

Nursing and Creativity: Does the Speciality Make a  
Difference?

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### Abstract

This descriptive study explores creativity among three groups of subjects: nursing students, medical-surgical nurses, and home care nurses. The Verbal Torrance Test of Creativity was used to measure overall creativity, fluency flexibility and originality between three groups of 30 subjects.

The research questions were: What is the level of creativity in three groups of nurses: second year diploma nursing students, medical-surgical nurses and home care nurses?, Do medical-surgical nurses and home care nurses differ in measures of creativity?, and Do registered nurses and nursing students differ in measures of creativity? The results indicate no significant differences at  $\alpha=0.05$  significance level when the t-test was performed.

All subjects were however, above the standardized mean of 100 when compared to a large normative sample of children and adults. When compared to a normative sample of adults the subjects were above median for overall creativity.

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## Chapter One

### Introduction

Currently there is much discussion regarding the role nurses will undertake in our future health care system. Nurses can look forward to exciting challenges and greater demands placed on their services. Professional responsibilities are evolving and nurses must be open to change and flexible in practice. Creativity is needed if nurses are to meet the challenges of the future.

Creativity is an elusive entity for researchers and practitioners to fully describe. Volumes are written on the subject yet only the tip of the creative iceberg is explored. For years researchers and theorists searched to find answers to the question 'What is creativity?'. Sometimes the data uncovered were inconclusive and contradictory, other times enlightening but always the allure of new discoveries remain (Amabile, 1983).

The purpose of this study was to determine the degree of creativity among three groups of subjects: nursing students, home care nurses, and medical-surgical nurses. When the relationship between

creativity and nursing specialities is better understood nurses will gain knowledge to assist them in meeting the challenges of problem solving in practice, education and research.

#### Background of the Problem

Nurses are talented individuals with the ability to perform a multitude of tasks in a variety of health care situations. Unfortunately many health care managers and nurses are not aware of the creative potential members of the nursing profession possess. Nurses may be under utilized in their practice due to untapped creativity. A challenge to nurses is to become more cognizant of their creative abilities and in their practice.

The desire to improve nursing care for the client provides the impetus for researchers and educators to develop strategies for innovative practice. Once nurses are cognizant of their creative potential they may wish to avail themselves of the opportunities provided by educators and researchers. Creativity in practice, education, and research will be discussed.

### Practice

In today's practice setting the nurse is confronted with many challenges in providing care for patients. The regimentation of doctors' orders, standard care plans, and nursing procedures, although necessary for the efficient management of patient care, can inhibit creativity. Nurses are expected to conform to many standards and rules of practice whether working in a hospital or in the community.

Torrance (1988) suggests conformity affects creativity adversely. This may be the case for nurses employed in structured work environments. Personal observations suggest there is less creative nursing care and management of patients in a structured work environment, such as the hospital setting, than in home nursing care, where the nurse has more control of the environment.

Csikszentmihalyi (1988) suggests that using time to cultivate ideas is essential in the creative process. Today's nurses are however constrained by time. Creativity in hospital and home care nurses may be dissimilar because of their different use of time.

Hospital wards are very active places with little

time to develop new ideas, whereas home care nurses can ponder ideas when travelling between patients. Some home care nurses report travelling is their best time to problem solve A. Doherty (personal communication, April, 1991).

Leadership style has an effect on creativity. In a study on leadership (Amabile and Gryskiewicz, 1989) found one group of nurses working for an authoritarian supervisor were less creative than a group employed by an other supervisor who was more permissive. But not all subjects were affected by the constraints of an authoritarian supervisor. Some nurses were able to rise above the situation and still be creative.

Most published nursing studies examine creativity within the context of nursing education. There is a particular need to investigate the ability of nurses to be creative in the work place. Due to cost restraint such as limited operational funding, inflation and higher labour costs, managers of health care organizations find it difficult to provide adequate services. They are constantly exploring means of decreasing costs while still maintaining adequate services. One untapped resource is the use of

unrecognized creative talents of registered nurses to review existing programmes and help plan new ones. If staff nurses are found to be creative they may be very helpful in providing managers with innovative means to reduce costs in health programmes.

In recent years nursing shortages and lack of time to perform professional responsibilities has frustrated nurses, hospital administrators and particularly the public. Investigations into the problem by professional organizations, governments, unions and other interested parties suggests there are no easy answers to these problems. One possible solution is to use the creative talents of nurses in the workplace to find innovative ways to reduce costs.

Staff nurses working on wards and in health units are uniquely placed to help administrators find ways to reduce operating costs. Nurses are intimately aware of the daily operation of the facility. By using this knowledge to creatively solve problems better ways may be found to manage wards, health units, doctors' office's and other health care facilities where nurses are employed.

### Education

Creativity is observed more frequently in educational settings than in the workplace (Simonton, 1984). In school there is freedom to develop ideas and experiment with new approaches. Simonton, (1984) observed that creativity reaches a peak when nursing students are in their second or third year of university. Second year students are described by staff nurses as eager and full of ideas. Many experienced nurses appreciate this ability but do not exhibit similar creative talents.

It is helpful to identify the degree of creativity in nurses as individuals and as groups to assess educational needs in this area. If individual nurses are identified as lacking creativity they may wish to seek remedial education. Similarly if lack of creativity is found in the nursing population in general or in specific groups it may suggest a broader concern and a need for group education on creativity.

