time reading general literature as professional literature. Both groups (60% and 58%) stated that conferences and workshops were the preferred method of CNE. Reading was the second choice in MCE states (13%) and the third choice (13%) in voluntary states. Colleague exchange rated 12% for those living in states with MCE and 15% for those living in states without MCE. However, nurses in voluntary states spent slightly more time reading professional literature (a mean of 4 hours and 29 minutes a week) than those from states with MCE (a mean of 3 hours and 52 minutes a week) When asked to choose between four choices for reasons of reading, purposes chosen were similar for states with MCE and those without. Clinical journals and books were read to learn new information about practice (knowledge) and to become aware of new concepts, trends, and issues in the profession (keeping abreast). Clinical books were read to locate specific information about a particular topic and for general knowledge. Those motivations for

reading correlated closely with motivational factors identified by Morstain and Smart (1974) and O'Conner (1979).

In a study to determine the number and type of activities in which nurses in a MCE state participated, Gatson, Pucci, and Goodwin (1987) surveyed nurses in one large metropolitan area in a MCE state. They found self-directed learning projects were engaged in by 73% of those studied. The most frequent methods used were reading, demonstration, and experiential activities. Analysis of the survey responses indicated those activities were judged to be successful or very successful 96% of the time.

One study was found in nursing literature related to overcoming a specific barrier to CNE, distance from programs. St. Clair and Brillhart (1990) studied nurses in rural areas using self-directed material for CNE. The purpose of the study was to address one part of the evaluation that followed a pilot test of the first self-directed learning module in a self-taught educational program for nursing of the critical patient. The evaluation addressed a group of rural nurses' ratings of their perceived competencies as self-directed learners and of their sources of motivation. Sixty-two percent of those rural nurses rated themselves above the mean as self-directed learners regardless of perceived loci of control (internal or external). This information could be applied in planning programs in rural areas.

Retention of participants in a CNE program that had several sessions which extended over three years was reported on by Gilles and Pettengill (1993). Various strategies were employed to try to

foster retention. Reasons for withdrawal were solicited. The reasons for withdrawal were in five categories; 1) inadequate agency funds, 2) agency staffing problems, 3) inadequate time to attend a 2 1/2 day training session, and 4) personal/family emergencies. Program staff concluded that, without strong and continuing support from their employer, even highly motivated nurses would not maintain commitment to an extended time CNE program.

Interdisciplinary Continuing Education
for Health Care Professionals

Seven references detailing activities and results of three different continuing education programs designed for a multidisciplinary health care team were found in the literature. Six of the references (Harlan, et.al., 1980; Hein, et.al., 1975; Hein & Lathrop, 1989; Kattwinkel, et.al., 1979; Kattwinkel, et.al., 1984; & Nowacek, et.al., 1983) described three different programs of perinatal continuing education. The seventh (Donahue & Madigan, 1989) described a trauma symposium. In all of the programs the planning and implementation were carried out by a multidisciplinary team (physicians, nurses, and education specialists).

A perinatal outreach education program in Iowa was reported by Hein, et.al., 1975; and Hein & Lathrop, 1989. Hein, et.al. reported on evaluation of perinatal care practices in 72 Iowa community hospitals. An interdisciplinary team of perinatal health care providers visited hospitals to assess needs for improvement in perinatal care. A series of educational activities followed. A

review of data after the educational programs indicated an improvement in the care of the perinatal patients which paralleled a downward trend in infant mortality in the state. Hein and Lathrop reported on educational efforts in 39 Iowa hospitals on the topic of newborn resuscitation. Patient care was first evaluated by reviewing medical records according to pre-established performance standards. Following patient-care review, educational programs on this topic were offered to physicians and nurses. There was a statistically significant increase in the management practices of newborns needing resuscitation in eight aspects of the care. Only one area failed to show a significant change. The conclusions from those studies was that outreach education based on identified needs and related to specific standards of care, does change care which can ultimately be measured in lower infant mortality rates.

Harlan et.al. (1980) described a media-based self-instructional perinatal education program developed and field tested in rural and urban regions of Michigan. Cognitive tests, chart audits, and consultation/referral times were used to measure the impact of the education on patient care. It was demonstrated that the program effectively increased knowledge and improved patient care practices by physicians and nurses. It was concluded that a media-based, self-instructional format can improve perinatal care. One finding was that physicians in the rural areas had a 53% participation rate while in the urban region, there was no physician participation. While this did not affect the fact that changes in care occurred, several questions arose. Those were related to the role the

educational program had in the change when physicians did not participate, whether nurse education alone might create change in both urban and rural areas, and whether the practice is different in each of those areas and so change would not occur in rural areas unless both participated. No attempt was made to answer those questions in the study though some reasons for the differences in participation rates by the physicians in urban and rural areas and the effect participation may have on change were suggested.

Three published reports on the Perinatal Continuing Education Program (PCEP) were reviewed. Kattwinkel, et.al. reported on the design and implementation of a six-month perinatal education program. It was unique in that it was: (1) initiated by a hospital self-inventory through which patient care goals and corresponding equipment, services and personnel needs were identified; 2) entirely community hospital based except for a workshop held at the regional center for two community hospital staff nurses who subsequently coordinated the program in their hospital; 3) self-paced and self-instructional (five books covering 19 subjects and 20 skills); and 4) completed by nurses, physicians, and support personnel caring for the laboring woman and newborn. The program was administered to 77% of the total available perinatal health care professionals from nine community hospitals. Test scores improved by an average of 24 percentage points. The scores approached or exceeded a preset criterion level for the program. A review of over 1400 charts showed 12 of 28 care practices improved significantly. Performance of eight pre transport stabilizing activities increased

nearly 50%. It was concluded that a self-study, community-based program can improve knowledge and care practices of community hospitals. It was noted that there was a difference in completion rate of the program varying from a high of 81% of registered nurses who began to 13% of the pediatricians who began.

A second report on the PCEP by Nowacek, et.al, was reviewed. The purpose of this study was to evaluate the "transportability" (usefulness to other regional centers) of the program described in the afore mentioned report. Three kinds of data from seven regional centers were analyzed. Those related to 1) participation in the program by health care providers, 2) changes in cognitive knowledge, and 3) changes in newborn care practices. Data were obtained from 2735 program participants and from a retrospective chart review of 2781 medical records of babies born in participating hospitals who were determined to need special care. Analysis showed that results were comparable when the program was used by six regional centers in two different states. It was concluded that the PCEP was transportable. The completion rate varied from each of the regional outreach centers from 46% to 89% for all participants. When analyzed as to completion by physicians, registered, nurses, licensed practical nurses, and nursing aides, completion rates varied from a cumulative completion rate of 72% by registered nurses to 59% by physicians. Patient care practice changes were statistically significant in six of the seven centers.

After modifying the program due to findings in early trials, the PCEP was again reported on by Kattwinkel, et.al. (1984) In that report the purpose was to describe a test of a follow-up program which was essentially similar to the initial PCEP, but had updated information, three self-instructional books, deletion of the pre-program inventory and the period of time from recruitment for participation to completion shortened. A self-survey of "recommended routines" from the program was added to be completed prior to the end of the self-instructional book component. A decline in mean knowledge scores between programs was found for those who took the program a second time. Higher pre test scores were attained by new participants in hospitals taking the program a second time than participants had achieved the first time the program was offered in a hospital. A review of 1435 hospital charts found a plateau of patient care quality between programs, and a further improvement in patient care quality after the follow-up program. That data indicated changes in knowledge and care practices continued after the initial program even when new staff were tested and provided the care. It was concluded "that a follow-up program is best accepted after three years but that timing is not critical. Evaluation measures suggest that new knowledge and care practices became institutionalized as a result of the program and that altered care practice are not only a result of improved performance by individuals" (p. 335). The percentage of those completing the program varied from 50% for physicians who took it for the first time or repeated to 100 percent for nurses aides who

repeated the program and 89% for registered nurses who took it for the first time. A group of "other" care givers was included in analysis. Those were respiratory therapists, and operating room, pediatric, and in-service education nurses. Seventy one percent of those in this group who repeated the program completed it and 67% of those taking it for the first time. The overall completion rate for all taking the program was 73% for those repeating it and 71% for those taking it the first time. The overall completion rate for the basic program was 65%.

Harris, Yates, and Crosby (in press) reported on a study of the PCEP in Oklahoma. This study found an increase in knowledge when an interdisciplinary group of health care providers took the program in 24 hospitals of various sizes across the state. Those findings were consistent with earlier studies on the program. Medical records were reviewed in 12 of the those hospitals to determine whether changes in health care practices occurred which were persistent over a longer period than in the previous studies. The data were collected from medical records completed prior to taking the program and beginning one year after completion of it. Two health care practices contained in the PCEP did increase at a statistically significant rate. Three others showed clear trends for increasing use but did not increase at a significance level of $p = .05$. The study again demonstrated the transportability of the program and also long term changes in care which might be attributed to the continuing education program.

The sole interdisciplinary program reviewed outside of the perinatal care area was reported by Donahue and Madigan (1989). That report described the process of planning for a joint continuing education program for physicians and registered nurses in the area of trauma. It was the consensus of the interdisciplinary planning committee that medicine and nursing could collaborate to plan and implement a continuing education activity. However, no data from the program were presented for analysis.

This literature indicated interdisciplinary continuing education for health care providers was being used though in a limited manner. When used there appeared to be satisfaction with the product, increased in knowledge and changes in care practices.

Summary

There was much literature pertaining to continuing education in general, professional continuing education, and continuing education for health care professionals. Most of the literature related to participation and evaluation of satisfaction and numbers of those participating. There was a beginning of analysis of outcome of the programs. There was scant literature to describe and relate factors which might be used to predict who will complete an educational program, especially when that program involves endurance over a period of time.

CHAPTER III

METHODOLOGY

The purpose of this study was to identify relationships among selected personal, professional, and environmental factors present in an interdisciplinary group of health care providers and to determine which of those may predict successful completion of a comprehensive perinatal continuing education program. Personal factors included age, personal motivation for participation in the continuing education program, change in level of knowledge, and satisfaction with the education. Professional factors were discipline of practice, the length of time in the area of practice, professional motives for participation, and whether participants took an earlier version of the program. Environmental factors included location of the health care facility (metropolitan or non metropolitan area), size of the obstetrical service, presence of a policy which encouraged or required enrollment, and sources of funding for continuing education.

The research questions addressed in this investigation were:

1. What personal, professional, and environmental factors correlate statistically with completion of a systematic continuing education program in perinatal care?
2. What group(s) of factors is (are) most predictive of completion of a comprehensive continuing education program of perinatal care in Oklahoma?

Chapter III describes the research design; study population and sampling techniques; procedures used including instrumentation, data collection and protection of human subjects; and the methods of data analysis.

Research Design

The study design was survey research. In survey research samples of populations or populations are studied to discover specific characteristics about the population. This includes the relative incidence, distribution and interrelationships of sociological and psychological variables (Kerlinger, 1986). Sociological facts and attributes are derived from belonging to a social group(s). Characteristics include occupation, age, place of work, and the community in which people live and work. Psychological variables include attitudes and behavior. Relationships between these variables are studied in survey research.

Study Population and Sampling

Approximately 100 hospitals in Oklahoma provided maternity services in 1993. Ninety of them had participated in the Perinatal Continuing Education Program (PCEP) at least once since 1984. The population consisted of all those who enrolled and began PCEP in Oklahoma during the period of January, 1993 and October, 1993. That included 494 nurses and 95 physicians for a total population of 599. The program takes approximately four months to complete on average.

