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UNIVERSITY OF SAN DIEGO
Hahn School of Nursing and Health Science
DOCTOR OF PHILOSOPHY IN NURSING

Creativity Fostering Behaviors in the Nurse Educator

by

Barbara Neher Taylor

A dissertation presented to the
FACULTY OF THE HAHN SCHOOL OF NURSING AND HEALTH SCIENCE
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requirements for the degree
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Dissertation Committee

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Abstract

The purpose of this descriptive study of 93 BSN nurse educators in the State of California was to examine the relationship between creativity fostering behaviors in the nurse educator and intrinsic motivation, creativity fostering behaviors and the teaching/learning goals, and creativity fostering behaviors and class size, number of years teaching, and university type.

This sample included 93 participants, 93% were female, Caucasian (91%), with a mean age of 53 and worked in a public university (65%). Medical/surgical was the most common clinical specialty (26%), with a mean of 29.15 years in nursing practice, and 15 years as a nurse educator.

Results demonstrated that there is significant correlation between creativity fostering behaviors and intrinsic motivation of the nurse educator, and between creativity fostering behaviors and the teaching/learning goals for the classroom. No significance was found between the variables of class size, number of years teaching, and creativity fostering behaviors. Public university nurse educators are more likely to exhibit higher scores on creativity fostering behaviors than their private university nurse educator counterparts.

Prior to this study, the only empirical evidence regarding creativity in nursing has been with samples of nursing students, which demonstrated that creativity in nursing students is decreased or absent from nursing program entry to nursing program exit. The results of this study point the way for further investigation into the role of the nurse educator in affecting student creativity. If nursing student creativity can be fostered during the process of nursing education, then perhaps the transition to graduate nurse

would be less confusing when the reality of nursing does not match what is experienced in nursing school. Further research is needed to examine some nursing student outcome measures, such as critical thinking or problem-solving and creativity fostering behaviors. Additionally, graduate programs focusing on nursing education need to incorporate the theoretical framework of Cropley's Theory of Behavior Characteristics of Creativity Fostering Behavior into the curriculum which focuses on teaching/learning.

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Chapter 1

Introduction

Creativity is essential to many aspects within nursing. For example, being a creative thinker, a creative teacher, and a creative nurse are all important. Several authors (Fawcett, Brophy, Rather, & Roos, 1997; Le Sorti, Cullen, Hanzlik, Piano, Lawless-Ryan, & Johnson, 1999; Munhall, 1997) proclaim that creativity is essential for the nursing student. A nursing student must have the ability to see multiple points of view, to analyze a situation and arrive at an appropriate answer. Being open to creativity encourages the student to have an open mind, to avoid rigidity in thoughts and actions, and by allowing the student to explore and test new opinions and knowledge. Nurse educators can be summoned to foster and assess creativity in the curriculum (Talley, 1995).

Specific to nursing education, Talley (1995) stated:

Creativity is also critical in the development of a vision for nursing and the evolvement of nursing as a profession of science and art. We should understand the value of creativity in nursing and examine the process by which creativity can be fostered and supported in nursing (p. 18).

From the field of psychology, Sternberg and Lubart (1996) stated, "It is through creativity that we can cope with significant challenges in our environments in novel and

appropriate ways. Indeed, given the rate at which the world is changing, the importance of creativity to our lives is likely to increase” (p. 678).

Moreover, creativity can be used as a resource and a skill that the nurse educator can nurture and enhance as a way of helping nursing address new and emerging challenges. Even more significant, creativity can help to identify what problems are worth solving (Creedy & Hand, 1994).

Kessler (2000) wrote that creating the climate and the skills for fostering creativity are essential to educating a generation of young people who can visualize new solutions to the problems of today’s and tomorrow’s work force, social context, and environment. She described how the messages and methods of present pedagogy suppressed rather than stimulated creativity. This devaluing of creativity caused the student to think, learn, and express in only the *acceptable* way. This way does not usually assist the student to understand and relate to the world.

Steele and Maraviglia (1981) wrote a text on creativity in nursing that identified some creativity-fostering behaviors that had been largely ignored by nurse academics. This was evidenced by the lack of a substantial body of nursing knowledge regarding creativity, creativity-fostering behaviors, or the nurse educator’s role in creativity.

This lack of a substantial body of knowledge could be reflective of the denial in nursing academia that fostering creativity is not essential. Creativity is given low priority in nursing education as educators try to keep up with the same chaos and constant change that is experienced in healthcare. More broadly, “creativity has not been the subject of intense focus, extensive research or high levels of funding in American education” (Armstrong, 1998, p. 7). Therefore, creativity could be an education problem.

According to Angelo and Cross (1993), the 1990s leaders of educational reform in the United States sought answers to two underlying concerns: (a) how well students were learning, and (b) how effectively teachers were teaching. The first construct of student learning was addressed in a myriad of assessment and evaluation activities that took place in the public and private sector of American primary, secondary, and higher education schools and universities. Essential to this first construct was the answer to the second concern of how effectively teachers were teaching. “Learning can and often does take place without the benefit of teaching – and sometimes even in spite of it – but there is no such thing as effective teaching in the absence of learning” (Angelo & Cross, 1993, p. 3). The challenge for the educator is to provide for goals in the classroom which are clear and planned in the approach to teaching and learning occurs. This teaching/learning goals of teaching should be geared toward enhancing the skills of problem-solving, critical thinking, creativity, synthesis of course content, and self-awareness in the learner.

Recent professional nursing documents speak to the need for creativity within nursing education. These include the American Association of Colleges of Nursing (AACN), the Commission on Collegiate Nursing Education (CCNE) and Sigma Theta Tau International. These documents published by these organizations emphasize that creativity should be valued and nurtured in the nursing education arena.

In 1999, the AACN provided a detailed account of what should be included in the education of the baccalaureate nursing student. As part of the liberal arts education, creativity (i.e., being flexible and innovative) was listed specifically as an attribute of critical thinking. Critical thinking was described as the first priority core competency for the baccalaureate-prepared nurse. Furthermore, “with constant change predicted for

health care delivery . . . it is imperative that nursing education programs themselves act as agents of change . . . to shape practice, not merely respond to changes . . .” (AACN, 1999, p. 60). Inherent in this change process was the need for the nurse educator to embrace creativity as a mechanism through which change could occur.

While the CCNE did not speak directly to creativity within a nursing program, it did refer to curricular innovation. “CCNE standards and key elements are designed to encourage innovation and experimentation in teaching and instruction” (CCNE, 1998, p. 4). Again, this statement used the term *innovation*, one of the definitions of creativity, to provide a guide for the nurse educator in delivering quality instruction for the baccalaureate nursing student.

Sigma Theta Tau International developed a Clinical Scholarship Task Force “to explore the concept of scholarship in practice and to promote the unity of clinical and academic settings” (Clinical Scholarship White paper, 1999, p. 4). One of the basic tenets was that clinical scholarship would flourish in an environment where “creativity, questioning, [and] innovation are promoted and valued” (p. 5). The task force, then, could also be seen as mandating creativity as an essential for nursing education.

Statement of the Problem

It has been demonstrated that the process of nursing education causes creativity in nursing students to be decreased or absent at graduation (Eisenman, 1970; Pettigrew, 1988; Sullivan, 1987). Gaps in the existing body of nursing knowledge regarding creativity are clearly centered on the nurse educator. Studies that investigated creativity in the nursing student (Eisenman, 1970; Pettigrew, 1988; Sullivan, 1987) and current 80

literature (Billings & Halstead, 2005) supported a shift in the paradigm of nursing curricula.

Identified over 30 years ago (Eisenman, 1970), further investigation was needed to find out why nursing student creativity diminished. Speculation was made that the nurse educator and/or the education process had some affect on the student (Eisenman 1970; Pettigrew, 1988; Sullivan, 1987). Questions that arise, regardless of education, center on competence, the ability to think critically and the ability to think beyond the textbook. Essential to this discussion is the influence that the nurse educator has on shaping, molding, and fostering the nursing student to become a competent nurse who demonstrates critical thinking, who is able to think creatively, and arrive at conclusions that might not be obvious. To date, there are no published studies that investigate the role of the nurse educator in fostering creativity in the student.

Traditional Teaching Method in Nursing Education

Nursing education has been entrenched in the Tylerian model of behavioral objectives for decades (Bevis & Watson, 1989). The Tylerian model has been the hallmark in nursing education where learning is measured by examining behavior or a step-wise process.

A tenet of the behaviorist model is that behavior is learned and it can be shaped. Skinner, a noted behaviorist, focused his research on reinforcement as the consequence to learned behavior (Billings & Halstead, 2005). The Tylerian method has been accepted within nursing education, where skills learning has been viewed as highly structured with a systematic sequence for learning a desired behavior. These teaching methods have been commonly used in the nursing skills lab where students are given a set of steps to follow

in performing a procedure. The student often views a video that demonstrates the steps in the skill, then time for the student to practice the steps. The steps need to be memorized in a set order and there is often no room for error or deviation. Problems with the behaviorist method of learning is that the focus for learning becomes mechanistic and diminishes student participation in learning. Critical thinking, problem solving, and thus creativity may not be fostered in the behaviorist paradigm (Bevis & Watson, 1989; Billings & Halstead, 2005).

Bevis and Watson (1989) went on to describe how ineffective the Tylerian model had been and how there needed to be a curriculum developed that would “facilitate students in cultivating creative, dynamic modes of approaching nursing care” (p. 33). The curriculum must include, “. . . the teaching of inquiry . . . [and] creativity . . . inclusive of all aspects of nursing education . . .” (p. 33).

Unfortunately, too many nurse educators teach in the way that they were taught and may incorporate teaching practices that have not been studied and tested through research. Nursing education has encountered significant changes in student populations, diverse clinical settings, technological advances, and new modes of curriculum and educational delivery methods (Ferguson & Day, 2005). To this end, if rigor is not given to nursing education research, nurse educators may be perpetuating ineffective and inappropriate teaching/learning methodologies that do not promote quality nursing practice. Furthermore, “in the past the professional judgment of nurse educators may have been sufficient rationale for action, current educational and health care environments, . . ., require stronger evidence of the effectiveness of educational

approaches. Thus the science of nursing education needs considerable development” (Ferguson & Day, 2005, p. 112).

Significance to Nursing

Nursing has a grand history of rising to meet challenges and the future of nursing is reliant on the actions and decisions made today (Watson & Bevis, 1990). Creativity in education, practice, and in thought is necessary, as nursing boldly accepts the challenges of meeting the education and healthcare needs of the 21st century.

Levine (1973) was one of the first nurse educators to make a visionary claim that creativity must have a place in the practice of nursing. She wrote:

Creativity is the marriage of the art and science of nursing...it (art) is intended to exist for others . . . the reality of the bedside nurse is mundane and immediate.

The nurse and her patient share a moment of their lives together. It may be that often that exchange is marked by all the attributes of a creative act. (p. 217)

It was almost a decade later before the body of creativity research could be found in nursing journals.

Contemporary issues in nursing and nursing education continue to include the nursing shortage, nursing faculty shortage, advances in technology that require a multi-faceted approach to healthcare, and ethical and social dilemmas surrounding access to healthcare. Critical thinking, problem-solving and clinical judgment were common themes in nursing education in the late 1980's (Watson & Bevis, 1990) and carried over into the 1990's (Facione, Facione, & Sanchez, 1994). These concepts remain prevalent in the nursing literature in the 21st century. However, this researcher postulates that the lack of creativity fostering in the education process of the nursing student may be part of an

underlying problem that leads to a difficult transition from nursing student to graduate nurse.

This study will add to the body of nursing education research by investigating the relationship of creativity fostering behaviors in the nurse educator, intrinsic motivation, and the teaching/learning goals. Evidence based nursing education research is necessary in order to provide nursing students with the necessary tools for entering nursing practice in the 21st century.

Theoretical Framework

The theoretical framework for this study is that of Cropley (1997). Cropley's Theory of Behavior Characteristics of Creativity Fostering Behavior focused on nine creativity-fostering behaviors in the educator. These are: encouraging students to learn independently, having a socially integrative style of teaching, motivating students to master factual knowledge so there was a solid base for divergent thinking, delaying judgment of student ideas, and encouraging flexible thinking in students. He also included promoting self-evaluation in students, taking student questions and ideas seriously, offering opportunities to work with a variety of materials and under many different conditions, and helping students to learn to cope with frustration and failure so that they would have the courage to try again.

Conceptual Model

A preliminary conceptual model was developed to describe the relationship of creativity fostering behaviors, intrinsic teacher motivation, and the teaching/learning goals. See Figure 1. The nurse educator must first have intrinsic motivation which positively affects creativity fostering behaviors. The combination of intrinsic teacher

motivation and the presence of creativity fostering behaviors then leads to a teaching/learning goals that promote some student outcome. The student outcome might be critical thinking, alternative thinking or reflection. For the purposes of this study, no student outcome was measured. The structural variables of institution type and class size were investigated to determine whether or not they influence the teaching/learning environment.

Terminology Defined

Essential to this conceptual model are the variables of motivation, creativity fostering behaviors, and the teaching/learning environment. Motivation was often described as intrinsic and extrinsic. Intrinsic motivation focused on the personal interest in or enjoyment of doing something; that passionate interest. Extrinsic motivation was often behavior or activity done to achieve some outcome (Ryan & Deci, 2000). Indeed, Cropley & Dave (1978) defined teaching as “the ability of teachers to . . . energize self-directed learning in students . . .” (p. 113). For purposes of this study, intrinsic motivation was described as personal interest and enjoyment in teaching for the nurse educator (Ryan & Deci, 2000).

Creativity fostering behaviors are the teacher influence and acceptance of student creativity (Cropley, 1999; Koithen, 1996; Rowles & Brigham, 2005; Soh, 2000; Ulloth, 2003). The teacher must value and foster creativity as a vehicle for student exploration in the safe environment of a classroom or clinical setting. Creativity needed to be embraced by the educator; not seen as a problem, disruption, or burden for the classroom (Cropley, 1999; Soh, 2000). In the classroom where creativity was not valued or fostered, students

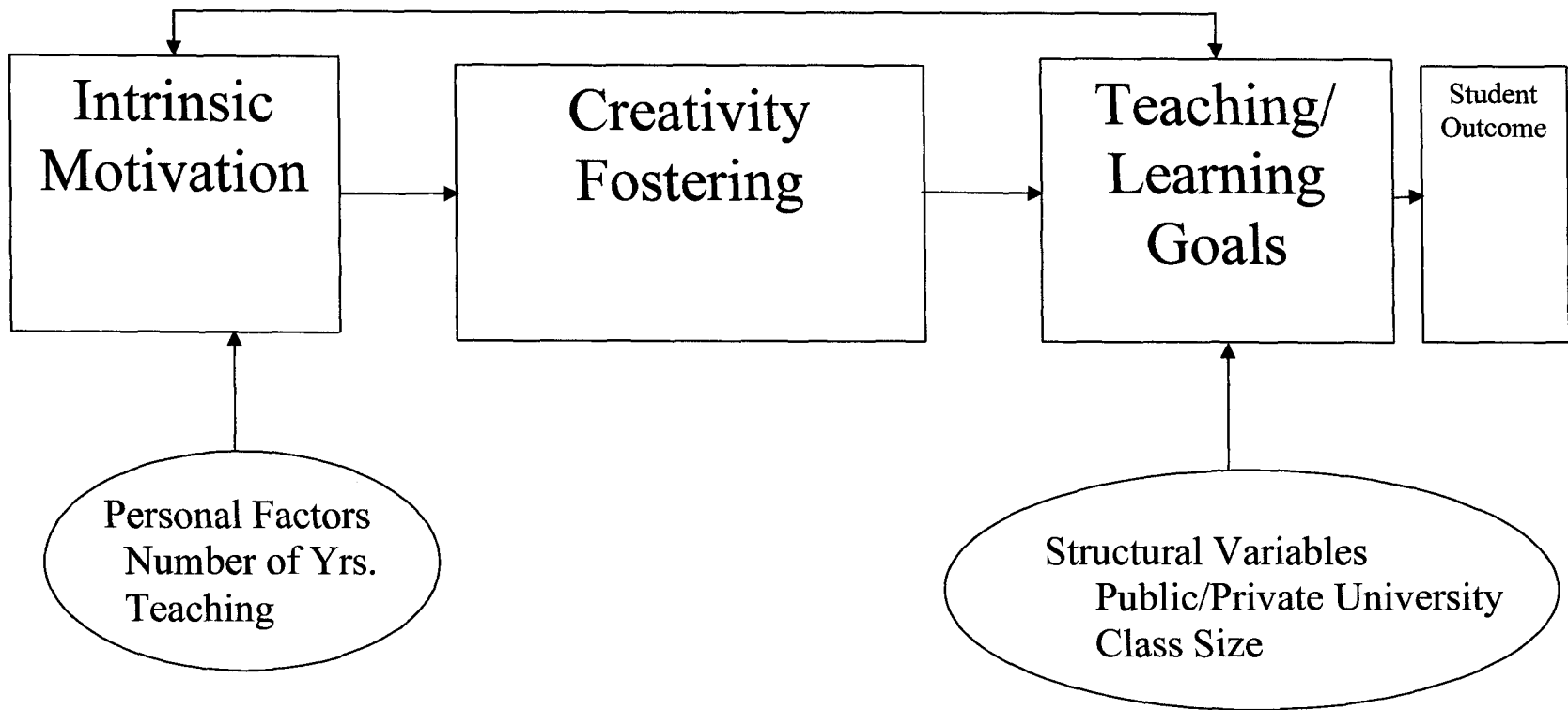


Figure 1. Conceptual model for motivation, creativity fostering behaviors, and teaching/learning goals

with behaviors (e.g., risk-taking, inquisitiveness, thinking beyond the *norm*) were often seen as a problem and as a disruption to the class. Soh (2000) recognized that the educator influence on creativity was often not the emphasis in research. The main reason given for this lack of inquiry was a lack of instruments available for the measurement of creativity-fostering from the teacher.

The teaching/learning goals of the classroom are multifaceted and individual to the educator. Factors include faculty support, administrative support, publication efforts, tenure issues, grant activity, philosophical approach to teaching/learning, and research efforts (Blackburn & Lawrence, 1995). This would also include the teaching/learning goals which the educator emphasizes for a particular course. Examples would be: encouraging critical thinking, creative thinking, improvement in basic academic skills such as reading and/or writing, leadership skills, lifelong learning, improving the understanding of theories or concepts related to the subject, and cultivating emotional health and well-being.

Class size is determined to be the number of students that a nurse educator has enrolled in a particular class, in a given quarter or semester. The number of students in a particular class is affected by whether or not it is a required course or an elective and by how many sections of a course that might be offered.

Public or private university is determined by the mission/philosophy statement of the academic institution and the governing bodies of the institution. Cropley and Dave (1978) provided insight into how and why teachers are a vital part of the teaching/learning environment. If there are many constraints placed on the nurse educator by the institution, then this could affect creativity fostering.

Years teaching in nursing will be determined by the nurse educator. An anecdotal finding that has been noticed by this researcher is that the more years in teaching, the level of intrinsic motivation and inclination toward creativity fostering may be decreased.

In summation, this study incorporated Cropley's theoretical framework for creativity fostering behaviors and explored the variables of intrinsic motivation in the nurse educator, the teaching/learning goals set by the nurse educator, class size, years teaching in nursing, and university type.

Specific Aims

1. To describe fostering creativity fostering behaviors.
2. To examine relationship among the demographic variables, creativity fostering behaviors, intrinsic motivation, and the teaching/learning goal of Higher Order Thinking Skills.
3. To examine the relationship among the variables of class size, years of teaching in nursing, university type and creativity fostering behaviors.

Chapter 2

Review of the Literature

This section of the study focused on the review of the literature. Variables associated with creativity fostering included intrinsic motivation and the teaching/learning goals. Cropley's Theory of Behavior Characteristics of Creativity Fostering Behavior were utilized as theoretical support for this conceptual model of how intrinsic motivation leads the nurse educator to foster creativity, which then leads to a teaching/learning goals that are influenced by creativity fostering behaviors. Additionally, the variables of class size, number of years in nursing education, and type of teaching institution were explored as they relate to how the nurse educator provides for the climate of teaching. The science of creativity was explored in education and for nursing education.

Theoretical Framework

The theoretical framework for this study was that of Cropley (1997). Cropley, an educator, investigated creativity for the majority of his career. Central to the understanding of creativity-fostering was that, from the time of the Ancient Greeks, creativity had been an essential aspect of traditional thinking in education. Additionally, the purpose of creativity did not encourage careless or unruly behavior. To the contrary, it was "for making contributions to the common good" (p. 84). Creativity should be fostered so that learners could develop their full potential and education could help prepare the student "for the richest and most productive life possible" (p. 84). Creativity

fostering emphasized “making the students responsible for finding problems, showing them how to distinguish between good problems and mundane ones, and teaching them to go beyond obvious problems to discover hidden ones” (p. 92).

In earlier work, Cropley and Dave (1978) dealt with lifelong learning and classroom management. They emphasized the need for educators to identify the teaching/learning goals for their classroom and to have methods for evaluating. Additionally, educators were to be a vital part of the classroom teaching/learning and to be open to learning just as the students were learning.

Cropley’s Theory of Behavior Characteristics of Creativity Fostering Behavior (1997) was the theoretical framework for the tool development by Soh (2000). This tool, The Creativity Fostering Teacher Index, measures creativity fostering behavior in the educator. In this tool, each of the nine behaviors is a subscale. These behaviors (subscales) are: encouraging students to learn independently (Dependence), having a socially integrative style of teaching (Integration), motivating students to master factual knowledge so there was a solid base for divergent thinking (Motivation), delaying judgment of student ideas (Judgment), and encouraging flexible thinking in students (Flexibility). He also included promoting self-evaluation in students (Evaluation), taking student questions and ideas seriously (Questioning), offering opportunities to work with a variety of materials and under many different conditions (Opportunities), and helping students to learn to cope with frustration and failure so that they would have the courage to try again (Frustration).

This study focused on making links between creativity fostering behaviors, intrinsic motivation of the nurse educator, and the teaching/learning goals. Additionally,

the relationships of the personal variable of number of years teaching in nursing education and the structural variables of institution type and class size were explored.

Study Variables

Creativity Fostering Behaviors. Teacher influence on creativity in the student is identified as creativity fostering behaviors (Cropley, 1999; Koithan, 1996; Soh, 2000; Ulloth, 2003). This concept is often not the emphasis in research. The creative product, creative behavior and/or creative process are the context for most of the science of creativity. Soh (2000) attributes this to a lack of instruments available for the measurement of creativity fostering from the teacher. The teacher's action and reaction to creative efforts is a vital determinant as to whether or not the student will engage in creative activity. Receptivity to the students' attempts at creativity is the key for educator creativity fostering.

Whether or not creativity is permitted and fostered is determined solely in the teacher. When creativity is not fostered by the educator, the student might make initial attempts at creativity, but when there are negative consequences to this, the inclination for creativity is often negatively influenced and it ceases. In a classroom where creativity is not valued or fostered, students with behaviors such as risk-taking, inquisitiveness and thinking beyond the *norm* are often seen as a problem and disruption to the classroom (Cropley, 1997).

Creativity fostering behavior is the variable that is absent in most creativity studies (Soh, 2000). The student may exhibit some degree of creativity and initially may try to express this in the classroom or clinical areas. The acceptance and inclusion of a

creative endeavor by the educator will affect how and if the student will continue to explore their own creativity. When the educator allows for this exploration of creativity, the classroom is positive and reinforcing, and creativity is fostered. Outside of nursing, Barr and Tagg (1995) describe the role of faculty as being designers of learning methods and to empower learning.

Motivation. One of the most common variables that lead to creativity found in the literature is motivation. Essential to teaching (Parker, 1997) and learning is some degree of motivation (Nickerson, 1999; Rigby, Deci, Patrick, & Ryan, 1992). To that end, the motivation to learn can be innate or internal and some learning occurs due to external events. An example would be, when a nursing student does not make connections (or internalized learning) of textbook and classroom content until he experiences the clinical situation.

Cropley's theory of creativity fostering behaviors would have motivation associated with the nurse educator, or educator intrinsic motivation (Cropley, 1997). In a discussion of how the nurse educator would morally conduct one's nursing practice, Parker (1997) stated, "motivation to care is something which cannot be taught, nor can it be gained from empirical research projects. It can, however, be nurtured" (p. 11). This philosophical discussion does not speak directly to creativity, it does bring up the point that motivation is something that comes *from within* the nurse educator and must be nurtured for the nursing student. There are no empirical studies that examine the nurse educator and intrinsic motivation.

This concept of motivation is a murky one. The literature is confusing and at times, conflicting. The definitions are consistent for intrinsic and extrinsic motivation, but

the examples vary according to the author. What one sees as an example of intrinsic motivation, is extrinsic motivation for another. Lepper (1988) states, “ what difference, then, does it make if learning is intrinsically motivated or task-involved? Do students learn better, or worse, or simply differently, under different motivational orientations?” (p. 294).

Several writers (Amabile, 1990; Cropley, 1997; Cropley & Urban, 2000; Nickerson, 1999; Sternberg & Lubart, 1996) speak to the need for either intrinsic and/or extrinsic motivation as the reason that creativity is valued by the individual. Amabile, an educator, is one of the most frequently cited as the expert in motivation as precursor to creativity. Her research has focused on the contextual aspects of the social environment and those intrinsic and extrinsic factors that motivate one to be creative.

Extrinsic motivation factors were described as the reward that is derived from other people or it may be a means to an end. An example would be when an educator receives positive comments on a course evaluation. Extrinsic motivation might also include avoidance of punishment.

Intrinsic motivation focuses on the personal interest in and enjoyment of doing something; the passionate interest. For example, the nurse educator might be intrinsically motivated be a great teacher because it makes him feel proud and that he has accomplished something.

More current research on intrinsic and extrinsic motivation has focused on the work of Ryan and Deci (2000). They postulated that while the common definition of intrinsic motivation is related to doing something from an inherent desire, “intrinsic motivation exists in the relation between individuals and activities” (p. 56). This is to say,

that people are motivated to complete some activities and not others. Lepper (1988) provides four strategies for promoting intrinsic motivation. They are: control, challenge, curiosity and contextualization.

Inoue (2004) completed motivation research on 31 college-age students that were asked to select (from varying degrees of difficulty) and complete a puzzle and some questionnaires. The results demonstrate that intrinsic motivation is more associated with interest in the goal, rather than competence-seeking. Whether or not the student had competence in the task did not influence their selection of a difficult puzzle. For the educator, this study shows that learning is better achieved when a task is interesting, rather than if the task is to attain competence. For the nurse educator, this departs from the accepted methods of teaching in the skills lab, where competence is the requirement. The gray area is that the skill might involve life or death, and therefore, competence is a necessity. For those skills that are not necessarily dependent on a step-wise process (such as performing a bed bath), ensuring that the student is conversant with the *why*, *what if*, and *how to* of a procedure would be sufficient for competence. However, for those skills that do require a step-wise process (such as sterile technique), the completion of the skill in the set steps would be viewed as competence. Outside the skills lab, the nurse educator could have assignments be more aligned with the interest of the student, and therefore, this would potentiate intrinsic motivation.

Intrinsic motivation research (Collins & Amabile, 1999; Nickerson, 1999; Ryan & Deci, 2000) is geared to finding those conditions that elicit, sustain, and enhance motivation, rather than those that subdue or decrease it. Ryan and Deci (2000) referred to the Self-Determination Theory (SDT). This theory speaks specifically to the social and

environmental factors that facilitate versus undermine intrinsic motivation. It is based on the assumption that intrinsic motivation, being inherent, is “catalyzed (rather than caused) when individuals are in conditions that conduce toward its expression” (p. 58). When a person experiences their actions as self-determined or autonomous, they tend to have ownership and investment in the task, or intrinsic motivation.

Additionally, Ryan and Deci (2000) described the Cognitive Evaluation Theory (CET), a subtheory of SDT, which specifies factors in social context that cause variability in intrinsic motivation. CET is based on the premise that interpersonal events and structures, such as rewards and feedback, will promote feelings of competence, which can enhance intrinsic motivation. This competence must be accompanied by a sense of autonomy. The behavior of the intrinsically motivated person must be self-determined. “For a high level of intrinsic motivation people must experience satisfaction of the needs both for competence and autonomy” (p. 58).