Therefore, the subjects all completed the program between May, 1993 and February, 1994. A convenience sample was used in this study.

Those enrolled in PCEP during this time period worked at 18 different hospitals throughout the state of Oklahoma. Four of the hospitals had never had the program offered at their hospitals. The remaining 14 had staff enrolled for the second time (2 hospitals) or third time (12 hospitals). The hospitals were chosen because of their interest in taking the program and because it had been three or more years since taking the program. PCEP is designed to be repeated at three to four years intervals (Kattwinkel, et.al., 1984). Those who have taken the program before generally express interest in repeating it and are scheduled on a rotating basis with other hospitals depending on the time since the previous participation, expressed interest, and ability to schedule them. Each year participation is limited to 24 hospitals in the state due to constraints of staff and time to coordinate the program from the University of Oklahoma Health Sciences Center (OUHSC). Hospitals which had staff taking the program for the first time were recruited into the program by personal contact of the two nurses from OUHSC who coordinated the program in the state. That was done by periodically visiting hospitals in the state that deliver babies.

Participants in this study came from the following hospitals.

Baptist Regional Hospital, Miami;

Bartlett Memorial Hospital, Sapulpa;

Clinton Regional Hospital, Clinton;

Comanche County Memorial Hospital, Lawton;

Craig General Hospital, Vinita;
Elkview General Hospital, Hobart;
Grady Medical Center, Chickasha
Grove General Hospital, Grove;
McAlester Regional Hospital, McAlester;
Memorial Hospital of Southern Oklahoma, Ardmore;
Mercy Health Center, Oklahoma City;
Norman Regional Hospital, Norman,
Presbyterian Hospital, Oklahoma City;
Reynolds Army Community Hospital, Fort Sill;
St. Mary's Hospital, Enid;
Southwest Medical Center, Oklahoma City;
University Hospital, Oklahoma City
Valley View Regional Hospital, Ada;

When the PCEP was offered in a hospital in Oklahoma during 1993, physicians and nurses were enrolled in the program and in the research. Other personnel who care for pregnant women and/or newborns may also have participated. Those in the other category included one certified nurse midwife, one paramedic, and two physician's assistants. Because the number of participants in the "other" category was so small, they were not included in data analysis. The decision as to which personnel took the program was made by the hospital and/or the individual. Some hospitals required all nurses working on the maternity service to enroll. Others offered the program, but made taking it an option. A total of 494 nurses both registered nurses (RN) and licensed practical nurse

(LPN) were enrolled in the program through book purchase. Of those, 434 returned program material used for data analysis for this study.

Physicians who care for pregnant women and/or newborns were offered the opportunity to participate by PCEP staff from OUHSC. Individual hospitals did not require them to participate. Physician enrollment in PCEP was enlisted through telephone contact by one of two physicians (a perinatologist or a neonatologist) from OUHSC to a medical representative at each hospital. After that contact, personal letters were sent to each physician asking them to participate in PCEP and inviting them to a meeting held at their hospital at the beginning of the program. Approximately 175 physicians delivered babies and/or took care of newborns in the 18 hospitals. This number excluded medical resident physicians and faculty who worked at one of the hospitals. One hundred and nine purchased the course materials and thus were enrolled in the program. Of those, 48 turned in course material and were considered participants in the study.

At the time of the meeting, program materials were distributed to those who participated. Nurses taking PCEP met to discuss the program in a separate meeting, usually the same day as the physicians. The researcher requested participation in the research at the first meetings of the physicians and nurses. The sample consisted of a convenience sample from all who enrolled in PCEP in Oklahoma in the period from January through October, 1993 and agreed to participate in the study. A total of 482 physicians

and nurses returned program material used in analysis for this study.

Procedures

Instrumentation

Data were collected through the use of three different instruments. One was developed specifically for this research. The others were a regular part of the educational program.

The instrument developed specifically for this research was a one-page questionnaire related to motivations for participation. (Appendix B). The questionnaire was developed from a review of the literature related to motivation to participate in adult education. Specifically the items were taken from the work of O'Conner (1979) which identified seven factors that motivated participation in continuing nursing education. In order to have a one-page questionnaire which was easily answered, items were taken from each of the seven factors with slight modification. Face validity was agreed upon by four experts. That included two nurses and one physician who had taken PCEP in the past and the chairman of this researcher's dissertation committee. Appropriate changes were made as suggested.

For the purpose of analysis, items on the questionnaire were divided into personal, professional, and environmental factors. Items 1, 2, 4, and 5 were categorized as professional factors. Item 3 was analyzed as an environmental factor, and items 6 and 7 were considered personal factors.

The instruments which were part of PCEP included a 100-item test of knowledge which was used as the pre and the post test. Test scores and demographic information about the individual were collected from the information sheet on the tests (Appendix C). Test scores and age were analyzed as personal factors. Discipline of practice (nurse or physician), years of experience, and prior program participation were categorized as professional factors. The location of the hospital (metropolitan or non metropolitan) and size of the obstetrical service were considered environmental factors. Evaluations which were in the back of the self-study manuals included in the program which were completed on finishing the material were also included in the analysis (Appendix D). Book evaluations were scored from 1-7 for each item with one being the lowest score and seven being the highest. Those scores were then totaled to determine satisfaction with the program. The score from the last book completed was analyzed under personal factors as program satisfaction. The place of study (home, work, or elsewhere) was analyzed as an environmental factor.

Participants took the pre test when they enrolled in the program. They then completed the educational material in the self-study manuals which are the main portion of PCEP. During the course of the program, PCEP faculty from the OUHSC visited the participating hospital four times. The first visit was to introduce the program to the staff and enlist participation in it. The second and third visits were to provide skills workshops to the participants. The last visit was to get feedback on the program,

present a case study which required use of information in PCEP and hand out certificates of completion. If participants were not finished at the time of the last meeting, they were allowed to complete it later. This was usually done within one month of the final meeting date.

The test materials used in PCEP were evaluated for content validity and reliability by the original authors of the program. Criterion estimates for the original tests were set by administering it to two groups. One was a select group of nurses working in an intensive care unit for newborns (the expert group). The other was a group of undergraduate college students (the naive group). Neither group had prior exposure to the program (Kattwinkel, et.al., 1979). Each time the program was updated, this test for knowledge has been re-evaluated. Content for the program was divided into six different areas. Test items were constructed with the number of items weighted according to the amount of content in the program related to the test area. Item analysis was carried out to determine the level of difficulty and discrimination for each item. Reliability of the test has ranged from .86 to .92 for the various areas of the tests used with the program (G. A. Nowacek, personal communication, January 20, 1994).

Data Collection

Data were collected from January 1993 through February, 1994. Potential participants were contacted regarding the research during

the initial contact of the researcher with them as they began PCEP or by one of two nurses from each hospital who coordinated the educational offering in the hospital where she worked. The latter method was used only if the potential subject did not attend the initial meeting of PCEP in the hospital. The research was verbally explained by the researcher and questions answered in cases where there was face-to-face contact. A letter explaining the research was distributed along with a form granting permission to participate. All subjects were given a copy of that letter (Appendix A).

After the signing of the consent form, subjects were asked to complete the one-page questionnaire on motivations for participation (Appendix B). Those were then collected by the researcher or the nurse coordinator in each hospital.

Other data were collected from course materials. That included information collected when the pre test and post test were completed. Information on those tests consisted of the age, occupation, length of time in the occupation, whether or not they had taken the program before, and test scores. The nurse coordinators at each hospital were asked to collect book evaluations as they collected other course material. Physicians either turned their program material in to the nurses coordinators who sent them to the OUHSC PCEP staff or mailed them directly to OUHSC. That was the usual procedure for taking the program. The only difference was that the participants were asked to put their names on the

evaluations in order to match the evaluation with other material collected.

Information regarding the hospital was obtained by direct questioning of the nurses coordinating the program in each hospital. This included the data regarding the number of deliveries each year and method of payment for the course.

Protection of Human Subjects

The data collection required participants to put names on the various data collection instruments. It was explained that participation in the research was voluntary and that all identifying information would be removed during data entry so that no one would be identified as an individual. Voluntary written consent was obtained prior to use of the data.

Approval for human subject participation was obtained from two sources. Oklahoma State University Institutional Review Board approval was sought as this was the institution granting the degree. (Appendix E). The University of Oklahoma Health Sciences Center Institutional Review Board granted approval as this is the institution where the researcher was employed and which offered the program from which subjects were drawn (Appendix F).

Data Analysis

An alpha level of $p = .05$ was set as the level of significance for the study. Two analysis phases were performed to meet the purpose of the study. The first was correlational analysis and

analysis of covariance (ANCOVA) between personal, professional, and environmental variables with those indicative of completion and non completion.

ANCOVA is a form of analysis of variance that tests the significance of differences among means of experimental groups after taking into account initial differences among the groups and the correlation of the initial measures and the dependent variable measures (Kerlinger, 1986, p. 339).

It includes statistical synthesis of many types of analysis including factor analysis, multiple regression, and path analysis.

The second phase was discriminant analysis between selected factors and completion. Discriminate analysis is carried out to discriminate groups one from the other on the basis of the sets of measures. It is closely related to multiple regression. It may be used to assign individuals to groups on the basis of the measures taken. Discriminate analysis addresses itself to assigning individuals to groups on the basis of several variables. It gives the "best" prediction of the "correct" group membership of each experimental unit (Kerlinger, 1986). Selected variables used were personal factors (age, personal reason score or completion of the personal reason survey items, pre test score, and program satisfaction), professional factors (discipline of practice as nursing or medicine, work experience, professional reasons or completion of professional reasons survey items, and prior program participation), and environmental factors, location of the hospital as metropolitan or non metropolitan, number of deliveries, place of study, and belief was complying with hospital expectations). Data were analyzed using Statistical Analysis Software (SAS, 1988).

In phase one, Pearson product moment correlations were performed on the selected factor groups using the pooled within-groups correlation matrix obtained from discriminant analysis. Correlations between other variables and pre and post test scores were determined from Pearson product moment correlations also. Analysis of covariance procedures were used to ascertain the effect of major variables on post test scores using pre test score as the covariant. The model used was a split-split plot design with metropolitan versus non metropolitan as a major factor with hospital and source of payment defining the sub factors. The personal factors of discipline and prior course participation were subfactors of hospital. Since some of the variables were not selected, the factors of book payment source, discipline and past course participation were considered as random effects. Appropriate interaction terms were used as error terms for analysis. Analysis of variance was also used to investigate completion rates following the calculation within sub-groups.

In phase two, discriminant analysis was used to develop models for predicting completion. Sub-populations were defined for selected factors and excluded any missing data. Variables were then evaluated for normality and homogeneity of variance-covariance matrices. Variable selection methods were also used to develop discriminant functions from a group of factors which maximized the size of the subpopulations. For those situations, variables were added in a stepwise fashion to develop the function. Variable selection was checked by a backward selection.

CHAPTER IV

FINDINGS AND ANALYSIS OF DATA

The purpose of this research was to identify relationships between several personal, professional, and environmental factors present in an interdisciplinary group of health care providers and to determine which of those may predict completion of a comprehensive perinatal continuing education program. The research questions were: (1) What personal, professional, and environmental factors correlate statistically with completion of a comprehensive continuing education program in perinatal care? (2) What group(s) of factors is (are) most predictive of completion of a comprehensive continuing education program of perinatal care in Oklahoma? This chapter will include a description of the sample and presentation of the data with a discussion of the findings related to the research questions.