Bandura (1986) in Social Cognitive Theory expanded on the CET to include the notion that intrinsic motivation is developed through self-evaluation and self-efficacy or self-satisfaction. This process of self-evaluation and satisfaction with self is related to the achievement of some goal or skill. It is this goal attainment that then, increases intrinsic motivation. For the nurse educator, if self-evaluation and self-satisfaction could be achieved when a specific goal or skill is attained, then their intrinsic motivation would be increased.

Several studies (Patrick, Hisley, & Kempler, 2000; Reeve, Bolt & Cai, 1999) have been conducted in the classroom to look at the significance of autonomy vs. control for the maintenance of intrinsic motivation. Students who are overly controlled lose intrinsic

motivation and do not learn as well. Conversely, students that are supported and fostered in their autonomous learning and exploration have higher intrinsic motivation. In fact, “the quality of a student’s motivation does indeed depend, in part, on the quality of a teacher’s interpersonal motivating style” (Reeve, et al 1999, p. 538). This intrinsic motivation on the part of the teacher models for the student what intrinsic motivation *looks like* so that the student has the opportunity to internalize this for their own intrinsic motivation. Patrick, et al, (2000) suggests that this as an “external catalyst for the intrinsic motivational energy that may be lying dormant within the student” (p. 219).

The current trend in the education system has emphasized external incentives and rewards (i.e. pizza for the class if each of you read five books). By the time the student enters college, this emphasis on external rewards has squelched intrinsic motivation (Patrick, et al, 2000; Ryan & Deci, 2000).

Most educational activities utilized in schools are not designed to be intrinsically interesting (Ryan & Deci, 2000). The dilemma is how to motivate students to value these activities, to carry out the tasks. Ryan and Deci (2000) utilize two terms to assist in this dilemma. Internalization is the process of embracing or valuing. Integration is the process by which the person takes the valuing to a sense of self or personal commitment. If the educator assists the student to internalize and then to integrate new learning, then hopefully the student will be motivated to continue, which causes the motivation to become more intrinsic. Another key term is relatedness. This is when the person is willing to do something because it is valued by significant others to whom they feel connected, such as parents, peers, or society. This facilitates internalization in providing for some sense of connectedness to the person or group that is behind the extrinsic

motivation. In a classroom, this means that the student feels respected and cared for by the teacher.

There are several factors that are associated with motivation. These include: attention, relevance, confidence, satisfaction, self-perception, social context, value, competition, choice, time, support and involvement (Amabile, 1990; Cropley, 2000; Soh, 2000; Turner, Meyer, Cox, Logan, DiCintio, & Thomas, 1998).

The nurse educator has a multitude of motivation factors with which to contend. The intrinsic factors would include the desire to be a nurse educator, the desire to do a good job, the desire to learn and grow in the profession, or a fear of failing. For example, the nurse educator that has a sincere desire and interest to become a nurse educator will be more motivated to successfully fulfill the requirements of academia. On the other hand, the nurse educator that really does not want to teach may not be motivated to extend the same effort to be successful.

In the current body of research on extrinsic motivation, (Patrick, et. al. 2000; Ryan & Deci, 2000) it has been found that the typical student, who enters college after years in the education system where extrinsic reward incentives are common, has very little intrinsic motivation. This is a real issue for nurse educators who encounter nursing students who have not been encouraged nor supported in their intrinsic motivation. Perhaps the nursing student does not even have a real grasp of that passion or that innate desire to learn what it means to be a nurse. Additionally, according to Lepper (1988) with the advent of the computer, the education system has essentially divorced itself from “the affairs of the heart”, which are motivation, personality and affect (p. 290).

Despite the vast body of research regarding motivation, there is consensus that in order for creativity to occur, the person must have a desire to be creative and the external influences should enhance rather than diminish this internal drive (Patrick, et al, 2000; Reeve, et al, 1999; Ryan & Deci, 2000). For the nurse educator then, the desire to provide for and allow for creativity influences the external environment of the student and therefore, would foster creativity in the student.

Teaching/Learning Goals. There is a growing body of research which shows that the teaching/learning goals as another factor that can influence creativity (Amabile, 1990; Blackburn & Lawrence, 1997; Sternberg & Lubart, 1996). There are some individuals that are supported and encouraged to be creative, yet are not inclined to tap this and explore their creativity. For other individuals that are in a negative environment, they can rise above the negative influences and become an extremely creative, productive individual. Furthermore, there are individuals that have multiple barriers to creativity (decreased intelligence, decreased opportunity, communication, and physical challenges) who can express themselves in very creative ways. For example, the young surfer that loses an arm, now utilizes new and underutilized muscle groups to change balance and maneuvers to relearn the sport of surfing. The environment of family support, personality factors, peer support and play a key role in influencing creativity.

The teaching/learning goals of the classroom differs from creativity fostering behaviors of the educator. Creativity fostering behavior focuses on the *where*, *when*, and *how* the nurse educator directly influences. For the educator, the teaching/learning goals includes those forces which are relevant to, and influence educator approach to learning in the classroom. Examples include faculty support, institution type, administrative

support, publication efforts, tenure issues, grant activity, and research efforts (Blackburn & Lawrence, 1995). These issues do affect the educator ability/willingness to foster creativity (Cropley, 1997).

To relate the teaching/learning goals to the nurse educator using Cropley's theory (Cropley, 1997), the subscales of Integration, Questioning and Opportunities were discussed. Integration is having a cooperative, socially integrative style of teaching. Questioning is when the nurse educator takes student suggestions and questions seriously. Opportunities is when the nurse educator provides for a wide variety of learning opportunities under many conditions. Outside of nursing, Barr and Tagg (1995) identified that learning structures need to be holistic, across disciplines or academic departments.

Rose and Marks-Maran (1997) stated that inherent in nursing scholarship which develops caring nursing practice were the concepts of creative thinking, reflective thinking and critical thinking. Additionally, nurses are socialized, through the education process to express this caring in nursing practice in a multitude of ways. The nurse educator would utilize integration as the means to provide for students to explore their creativity through group work, rather than in isolation. Ruth-Sahd (2003) postulated that if nurse educators can create a collaborative climate that focuses on the learner, engages the learner both cognitively and affectively and have classroom time for the student to explore the learning process, then perhaps, the education process might be enhanced.

The notion of Questioning was addressed by Ruth-Sahd (2003) in a study that examined the implications of reflective practice for nursing education. In this study, reflective practice was often described as an imaginative, creative act that allows for educators to recapture the experience, ponder the experience and then evaluate it. Nurse

educators then, are encouraged to be more reflective and take student suggestions and questions seriously. Additionally, “educators must also realize their perspective is not the only perspective and recognize they may also learn from their students” (Ferry & Ross-Gordon, 1998, p. 99)

Lastly, Cropley’s subscale of Opportunities, which provides for a wide variety of learning opportunities under many conditions and can be seen in the work of Andrews and Roberts (2003). For the nursing student, the clinical experience is where the student can apply theory to practice. It is in the clinical experience that the student is able to begin piecing together what has been learned with clinical practice (Chan, 2005). “Practice learning is an important part of the curriculum and accounts for approximately 50% of the pre-qualifying nursing programme” (Andrews & Roberts, 2003, p. 474). In the classroom, the nurse educator must be intentional about finding variety in the approach to teaching and learning (Billings & Halstead, 2005; Day, 1993). Koithan (1996) stated that the nursing profession “requires an awareness and multiple methodological strategies for an education system that models creativity and thinking rather than conformity and performance” (p. 535).

Class Size. The variable of class size has been explored in nursing education in the context of recruitment and retention (Fearnley, 1995; Last & Fulbrook, 2003), student assessment and performance (Gibbs, Lucas & Spouse, 1997) and traditional versus distance learning (Salamonson & Lantz, 2004). Gibbs et al, (1997) found in a longitudinal study with 11, 799 nursing students, that academic performance decreased with larger class sizes. In fact, 20% of the variance could be explained by class size

(Gibbs et al, 1997). There are no empirical studies found in nursing education literature that explores the concept of class size and creativity or creativity fostering.

Number of Years Teaching. The variable of number of years teaching in nursing has not been explored in relation to creativity fostering. Number of years teaching has been linked with reflective practice (Ferry & Ross-Gordon, 1998), power (Brown, 1993), and publication rates (Blackburn & Lawrence, 1995).

Institution Type. The variable of whether the nurse educator teaches at a public or private university and creativity or creativity fostering has not been explored in nursing education. Paul, Elder & Bartell (2004) completed a study to determine faculty emphasis on critical thinking in instruction with a sample of 38 public universities and 28 private universities in the state of California. Results of this study do not differentiate between public and private university and found that while most educators think that critical thinking is being addressed, very few of the educators could articulate how critical thinking was being evaluated or assessed. Furthermore, the definition of critical thinking varied and most of the educators had not synthesized the literature on the concept.

Synthesis of the Concept of Creativity

Several writers (Dreher, 1999; Grainger, 1991; Grandusky, 1991; Greiner & Valiga, 1998; Olson, 1978; Youtz, 1962) described incubation or percolation of ideas as a necessary attribute for creativity. This is typically conscious and unconscious thought over some period of time so that the ideas can be developed and fine-tuned. It is implied that time and patience are also essential for creativity. Unfortunately, in nursing education, we may not take the time to allow ideas to percolate or develop. All too often, changes are made without much thought. An example of this is when a faculty member

receives negative comments on student evaluations and makes immediate changes in the course content or clinical setting. Yet, if that person would just sit back, take time to evaluate and incubate the entire issue from all sides, then, perhaps no changes in content need to be made. Rather, the change needs to be in the approach to teaching/learning.

Greiner & Valiga (1998), Murphy (1985) and Torrance (1963) stated that ambiguity and uncertainty must be tolerated and dealt with in order for creativity to occur. These terms point to the idea that creativity was often the result of dealing with the gray areas or the unclear areas of a problem or situation. If all things were clear or black or white there would probably not be a need to be creative. Why change something if it works? Conversely, if something isn't working, change it, fix it, so that it does work. This may be one of the glaring areas in nursing that needs to have further investigation. Nurses will often tolerate ambiguity and uncertainty at the cost of not understanding the "why" and "what if" of a situation. Furthermore, nurses often lack evidence to support rationale for decision-making. An example would be the common statement of "because that's the way we have always done it." Clearly, there is lack of creativity to investigate the "whys" and "what if's" to a problem or situation. This lack of understanding and lack of inquiry start with the nurse educator and the education process.

Another common thread of creativity was persevering. Nightingale (1859), Le Storti et al. (1999), and Munhall (1997) suggested that perseverance was necessary for creativity to be nurtured and developed. There must be a climate that allows the individual to feel safe and secure in creative endeavors. If such a climate does not exist, then creativity could be negatively affected. There are too many nurse educators who will publicly discipline or ridicule a student for demonstrating creativity or that which is not

accepted by the educator. The result then, is a student that has learned that any idea that is not congruent with the educators' idea, is not spoken nor correct. Creativity is stifled.

Finally, there is the common thread of being able to think outside the box or in a way other than step by step. Murphy (1985), Munhall (1997) and Kendall (2000) each discussed how important it was for the nursing student to be able to approach his/her nursing care in a variety of ways, not just the way it is written on a certain page in a text. Each of the writers challenge the nurse educator to assist the student to question, to explore other alternatives, and to seek out new ways of doing.

The Science of Creativity

Education

There was a vast body of knowledge regarding the science of creativity in the field of education. A large portion of the literature dealt with the testing of tools and tool development. Another portion dealt with studies on particular groups, such as the elementary school child, the gifted child, the adolescent, and the educator.

Craft (1998) completed a qualitative, ethnographic study of 18 British educators enrolled in a course on creativity. Additionally two questionnaires for measuring creativity were given, but no results or data from those questionnaires were discussed. The themes that emerged were valuing the notion of relationship, such as, with other colleagues, learners, parents. Secondly, the belief that self-esteem and self-confidence needs to be nourished in order to be creative. Third, the need for personal autonomy and feeling comfortable with one's own expression of creativity needs to exist. The fourth theme was the belief that creativity involves risk-taking, which involves the stretching and breaking of boundaries. Fifth, was the idea that creativity involves openness to a

wide range of influences. The sixth theme was the tendency to value aspects of creative teaching. And lastly, the seventh theme was the belief that the educator needs to be nourished and take time for personal development in order for creativity to occur.

Limitations of this study included the fact that no discussion was provided regarding the questionnaires or the results of the questionnaires. Participant observation occurred throughout the course, but it is not clear when the interviews were complete or when the instruments were administered. One would question the quality of the data, since such an important portion was left out. While the themes that emerged speak to the definition and/or attributes of creativity, replication of the investigation would need to be done which would incorporate or leave out the use of the questionnaires.

The Craft study (1998) had relevance to nursing and healthcare in that ethnographic research has emerged as a valid and information gathering method for nursing science. Ethnography is the description of the life of a person, including culture, specific contexts, and beliefs. This rich text explores those pieces of the human experience that quantitative research cannot. It is through ethnography that the researcher identifies themes so that behavior can be explained and understood (Kleinman, 1988). If the researcher can understand the lived experience of the person, then perhaps, more can be done to meet the patient at their point of need. In the field of education, and specifically regarding creativity, ethnography can be valuable in identifying and understanding those complex issues of what the educator is experiencing and how they exemplify and foster creativity in the student.

Goertz (2000), an education consultant for the Ohio Department of Education, completed a mixed-method exploratory study using four principals, from school districts

in the Southwest. These principals were selected on the basis of the ranking *above average* according to the National Association for Secondary School Principals Assessment Center. A hypothesis from this study was that if effective leaders identify creativity as an important indicator of leadership, then programs would need to be implemented to develop creative potential in undergraduate education programs. A 47-item, Likert scale questionnaire was developed, which incorporated each of the eight variables regarding creativity and were determined through literature review. The eight variables included are: passion for work, independence, originality, flexibility, wide range of interests, goal setting, intelligence and motivation which seems to differentiate more creative people from less creative. Motivation was intrinsic as it arises from a self-confident perspective. It is noted that the variables of originality and flexibility have been listed previously as defining criteria for creativity.

The author discussed some validity issues for tool construction, but did not elaborate. Descriptive and inferential statistics were described as being used, but, other than demographics of the participants, none were reported.

In-depth interviews were the second method of data collection used by Goertz. The interview guide was formulated by the author and validity issues were addressed, but no statistical data provided. Findings from these interviews were reviewed for interpretation. Coding revolved around the eight variables.

Results of this Goertz (2000) study demonstrated that the eight variables selected did define creativity traits and should be considered as a viable part of leadership training. Being an effective leader requires more than administration and management.

She states, “the creative leader is the educational leader and effective leader for the future” (p.162).

Limitations of this study included: small sample size, lack of validity statistics, and statistics regarding the responses on the tool. Until these are determined, incorporation of these findings would not be adequate for change to occur. Additionally, further testing on larger sample sizes would be indicated. Once these issues are addressed, the nurse educator could apply these findings on perceived creativity, in a leadership portion of clinical experiences and theory.

Relevance of the Goertz study (2000) to the science of nursing regarding creativity is limited to the linkage of creativity as a leadership quality. Creativity could be investigated as a leadership or management-style quality that may affect creative potential in nursing curricula.

Soh (2000), an educator in Singapore, completed a validation study for tool development regarding creativity in the educator, on 117 educators in Singapore. The Creativity Fostering Teacher Index (CFTI) was a 45-item, 6-point Likert scale, self-report measure of teaching style preferences. The tool is new to the field of education and early testing demonstrates validity and reliability. Soh discusses that creativity has traditionally been researched according to process, behavior, and product. There is an additional factor present that the educator must recognize the classroom environment, that is, the teaching/learning environment of the classroom that influences creativity. The educator can indirectly influence student creativity by creating a supportive teaching/learning environment through words and deeds.

The purpose of this study was to conduct validation testing of the tool as a measure of creativity fostering behaviors in the educator. The theoretical model for the tool utilized Cropley's Theory of Behavior Characteristics of Creativity Fostering Behavior. Nine behavioral characteristics of creativity fostering teachers were evaluated. These nine behaviors are: encouraging students to learn independently, having a cooperative, socially integrative style of teaching, motivating students to master factual knowledge as a solid base for divergent thinking, delaying judgments, encouraging flexible thinking, promoting self-evaluation in students, taking student questions seriously, offer a wide variety of opportunities and under different conditions, and lastly, helping students to cope with frustration and failure thus, promoting courage to continue to try.

For each of the nine behavioral characteristics of creativity fostering behaviors, five behavior statements were formulated. The author provided significant reliability and validity measures for the tool and the study demonstrated that the nine characteristics were measuring creativity fostering behaviors.

Limitations of this study are that the tool was new and further testing needs to be completed. Secondly, there had not been any reported studies on educators in the United States, so issues of culture, language, and translation have not been addressed. The tool was available in the journal, and it does have application for educators in the United States to do replication studies for validity and reliability.

This study (Soh, 2000) provided a tool that has potential for assisting the nurse educator in understanding specific creativity fostering behaviors. If it can be

demonstrated that creativity fostering behaviors do in fact, foster creativity in the nursing student, then curricula and the focus of pedagogy in nursing can be improved.

Nursing Education

The existing body of knowledge in nursing education was clearly lacking in the area of creativity. There were several unpublished dissertations on the topic, dating back to the early 1980's. These dealt with students and/or faculty and some measure of creative behavior. Published studies dealt only with students and creativity. There were a few studies on creativity in the clinical nurse and in nursing administration. For purposes of this paper, only those studies dealing with students and/or nurse educators were discussed.

Eisenman (1970) completed a cross-sectional study of 266 nursing students and a longitudinal study of 60 nursing students (30 each from two different schools). Two measures of creativity were used. One was the "unusual uses" survey which had the subjects provide all the uses for an object. Their responses were then scored according to which responses occurred less than one percent of the time, which was defined as statistical infrequency. Eisenman described how this type of testing can have human error in interpretation. To deal with this, there were two scorers and where there were discrepancies, these were reconciled by discussion. The second tool utilized in the Eisenman study was the Personal Opinion Survey which is a 30-item, true-false, paper-and-pencil personality measure of creativity. For both tools, appropriate measures of validity and reliability were reported.

Interpretation of scores for the unusual uses survey in the Eisenman cross-sectional study demonstrated a decline in originality from entry to the program to

graduation. Scores for the longitudinal subjects were consistent with the cross-sectional results.

Interpretation of scores for the Personal Opinion Survey in the Eisenman cross-sectional study did not demonstrate significant differences across classes. Longitudinal findings were again consistent with the cross-sectional data and were not significant.

Limitations regarding this 1970 study are varied. The sample size of 266 would be sufficient for a study, yet generalizability would probably be better with a higher sample size. Also, the unusual uses test sounds very time-consuming and tedious. Yet, if a study demonstrated significant findings in the nursing education arena, why wasn't the study replicated or revised?

In 1970, Bailey, McDonald & Claus reported a study regarding creative behavior in an experimental nursing program in Northern California. This was a longitudinal, quasi-experimental study, with a sample size of 141 female nursing students. A curriculum change was made utilizing problem-based teaching/learning styles, that would encourage creative or unique ways for nursing students to solve problems. Four measures of creativity were utilized. These were the Torrance Tests of Creative Thinking, The Torrance Common Problems Test, Torrance Social Improvements Test, and the Bailey General Nursing Problems Test. The authors reported sufficient validity and reliability tests for each of the tools. These tools, with the exception of the Bailey General Nursing Problems Test, are widely used and accepted throughout the body of science regarding creativity.

Results of the study demonstrated that those students in the experimental groups exhibited higher scores than the control group on the Torrance Tests of Creative Thinking

and the Bailey General Nursing Problems Test. Experimental Group 2 demonstrated significantly higher scores than the control group on all measures of creativity. The Torrance Common Problems test and the Torrance Social Improvements test demonstrated that the second experimental group had higher scores than either the control group or the first experimental group.

Limitations of this study could be the small sample size for generalizability and the use of so many tools. Inclusion of four tools made it difficult to keep track of all the statistical information. Also, issues of faculty compliance with the new curriculum were not addressed. Lastly, there were no pre-tests given to determine what levels of creativity existed prior to the new curriculum.

Sullivan (1987) completed a pre-test/post-test study to determine if critical thinking, creativity and clinical performance improved in 46 BSN completion students. Tools utilized were the Watson Glaser Critical Thinking Appraisal, Torrance Test of Creative Thinking and the Stewart Evaluation Scale. Applicable validity and reliability measures were provided. These tools were administered at entrance to the BSN program and upon graduation.

Results of this study demonstrated that overall creativity and originality decreased. Means scores for creativity went from 114 to 107.10. And mean scores for originality went from 79 to 65.

Limitations of this study were the small sample size not being large enough for generalizability. There was minimal discussion as to demographics of this sample. Age, life experience, prior creative endeavors may or may not contribute to the BSN completion students' decline in creativity scores.

Pettigrew (1988) conducted a quasi-experimental study with 610 faculty in NLN-accredited graduate schools of nursing. This unpublished dissertation selected graduate nurse educators and administrators as they are deemed as having “the greatest time and support for creative activities” (p. 4). There were three research questions, one of which was to determine the cognitive style of creativity in a population of nurse educators and administrators of graduate nursing programs. The second question was to determine perceptions of the climate for, and behavioral measures of, creativity in this population and the third question was looking at tool validation for the Kirton Adaption-Innovation Inventory (KAI). Three instruments were utilized. These are the Jackson Personality Inventory, the KAI and the Creativity Survey. Appropriate statistical analysis was provided for validity and reliability of the tools and for the results of the study.

Results of this study demonstrated that nurse educators and administrators do exhibit an innovative cognitive style of creativity, that the work environment is perceived as being only moderately supportive of creativity, and construct validity of the KAI was established.

Discussion of findings and limitations of this study are varied. First, is the notion that graduate nurse faculty and administrators were selected as having the most potential for creativity because of time and support. One would assume then, that undergraduate faculty have no time for creativity and are not supported in creative efforts. Furthermore, graduate faculty may find it interesting to note that they have more time on their hands to pursue creative endeavors.

Second, the determining factor for creative behavior was whether or not the faculty had published an article or had conducted research. Due to the lack of studies in

this area, criteria for determining creative behavior cannot be adequately assessed. While it is essential to the profession of nursing to publish and conduct research and both are deemed creative endeavors, emphasis on the nursing student is not included. Creativity fostering is not included as essential in the process of education of the nursing student, as evidenced by the lack of research on this topic.

Synthesis of the Science of Creativity

Issues Regarding Methods

It is noted that research studies published in education journals were not consistent in reporting detailed statistical information, detailed description of data collection or validity and reliability data for the tools utilized. As a result, the reader is left with the dilemma of incorporating findings or not valuing the findings because of the lack of this information.

The nursing journals were consistent with reporting the necessary statistical, data collection and validity and reliability data. Perhaps explanation for this could center around nursing's foundation in the sciences. Including statistical data demonstrates rigor and supports the findings as valid.

There are many definitions and attributes of creativity. As a result, there are many tools centered around these definitions and attributes. Consequently, there is no one tool that can be said to accurately measure creativity. While the Torrance tests are widely used, it has not been determined that these tools accurately measure creativity in the nursing student or nursing faculty.

The body of knowledge regarding creativity in nursing education only has quantitative research, whereas, the education literature utilizes both quantitative,

including tool development and qualitative research methods including ethnography. The defining characteristics and attributes state that creativity is often derived from the social context (Bevis, 1989; Olson, 1978) and can be interpreted in many ways. Because of this, qualitative research would seem to be an obvious method of inquiry. Yet, nursing has not investigated creativity from a qualitative perspective.

Issues Regarding Findings

It has been shown that education, in some way, affects the process of creativity (Bailey, et al, 1970; Craft, 1998; Goetz, 2000; Eisenman, 1970; Sullivan, 1987), the product of creativity (Bailey, et.al, 1970; Eisenman, 1970; Onwuegbuzie, 2000) and/or the behavior of creativity (Craft, 1998; Soh, 2000). The fields of Education and Nursing had research exploring the student and creativity. Education had research regarding creativity in the educator and nursing science had a minimal body of knowledge on creativity in the educator.

The education literature did explore the educator role in influencing creativity in the student and perceived creativity in the educator. Education also made links between a specific characteristic and levels of perceived creativity (Goertz, 2000; Onwuegbuzie, 2000). Nursing literature has been focused on levels of creativity in the nursing student and was linked to critical thinking and clinical performance (Sullivan, 1987).

Implications for Nursing Education

Creativity is valued by the accrediting bodies for nursing education. It has been shown that creativity in the nursing student decreases with progression through the nursing curriculum (Eisenman, 1970; Pettigrew, 1993; Sullivan, 1987). The literature has been reviewed to determine the breadth and scope of the current definitions and attributes

of creativity. As nurse educators, it is essential that we look at explanations for the cause of the decline in student creativity.

Gaps in the existing body of knowledge regarding creativity in nursing education are focused on the nurse educator. It was identified over 30 years ago that further investigation was needed to find out why nursing student creativity diminished. Speculation was made that the nurse educator and/or the education process had some affect on the student. Yet, to date, there are no published studies that investigate the role of the nurse educator in fostering creativity in the student. To start this inquiry, one could pursue Soh's (2000) notion of faculty influence, creativity fostering behaviors, and perceived faculty creativity.

Another gap in the literature is that there have not been any replication studies for generalizability from which sound curricular changes can be made. The numerous tools available regarding creativity demonstrate that tool development may not be where further inquiry needs to focus. Understanding creativity can be elusive and what one sees as creative, another may not. It needs to be investigated from a social context and because of this, one tool or research method may not accurately reflect creativity. Existing tools need to be tested for validity, reliability and generalizability in nursing education. Additionally, qualitative research regarding creativity should be explored in nursing education.

Lastly, further inquiry should be made that could potentially link specific nursing student characteristics and creativity. Examples here would be: anxiety, stress, clinical situations, self-care practices, or depression. This is a small sampling of potential areas where nursing research could start making links between creativity and another

phenomena. Furthermore, exploration in this area could also incorporate the attributes of *curiosity, imagination, and the interconnectedness of all things*, which are missing in the nursing literature on the definitions and attributes.

The nurse educator must first understand and espouse the concept of creativity before any attempts can be made to facilitate creativity in the nursing student. It has been shown that with education as a background, and nursing education as the more specific focus, there was a vast amount of available literature on the topic of creativity and creativity in the educator. The current science of creativity provided the nurse educator with a better understanding so that creativity fostering behaviors can be explored. Additionally, if the nurse educator incorporates these creativity fostering behaviors, then, perhaps similar concepts in nursing education would be positively influenced.

Conclusion

Clearly, there were gaps in the body of research regarding creativity, motivation, creativity fostering and the teaching/learning environment supported by the nurse educator. Specific gaps existed in research methods, tool development and nurse educator influence on creativity. Furthermore, these gaps were significant in the context of adult learning, creativity, critical thinking and problem-solving for the baccalaureate nursing student. If these gaps were to be narrowed, then further research was necessary so that the correlations can influence the future trends of nursing education, and therefore, the practice of nursing. Specifically, how curricula are determined, how a course is organized, how the educator approaches teaching and how the transition from student to graduate nurse is manifested. Nursing must identify methods used to assess creativity fostering behaviors in the nurse educator.

It is essential for the nursing student to have the inclination to be creative in thinking. The nurse educator is the foundational premise for this creative process to be developed. The nurse educator role in creativity fostering is an unknown phenomenon in nursing education. Nursing education and therefore, the practice and profession of nursing will only benefit from further investigation into the role that the nurse educator has in fostering creativity in the nursing student.

Chapter 3

Methods

Research Design and Method of the Study

The purpose of this study was to investigate the relationship among creativity fostering behaviors in the nurse educator, intrinsic motivation of the nurse educator, and the teaching/learning goals provided by the nurse educator. Additionally, the variables of class size, number of years teaching, and whether the nurse educator teaches at a public or private university were investigated. This study was conducted following a pilot study, which will be discussed at the end of this chapter.

Research Design

The research design was a non-experimental, descriptive study that examined the creativity fostering behaviors in the nurse educator. A convenience sample of BSN nurse educators from the state of California was utilized. The sample included nurse educators at four-year public and private universities.

Identification of Sample

Demographic data included age, gender, race, number of years in nursing, clinical specialty, public or private university, number of BSN courses taught, and number of years in nursing education. This data was analyzed using descriptive statistics.