Description of the Sample

Data were analyzed on a total of 482 subjects. Of those, 434 were nurses and 48 were physicians. The average age of all participants was 39.2 years with an age range for the total sample of 20 to 67. Nurses were at both extremes. Years of experience averaged for nurses and physicians was similar with 12.4 and 12.1 respectively. The range of experience was from less than one year

to 44 years. Again data on nurses were at the extremes of this range. Over half (53.9%) of the sample were taking the program for the first time. The remainder were taking it for a second or third time. This was more likely to be true of nurses than physicians. Nurses were more than three times as likely (76.7% versus 23.3%) to be registered nurses (RN) as licensed practical nurses (LPN) (Figure 1). Forty-eight nurses did not specify a classification of nursing as either RN or LPN. Family or general practice physicians comprised over half (58.5%) of physician participants. Figure 2 graphically presents the percentage of physicians in each specialty area (obstetrics, pediatrics, and family medicine). Seven physicians did not specify an area of practice. Table I contains data related to demographic characteristics of the subjects.

Data were further analyzed in relation to location of the hospital where the nurses and physicians practiced (Table II). Location was defined as metropolitan or non metropolitan. From the total of 18 Oklahoma hospitals included in the study, there were five hospitals classified as metropolitan (Mercy Health Center, Presbyterian Hospital, Southwest Medical Center, University Hospital, all in Oklahoma City and Norman Regional Hospital in Norman). The 13 that were classified as non metropolitan included: Baptist Regional Hospital, Miami; Bartlett Memorial Hospital, Sapulpa; Clinton Regional Hospital, Clinton; Comanche County Memorial Hospital, Lawton, Craig General Hospital, Vinita; Elkview General Hospital, Hobart, Grady Medical Center, Chickasha, Grove

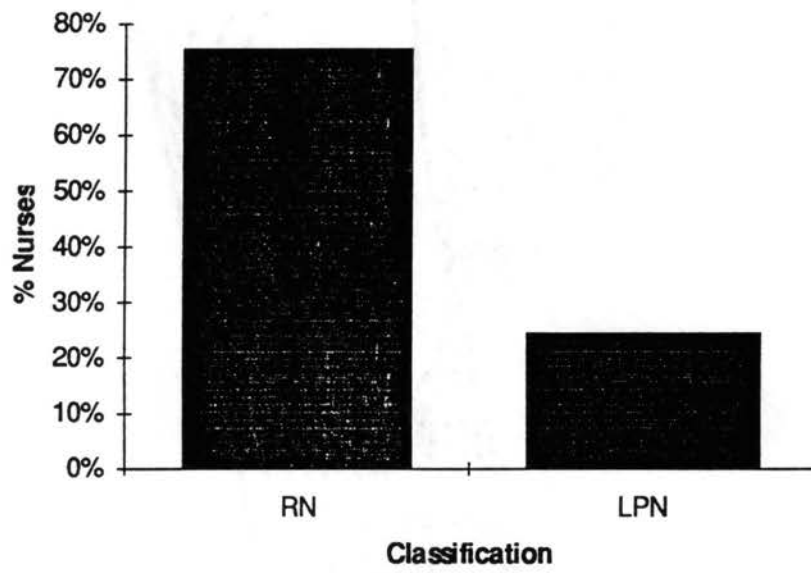


Figure 1. Summary of Nurses Classification

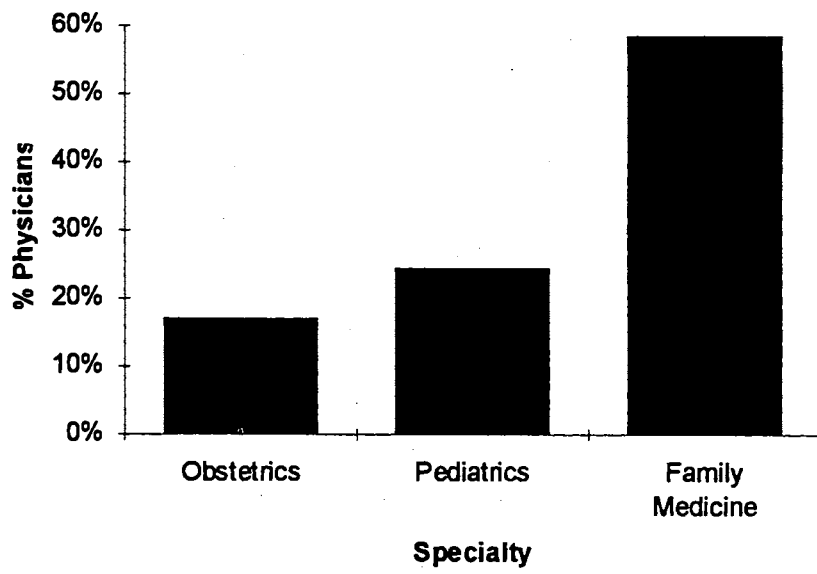


Figure 2. Summary of Physician Specialities

TABLE I
 DEMOGRAPHIC ATTRIBUTES OF STUDY POPULATION
 (N=482)

Attributes	Nurse	Physician	Total n, Range, Percent
n	434	48	482
Median Age	38.9	40.9	20-67
Median Experience	12.4	12.1	0-44
Past Participation	203	5	47.1%
Nurse Classification			
RN	312	-	76.7%
LPN	94	-	23.2%
Physician Specialty			
Obstetrics	-	7	17.1%
Pediatrics	-	10	24.4%
Family Medicine	-	24	58.5%

TABLE II
 METROPOLITAN AND NON METROPOLITAN ATTRIBUTES
 OF STUDY HOSPITALS
 (N=18)

Attributes	Metropolitan	Non Metropolitan	Total n, Range, Percent
n	5	13	18
Mean deliveries per year	1560	478	117-2897
Times program offered in a hospital			
1	0	4	22.2%
2	1	0	5.6%
3	4	9	72.2%

General Hospital, Grove, McAlester Regional Hospital, McAlester, Memorial Hospital of Southern Oklahoma, Ardmore; Reynolds Army Community Hospital, Fort Sill, St. Mary's Hospital, Enid; and Valley View Regional Hospital, Ada. Annual deliveries, using 1992 as a reference year, in the metropolitan hospitals averaged more than three times higher (1560 versus 496) than in the non metropolitan hospitals. The range for all hospitals was 117-2,897. All of the metropolitan hospitals were participating in the continuing education program for the second (1) or third time (4). The non metropolitan hospitals were participating for the first time (4) or the third time (8).

Data regarding metropolitan and non metropolitan hospitals were further divided into categories according to whether or not nurses and physicians worked in metropolitan or non metropolitan hospitals, had taken the program before, and the source of payment for the program for each of these groups (Table III). One hundred-seventy-six of the nurses worked in metropolitan hospitals and 258 in non metropolitan hospitals. The physicians included six from metropolitan areas and 42 from non metropolitan areas.

Figure 3 graphically presents the distribution of physicians and nurses between the metropolitan and non metropolitan hospitals.

This demonstrates there were more physicians and nurses participating in the eight non metropolitan hospitals than in the metropolitan ones. It was also found that nurses and physicians in the metropolitan areas were more likely to have taken the program before. Nearly half of the nurses (87 of 176) and one third of the

TABLE III
 METROPOLITAN AND NON METROPOLITAN ATTRIBUTES
 OF STUDY POPULATION
 (N=482)

Attributes	<u>Metropolitan</u>		<u>Non Metropolitan</u>		Total, n, Percent
	Nurse	Physician	Nurse	Physician	
n	176	6	258	42	482
Past Participation	87	2	116	3	47.2%
Book Payment Source					
Hospital	96	0	249	27	77.2%
Participant	43	6	0	15	13.3%
Hospital and Participant	37	0	9	0	9.5%

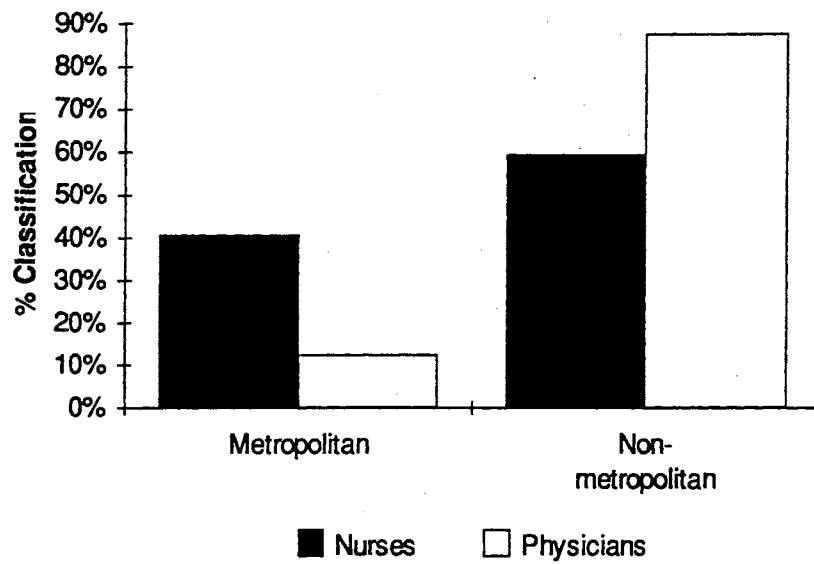


Figure 3. Distribution of Physicians and Nurses Between Non-Metropolitan and Metropolitan Hospitals

physicians (2 of 6) in the metropolitan area had done so. Half (116 of 258) of the nurses in the non metropolitan hospitals and fewer than 10% of the physicians in these hospitals (3 of 42) had taken the program before. The most frequent source of payment for the program was the hospital (77.2% of the time). The participant paid the total cost of the program, \$65 or \$75 (depending on whether a three book or four book program was used), 13.3% of the time. The hospital and the participant shared in the payment for the program 9.5% of the time (Figure 4). In the metropolitan area this meant the hospital paid for the program for 96 nurses, while 43 nurses paid for their own program and the hospital split the payment with 37 nurses. All physicians in metropolitan areas (6) paid for the program themselves. In the non metropolitan areas the hospital paid for the nurses program in most instances paying for 249 of the nurses while nine shared the cost between the hospital and the participant. The hospital also paid for nearly two thirds of the physicians in the non metropolitan areas (27 of the 42) while the remaining 15 paid for their own.

An overall summary of the data collection is given in Table IV. Completion rates varied from 74.4% for the nurses and 41.7% for the physicians. Pre and post test scores had similar increases of 12.3 points for nurses and 12.7 points for physicians. Mean scores for nurses were lower than physicians for both of the tests. The questionnaire on reasons for participation was completed fully or in part by 327 of the 482 participants. However, not all subjects completed all items on this survey. There were four items related to

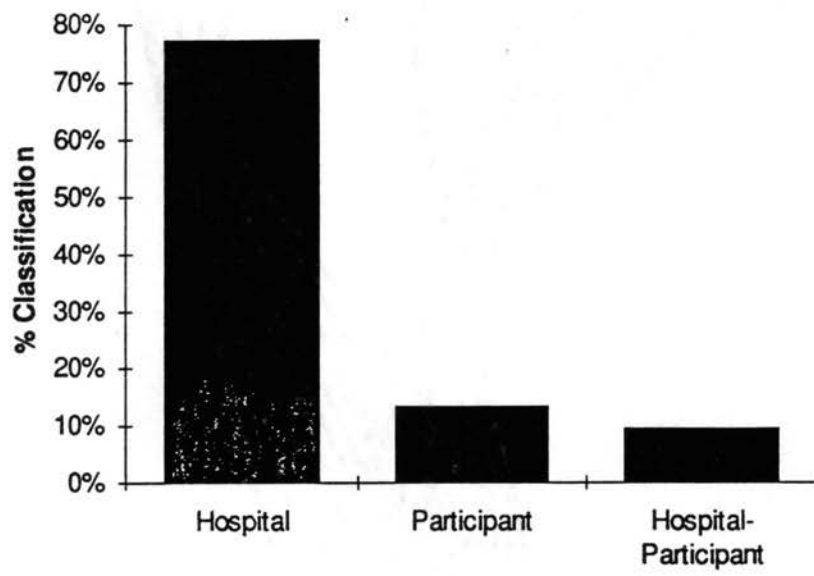


Figure 4. Frequency of Book Payment Sources

TABLE IV
 SUMMARY OF COMPLETION, PRE TEST AND POST TEST
 SCORES AND EVALUATIONS
 (N=482)

Attributes	Nurse	Physician	Percent, Range, Total
Course Completion	74.4%	41.7%	71.2%
Mean Pre Test Score	65.4	72.2	35-91
Mean Post Test Score	77.7	84.9	40-99
Completed Personal Reasons	67.3%	66.7%	324
Completed All Reasons	66.8%	66.7%	322
Completed Satisfaction Survey	73.7%	54.2%	346
Either Reason or Satisfaction Survey	82.7%	81.2%	398

professional reasons for participation, two for personal reasons and one for hospital expectations or environmental reasons. A total of 398 subjects responded by completing at least one satisfaction survey (book evaluation) and/or the reason for participation survey. Because of the number of participants returning each of the different data collection instruments, the number of subjects for each variable analyzed is different.