Inclusion criteria. Inclusion criteria was any BSN faculty that had taught at the undergraduate level in the current/last semester or quarter. The BSN faculty list was obtained from the AACN website for member schools in the state of California.

Exclusion Criteria. Exclusion criteria was a BSN faculty person who had not taught at the undergraduate level in the current/last semester or quarter. Whether the nurse educator was currently teaching (current semester/quarter) was addressed in the consent form (Appendix B) and in the demographic form (Appendix A). The consent form stated that if the nurse educator had not taught in the current or previous academic year (2004-2005), then he or she should not complete the surveys. Additionally, some nurse educators taught at both the graduate and undergraduate levels. The nurse educator completing the surveys taught at least one undergraduate course. This was included in the consent form and demographic form as well.

A list of names was obtained from the most recently updated AACN website for member schools in California and was used to identify BSN nursing faculty. A power analysis was conducted with an estimated sample size of 91 for a medium effect size and a power of .80 using Cohen (1988).

Instruments

Creativity Fostering Teacher Index

Creativity fostering behaviors in the nurse educator was measured by the Creativity Fostering Teacher Index (CFTI). This instrument was a 45-item self report six-point Likert scale, (e.g., "I encourage students to ask questions and make suggestions in my class"). The six point Likert scale ranged from a 6, *all the time* to a 1, *never*. There are five questions for each of the nine subscales. These subscales were: Dependence, Integration, Motivation, Judgment, Flexibility, Evaluation, Question, Opportunities and Frustration.

Using factor analysis with varimax rotation for each of the set of five items, one factor was obtained. Factor loadings for each scale ranged from 47% (Evaluation) to 65% (Frustration). The factor matrix provided that the amount of variance accounted for by each successive factor was maximized. The factors for each of the scales are distinct from the other scales. High loadings were greater 0.40 (Hazard-Munro, 2001).

Cronbach's alpha coefficients varied from .69 for Evaluation to .86 for Frustration. The median of reliabilities was .82 with $p < 0.01$. The Cronbach's alpha coefficient was .96. With Cronbach's alpha, scores should range from 0.0 to +1.0, the higher values reflect a higher degree of internal consistency. Each item was correlated with every other item. Ideally, the score would be greater than 0.70 (Hazard-Munro, 2001).

There was an overall index of creativity fostering behavior scores. The nine subscales each had a discrete measure. Permission to use this scale was granted from the author (Kaycheng Soh, personal communication, April 18, 2003).

Teaching Goals Inventory

The Teaching Goals Inventory (TGI) was developed by Angelo and Cross in 1986 and was revised to the current version in 1993. The TGI was developed to assess and improve instruction and to clarify for faculty what they wanted their students to learn. Faculty identified and ranked the importance of their goals for teaching/learning for a particular course. The original version was tested on 5000 college teachers and validity was determined so that the tool could be used in a variety of settings. Revisions and further testing were conducted.

The TGI was a 52-item, Likert scale survey with responses from a 5 or *essential* where the educator was always or nearly always trying to achieve a particular teaching/learning goal, to a 1 or *not important* where the educator was never trying to achieve a particular teaching/learning goal. One example of a statement asked the educator if a goal for his or her course was to “develop an openness to new ideas.” This statement was reflected in the definition of creativity (Fawcett, et al., 1997; Pesut, 1985). There were six clusters or subscales. These are: Higher-Order Thinking Skills, Basic Academic Success Skills, Discipline-Specific Knowledge and Skills, Liberal Arts and Academic Values, Work and Career Preparation and Personal Development. Alpha coefficient reliabilities a measure of internal consistency for the clusters ranged from .71 for the Discipline-Specific Knowledge and Skills to .86 for Personal Development. Each of the six subscales for teaching/learning environment had a discrete measure. To score the TGI, a frequency was taken on how many items were marked *essential*. The subscale/s with the most items marked *essential* would be reflected in teaching/learning goals for a course. Consent for use of this tool was granted by Angelo and Cross (1993).

The nurse educator identifies particular characteristics that they emphasize in the teaching/learning goals. Examples of items in this teaching/learning goal of Higher Order Thinking Skills deals with an emphasis on problem-solving skills, the ability to synthesize and integrate information and ideas, and the ability to think creatively. Some examples of Basic Academic goal content include an emphasis on improving memory skills, speaking skills, and writing skills. Examples in the Discipline Specific goal include an emphasis on learning concept, theories, and facts about a subject, preparing for

graduate study, and understanding perspectives and values of this subject. Within the Liberal Arts goal, the emphasis deals with developing a lifelong love of learning, developing aesthetic appreciation and developing a capacity to make informed ethical choices. The Work/Career goal emphasizes the development of management skills, leadership skills, and improving the ability to organize and use time effectively. Lastly, the Personal Development goal deals with areas such as cultivating emotional health and well-being, improving self-esteem/self-confidence, and developing a commitment to one's own values.

Intrinsic Motivation Inventory

The Intrinsic Motivation Inventory (IMI) is a multidimensional tool intended to measure the individuals' subjective experience related to a specific activity. The original version of the tool is a 45-item Likert scale, with seven subscales. The seven subscales are: interest/enjoyment, perceived competence, effort, value/usefulness, felt pressure and tension, perceived choice and lastly, the experience of relatedness. The particular portion that specifically measures intrinsic motivation is the interest/enjoyment subscale. The perceived choice and perceived competence concepts theoretically are positive predictors of intrinsic motivation. The pressure/tension subscale is a negative predictor of intrinsic motivation. Effort is seen as a separate variable but is relevant to some of the motivation questions.

The Likert scale is numbered from one to seven, with one being *not true at all* to seven which is *very true*. The IMI has been revised into four subscales, varying from nine questions to 45. Each of these scales has been tested for reliability and validity. For purposes of this study, the 22-item scale will be utilized. The 22-item IMI has been used

in two studies (McAuley, Duncan & Tammen, 1988; Tsigilis & Theodosiou, 2003). This tool was found on the internet and is public domain.

McAuley, et al (1988) completed a study with 116 undergraduate students enrolled in a physical education course and demonstrated alpha coefficients ranging from .68 on the pressure/tension subscale to .84 on the effort subscale. The overall alpha was .85 (McAuley et al, 1988).

Tsigilis and Theodosiou (2003) completed a study with 144 undergraduate physical education students and had alpha ranges from .66 on the pressure/tension subscale to .84 on the perceived competence subscale. The overall alpha was .82 (Tsigilis & Theodosiou, 2003).

Sampling Procedure

The instruments utilized for this study were mailed to BSN nurse educators. For this study, 453 packets were mailed in early December, 2005. Included in the packet were: three tools, two copies of the consent form, the demographic form, an addressed, stamped envelope, and a raffle-type ticket as an incentive to encourage prompt return of the completed instruments by January 10, 2006. Packets were coded and will only be known by the researcher. The incentive was a \$150 Southwest Airline voucher. The time allowed for return of the instruments was 5 weeks to be eligible for the airline voucher. Rationale for this was that packets were mailed around the winter break of 2005. If not enough time is allowed the nurse educator might feel that there was not time to complete the instruments or might be on winter break. The person with the winning ticket received a \$150 Southwest Airline voucher.

Data Collection Procedure

By mid-February 2006, 117 packets had been returned for a response rate of 25%. Of these, 24 were returned due to incorrect address, the respondent was not eligible to participate, or there was incomplete data. Total sample size for this study is 93. Upon return of the instruments, the researcher entered the data into the computer using the assigned code. The instruments were then placed in a locked cabinet, with access only by the researcher. The researcher utilized the Statistical Package for the Social Sciences (SPSS) Version 12.0. There were 837 items entered into the demographic area, with no mistakes found. There were 11,067 items entered into the instrument response area for the three tools, one mistake was found and corrected.

Protection of Human Subjects

Institutional Review Board (IRB) from the University of San Diego granted approval for this study; a continuation of project number 2005-07-073 was assigned. The only change to this study from the pilot was the increase in sample size. The investigator obtained the most recent updated AACN member list of California colleges and universities via the AACN website. Names of faculty were included in each of the AACN member college/university websites. Some of these college/university websites have detailed faculty information, including level of course taught and clinical specialty; some do not. To manage the inclusion and exclusion criteria the demographic form was utilized to account for those faculty that do not teach at the BSN level. See Appendix C for IRB approval.

Management of Missing Data

Of the 117 packets returned, 20 were determined to be invalid due to incorrect address or the nurse educator did not teach at the baccalaureate level (per self report). Additionally, there were four packets that contained significant missing data. Of these four, three had at least an entire page of missing data on one or more of the tools. The other packet had only one tool partially complete.

An issue that was not discovered in the pilot study was that question number 26 on the CFTI started on the bottom of one page and carried over to the next page. Some of the respondents did not see this and therefore, left this question blank. So that there was not a favorable or unfavorable response, the researcher coded these with a “3” on a Likert scale of 7.

For the remainder of missing data, approximately 10 questions blank across all three tools, the researcher coded these as moderate. For the Likert scale on the TGI of 5, a 3 was coded for missing data. For a Likert scale on the CFTI of 7, a 3 was coded. There was no missing data on the IMI.

Research Design and Methods of the Pilot Study

A pilot study was completed in the summer of 2005 to assist in the feasibility regarding questions and refinement of the research proposal investigating the relationship between creativity fostering behaviors and intrinsic motivation of the nurse educator, and between creativity fostering behaviors and the teaching/learning goals established by the nurse educator. Additionally, the variables of class size and whether the nurse educator taught at a public or private university was investigated. Data from the pilot study was

not included in the full study. The research design and methods, demographic data sheet and instruments were described earlier.

Identification of Sample and Sampling Procedure

Demographic data included age, gender, race, number of years in nursing, clinical specialty, public or private university, household income, number of BSN courses taught, and number of years in nursing education. This data was analyzed using descriptive statistics.

Protection of Human Subjects

All efforts were made to ensure the privacy of all participants. Demographic data is non-identifiable. Instruments were coded and only the researcher will know this code. Data will be kept for a minimum of five years in a locked cabinet. Consent issues were included in the mailed survey and participation will provide implied consent. There was no human contact with the participants. See Consent Form Appendix B.

Subjects were informed that if they do not have to participate, there would be no consequences. The potential risks were minimal, only time and inconvenience of completing the instruments. The potential benefits were to the nurse educator in making him/her aware of creativity fostering behaviors in the classroom and teaching goals as a mechanism to promote faculty teaching and student learning.

Application was made and approval granted by the Institutional Review Board (IRB) from the University of San Diego for this study. Project number 2005-07-073 was assigned.

Data Collection

The investigator obtained the most recent updated AACN member list of the two universities via the AACN website. Names of faculty are included in each of the AACN member college/university websites. Some of these college/university websites have detailed faculty information, including level of course taught and clinical specialty; some do not. To manage the inclusion and exclusion criteria the demographic form was utilized to account for those faculty that did not teach at the BSN level.

Data were collected from a convenience sample of BSN nurse educators from two universities in the city of San Diego. Twenty-one packets were mailed to faculty in August 2005 with a 3 week time for return. Included in the packets were the three tools, demographic form, two signed copies of the consent form (one for signature and return, one for personal use), and a self-addressed stamped envelope for return. A \$5.00 Starbucks card was also included as an incentive for completion and return. A code number was assigned to each packet and this list of codes is known only by the researcher and kept in a safe place to ensure confidentiality.

Eighteen packets were returned yielding an 85% return rate. One of the participants did not teach at the undergraduate level (self-report), and this data was not analyzed. There were 17 participants in the sample for this pilot study.

Statistical Analysis

Correlation and descriptive statistics was used in the analysis. Correlation techniques are used to study relationships (Hazard-Munro, 2001). Furthermore, with the associated significance levels, the strength of this relationship can be assessed. These relationships do not show that one variable caused the other. The type of data needed for

correlation is at the interval level. However, “it is possible to use any level of data when calculating r , but factors other than interval level of the data must be considered when deciding whether a correlation coefficient is appropriate” (p. 223). Data for this study was ordinal. Spearman’s rho was utilized to analyze the correlation.

The demographic data were analyzed using descriptive statistics such as measures of central tendency, standard deviation, and frequency distribution. For purposes of this study, a .05 level of significance was established for this sample. This means that there is a 95% probability that a Type 1 error will not be made. Results that are .01 or .001 demonstrate that there is a 99% or 99.9%, probability, respectively, that a Type 1 error will not be made. For most nursing studies, a .05 level of significance is common (Burns & Grove, 2001).

Demographic Description

The sample was predominantly female (94%), a mean age of 52, with an earned doctorate in nursing (53%), from a private university (59%), with a variety of clinical backgrounds (18% medical/surgical, 24% obstetrical and 18% other). These results were preliminary and from a small sample, but they did reflect national trends in nursing. See Tables 1 and 2 for this data.

Age. Ages ranged from 31 to 67 with a mean of age 52. This result mirrors the national data regarding mean age of nursing faculty.

Gender and Race. Of the 17 respondents there 16 females and one male. Fourteen were Caucasian, one was African-American, and two were Asian/Pacific Islander. Seven or 41% were from a public university and 10 or 59% were from a private university.

Last Degree Completed. For the category of last degree completed, six held a Masters in Nursing or Master of Science in Nursing, which accounted for 38% of the participants. Nine held a PhD in Nursing for 53%, one held a DNSc for 6%. One respondent marked *other* and had obtained a Masters in Public Health.

Clinical Specialty. For the category of clinical specialty, three were medical/surgical, two were pediatrics, two were mental health, four were in Women's Health (obstetrics and gynecology), one was geriatric and two were community. Three respondents marked *other* and these were genetics, critical care, and general nursing.

Number of Years Teaching in Nursing. Number of years teaching in nursing ranged from 2 years to 40 years, with a mean of 14 years.

Number of Years in Nursing. Number of years in nursing ranged from 9 to 45, with a mean of 27 years.

Number of BSN Courses Taught. Number of BSN courses taught ranged from one to four, with a mean of two courses.

Class Size. Number of students in each class ranged from 10 to 80, with a mean of 41. It is noted that no respondent reported having a class size in the 50-59 range.

Table 1

Demographics of the Pilot Study (n= 17)

Variable		Frequency
Age	Range	26-70
	Mean	53.4
Number of years teaching	Range	1-40
	Mean	15.4
Gender	Female	16 (94%)
	Male	1 (7%)
Race	Caucasian	14 (82%)
	African-American	1 (6%)
	Asian/Pacific Islander	2 (12%)
University Type	Public	7 (41%)
	Private	10 (59%)
Highest Degree	PhD	8 (53%)
	DNSc	1 (6%)
	MN/MSN	6 (35%)
	Other	1 (6%)

Data Analysis

Creativity Fostering Behaviors. For creativity fostering behaviors, frequency analysis revealed that the range in scores was from 164 to 261 ($M = 223$). A score of 164 would imply that the respondent demonstrated less creativity fostering behaviors than the respondent who scored a 261.

Teaching/Learning Goals. Frequencies for goals demonstrated a range from 137 to 224. There are six teaching/learning goals measured with the TGI. These are Higher-Order Thinking Skills, Basic Academic, Discipline Specific, Liberal Arts, Work/Career, and Personal Development. The nurse educator identifies particular characteristics that they emphasize in the teaching/learning goals. Examples of items in the teaching/learning goal of Higher Order Thinking Skills deals with an emphasis on problem-solving skills, the ability to synthesize and integrate information and ideas, and the ability to think creatively. Some examples of Basic Academic goals content include an emphasis on improving memory skills, speaking skills, and writing skills. Examples in the Discipline Specific goal include an emphasis on learning concept, theories, and facts about a subject, preparing for graduate study, and understanding perspectives and values of this subject. In the Liberal Arts goal, the emphasis deals with developing a lifelong love of learning, developing aesthetic appreciation and developing a capacity to make informed ethical choices. The Work/Career goal emphasizes the development of management skills, leadership skills, and improving the ability to organize and use time effectively. Lastly, the Personal Development goal deals with areas such as cultivating emotional health and well-being, improving self-esteem/self-confidence, and developing a commitment to one's own values.

Intrinsic Motivation. Frequencies for intrinsic motivation demonstrated a range from 83 to 106, ($M = 97$). A lower score of 83 would imply that the respondent is less intrinsically motivated than the respondent who scored 106.

Correlations

Age and teaching/learning goal of Higher Order Thinking Skills was significantly correlated ($r = .543, p < .05$). This means that as age increases, so does the score on Higher Order Thinking Skills. One could say that with the increase in age, the awareness of the need to provide for teaching/learning goals that foster higher order thinking skills increases. Age is also has a positive correlation ($r = .662, p < .01$) at with the number of years teaching. The interpretation of this would be that as age increases, the number of years teaching also increases; nurse educators remain in the academic arena.

Significant findings were demonstrated between creativity fostering behaviors and the teaching/learning goal of Higher Order Thinking Skills (.55) at a significance level of 0.0. This would mean that overall creativity fostering behaviors increases with a teaching/learning goal that fosters higher order thinking skills.

There were no significant findings associated with the intrinsic motivation variable. It was found in fact that intrinsic motivation increases when the nurse educator is from a public university. Explanation of this lack of significant findings with the variable of intrinsic motivation could be on several different fronts. First, the sample size is small and the nurse educators are mainly from a private university. Nationally, there are more nurse educators from public colleges and universities than from private and one would assume that motivation would be associated with private universities.

Continuation of Study

This pilot study helped to clarify the feasibility of the proposal with an 85% return rate of the instruments, prompt return of instruments and feedback received on demographic form, consent form, and readability of instruments. Feedback dealt with questions as to why household income was included on demographics, a spelling error in the consent form and clarification of a question on one of the tools. Household income was removed from the demographic form in the full study. Each of these has been addressed and does not affect context or results of the pilot study. Additionally, this pilot study illuminated the role of intrinsic motivation, creativity fostering behaviors, and the teaching/learning goals for body of nursing education research.

Although the literature suggests a relationship between motivation and creativity fostering behaviors this small pilot study did not support this. Rather than explain a theoretical basis for this finding, it is believed that the results are more indicative of the small sample and lack of representation of the BSN public institutions in California. In continuing with the study, a larger sample will be attained that is more representative. The majority of BSN institutions in California are public universities, not private. Third, it could be that the empirical indicator for intrinsic motivation is not adequate. However, there is not sufficient data to make this determination; further testing needs to be conducted.

Aims

The specific statistical measures for this proposal study were:

- Aim 1. Descriptive statistics were used to describe creativity fostering behaviors in the nurse educator.

- Aim 2. Correlation was used to examine the relationship among the demographic variables, creativity fostering behaviors, intrinsic motivation, and the teaching/learning goal of Higher Order Thinking Skills.
- Aim 3. Correlation was used to examine the relationship among the variables of class size, years of teaching in nursing, university type, and creativity fostering behaviors.

Chapter 4

Findings

For this study, 453 packets were mailed to baccalaureate nurse educators in the state of California, in early December 2005. By the middle of February 2006, 117 packets were returned. Of these, 24 were returned due to incorrect address, the respondent was not eligible to participate, or there was incomplete data.

Demographic Description of Sample

The sample was predominantly female (93%), Caucasian (91%), a mean age of 53.43 years, and 60 participants were from a public university (65%). These results reflect national trends (AACN, 2001). The most common clinical specialty was medical/surgical with 24 (26%), and a group mean of 29.15 years in the practice of nursing, and a mean of 15.21 years teaching in nursing education. See Table 2 for Demographic Information.

Age. Ages ranged from 26 to 70, with a mean of 53.43 and SD of 8.47.

Frequencies for age demonstrated that five respondents were from ages 26-37, 19 were from ages 40-49, 49 were from ages 50-59, and 19 were from ages 60-70. See Table 2. The majority age range was in the 50-59 range with 49 respondents in this area.

Gender and race. Of the 93 respondents, 87 (94%) were female and 6 (7%) were male. Eighty-five were Caucasian (92%), two were African-American (2%), four were Hispanic (4%), and two were Asian/Pacific Islander (2%). According to AACN (2001),

73.5% of registered nurses are non-minority and 91% female and men represent only 3.5% of faculty (AACN, 2001, p.1).

University Type. Of the 93 respondents, 60 (65%) taught in a public university and 33 (35%) taught in a private university. This is reflective of the State of California ratio of public to private teaching institutions.

Last Degree Completed. In this sample of 93, 36 participants (39%) held a Master of Science in Nursing (MSN) or Masters in Nursing (MN), 12 had an earned doctorate in nursing (13%), 19 had an education doctorate (20%), 7 participants (8%) held a Doctor of Nursing Science (DNSc), 15 (16%) had earned doctorates in other areas, and three (3%) held a master's degree in other areas. Other areas reported for doctorates were: public health, ethics, higher education, sociology, and juris doctorates. The other area reported for a master's degree was public health. While only 12 had an earned doctorate in nursing, when combined with the DNSc and doctorates outside of nursing, the total number was 53 with earned doctorates. This is reflective of the trend in nursing education in the 1970s through the early 1990s when a doctorate from any related discipline was accepted as the terminal degree for nursing in colleges/universities. In 2001, "less than 1% of the 2.7 million registered nurses hold doctorates" (AACN).

Clinical Specialty. There were 92 responses in this area. In this sample, 24 (26%) identified a medical/surgical clinical specialty, 11 (12%) identified a pediatric clinical specialty, 7 (7%) identified a mental health clinical specialty, 12 (13%) had an obstetric or family health clinical specialty, 10 (11%) identified a community or public health clinical specialty, and 28 (30%) identified *other* as a clinical specialty. Other areas reported for clinical specialty were genetics, leadership, oncology, hospice, geriatrics,

administration, infusion, and anesthesia. For the purposes of this study, medical/surgical was listed as one of the options for clinical specialty on the demographic form and if the respondent chose *other* and then listed an area such as oncology (some might consider this a sub-specialty within medical/surgical) it was identified as the respondent had selected.

Number of Years Teaching in Nursing. Of the 93 respondents, two did not respond to this question on the demographic form. Number of years teaching in nursing ranged from 1 to 40, with a mean of 15.35 years and a SD=10.75. Frequencies demonstrated that 39 participants had taught for one to 10 years, 25 had taught for 11-20 years, 17 had taught for 21-30 years, and 10 had taught for 31-40 years. The results of this demographic data are reflective of the aging of the nurse educator and demonstrates the need for nursing academia to find nurses that have an interest in becoming nurse educators (AACN, 2005).

Number of Years in Nursing. Of the 93 respondents, one did not respond to this question on the demographic form. Number of years in nursing ranged from 5 to 46, with a mean of 29.15 years. Frequencies demonstrated that 21 participants had been in nursing for 5 to 20 years, 30 participants had been in nursing for 22-30 years, 31 had been in nursing for 31-40 years, and 10 participants had been in nursing for 42-46 years. The mean was 29.15. Again, this data is reflective of the national trend of the aging of the nurse educator. The majority of respondents had been in nursing between 22-30 years.

Number of BSN Courses Taught. There were 87 respondents in this category. Of those, 22 respondents (24%) taught one BSN course, 26 respondents (28%) taught two BSN courses, 26 respondents (28%) taught three courses, 10 respondents (11%) taught

four BSN courses, one respondent (1%) taught five BSN courses, and two respondents (2%) taught six BSN courses. The mean was 2.4 and SD was 1.15.

Class Size. There were 93 respondents to this question. The number of students in class ranged from 10 to 95, with a mean of 40.67 and a SD 22.06. Frequencies demonstrated that 22 participants had 10-20 students in class, 16 had 22-30 students in class, 19 had 31-40 students in class, nine had 43-50 students in class, seven had 54-60 students in class, eight had 62-70 students in class, ten had 71-80 students in class, and three had 81-95 students in class.

Table 2

Demographics of Sample (n= 93)

Variable	Frequency
Age	Range 26-70 Mean 53.43 (8.5)
Number of years teaching in Nursing	Range 1-40 Mean 15.4 (10.8)
Gender	Female 87 (93%) Male 6 (7%)
Race	Caucasian 85 (92%) African-American 2 (2%) Hispanic 4 (4%) Asian/Pacific Islander 2 (2%)
University Type	Public 60 (65%) Private 33 (35%)
Highest Degree	Ph.D Nursing 12 (13%) EdD 19 (20%) DNSc 7 (8%) MN/MSN 36 (39%) Other Other Master's 3 (2%) Other Doctorate 15 (20%)

Table 2 Demographics of Sample (continued)

Clinical Specialty	Medical/Surgical	24 (26%)
	Pediatrics	11 (12%)
	Mental Health	7 (9%)
	OB/Family Health	12 (13%)
	Community	10 (11%)
	Other	28 (29%)

Instrument Reliability

Of the three instruments used in this study only the TGI has been used by nurse educators on a limited basis. The CFTI and the IMI have not been used at all in nursing or nurse educators. A Cronbach's alpha reliabilities and tests for validity were computed for each of the instruments. A reliability coefficient of .80 is on the low end of acceptable values for a well-developed psychosocial instrument (Burns & Grove, 2001). The CFTI has not been utilized in nursing education research, and the TGI and IMI have limited use in nursing education research.

In this study, the alpha reliabilities of the CFTI and TGI, .89 and .88 respectively, demonstrate that these tools are reliable and consistent in measuring the desired concepts. The alpha reliability of .67 for the IMI would be cause for examining usefulness of this tool for this sample. This may not be the best tool to measure intrinsic motivation for the nurse educator. See Table 3 for this data.

Table 3

Reliability of Instruments (n = 93)

Instrument	Measure	Cronbach's alpha
CFTI	Creativity Fostering Behaviors	.89
TGI	Teaching/Learning Goals	.88
IMI	Intrinsic Motivation	.67

Creativity Fostering Behaviors

For this study, the nine subscales of the CFTI ranged from $\alpha = .511$ for the Motivation subscale to $\alpha = .801$ for the Flexibility subscale. See Table 4 for this data.

Teaching/Learning Goals

For this study, the six subscales of the TGI ranged from $\alpha = .643$ for the higher order thinking skills subscale to $\alpha = .825$ for the personal development subscale. See Table 5 for this data.

Intrinsic Motivation

For this study, the overall $\alpha = .674$ for reliability of this tool. This demonstrates that perhaps this tool was not consistently measuring intrinsic motivation in the nurse educator.

Table 4

Reliability of Creativity Fostering Behaviors Subscales

Subscale	Cronbach's Alpha
Dependence	.61
Integration	.62
Motivation	.51
Judgment	.69
Flexibility	.80
Evaluation	.72
Question	.70
Opportunities	.73
Frustration	.68

Table 5

Reliability of Teaching Goals Inventory Subscales

Subscale	Cronbach's Alpha
Higher Order Thinking Skills	.64
Basic Academic	.72
Discipline Specific	.71
Liberal Arts	.69
Work/Career	.78
Personal Development	.82

Data Analysis

Aim 1. To describe creativity fostering behaviors in the nurse educator a total score of the CFTI was determined. Respondents for this sample was 93. Results demonstrated a mean of 223.34 with a range of 155-264. Highest possible score is 270. A score of 264 would imply that the respondent demonstrated more creativity fostering behaviors than the respondent who scored 155. Measures of central tendency demonstrate means for the subscales ranged from 22.83 for the Dependence subscales to 26.52 for the Question subscale. Standard deviations ranged from 2.52 on the Opportunities subscales to 4.20 on the Evaluation subscale. See Table 6 for this data.

The possible range in scores for each of the subscales for the CFTI was 0-30. For this sample, the highest score was obtained for each subscale, and the differences were demonstrated in the low score. The low scores ranged from 10 ($M = 22.90$, $SD = 4.20$)

for the Evaluation subscale to 20 ($M = 26.43$, $SD = 2.52$) for the Opportunities subscale.

The least amount of variance for this sample was in the Opportunities subscale.

Additionally, measures of central tendency for the TGI subscales demonstrate means ranged from 31.92 ($SD = 5.95$) for the Work Career subscale to 37.10 ($SD = 7.70$) for the Liberal Arts subscale. The mean for the Higher Order Thinking Skill subscale was 35.71 ($SD = 3.70$) which demonstrates the least variability among respondents for this sample. See Table 7 for this data.