Results Related to the Research Questions

In analysis of the data, correlations were drawn between participants and hospital attributes and the pre and post test scores of the subjects (Table V). When Pearson's correlations were carried out using the age of the participants, it was found that there was a slightly negative correlation with both the pre and post test scores. Experience while having a slightly positive correlation with the pre test score had a negative correlation with the post test score. Neither age nor experience were found to be significantly correlated with test scores. All of the personal, professional and environmental (hospitals expectation) reasons individually and as a group had a negative correlation with both test scores. The correlation of hospital's expectations was the only one that was significantly correlated ($P < 0.05$) with either test score and that was the pre test only. Program satisfaction, number of times the hospital had participated in the program before, and the size of the obstetrical service as measured by the number of deliveries per year were all positively correlated with both test

TABLE V
 CORRELATIONS BETWEEN PERSONAL AND HOSPITAL ATTRIBUTES,
 AND PRE TEST AND POST TEST SCORES

Attributes	Pre Test Score Correlation	n	Post Test Score Correlation	n
Age	-0.017	409	-0.057	317
Experience	0.081	440	-0.032	337
Participation Reasons	-0.034	307	-0.019	274
Professional	-0.028	308	-0.008	275
Personal	-0.011	309	-0.014	275
Hospital Expectations	-0.117*	309	-0.065	275
Program Satisfaction	0.189***	338	0.096*	309
Past Hospital Participation	0.209***	454	0.069	343
Deliveries Per Year	0.233***	454	0.212***	343

* p < 0.05
 ** p < 0.01
 *** p < 0.001

scores. All but past hospital participation were significantly correlated with the post test score. Pre test scores were significant at $P < 0.001$ for each of the variables. Program satisfaction was significant at $P < 0.05$ for the post test. The size of the delivery service remained significant at $P < 0.001$ for the post test score.

Data Analysis Related to

Research Questions

Research Question 1. What personal, professional, and environmental factors correlate statistically with completion of a comprehensive continuing education program in perinatal care? Of the 482 cases, 174 were dropped for analysis of personal factors due to missing data. Predictor variables in this category included age, completion of the personal reason survey items, pre test score, and program satisfaction. All of the predictor variables were significant ($P < 0.05$) and were included in the discriminate function. Of all of the selected variables, program satisfaction was found to be significantly correlated ($P < 0.01$) with the pre test score. Completion of the personal reason survey items had the highest correlation with the discriminate function for predicting course completion. The pre test score had a correlation intermediate between age and program satisfaction (Table VI).

Due to the fact that each of the variables had different coefficients, they were standardized for further analysis (Table VII). Examination of the standardized discriminant coefficients

TABLE VI

PERSONAL FACTORS RELATED TO COMPLETION AND NON COMPLETION OF A
 PERINATAL CONTINUING EDUCATION PROGRAM: POOLED WITHIN
 GROUPS CORRELATION MATRIX

Attributes	POOLED WITHIN GROUPS CORRELATION MATRIX					P
	Age	Completed Personal Reasons	Pre Test Score	Program Satisfaction	Variable Correlation	
Age	1.000	---	---	---	0.384	0.013
Completed Personal Reason	-0.068	1.000	---	---	0.692	0.000
Pre Test Score	-0.0411	-0.094	1.000	---	0.423	0.006
Program Satisfaction	-0.018	0.036	0.165**	1.000	0.368	0.016

* p < 0.05

** p < 0.01

*** p < 0.001

P = 0.000

Eigenvalue = 0.141

Canonical Correlation = 0.352

N = 309

TABLE VII
CANONICAL DISCRIMINANT FUNCTION COEFFICIENTS
FOR PERSONAL FACTORS
(N=309)

Attributes	Unstandardized Coefficients	Standardized Coefficients
Constant	-8.6866	---
Age	0.0505	0.4602
Completed Personal Reasons	1.9372	0.7578
Pre Test	0.0400	0.4653
Program Satisfaction	0.0643	0.2723

indicated completion of the survey on individual reasons for participation contributed most to course completion. Age and pre test score were similar in magnitude for the standardized coefficients. The positive correlation between program satisfaction and pre test score (Table VI) indicated that the contribution of both variables in discriminating between completors and non completors is shared. The discriminant function was modestly able to predict outcome, eigenvalue = 0.141, and moderately correlated to the groups of the personal factors considered, canonical correlation = 0.352. The relationship between a modest eigenvalue and moderate canonical correlation to the data are indicated in Figure 5 by the broad and overlapping distributions of the discriminant scores for completed and not completed. Within the fitted population, 75.7% of cases were correctly classified as to whether they would complete or not complete the program.

Professional factors used to predict successful course completion were then analyzed. Those included discipline (nursing or medicine), years of experience, whether or not the individual subject had taken the program before, and professional reasons as given on items 1, 2, 4, and 5 of the questionnaire (Table VIII). Only one of the professional variables was found to be significant for discriminating between completors and non completors. That was years of work experience ($P = 0.002$). The function obtained from all professional factors, however, has a small eigenvalue and canonical correlation indicating little association between discriminant scores and completion even though the mean values of

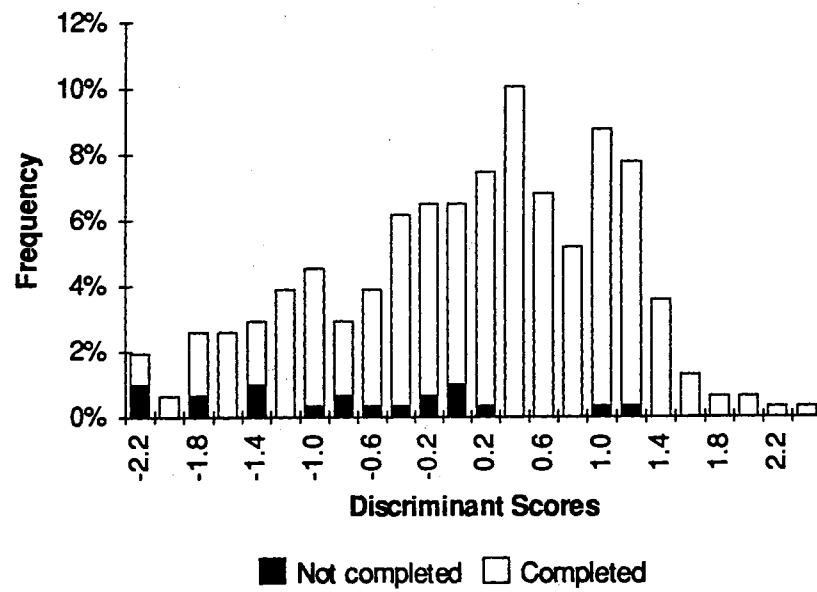


Figure 5. Canonical Discriminant Score Distribution for Personal Factors Evaluated at the Group Means of Completed and Not Completed

TABLE VIII

PROFESSIONAL FACTORS RELATED TO COMPLETION AND NON COMPLETION
OF A PERINATAL CONTINUING EDUCATION PROGRAM:
POOLED WITHIN GROUPS CORRELATION MATRIX

POOLED WITHIN GROUPS CORRELATION MATRIX						
Attributes	Discipline	Experience	Past Participation	Professional Reasons	Variable Correlation	P
Discipline	1.000	---	---	---	-0.182	0.561
Experience	-0.060	1.000	---	---	0.959	0.002
Past Participation	-0.171**	0.359***	1.000	---	0.134	0.668
Professional Reasons	-0.033	-0.026	0.120*	1.000	0.000	0.999

* p < 0.05
** p < 0.01
*** p < 0.001

P = 0.040
Eigenvalue = 0.035
Canonical Correlation = 0.184
N = 293

the discriminant functions were different ($P < 0.05$). Of the professional factors, only experience was included in the stepwise addition of the variables. The resulting function had an average canonical correlation of 0.18 indicating poor prediction power of the function. Within this sub-population, past course participation was modestly correlated with discipline and moderately correlated with work experience. The poor prediction of this function is best depicted in Figure 6. The broad and overlapping distributions of the discriminant scores for completed and not completed display the close group centroids: -0.61 for those which did not complete the course and 0.06 for those who did complete the course. Within the fitted population, only 56.5% of the cases were correctly classified as to who would complete or not complete the program.

Environmental factors analyzed for prediction of successful course completion included location of the hospital (metropolitan and non metropolitan), size of the obstetrical service, place of study, and the hospital expectations for participation as given in item three of the survey on reasons for participation. In examining the environmental factors, only 274 participants did not have missing data thus reducing the number of cases analyzed in this category (Table IX). The discriminant functions obtained from those variables were not significant for prediction of completion even though a multivariate population was indicated (multivariate analysis of variance, $P < 0.05$). The size of the obstetrical service was correlated to the location of the hospital with larger services in the metropolitan areas. The need to comply with

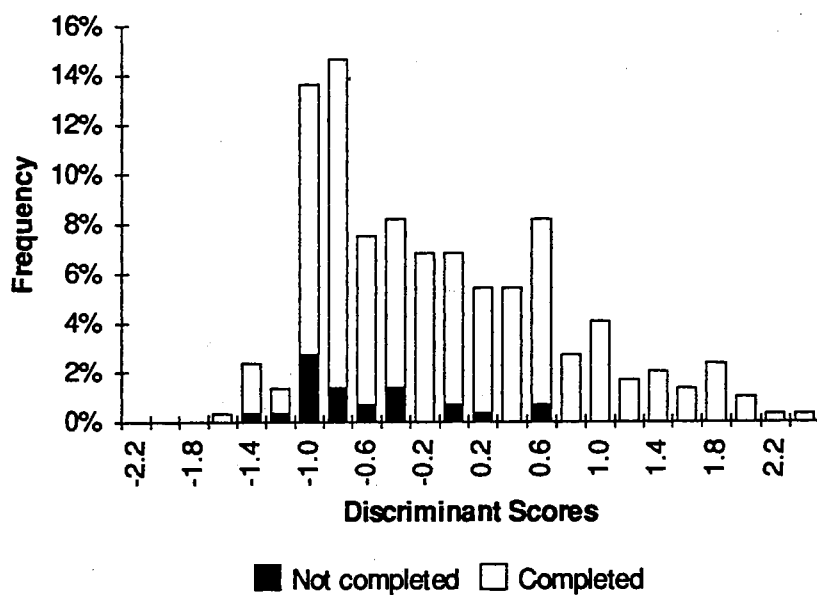


Figure 6. Canonical Discriminant Score Distribution for Professional Factors Evaluated at the Group Means of Completed and Not Completed