Table 6

Measures of Central Tendency for Creativity Fostering Behavior and Subscales

Variable	Mean (SD)	Possible Range
Total for Creativity Fostering Behavior	223.34 (22.33)	155-264
Dependence	22.83 (3.20)	13-30
Integration	26.13 (3.35)	14-30
Motivation	24.80 (3.73)	15-30
Judgment	23.13 (3.50)	14-30
Flexibility	24.60 (3.24)	15-30
Evaluation	22.90 (4.20)	10-30
Question	26.52 (2.90)	18-30
Opportunities	26.43 (2.52)	20-30
Frustration	26.10 (3.30)	15-30

Table 7

Measures of Central Tendency for Teaching Goals Subscales and Intrinsic Motivation

Variable	Mean (SD)
Teaching Goals Subscales	
Higher Order Thinking Skills	35.71 (3.70)
Basic Academic	33.72 (6.50)
Discipline Specific	32.41 (4.52)
Liberal Arts	37.10 (7.70)
Work Career	31.92 (5.95)
Personal Development	34.40 (5.70)
Intrinsic Motivation	104.52 (8.96)

Aim 2. To examine the relationship among the demographic variables, creativity fostering behaviors, intrinsic motivation, and the teaching/learning goal of Higher Order Thinking Skills. See Table 8 for this data. Significance was demonstrated between number of years teaching and last degree obtained ($\rho = .45, p < .001$), number of years teaching and Higher Order Thinking Skills ($\rho = .23, p < .05$), and number of years teaching and intrinsic motivation ($\rho = .30, p < .001$).

Significance was demonstrated between the total score of creativity fostering behaviors and Higher Order Thinking Skills ($\rho = .45, p < .001$). There was also significance between the total score of creativity fostering behaviors and intrinsic motivation ($\rho = .33, p < .001$). Significance was demonstrated between Higher Order Thinking Skills and intrinsic motivation ($\rho = .26, p < .05$).

There was significance demonstrated between age and number of years teaching ($\rho = .57, p < .001$), age and last degree obtained ($\rho = .38, p < .001$) and age and Higher Order Thinking Skills ($\rho = .33, p > .001$). Creativity fostering behaviors were significantly correlated with intrinsic motivation ($\rho = .33, p < .01$). Intrinsic motivation also had a significant, but not as strong of a correlation to the subscales in the teaching/learning goals. Significance was found between intrinsic motivation and the subscale of Higher Order Thinking Skills ($\rho = .260, p < .05$).

For this sample of nurse educators, there is a small probability that a Type 1 error could be made when the null hypothesis (no relationship between variables) is rejected when it is true. While these values may be seen as a more weak correlation when compared to the other Spearman's rho values, it remains significant nonetheless. The remaining subscales of Basic Academic, Liberal Arts, and Personal Development demonstrate no significance. Significance was approached between intrinsic motivation and the TGI subscale of Personal Development ($\rho = .20, p < .05$).

Table 8

Correlations Among Demographic Variables, Creativity Fostering Behavior, Higher Order Thinking Skill, and Intrinsic Motivation

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Age	1.00	.57*	-.19	-.10	.00	-.08	.36*	-.15	.15	.33*	.12
2. Years Teaching		1.00	-.02	-.16	.02	.07	.45*	-.15	.10	.23*	.30*
3. Gender			1.00	-.08	-.10	-.04	.05	-.01	-.00	.06	-.01
4. Race				1.00	-.15	.14	.08	.02	.18	-.03	.14
5. University Type					1.00	-.13	-.03	-.04	-.19	-.02	.04
6. Class Size						1.00	-.21*	-.03	-.01	-.06	.07
7. Highest Degree							1.00	.02	.05	.16	.18
8. Clinical Specialty								1.00	.05	-.10	-.14
9. Creativity Fostering									1.00	.45*	.33*
10. Higher Order Thinking										1.00	.30*
11. Intrinsic Motivation											1.00

$p < .05$

Correlations of creativity fostering behaviors in the nurse educator and the subscale of Higher Order Thinking Skills demonstrated ($\rho = .454, p = .001$). Higher Order Thinking Skills is the subscale in which creativity is found. The statement *develop the ability to think creatively* is found in this subscale. This result demonstrates a significant relationship between creativity fostering behaviors in the nurse educator and the teaching/learning goal of Higher Order Thinking Skills. A Type I error is decreased.

When looking specific at Cropley's Theory of Behavior Characteristics of Creativity Fostering and the TGI (as discussed on pages 24-25) subscales of Integration, Question, and Opportunities of the CFTI ($p < .01$). These findings demonstrate a theoretical significance between the creativity fostering behavior of Integration and the teaching/learning goal of Higher Order Thinking Skills ($\rho = .37$). The creativity fostering behavior of Question and a teaching/learning goal of Higher Order Thinking Skills was significant $p = .54$. Lastly, the creativity fostering behavior of providing for a variety of opportunities for learning to occur and the teaching/learning goal of Higher Order Thinking Skills was significant $\rho = .39$. See Table 9 for this data.

Table 9

Correlations of Teaching Goals and Select Creativity Fostering Behaviors Subscales

Variable	1	2	3	4
1. Higher Order Thinking Skills	1.00	.28*	.42*	.40*
2. Integration		1.00	.37*	.62*
3. Question			1.00	.54*
4. Opportunities				1.00

Other significant correlations between creativity fostering behaviors and the teaching/learning goal of Discipline Specific ($\rho = .44, p < .001$). The teaching/learning goal of Personal Development revealed a ($\rho = .42, p < .001$). The remaining goals of Basic Academic, Liberal Arts, and Work Career, ($\rho = .38, \rho = .39, \rho = .37$) were significant, respectively ($p < .001$).

Aim 3. To examine the relationship among the variables of class size, years of teaching in nursing, university type, and creativity fostering behaviors. Using Spearman's rho for correlation, no significance was demonstrated between the variables of number of students in the class and number of years teaching in nursing. Additionally, there was no significance found between creativity fostering and the number of students in the classroom.

For this study significance no significance was demonstrated among the variables of university type and class size with creativity fostering behaviors.

Post-hoc Power Analysis

A post-hoc power analysis was computed using GPOWER Version 2.0 computer software (Faul & Erdfelder, 1992). Results demonstrated an effect size of $.05\sigma$, alpha of .05, sample size for the two groups (university type), critical $t(91) = 1.66$, and a power of 0.74. This study was slightly underpowered.

Incidental findings

It is recognized that this section has nothing to do with the aims of this study. However, the implications are important for nursing education. In the process of data entry, it was noted that question number 17 on the TGI which read, "Improve mathematical skills", many respondents chose *unimportant* or *not applicable*. Frequencies were run to assess the responses to this question on the TGI. Of the 93 respondents, 14 (15%) selected *not applicable*, 17 (18%) selected *unimportant*, 33 (36%) selected *important*, 21 (22%) selected *very important*, and 8 (9%) selected *essential*. A total of 31 respondents (33%) ranked improvement of mathematical skills as either not applicable or not important. For further discussion see page 84.

Chapter 5

Discussion of the Findings

Summary

This non-experimental, descriptive study examined the relationship of creativity fostering behaviors in the nurse educator, intrinsic motivation of the nurse educator, and the teaching/learning goals established by the nurse educator. The variables of class size, number of years teaching in nursing, and university type were also investigated in relation to the preliminary conceptual model. The theoretical framework for this study was that of Cropley's Theory of Behavior Characteristics of Creativity Fostering Behavior.

Cropley's Theory of Behavior Characteristics of Creativity Fostering Behavior

The purpose of Aim 1 was to describe creativity fostering behaviors in the nurse educator. This was accomplished using the Creativity Fostering Teacher Index (CFTI), which is based on Cropley's Theory of Behavior Characteristics of Creativity Fostering Behavior. The usefulness of this theory has been empirically tested and demonstrates application for nursing education. A total score for each respondent was identified. The range of scores was from 155-264, with the highest possible score being 270. While it can be said that the respondent who scored 264 demonstrates more creativity fostering behaviors than the respondent who scored the 155, no absolute conclusion can be drawn. Other factors would need to be addressed. These factors might include: course type (required or elective), peer review in addition to the self-perception as marked on the

tools. Additionally, scores on the CFTI may demonstrate that nurse educators do indeed foster student creativity to some degree.

Creativity fostering behaviors have not been examined in the nurse educator prior to this study. The CFTI, developed in Singapore, is new to the field of education and this is the first known use of the tool in nursing education. This was the first use of the tool in the United States evidenced by the lack of published studies. Written in English and applicable for nursing education, the CFTI can be utilized in nursing education as a valid and reliable measure of creativity fostering behaviors in the nurse educator. This tool does not measure student creativity, nor is it an assessment of a creative product or process.

The results of this study regarding creativity fostering also support the American Association of Colleges of Nursing (AACN), the Commission of Collegiate Nursing Education (CCNE) and the International Honor Society for nursing Sigma Theta Tau mandates for nursing education to embrace creativity as a means to create change within the complex arena of healthcare. Technology, increased patient acuity, and the need for nurses to be agents of change within healthcare systems, demands that creativity be an essential aspect of nursing education.

Intrinsic Motivation and Creativity Fostering Behaviors

The purpose of Aim 2 was to examine the relationship between creativity fostering behaviors and intrinsic motivation and between creativity fostering and the teaching/learning goals. The results of this study demonstrate that there is a relationship between intrinsic motivation and creativity fostering behaviors in the nurse educator. This finding departs from the findings in the pilot study, where no correlation was evidenced.

Related studies support findings in the literature regarding the correlation between motivation and creativity (Cropley, 1997; Cropley & Urban, 2000; Nickerson, 1999; Rigby et al, 1992). Specific to this study, intrinsic motivation of the nurse educator had a significant correlation with creativity fostering ($\rho = .332, p = .001$). Because intrinsic motivation is a difficult concept to define and differentiate from extrinsic motivation (Lepper, 1988) and most research has been conducted on the child as learner (Patrick, et al, 2000; Reeve et al, 1999, Ryan & Deci, 2000) more studies are needed to further investigate the nurse educator.

The desire to teach and to be an effective educator comes from within. As stated by Palmer (1998):

Teaching, like any truly human activity, emerges from one's inwardness, for better or worse. As I teach, I project the condition of my soul onto my students, my subject, and our way of being together... Viewed from this angle, teaching holds a mirror to the soul. If I am willing to look in that mirror and not run from what I see, I have a chance to gain self-knowledge—and knowing myself is as crucial to good teaching as knowing my students and my subject (p. 2).

Palmer recognizes that ontological understanding that intrinsic motivation comes from deep within the self. It is not easily influenced or changed by external factors. The nurse educator needs to better understand this complex notion of intrinsic motivation before creativity fostering can be fully realized for nursing education.

Teaching/Learning Goals and Creativity Fostering Behaviors

Results of this study demonstrate that the teaching/learning goals are significantly correlated to creativity fostering behaviors with the subscale of Higher Order Thinking

Skills having the highest correlation ($\rho = .454, p < .001$). Within the subscale of Higher Order Thinking Skills, creativity is specifically addressed in one of the questions when it asks for the educator to what degree do you “develop the ability to think creatively.” The results of this study support related research findings that demonstrate that the teaching/learning goals have a significant correlation to creativity (Amabile, 1990; Billings & Halstead, 2005; Ruth-Sahd, 2003). This is the first study that investigated creativity fostering behaviors and the teaching/learning goals in nursing education.

Critical thinking is also included as a portion of the Higher Order Thinking Skills subscale. For nursing, the notions of analysis, problem-solving, drawing inferences, synthesis, integration of information, thinking holistically, and distinguishing fact from opinion are terms found in definitions of critical thinking (Facione, et al, 1994; Rubenfeld & Scheffer, 2006) or are attributes of the critical thinker. While critical thinking was not a variable in this study, it is of value to validate the creativity literature and that creativity can be seen as an essential component of critical thinking (Alfaro-Lefever, 2004; Facione, et al.; Rubenfeld & Scheffer). The challenge for the nurse educator is to avoid reducing the metacognition of critical thinking to technical skills. Providing for an environment where critical thinking embraces creativity, safe exploration, innovation, and the interconnectedness of things might reduce this mechanistic propensity.

Each of the six subscales of the TGI demonstrated significant correlation to creativity fostering. Higher Order Thinking Skills was the highest correlation, Discipline Specific next with a ($\rho = .435, p < .001$). Questions in the Discipline Specific subscale centered around a specific subject. For example, “Learn techniques and methods used to gain new knowledge in this subject.” This indeed, would be a very important

teaching/learning goal for the nurse educator to foster. A course specific to nursing research or to women's health would require that the nurse educator focus on those areas that are unique to the subject, and thus, new learning.

The third highest teaching/learning correlation to creativity fostering was that of Personal Development ($\rho = .424, p < .001$). Questions on this subscale included fostering teaching/learning goals that developed a commitment to personal achievement, cultivate a sense of responsibility for one's own behavior, and to cultivate emotional health and well-being. An example of a question from this subscale is, "develop capacity to make wise decisions."

Class Size and Creativity Fostering Behaviors

The purpose of Aim 3 was to examine the relationship between creativity fostering behaviors and class size and between creativity fostering behaviors and the number of years teaching. Results of this study demonstrated that the class size range was 10-95. The mean number of students in the public university (43.25) is higher than that of a private university (35.97). These findings are supported in the literature (Blackburn & Lawrence, 1995). There was no significance found between class size and creativity fostering behaviors. This may indicate that class size is not closely linked to creativity fostering behaviors.

Number of Years Teaching and Creativity Fostering Behaviors

Number of years in teaching ranged from 1-40. While this study did not demonstrate significance, it is of value to recognize the wide range of number of years teaching in nursing education. Of the 91 respondents, 27 had been teaching for greater than 20 years. This finding is supported in the literature regarding the aging of nursing

faculty and the related nursing faculty shortage. This is the first study that has examined the variables of number of years teaching and creativity fostering behaviors.

University Type and Creativity Fostering Behaviors

There were 60 respondents that taught at a public university, and 33 that taught at a private university. Results of this study demonstrated that nurse educators from a public university scored higher on the CFTI. Total scores on the CFTI for public university nurse educators was 225.90 and for private 218.69. There are no published studies that have investigated these variables. Prior to this study, the researcher thought that perhaps a nurse educator from a private university might not have as many constraints, and therefore, would exhibit more creativity fostering behaviors. This was not the case in this study. Constraints for a faculty member in a private university might be centered around mission/philosophy of the parent institution, resistance to change Tylerian curriculum, lack of funding for innovation. Constraints for a faculty member of public university might be centered on issues of tenure, publish or perish, and lack of funding. For both groups, there could be invisible constraints of culture, the complex web of the social structure within the department/school of nursing and/or the university as a whole that impact the educator, or the deep-rooted pedagogy practices in nursing education that are resistant to change.