TABLE IX
 ENVIRONMENTAL FACTORS RELATED TO COMPLETION AND NON COMPLETION
 OF A PERINATAL CONTINUING EDUCATION PROGRAM:
 POOLED WITHIN GROUPS CORRELATION MATRIX

Attributes	POOLED WITHIN GROUPS CORRELATION MATRIX					Variable Correlation	P
	Metropolitan vs Non Metropolitan	Size of Service	Place of Study	Comply with Hospital Expectations			
Metropolitan vs Non Metropolitan	1.000	---	---	---	0.312	0.375	
Size of Service	-0.650***	1.000	---	---	3.364	0.300	
Place of Study	-0.098	-0.47	1.000	---	0.088	0.802	
Comply with Hospital Expectations	0.268***	-0.202***	-0.042	1.000	-0.469	0.183	

* p < 0.05

** p < 0.01

*** p < 0.001

P = 0.094

Eigenvalue = 0.030

Canonical Correlation = 0.170

N = 274

hospital expectations was also correlated with location of the hospital and size of the service. The belief that one needed to take the program to comply with hospital expectations was more common in smaller services in non metropolitan areas. The lack of prediction of this function is depicted in Figure 7. The broad and overlapping distributions of the discriminant scores for completed and not completed display the close group centroids 0.63 for those which did not complete the course and -0.05 for those who did complete the course. Within the fitted population, only 64.4% of the cases were correctly classified as to completion or non completion.

Seventy-five subjects wrote comments on the survey on individual reasons for taking the program. The largest number of those related to professional reasons of increasing knowledge, keeping up to date, to obtain or renew certification, and being able to better care for patients (42). Fourteen commented that it was required by their hospital. Personal reasons related to having all members of the department learning the same thing and liking the area of nursing and wanting to learn about the topic area accounted for ten comments. The remainder of the comments were harder to categorize into the three main factors. Those included "Because it's there" by one physician who did not turn in any other program material, "I am eight weeks pregnant", and "I have done it before and am looking forward to doing it again". The comments generally fell under items already on the questionnaire and therefore, were not used in data analysis.

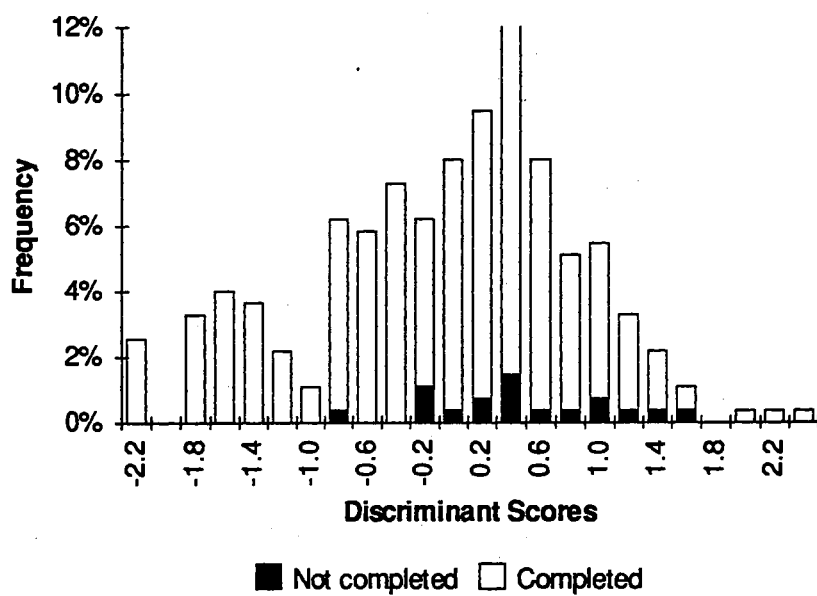


Figure 7. Canonical Discriminant Score Distribution for Environmental Factors Evaluated at the Group Means of Completed and Not Completed

Research Question 2. What group(s) of factors is (are) most predictive of completion of a comprehensive continuing education program of perinatal care in Oklahoma? The best factors for predicting completion found by stepwise discriminant analysis were metropolitan versus non metropolitan location of the hospital, years of experience of the individual, source of payment for the program and completion of any written response such as book evaluation or the survey on individual reasons for participation. Backward discriminant analysis resulted in the same function indicating the utility of these variables in predicting completion. Within the discriminant function, only one of the variables (source of payment for the program) had group means that were not different. Completion of any written response was highly correlated with the discriminant function, 0.96, indicating a large contribution to discriminating between completers and non completers. An eigenvalue of 0.66 and a canonical correlation of 0.63 (Table X) indicated a moderate to good association between the discriminant scores and

Due to the fact that each of the variables had different coefficients they were standardized for further analysis, Table XI. Two of the coefficients are negative indicating non metropolitan location and payment for the program by the participant reduces the probability of completion. Completion of any written form has the highest magnitude of any of the standardized coefficients. That indicated the relative importance of this variable to the function for prediction completion. The coefficient for experience was positive indicating increasing experience was associated with course

TABLE X
 FACTORS BEST RELATED TO COMPLETION AND NON COMPLETION
 OF A PERINATAL CONTINUING EDUCATION PROGRAM:
 POOLED WITHIN GROUPS CORRELATION MATRIX

Attributes	POOLED WITHIN GROUPS CORRELATION MATRIX				Variable Correlation	P
	Metropolitan vs Non Metropolitan	Experience	Source of Payment	Completed any Written Response		
Metropolitan vs Non Metropolitan	1.000	---	---	---	0.117	0.045
Experience	-0.050	1.000	---	---	0.140	0.017
Book Payment Source	-0.411***	-0.012	1.000	---	-0.065	0.266
Completed any Written Response	0.081	-0.014	-0.027	1.000	-0.965	0.000

* p < 0.05
 ** p < 0.01
 *** p < 0.001

P = 0.000
 Eigenvalue = 0.652
 Canonical Correlation = 0.628
 N = 448

TABLE XI
CANONICAL DISCRIMINANT FUNCTION COEFFICIENTS
FOR OVERALL FACTORS
(N=448)

Attributes	Unstandardized Coefficients	Standardized Coefficients
Constant	-1.8367	----
Either Reason or Satisfaction Survey Completed	3.3569	0.9800
Experience	0.0127	0.1126
Metropolitan vs Non Metropolitan	-0.5160	-0.2495
Book Payment Source	-0.2263	-0.1400

completion, though to a small extent. The discriminant function was able to predict outcome 87% of the time. Most of the error occurred in predicting those who did not complete as those who would complete the course. The relationship between the eigenvalue and the canonical correlation of the discriminant function are indicated in Figure 8 by the presence of two discrete distributions of the discriminant scores for completed and not completed.

Analysis of covariance was done with the post test scores as covariant to the location of the hospital, source of payment, discipline and whether or not the subject had taken the program before (Table XII). Subjects from hospitals in metropolitan areas had significantly higher post test scores than their non metropolitan counterparts ($P < .001$). The source of payment for the books in the program was not a significant factor for post test scores. Physicians' post test scores were significantly higher than the nurses, $P < .05$. Those who had taken the program in the past also had significantly higher ($P < 0.01$) post test scores than did those who had not taken the program before.

Course completion rates were obtained for the same variables used in analysis of covariance (Table XIII). Analysis of those rates indicated that those factors resulted in a model that was also significant ($P < 0.05$). The location of the hospital had no significant effect on course completion. The source of payment was found to be significant for completion, ($P < 0.01$). A lower completion rate was associated with the individual participant paying for the program while the highest completion rate occurred

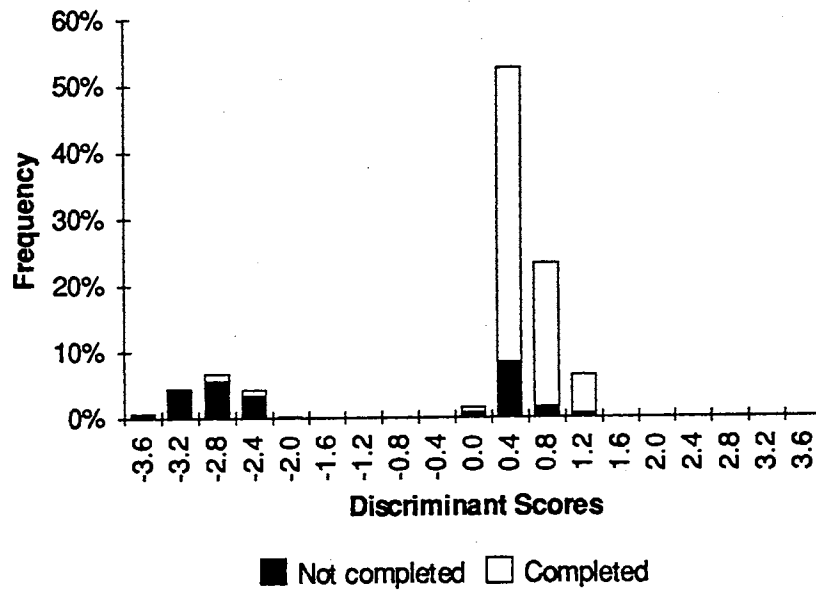


Figure 8. Canonical Discriminant Score Distribution from the Best Equation Evaluated at the Group Means of Completed and Not Completed

TABLE XII
ANALYSIS OF COVARIANCE OF TEST SCORES
(N=324)

Attributes	Mean Post Test Score	P
Hospital Location	----	0.0000
Metropolitan	79.8	-----
Non Metropolitan	77.1	-----
Book Payment Source	----	0.4941
Hospital	77.3	-----
Hospital-Participant	79.0	-----
Participant	84.2	-----
Discipline	----	0.0275
Nurse	77.8	-----
Physician	85.3	-----
Past Participation	----	0.0046
No	75.7	-----
Yes	80.7	-----

TABLE XIII
 ANALYSIS OF VARIANCE OF COMPLETION RATES
 (N=433)

Attributes	Completion Rate	P
Metropolitan	-----	0.7547
Hospital Location		
Metropolitan	0.795	-----
Non Metropolitan	0.723	-----
Book Payment Source	-----	0.0093
Hospital	0.771	-----
Hospital-Participant	0.703	-----
Participant	0.655	-----
Discipline	-----	0.9205
Nurse	0.756	-----
Physician	0.667	-----
Past Participation	-----	0.0179
No	0.711	-----
Yes	0.795	-----

when the hospital paid for the books. Discipline had no effect on the completion rate. Past course participation was found to be a significant factor to completion, $P < 0.05$.

Summary

This chapter contains the data analysis to describe the participants in the research and answer the two research questions. Descriptive statistics and correlation on various attributes were used to describe the sample. The research questions were answered in two phases using correlational analysis between personal, professional, and environmental variables with those indicative of non-completion and completion, and discriminant analysis between selected factors and completion and non completion.

In regard to research question one, personal factors which were correlated to completion of the program included age, completing a personal reason for participation survey, pre test scores, and program satisfaction. The only professional factor which significantly correlated with completion was the years of experience. No environmental factors correlated with course completion.

In regard to research question two, location of the hospital, years of experience, and completing any written response to program material were significant. Participants in metropolitan hospitals were more likely to complete than non metropolitan hospitals. They also had higher post test scores. Those with more experience were more likely to complete than those with less experience. Subjects

were more likely to complete if the hospital paid for the program than if they paid all or some of their own expense. Having taken the course previously was also significant to course completion.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Continuing education for health care providers has been recommended by many organizations which license and accredit both the health care facilities and individual providers of health care. Factors which make lifelong learning necessary in the health care professions are numerous. Those include the accelerated rate of change created by increased knowledge and increased technology as well as the cost for health care. Generation of knowledge has increased at a geometric pace so that the amount of knowledge doubled in a decade. Technology has been developed and introduced for use at a pace which is considerably faster than in the past. Health care costs in the United States have been rising. The cost of continuing education for the providers of health care is a part of the cost. In order to keep personnel current on knowledge and technology, hospitals are a high user of education and training resources.

Health care providers receive their preservice education in many different places, for varying periods of time, and at various levels from on-the-job training to graduate programs. Those health care providers all work closely together to deliver patient care. There are many similarities in their learning needs, yet education

has seldom been provided to an interdisciplinary group with a common area of practice.

The care provided to women who enter the hospital to have a baby and to the newborn is concentrated into a relatively short period of time. It is carried out by several health care providers though most are nurses or physicians. They work together toward a common goal. An educational program targeted to this group of interdisciplinary providers and focused on critical information in perinatal care has been in use since the mid 1970's. Studies have indicated the program was effective in increasing knowledge, improving facilities, changing attitudes, and changing care. However, no reports were found on studies of factors which might predict which health care providers are likely to complete the program.

Advancing technology and growing information bases make it imperative that health care providers engage in continuing education. The problem is the need to predict who will successfully complete a systematic continuing education program in one area of health care, perinatal care, in order to improve the delivery, efficiency, and effectiveness of those health care services.

The purpose of this study was to identify relationships among selected personal, professional, and environmental factors present in an interdisciplinary group of health care providers and to determine which of those may predict successful completion of a comprehensive perinatal continuing education program. Two research questions were examined. Those were:

1. What personal, professional, and environmental factors correlate statistically with completion of a comprehensive continuing education program in perinatal care?

2. What group(s) of factors is (are) most predictive of completion of a comprehensive continuing education program of perinatal care in Oklahoma?

The study design was survey research. A continuing education program designed to be taken by an interdisciplinary group of health care professionals was offered in 18 hospitals in the state of Oklahoma during 1993. Four hundred eighty two persons completed some part of the program and were included as subjects in the research.

Data analysis proceeded in two phases. The first phase was correlational analysis between the personal, professional, and environmental variables with those indicative of completion of the program. The second phase was discriminant analysis of the selected personal, professional, and environmental factors. Pearson product moment correlations were performed in phase one on the selected factor groups using the pooled within-group correlation matrix obtained from discriminant analysis. Correlations between other variables and pre and post test scores were determined from Pearson product moment correlations also. Analysis of covariance procedures were used to ascertain the effect of major variables on post test scores using pre test score as a covariant. The model utilized was a split-split plot design with metropolitan versus non metropolitan as a major factor with hospital and source of payment

defining the sub factors. The personal factors of discipline and prior course participation were sub factors of hospital. The factors of payment source, discipline, and past course participation were considered as random effects. Appropriate interaction terms were used as error terms for analysis. Analysis of variance was also used to investigate completion rates following the calculation within sub-groups.

In phase two, discriminate analysis was used to develop models for predicting completion. Sub-populations were defined for the selected factors and excluded any missing data. Unfortunately, those sub-populations contained a low percentage of cases that did not complete the course as compared to the entire study sample. Sub-populations were analyzed for the presence of completion and non-completion groups by multivariate analysis of variance. All selected factors were consistent with the presence of two groups ($P < 0.05$). Variables were then evaluated for normality and homogeneity of variance-covariance matrices. All comparisons contained continuous and discrete variables. As such, great care was taken to optimize either the linear discriminant function, non-parametric method or the use of a quadratic discriminant function. Variable selection methods were also used to develop discriminant functions from a group of factors which maximized the size of the sub-population. For those situations, variables were added in a stepwise fashion to develop the function. Variable selection was checked by a backward selection technique.

Summary and Conclusions

Findings regarding the demographic data on the sample and related to each of the two research questions indicated there were some areas of significance. Those findings have implications for this program and may also have implications for other types of professional continuing education and future research.

The correlations between the pre and post test scores with some personal and hospital attributes has three areas of significance. Program satisfaction and the size of the obstetrical service were significantly correlated with pre and post test scores. Past hospital participation was correlated only with the pre test score. Findings indicated those who liked the program, found it easy, and a desired method of learning did better in the tests. This correlation with the pre test score indicated those who worked at hospitals where the program had been offered before, benefited from an increased knowledge base over those that worked in hospitals that had not had it before. Also those taking the program before had a positive attitude toward it. The findings that past hospital participation correlated positively with higher pre test scores were consistent with other studies on this program which also found higher pre test scores in hospitals when staff had taken the program before. Obstetrical services that are larger, generally have both medical and nursing staff that are specialists in that area rather than caring for all types of patients. That could account for the higher test scores for those who work on larger services. From this, it can be concluded that the program does offer education

which is appropriate to large hospitals as well as small hospitals. The format for the program is accepted in a positive manner and some benefit from the program remains in that hospital in the form of an increased knowledge base for staff. Repeating the program periodically is beneficial to staff working there.

Findings in regard to research question number one generally indicated only personal factors significantly correlate with completion rates. The finding that just completing the questionnaire on reasons to participate had the highest significance, may have been influenced by other conditions not measured. This questionnaire was usually completed at the initial meeting in each hospital where PCEP faculty from OUHSC met in the hospitals to introduce the program. If a potential participant was not there, questionnaires were left to be completed later. Return rate on the second group was not calculated. However, it was difficult to get the survey returned if it was not completed at the first meeting where nearly all of those attending completed the survey. That finding indicated some questionnaire at the initial meeting may be an important factor to completion of the program as this was the only additional data collection instrument. Attempts to get everyone at the first meeting, may also be important. While 100% attendance at the first meeting is not possible, as someone must take care of patients at all times and so not be available for attendance, emphasis on attendance for the meeting for all who are not necessary for patient care might be emphasized. Higher pre test scores and program satisfaction may be indications of personal

motivation to participate in continuing education. Those personal factors predicted nearly 76% of the completors. Of the personal factors, the one most easy to manipulate to try to increase completion rate is related to the questionnaire and/or attendance at the first meeting. Therefore, it is concluded that strategies to increase first meeting attendance and having some questionnaire to be completed at that time, may be useful.

Professional factors, while having little impact on completion, do add some useful findings in regard to the program. Admittedly there was some self selection into the program for both physicians and nurses. The percentage of nurses taking the program versus the percentage who might have taken it because of their work situation, was not calculated. The percentage of physicians who chose to participate as compared to those eligible can be calculated. One hundred and seventy-five physicians were identified prior to the program as practicing in this area of care. The 48 who did return course materials represent 27 percent of those. Because physicians and nurses were equally likely to complete, the acceptability of this interdisciplinary approach to continuing education is upheld for those who chose to participate even though it may be a small percentage of those to whom the program is offered. The finding that years of experience had a significant correlation with completion indicated that the material appealed to the health care provider who already was familiar with the content being taught. However, the correlation of past participation with the discipline of practice indicated that nurses were more likely than physicians to complete

when they took it a second time. The correlation of past participation and experience with completion indicated those who had taken the program before were more experienced, a finding which one might expect to find. Overall the variables in this category had little more than a fifty-fifty chance of predicting completion of this program. Those variables are also the hardest to manipulate by those offering the program therefore, cannot be changed to increase participation. However, methods to increase participation by those who chose not to participate might be considered.

The smaller number of cases analyzed in regard to course completion in the environmental category may have influenced the findings. None of three factors significantly influenced completion. Therefore, the program's applicability to hospitals in both metropolitan and non metropolitan sites with various sizes of obstetrical services is upheld. Finding that completors were as likely to complete the program content at home, at work, or elsewhere indicated those who completed would do so on their own time as well as work time. Therefore, it can be concluded that it is not necessary for hospitals to provide time on the job to complete continuing education programs. That finding could have a positive effect on administration deciding to invest in the cost of program materials, which is minimal when compared to the cost of the time invested by participants. Time which the hospital does not need to pay for because participants will complete the work on their own time benefits the hospital by having a more knowledgeable staff,

and as shown in other studies, improvements in the care provided to patients.

In regard to research question number two, a mix of personal, professional, and environmental factors are important to predict completion. With the ability of the discriminant function to predict completion 87% of the time, this group of variables needs to be considered when attempting to increase completion. While the location of the hospital cannot be manipulated, it does indicate the program, which was originally written to improve care in small rural hospitals, does have benefit in larger urban facilities. Also, experienced practitioners will complete the program and therefore, need to be included when the program is offered a second or third time in a hospital. Payment for the program by hospital administration may also be seen as positive to completion. Perhaps due to staff believing the hospital was investing in them they were willing to do what it took to complete the program. Because evaluation is part of completion, one might expect to find correlation of that variable with completion.

Therefore, it can be concluded that four factors could be grouped together to predict those most likely to complete the program under study. Those most likely to complete were in metropolitan area hospitals, had more work experience, had taken the program before, and had the hospital pay for the program.

Recommendations

Based on the findings of the study several recommendations can be made related to continuing professional education for health care providers and research. Therefore, it is recommended that:

1. Those who offer the Perinatal Continuing Education Program develop strategies to increase the completion rate. Those most easily made and which may have the biggest effect may be in the area of personal reasons for taking the program. Therefore, a questionnaire similar to the one used in the study may be implemented as a regular part of the program. More emphasis on attendance at the initial meeting in participating hospitals and offering more content at the meeting to enhance attendance might also be considered.

2. Hospitals plan to, on a regular basis, offer the Perinatal Continuing Education Program to their staff. This could be used as a recruiting tool for medical and nursing staff emphasizing the hospital's support of the staff in keeping up to date on knowledge, skills, and technology in the area of perinatal care. It also might be used to emphasize to the public the commitment of the hospital to provide care by staff who have invested in keeping current in this area.

3. Other continuing education offerings using the same format as the Perinatal Continuing Education Program should be developed. Those offerings might be other topics related to perinatal care, since this group of providers has demonstrated a preference for education offered this way. Programs for health care providers

caring for other types of patients might also be developed and studied to determine if preference is carried over to these areas.

4. This study could be replicated in other locations where the Perinatal Continuing Education Program is offered to determine if the results are consistent. This would increase the generalizability of the findings.

5. Other research on outcomes of perinatal care need to be carried out. Those should go beyond studies already reported which demonstrate a change in knowledge and care practices of providers taking the program. Future studies looking at morbidity and mortality are needed. These are complex and difficult to conduct; however, they are necessary to determine if the ultimate goal of the Perinatal Continuing Education Program is reached. That goal is provision of care which is effective in improving the health of mothers and newborns.

Caution regarding application of the study findings may be noted related to the sample and generalizability. The sample represented metropolitan and non metropolitan hospitals throughout the state of Oklahoma, but included hospitals from only one of the major metropolitan areas, Oklahoma City. Tulsa, the other major metropolitan area in the state, has five hospitals with approximately one third of the births in the state each year. Due to the use of a convenience sample, it is not known if the findings can be generalized to the entire state or to other parts of the country. Also, because this study included health care providers in only one area of health care, generalizability beyond this group is

limited. Even though those limitations exist, findings provide information on factors which contribute to completion of an interdisciplinary continuing professional education program.