Revised Conceptual Model

The preliminary conceptual model has been revised. The three main variables of intrinsic motivation, creativity fostering behaviors, and teaching/learning goals remain the same. This study demonstrated that there is a relationship between these variables and that intrinsic motivation does have a relationship to the teaching/learning goals. Changes

were made with the personal factor of number of years teaching which did not have a significant relationship and has been removed from the revised conceptual model. Additionally, the structural variables of university type and class size did not have significance, and were removed from this model. The next step for testing this conceptual model would be to examine a student outcome such as critical thinking.

Identification of other personal factors or structural variables could be examined for this conceptual model. See revised Conceptual Model. Figure 2.

Significance to Nursing Education

The empirical findings of this study contributes to the body of knowledge regarding creativity in the nursing student that began in 1970. Creativity has been shown to be linked to critical thinking (Facione, et al; 1994; Alfaro-Lefevre, 2004; Rubenfeld & Scheffer, 2006) and it has only been studied in the context of the nursing student (Eisenman, 1970; Pettigrew, 1988; Sullivan, 1987). Creativity fostering behaviors have not been empirically tested in nursing education, these early findings can be used to guide further research on creativity fostering behaviors, creativity, critical thinking in the nursing student, and many other student or faculty variables related to nursing education.

The findings of this study suggest that creativity should be valued within nursing education. To this end, nurse educators need to be assessed for their creativity fostering behaviors. If creativity is not being fostered in the classroom or clinical setting, then creativity may not be evident in the nursing student and/or new graduate. The three published studies which identified creativity in the nursing student as being decreased or absent upon graduation each discussed the role of the faculty member as the potential problem. Additionally, this researcher has intuitively thought that it was a nursing

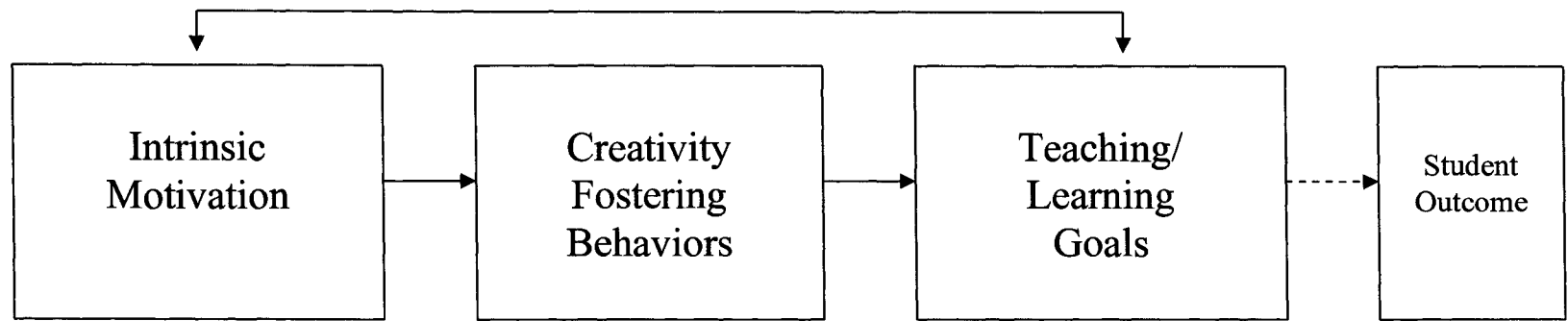


Figure 2. Revised conceptual model

education problem, rather than a student problem. This study provides an empirical measure of this problem. If nursing students lack creativity, it may now include accountability by the nurse educator.

The results of this study demonstrate the fundamental need to provide for a more intentional integration of reflection as part of the education for the nurse educator. Reflection is an excellent mechanism by which the nurse educator can better understand the power and influence that intrinsic motivation has in the classroom/clinical setting. If it could be identified early on that the nurse educator does not have the intrinsic motivation to teach, then steps could be taken to channel this person into another area of nursing. Educators must have passion for teaching and a deep-rooted value for creating a climate for learning to occur. Palmer (1998) states, “whatever self-knowledge we attain as teachers will serve our students and our scholarship well. Good teaching requires self-knowledge: it is a secret hidden in plain sight” (p. 3).

A faculty development workshop regarding creativity fostering behaviors could be established to provide the nurse educator with a better understanding of *how* and *why* to foster creativity in the nursing student. Content for this workshop would be derived from the CFTI, which utilizes Crompton’s Theory of Behavior Characteristics of Creativity Fostering Behavior. This type of education is needed to better prepare the nurse educator as pedagogy and curriculum issues are examined for evidenced based teaching/learning practices.

Limitations of the Study

While this was a substantial and significant study of 93 participants, further study is needed that includes larger sample sizes and a broader sample of nurse educators in

other states and regions of the country. This sample was also not representative of race groups. With 91% Caucasian respondents for this study, there needs to be representation from more varied groups. While national trends do show that the majority of nurse educators are Caucasian, the ratio is not quite as high as this studied demonstrated.

The design of this study was non-experimental and ideally would have been experimental. Due to time constraints, funding, and availability of the researcher for travel, an experimental study was not feasible. An experimental design incorporating pre and post testing with randomization of subjects would provide more rigor to research findings.

Another limitation of this study was the time of year in which the packets were mailed. It would have been ideal for the packets to be mailed in the middle of an academic semester rather than at the end. If packets are mailed at the beginning of an academic semester, then the faculty may not respond as this can be a very hectic time. The same reasoning would be used for avoiding the end of an academic semester. For some of the university schedules in the state of California, most of the month of January there are no classes, so faculty may not have received the packets until they return for the spring semester in late January.

Limitations of the Instruments

Overall, the reliability for most instruments were close to .80. The reliability ($\alpha = .68$) for the IMI demonstrates that this instrument may not be consistently measuring intrinsic motivation in the nurse educator. Alpha reliability should be closer to .80 to be considered a reliable measure (Burns & Grove, 2001). This instrument was developed utilizing the Self Determination Theory (SDT) from the work of Ryan and Deci. The

main premise of the SDT is that when a person experiences their actions as self-determined or autonomous they tend to have ownership and investment in the task. The criteria of ownership and investment allude to contingency. This departs from the definition of intrinsic of personal enjoyment or passionate interest. It would be of value to further investigate the work of Lepper to identify a tool that would be more applicable as a measure of intrinsic motivation for nursing education.

The Teaching Goals Inventory (TGI) was a cumbersome tool with which to work. While the reliability ($\alpha = .88$) demonstrates consistency, there was not a discrete measure from which to broadly measure teaching goals. The specific subscales were clearly delineated, but the overall use of the instrument to measure teaching/learning goals might not capture all of the nuances of nursing education. For example, one of the questions in the Basic Academic Success Skills subscale states, “develop ability to concentrate.” This statement could be interpreted in several different ways by the nurse educator. For some educators, this skill should already be well established prior to a nursing program. For others, the development of this skill is not necessary. It would be worthwhile to examine other instruments for applicability to nursing education.

Incidental Findings

As discussed in Chapter 4, an incidental finding in the process of data entry was discovered. On question 17 of the TGI, which reads, “Improve mathematical skills”, many respondents chose *unimportant* or *not applicable*, and only a few selected, *essential*. Inadequate math skills involving dosage calculations by nursing students and new graduates have been a problem in nursing for years (Allen & Pappas, 1999; Cartwright, 1995; Johnson & Johnson, 2002). Results of this study found that 31

respondents marked either *not applicable* or *unimportant*. Furthermore, only eight respondents marked *essential*. This finding needs to be investigated further to find out the reason why so many nurse educators did not identify math skills as important. In light of the literature describing lack of adequate math skills in the new nurse graduate, this finding demonstrates that the problem might be an education problem, rather than a lack of knowledge problem. Another potential could be that if the nurse educator conveys this lack of importance of math skills, the nursing student may not value it either.

Additionally, it would be of interest to the practice of nursing to investigate whether creativity fostering behaviors of the nurse educator has influence in this subject matter. A qualitative study examining what the nurse educator might mean when responding to this particular math question would provide insight. Math skills arise from the logic and analytic portion of the brain and thus, could be linked to higher order thinking and/or intrinsic motivation.

Future Research

The usefulness and application of Cropley's Theory of Behavior Characteristics of Creativity Fostering Behavior has merit for nursing education. Further testing for theory-building in nursing needs to occur. Soh (2000) the author of the Creativity Fostering Teacher Index (CFTI) which utilizes this theory, has expressed interest in collaboration to continue the research and inquiry for creativity fostering behaviors and nursing education (Kaycheng Soh, personal communication, March 31, 2006). Because the field of education has a much more substantial body of knowledge in the area of creativity, it would be optimal for nursing to collaborate with education in the next phases of this research.

This was the first study that empirically tested the variable of creativity fostering behaviors in the nurse educator. These early results demonstrate that there is a significant relationship between intrinsic motivation and teaching/learning goals and creativity fostering behaviors. The role of the nurse educator in fostering creativity in the nursing student has not been valued in nurse academia as evidenced by the lack of empirical evidence in this area. Creativity fostering behaviors by the nurse educator needs to be further explored. The sample size and demographic area would need to be expanded to include nurse educators from across several states. A national survey would be ideal.

Future direction for this study will be focused on incorporating Cropley's Theory of Behavior Characteristics of Creativity Fostering Behavior into graduate curriculum for nurse educators. For example, an experimental design could be implemented using pre-test and post-test following two semesters of integrating Cropley's theory into the didactic portion of one course, and reflection as emphasis for the educator for the other course. For graduate students with a goal to become nurse educators this will be an introduction to the empirical information that is known, and the future potential for creativity research in creativity fostering behaviors. If new nurse educators understand and espouse creativity fostering then the practice of nursing may be positively influenced.

Further research is needed to examine creativity fostering behaviors in the nurse educator and a student outcome, such as critical thinking or problem-solving. As discussed earlier, creativity has been described as an attribute or as part of the definition of critical thinking (Facione, et al, 1994; Rubenfeld & Scheffer, 2006). Because the topic of critical thinking has an abundance of research, it would be of value to empirically test the correlation of creativity fostering behaviors and critical thinking. If it can be

demonstrated that there is a significant correlation between these variables, then it would provide nurse educators with evidence based data to modify or change curriculum to reflect creativity as an essential student outcome. Creativity should be given value in the evaluation process for a nursing course or better yet, for a nursing curriculum.

It has been identified that motivation is difficult to define and evaluate. Further testing of motivation instruments would be a useful step in clarifying the notion of motivation for nursing education. Extrinsic motivation may need to be investigated to determine the extent of influence the nurse educator has on the nursing student. Again, motivation has not been widely researched in nursing education. Interdisciplinary research with the social sciences, psychology, and/or education would also provide a breadth of understanding and application for nursing education.

Qualitative research in the area of creativity, creativity fostering behaviors, motivation, and the teaching/learning goals would facilitate a better understanding of the experience of the nurse educator and more important, the nursing student. Focus groups, interviews, observation, and experience are examples of the qualitative methodologies that could be used.

It is clear that creativity fostering behaviors warrants further investigation in nursing education. If creativity fostering could be linked to critical thinking, problem-solving, and/or clinical judgment in the nursing student, then the practice of nursing could be positively affected. Nurse educators need to be intentional about pedagogical beliefs regarding fostering creativity in nursing students during the process of their nursing education. As a result those in the service areas of nursing might find that new graduate nurses transition better into the role of the nurse. Evidenced based nursing

education is necessary for nurse educators to make informed decisions about pedagogy and curricular changes.

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Appendix A

Identification Number _____

DEMOGRAPHIC FORM

Gender: Female _____
Male _____

Race: Caucasian _____
African-American _____
Hispanic _____
Asian/Pacific Islander _____
Other _____ (please specify)

Age: _____

Number of years teaching in nursing: _____

Last degree obtained: MN/MSN _____
Ph.D Nursing _____
Ed.D. _____
DNSc _____
Other _____ (please specify)

Clinical Specialty: _____ **Number of years in nursing** _____

Number of BSN courses taught in current/last quarter or semester: _____

Number of students in the class/es that you teach _____

College/University: Public _____
Private _____

Appendix B

December 8, 2005

Dear Participant:

My name is Barbara Taylor, and I am a doctoral student at the University of San Diego (USD). My dissertation topic is examining the creativity fostering behaviors of motivation, press (educator inclination for creativity in the classroom or clinical setting) and teaching/learning environment of the classroom or clinical setting. Additionally, I want to examine the relationship of class size, number of years as a nurse educator, and public or private university on creativity fostering behaviors of the nurse educator.

By completing the instruments you are granting implied informed consent. Please sign one of the two copies of this consent form and return with the instruments. You may keep the other copy for yourself. If you choose not to complete the instruments, there will be no consequence to you. There are no foreseeable risks for completing this study. The potential benefits of this data outweigh the potential risks.

If you choose to participate by completing the instruments, you will be contributing to the body of nursing knowledge regarding creativity fostering behaviors in the nurse educator and how this can contribute to critical thinking, and/or problem solving in nursing students.

I am requesting that you complete the three instruments: Creativity Fostering Teacher Index (CFTI) and the Teaching Goals Inventory (TGI) and the Intrinsic Motivation Inventory (IMI). Criteria for completing these surveys are that you have taught an **undergraduate** nursing course in the current or last academic year (2004-2005). If you do not teach at the undergraduate level, you will not be eligible to complete the surveys.

Participation and speedy response is greatly appreciated. To encourage a timely response and return rate, a raffle ticket for a \$150 Southwest Airline voucher is included. To be eligible for the raffle please return completed forms and raffle ticket by January 10, 2006.

While results of this study may be made public, individual data will remain confidential. If you have any questions please contact me at 619-849-2766. You can reach my faculty advisor, Dr. Allen Orsi at 619-260-4688. This study has been approved by the University of San Diego Institutional Review Board and the project number is 2005-07-073.

Sincerely,

Barbara Taylor, RN, Ph.Dc
Doctoral Student
Hahn School of Nursing
University of San Diego

I have read the above consent form and agree to participate in this study.

Print Name

Signature

Please sign below if you would you be willing for me to contact you for follow-up information gathering at a later date.

Name _____

Address _____

Phone number _____