BIBLIOGRAPHY

- Accreditation Council for Continuing Medical Education. (1992). Standards for Commercial Support of Continuing Medical Education. Secaucus, NJ: Professional Postgraduate Services, Division of Physicians World Communications Group.
- American Medical Association. (1992). Physician recognition award information booklet. Chicago, IL: AMA Division on CME.
- American Nurses Association. (1980). A social policy statement. Kansas City, KS: Author.
- Armstrong, M. L. (1991). Is reading part of the lifelong learning process for RN's? Journal of Nursing Staff Development, 7(1), 21-26.
- Bevis M. E. (1972). An instrument designed to measure the job-time educational participation of staff nurses, The Journal of Continuing Education in nursing, 3(1), 24-30.
- Boshier, R. (1971). Motivational orientations of adult education participants: A factor analytic exploration of Houle's typology. Adult Education Journal, 21(2), 3-26,
- Boshier, R. (1973). Educational participation and dropout: A theoretical model. Adult Education, 23, 255-282.
- Boshier, R. (1977). Motivational orientation re-visited: Life-space motives and the education participation scale. Adult Education, 27(2), 89-115
- Boshier R. M. & Collins, J. B. (1985). The Houle typology after twenty-two years: A large scale empirical test. Adult Education Quarterly, 35(3), 113-130.
- Carnevale, A. P. & Gainer, L. J. (1989). The Learning Enterprise. Alexandria, VA: The American Society for Training and Development & Washington, DC: The Department of Labor and Training Administration, U.S. Department of Labor.
- Cervero, R. M. (1981). A factor analytic study of physicians's reasons for participating in continuing education. Journal of Medical Education, (56), 29-34.

- Cervero, R. M. (1988). Effective continuing education for professionals. San Francisco, CA: Jossey-Bass Publishers.
- Cervero, R. M. & Dimmock, K. H. (1987). A factor analytis test of Houle's typology of professionals' modes of learning. Adult Education Quarterly, 37(3), 125-139.
- Cetron, M. J. & Davies, O. (1989). American renaissance: Our life at the turn of the 21st century. New York, NY: St. Martins Press.
- Cooper, S. S. (1983). The practice of continuing education in nursing. Rocville, MD: Aspen Publishers.
- Cross, P. K. (1981). Adults as Learners. San Francisco, CA: Jossey-Bass.
- Derbyshire, R. C. (1983). The medical profession. In Power and Conflict in Continuing Professional Education. M. R. Stern (Ed), Belmont, CA: Wadsworth Publishing Co.
- DeSilets, L. D. (1991). Motivational Reasons that influence participation of RN's at CE programs. Journal of Continuing Education in Nursing, 21(5), 231.
- Dictionary of U.S. Government Statistical Terms. (1991). A. N. Garwood (Sr. Ed.). Palo Alto, CA: Information Publications.
- Dolphin, N. W. (1983). Why do nurses come to continuing education programs? Journal of Continuing Education in Nursing, 14(4), 8-16.
- Donahue, P. A. & Madigan, H. S. (1989). Education activity for health professionals. Journal of Continuing Education in Nursing, 16(3), 94-98.
- Fox, R. D., Masmanian, P. P. & Putnam, R. W. (Eds). (1989). Changing and Learning in the Lives of Physicians. New York, NY: Praeger.
- Freidson, E. (1986). Professional powers: A study of the institutionalization of formal knowledge. Chicago, IL: University of Chicago Press.
- Friedman, F. (1980). A page for your thoughts: What LP/VN's think of continuing education. The Journal of Practical Nursing, 30(11), 31-38.
- Furst, E. J. (1986). An interpretation of Boshier-Collins cluster analysis testing of Houle's typology. Adult Education Quarterly, 36(4), 235-237.

- Garbarino, J. E. (1992). Factors influencing persistence of adult students in high school completion programs. Dissertation Abstracts International, 53(9), 3081-A.
- Gaston, S. K., Pucci, J., & Goodwin, M. (1987). Independent learning projects of registered nurses in a mandatory continuing education state. Mobius, 7(2), 40-43.
- Gessner, B. A. & Armstrong, M. L. (1993). Reading activities of staff nurses from states with mandatory or voluntary continuing education. Journal of Continuing Education in Nursing, 23(2), 76-80.
- Gillies, D. A. & Pettengill, M. (1993). Retention of continuing education participants. Journal of Continuing Education in Nursing, 24(1), 17-22.
- Good, C. V. (ed). (1973). Dictionary of Education, 3rd ed. New York, NY: McGraw Hill.
- Grotelueshen, A. D. (1985). Assessing professionals' reasons for participating in continuing education. In R. M. Cervero and C. L. Scanlan (eds). Problems and Prospects in Continuing Professional Education. New Directions for Continuing Education, no. 27. San Francisco, CA: Jossey-Bass.
- Harlan, W. R., Hess, G. E., Borer, R. C., & Hiss, R. G. (1980). Impact of an education program on perinatal care practices. Pediatrics, 66(6), 893-899.
- Harris, J. K., Yates, B. C., & Crosby, W. M. (in press). The effects of a perinatal continuing education program on knowledge and health care practices. JOGNN.
- Hein, H. A., Christopher, C., & Ferguson, N. N. (1975). Rural perinatology. Pediatrics, 55(6), 769-773.
- Hein, H. A. & Lathrop, S. S. (1989). The Iowa hospital visitation program: Does outreach education affect management of neonatal resuscitation? Journal of Rural Health, 5(4), 371-386.
- Houle, C. O. (1961). The inquiring mind: A study of the adult who continues to learn. Madison, WI: University of Wisconsin Press.
- Houle, C. O. (1980). Continuing Learning in the Professions. San Francisco, CA: Jossey-Bass.
- Houle, C. O. (1981). Continuing learning in the professions. San Francisco, CA: Jossey-Bass.

- Houle, C. O. (1983). Possible futures in Power and conflict in continuing professional education. Stern, M. R. (Ed). Belmont, CA: Wadsworth Publishing Company
- Kattwinkel, J., Cook, L. J., Nowacek, G. A., Ivey, H. H. & Short, J. G. (1979). Improved perinatal knowledge and care in the community hospital through a program of Self-Instruction. Pediatrics, 64(4), 451-458.
- Kattwinkel, J., Nowacek, G. A., Cook, L. J., Hurt, H. & Short, J. G. (1984). Perinatal outreach education: A continuation strategy for a basic program. American Journal of Perinatology, 1(4), 335-339.
- Kattwinkel, J., Cook, L. J., Hurt, H., Nowacek, G. A., Short, J. G. (1993). Perinatal Continuing Education Program Books I, II, and III. Charlottesville, SC: Division of Neonatal Medicine, Department of Pediatrics, University of Virginia Health Sciences Center.
- Kerlinger, F. N. (1986). Foundations of behavioral research. 3rd ed. Fort Worth, TX: Harcourt Brace Jovanovich College Publishers.
- Knox, A.B. & Associates. (1980). Developing, administering, and evaluating adult education. San Francisco, CA: Jossey-Bass.
- Kushner, D. & Fejerman, R. (1978) Mandatory continuing education gets low marks from many pharmacists. American Druggist, 177(6), 49-52.
- Merriam, S. B. & Caffarella, R. S. (1991). Learning in adulthood: A comprehensive guide. San Francisco, CA: Jossey-Bass.
- Morstain, B. R. & Smart, J. C. (1974). Reasons for participation in adult education courses: A multivariate analysis of group differences. Adult Education, 24(2), 83-98.
- Nowacek, G. A., Cook, L. J., & Kattwinkel, J. (1983). Assessment of transportability of a perinatal education program. Southern Medical Journal, 76(12), 1490-1492.
- O'Conner, A. B. (1979). Reasons nurses participate in continuing education. Nursing Research, 28(6), 354-59.
- Peters, J. M., Jarvis, P. & Associates. (1991). Adult education: Evolution and Achievements in a developing field of study. San Francisco, CA: Jossey-Bass.

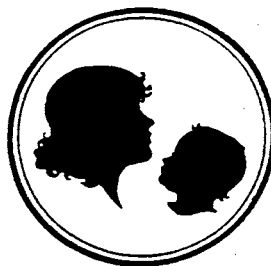
- Phillips, L. E. (1983). Trends in state relicensure. in M. R. Stern (Ed.). Power and conflict in continuing professional education (pp. 201-223). Belmont, CA: Wadsworth Publishing Company.
- Phillips, L. E. (1987). Is mandatory continuing education working? Mobius, 7(1), 57-63.
- Powlette, N. M. & Young, D. R. (1989). Modes of continuing professional education: A test of Houle's typology with business education instructors, The Journal of Epsilon Pi Tau, 15(2), 33-41.
- Richards, R. K. & Cohen, R. M. (1980). Why physicians attend traditional CME programs. Journal of Medical Education, (55), 479-485.
- Rubenson, K. (1982). Adult education research: In quest of a map of the territory, Adult Education, 32(2), 57-74.
- Scanlan, C. L. & Blagg, J. D. (1987). The continuing education activity of allied health professionals. Mobius, 5(4), 105-114.
- Scanlan, C. L. & Darkenwald, G. G. (1984). Identifying deterrents to participation in continuing education. Adult Education Quarterly, (34)3, 155-166.
- St. Clair, C. & Brillhart, B. (1990). Rural nurses as self-directed learners: Overcoming obstacles to continuing education. Journal of Continuing Education in Nursing, 21(5), 219-222.
- Stross, J. K. & Harlan, W. R. (1987). Mandatory continuing medical education revisited. Mobius, 7(1), 22-27.
- Toffler, A. (1970). Future shock. New York, NY: Random House.
- University of Illinois, Center for the Study of Medical Education. (1966). Report of an interprofessional task force. Continuing Education for the Health Professions. Chicago, IL: University of Illinois.
- Untied Way of America's Strategic Institute. (1990). Nine forces reshaping America. The Futurist, 24(4), 9-16.
- Urban, M. T., Jahn, I. R., & Urbano, R. C. (1988). What really motivates nurses to participate in mandatory professional continuing education? Journal of Continuing Education in Nursing, 19(1), 38-42.

- Verhey, M. P. (1993). The relationship of Houle's modes of continuing professional learning and learning self-directedness in psychiatric nurses. Dissertation Abstracts International, 53(9), 3085-A.
- Waddell, D. L. (1993). Why do nurses participate in continuing education? A meta-analysis. Journal of Continuing Education in Nursing, 24(2), 52-55
- Wentz, D. K., Osteen, A. M., & Cannon, M. I. (1992). Continuing medical education: Unabated debate. JAMA 268 (9), 118-120.
- Woll, B. (1984). The empty ideal: A critique of *Continuing Learning in the Professions* by Cyril O. Houle. Adult Education Quarterly, 34(3), 167-77.
- Yoder Wise, P. S. (1993). State and association/Certifying boards and CE requirements. Journal of Continuing Education in Nursing, 24(1), 3-6.

APPENDIXES

APPENDIX A

CONSENT TO PARTICIPATE



Perinatal Continuing Education Program

May, 1993

Dear PCEP Participant,

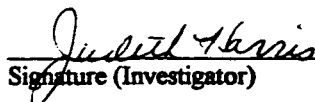
This letter is to invite you to participate in a research study, Factors that Predict Successful Completion of a Perinatal Continuing Education Program, and to sign a consent to participate in the research. Please read the letter and sign on the place indicated if you understand what is contained in it and agree to participate.

The purpose of the research is to identify relationships between personal and professional factors and completion of PCEP. Factors include type of health care provider, length of time in practice, age, test scores, satisfaction with the program and reason for taking it. Participation in the research will occur concurrently with completion of PCEP which will be approximately four months. The information used in the research will be that normally collected while taking the program and needed to receive continuing education credit, tests of knowledge and book evaluations, with the addition of a survey on reasons for taking the program.

Personal identifying data will be removed from the information when it is analyzed. The three data collection items will be grouped when creating the data bank, however, no names will be entered into the data base for the purposes of this study. Group summary data, not individual data, will be reported. Records of this study will be kept confidential in any written or verbal reports. The results of this study may be published for scientific purposes and/or presented to professional groups with the understanding that no individual name will be identified.

Participation in this research is voluntary. You are free to withdraw consent to participate in this study. This will in no way interfere with taking the program. There will be no direct benefits to you by participation in this study. Participation may contribute to the advancement of knowledge regarding the characteristics of those who participate in continuing education. While all potential risks which result from participation in research cannot be identified, there are no known risks involved in participation.

If you have any questions about your rights as a research subject, you may contact the Office of University Research Services, Oklahoma State University, 001 Life Sciences East, Stillwater, Oklahoma 74078, (405) 624-6991. If I have questions on the study, You may contact the researcher, Judith Harris, Department of OB/GYN, University of Oklahoma Health Sciences Center, P.O. Box 26901, Oklahoma City, Oklahoma 73109, (405) 271-7777.


Signature (Investigator)

CONSENT TO PARTICIPATE

I, _____, agree to participate as a subject in a research study. Factors That Predict Successful Completion of a Perinatal Continuing Education Program, conducted by Judith Harris, R.N., a doctoral student at Oklahoma State University, Stillwater, in the School of Occupational and Adult Education, under the supervision of Dr. Garry R. Bice. I have read, fully understand, and have a copy of the letter concerning purpose for and conditions of participation in the study. I sign this voluntarily and freely.

Signature (Research Subject)

Date

After you sign, please return this Consent to Participate to the PCEP coordinator at your hospital or mail it directly to: PCEP, OUHSC Dept. OB/GYN, P.O. Box 26901, Oklahoma City, OK 73190.

APPENDIX B

QUESTIONNAIRE

A part of the research on the Oklahoma Perinatal Continuing Education Program is to determine reasons participants have for taking the program. Please complete the following questionnaire and return it to the coordinators at your hospital or send it directly to: PCEP, OUHSC Department OB/GYN, P.O. Box 26901, Oklahoma City, OK 73190.

Name _____ Hospital _____

For each statement, put an X on the line in the area that best reflects the amount of influence which that reason had on your decision to take PCEP.

1. To keep up-to-date professionally.

very little influence _____ very much influence

2. To maintain license and or professional certification.

very little influence _____ very much influence

3. To comply with hospital expectations.

very little influence _____ very much influence

4. To improve my ability to take care of patients.

very little influence _____ very much influence

5. To advance in my profession.

very little influence _____ very much influence

6. To satisfy my desire to continue learning.

very little influence _____ very much influence

7. To learn from interaction with other professionals.

very little influence _____ very much influence

Other reasons which influenced your decision to take PCEP. _____

Thank you.
Judith Harris
pnpnrv

APPENDIX C

PCEP INFORMATION SHEET

INFORMATION SHEET
PERINATAL CONTINUING EDUCATION PROGRAM

Hospital: _____ Name: _____
 SS#: _____

Have you taken PCEP before? yes/no	
Hospital location _____	
Date PCEP began _____	completed _____
mo/yr	mo/yr

Nursing and Support Staff

Areas worked (check all that are appropriate.)

- labor and delivery
 postpartum
 newborn nursery
 intensive care nursery
 other _____

Position

- nursing supervisor
 RN
 LPN
 nursing asst.
 respiratory therapist
 other _____

_____ Age

How many years of nursing experience do you have?
 _____ months/years

Physicians

Speciality

- obstetrics
 pediatrics
 family practice
 mothers only
 babies only
 both

_____ Age

How many years have you practiced medicine?
 _____ months/years

- PLEASE TURN OVER FOR ANSWER SHEET -

APPENDIX D

BOOK EVALUATIONS

BOOK I
EVALUATION FORM

Please PRINT the following information.

Date: _____

Your Name: _____ Your Hospital: _____
(optional) (full name, please)

Service: OB, Nursery, Both OB and Nursery, Other _____

Position: Physician, RN, LPN, Aide, CNM, Nurse Practitioner, RRT, Other _____

1. Were you at work, home or elsewhere when studying most of this book?

Work Home Elsewhere

2. In general, how would you describe the units in this book? For each scale, place an x on the line at the point which best describes how you feel.

easy _____ hard

very elementary _____ very advanced

(complex) complicated _____ straight forward (logical)

clearly written _____ difficult to understand

3. In general, how confident do you feel that you know the written information in this book?

very confident _____ unsure or uncertain

4. In general, how confident do you feel that you know the skills in this book?

very confident _____ unsure or uncertain

5. In general, what is your overall impression of the units in this book?

exciting _____ boring

disliked them _____ liked them

AFTER COMPLETING THIS FORM TEAR IT OUT AND GIVE IT TO ONE OF YOUR COORDINATORS (nursing staff members), OR MAIL IT WITH YOUR ANSWER SHEETS (physicians).

BOOK II
EVALUATION FORM

Please PRINT the following information.

Date: _____

Your Name: _____ Your Hospital: _____
(optional) (full name, please)

Service: OB, Nursery, Both OB and Nursery, Other _____

Position: Physician, RN, LPN, Aide, Midwife, RRT, Other _____

1. Were you at work, home or elsewhere when studying most of this book?
 Work Home Elsewhere

2. In general, how would you describe the units in this book? For each scale, place an x on the line at the point which best describes how you feel.

easy		hard
very elementary		very advanced
(complex) complicated		straight forward (logical)
clearly written		difficult to understand

3. In general, how confident do you feel that you know the written information in this book?

very confident	unsure or uncertain
----------------	---------------------

4. In general, how confident do you feel that you know the skills in this book?

very confident	unsure or uncertain
----------------	---------------------

5. In general, what is your overall impression of the units in this book?

exciting	boring
disliked them	liked them

AFTER COMPLETING THIS FORM TEAR IT OUT AND GIVE IT TO ONE OF YOUR COORDINATORS (nursing staff members), OR MAIL IT WITH YOUR ANSWER SHEETS (physicians).

BOOK IV
EVALUATION FORM

Please **PRINT** the following information.

Date: _____

Your Name: _____ Your Hospital: _____
(optional) (full name, please)

Service: OB, Nursery, Both OB and Nursery, Other _____

Position: Physician, RN, LPN, Aide, CNM, Nurse Practitioner, RRT, Other _____

1. Were you at work, home or elsewhere when studying most of this book?

Work Home Elsewhere

2. In general, how would you describe the units in this book? For each scale, place an x on the line at the point which best describes how you feel.

_____ | _____ | _____ | _____ | _____ | _____ | _____
easy hard

_____ | _____ | _____ | _____ | _____ | _____ | _____
very elementary very advanced

_____ | _____ | _____ | _____ | _____ | _____ | _____
(complex) complicated straight forward (logical)

_____ | _____ | _____ | _____ | _____ | _____ | _____
clearly written difficult to understand

3. In general, how confident do you feel that you know the written information in this book?

_____ | _____ | _____ | _____ | _____ | _____ | _____
very confident unsure or uncertain

4. In general, how confident do you feel that you know the skills in this book?

_____ | _____ | _____ | _____ | _____ | _____ | _____
very confident unsure or uncertain

5. In general, what is your overall impression of the units in this book?

_____ | _____ | _____ | _____ | _____ | _____ | _____
exciting boring

_____ | _____ | _____ | _____ | _____ | _____ | _____
disliked them liked them

AFTER COMPLETING THIS FORM TEAR IT OUT AND GIVE IT TO ONE OF YOUR COORDINATORS (nursing staff members), OR MAIL IT WITH YOUR ANSWER SHEETS (physicians).

APPENDIX E

UNIVERSITY OF OKLAHOMA HEALTH SCIENCES CENTER

INSTITUTIONAL REVIEW BOARD APPROVAL



The University of Oklahoma
Health Sciences Center

OFFICE OF RESEARCH ADMINISTRATION

IRB NUMBER: 05521
EXEMPTION: #1
APPROVAL DATE: 07/07/93

Dr. Judith Harris
Obstetrics And Gynecology
4SP700

SUBJ: Factors That Predict Successful Completion of a Perinatal Continuing Education Program.

Dear Dr. Harris:

I have reviewed the above-referenced protocol and determined that it meets the criteria in 45 CFR 56, as amended, for exemption from IRB review. You may proceed with the research as proposed.

Please note that I will need to review any changes in the protocol that might affect this determination of exempt status. Should revisions be necessary, please contact IRB staff in the Office of Research Administration (271-2090).

Sincerely yours,

Laura I. Rankin MD/pc
Laura I. Rankin, M.D.
Chair, Institutional Review Board

LIR/PAC/cj

APPENDIX F

OSU INSTITUTIONAL REVIEW BOARD FORM

OKLAHOMA STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD
FOR HUMAN SUBJECTS RESEARCH

Date: 05-18-93

IRB#: ED-93-081

Proposal Title: FACTORS THAT PREDICT SUCCESSFUL COMPLETION OF A
PERINATAL CONTINUING EDUCATION

Principal Investigator(s): Garry Bice, Judith K. Harris

Reviewed and Processed as: Exempt

Approval Status Recommended by Reviewer(s): Approved

APPROVAL STATUS SUBJECT TO REVIEW BY FULL INSTITUTIONAL REVIEW
BOARD AT NEXT MEETING.
APPROVAL STATUS PERIOD VALID FOR ONE CALENDAR YEAR AFTER WHICH A
CONTINUATION OR RENEWAL REQUEST IS REQUIRED TO BE SUBMITTED FOR
BOARD APPROVAL. ANY MODIFICATIONS TO APPROVED PROJECT MUST ALSO
BE SUBMITTED FOR APPROVAL.

Comments, Modifications/Conditions for Approval or Reasons for
Deferral or Disapproval are as follows:

PROVISIONS RECEIVED AND APPROVED

Signature:

Maria S. Tilley
Chair of Institutional Review Board

Date: May 19, 1993

VITA 2

Judith L. Komives Harris

Candidate for Degree of

Doctor of Education

Thesis: FACTORS THAT PREDICT SUCCESSFUL COMPLETION OF A PERINATAL CONTINUING EDUCATION PROGRAM

Major Field: Occupational and Adult Education

Biographical:

Personal Data: Born in St. Paul Minnesota, September 28, 1941, the daughter of Leona and Peter Komives.

Education: Received Bachelor of Science in Nursing from the University of Minnesota, Minneapolis in March, 1964; received Masters in Nursing from the University of California at Los Angeles, June, 1974; studied at Virginia Polytechnic Institute and State University in Adult Education in 1979-80, received a certificate as an Obstetrical and Gynecological Nurse Practitioner from the University of Oklahoma Health Sciences Center, Oklahoma City in 1985; and completed requirements for a Doctor of Education degree at Oklahoma State University in Occupational and Adult Education in May, 1994.

Professional Experience: Have worked as a staff nurse in various hospitals, have been on faculty for nursing programs at George Mason University, Fairfax, Virginia and the University of Oklahoma. At the University of Oklahoma Health Sciences Center, Oklahoma City have had positions as Coordinator of the Rural Infant Care Program, 1981-5; Coordinator, Perinatal Continuing Education Program, 1985-90, and Senior Coordinator, the Perinatal Continuing Education Program and Instructor, Department of Obstetrics and Gynecology 1992-present.