If nurses are found to be deficient in their creative abilities then changes to the education system to encourage imaginative nursing may be necessary. In-service and post diploma programmes in creative

thinking and problem solving would be one alternative. Curricula in schools of nursing may need revision to promote innovative thinking. Hospital in-services and post diploma programmes can offer courses on the art of creativity. The ability to use creative thinking may assist future nurses to meet the challenges of an evolving practice.

### Research

Creativity is a valuable asset for researchers. Much is written suggesting the need for creative nursing investigations (Step-Gilbert & Wong, 1985). Nurse researchers can benefit from imaginative approaches in several ways. For instance researchers may wish to transcend the traditional constraints of research design and practice by cooperating with innovative nurses in the workplace to develop unique research opportunities.

Collaboration between the practising nurse and the researcher can help to improve patient care. Baccalaureate prepared nurses have the knowledge and ability to participate in research as idea generators, research assistants, data collectors and contributors to design. Researchers and colleagues intent on

conducting research benefit from discussion regarding proposed research strategies. Nurses at the work place can provide useful insight in developing researcher proposals.

Determining the degree of creativity in nurses helps researchers target individuals and groups who may provide research assistance. When researchers know who is creative energies can be devoted to enhance creative potential through education and developing mentor opportunities.

The challenge of nursing presents many opportunities for creativity in practice, education, and research. The question is whether the working nurse has the creative abilities to meet the challenges.

#### Significance of the Problem

There is little scientific data available describing creativity and nursing. Over the last three decades fewer than ten published studies were found in the literature. The majority of the investigations explore creativity and education; no published research was found on staff nurses and creativity.

Determining the level of creativity in the working



nurse will increase knowledge in the field and provide the opportunity for increasing creativity in nursing practice for the purpose of improved care.

#### Statement of Problem

The purpose of this study was to advance the present limited knowledge regarding nursing and creativity, to increase awareness in the profession and health care administrators about the creative abilities of nurses, and to assist educators in identifying creative needs of learners in the workplace. The results of this research may provide individual nurses with confidence to use their creative talents to the best of their abilities.

#### Research Questions

This study investigates the degree of creativity among three groups, second year diploma nursing students, medical-surgical nurses and home care nurses. The study explores the differences of creativity in selected nursing specialities. The research questions are:

- 1) What is the level of creativity in three groups of nurses: second year diploma nursing students, medical-surgical nurses and home care nurses.

- 2) Do medical-surgical nurses and home care nurses differ in measures of creativity?
- 3) Do registered nurses and nursing students differ in measures of creativity?

#### Definitions

Theorists and researchers differ on whether creativity should be described in terms of product, traits or process. This study defines creativity as a product with three characteristics fluency, flexibility and originality.

In the current literature creativity is defined in relation to the product a creative person spawns, the traits a creative person exhibits, or the actual process of creativity. In the earlier writings on creativity, processes are given as a definition of creativity. For example Wertheimer's interpretation of creativity as insight arising when the thinker grasps the essential features of a problem and their relationship to a final solution (cited in Amabile, 1983). Most empirical research on creativity in the last few years examined the creative traits of individuals. Guilford (Brown, 1989) describes creativity in terms of humankind's unique pattern of

traits making up the personality. Some of those traits are aptitudes, interests, attitudes and temperamental qualities. Despite the implicit emphasis on the traits of the creative person, most explicit definitions use the product or final outcome as the distinguishing sign of creativity. Bruner (cited in Amabile, 1983) saw the product of creativity as eliciting 'effective surprise' in observers upon discovering the uniqueness of the outcome and 'shock of recognition' in finding the solution was appropriate.

The definition of creativity for this thesis is based on the creative product rather than the creative individual or process. Amabile (1983) suggests a suitable definition of creativity:

"A product or response is creative to the extent that appropriate observers independently agree it is creative. Appropriate observers are those familiar with the domain in which the product was created or the response articulated. Thus, creativity can be regarded as the quality of products or responses judged to be creative by appropriate observers, and it can also be regarded is the process by which something so judged is

produced" (pp. 21-22).

A supposition of this definition is that creativity occurs through heuristic rather than algorithmic pathways of decision making. Algorithmic pathways are clear, well defined, and straight forward means of achieving a solution to an easily identifiable problem, whereas heuristic pathways are often confused unclear and frequently distorted due to undefined goals and poorly identified problems.

The creative product is comprised of three characteristics: fluency, flexibility and originality (Torrance, 1988). Fluency is the ability to produce a large number of ideas with words. Flexibility represents a persons ability to produce a variety of ideas, to shift from one approach to another or to use a several different strategies. Originality represents a person's ability to produce ideas which are not obvious, banal, commonplace or established.

Creativity and it's characteristics were measure in three subject groups: medical-surgical nurses, home care nurses and nursing students.

A medical-surgical nurse is a registered nurse employed in a non-management position in a medical-

surgical setting in a part or full time capacity for the past two years.

A home care nurse is a registered nurse employed in a community health centre in a part or full time position for the past two years.

A nursing student is a subject in enrolled in a two year nursing diploma programme at a North Island College.

#### Assumptions

- 1) Each subject has the ability to be creative.
- 2) Subjects experience some degree of stress in testing procedures which may affect the results.
- 3) There is variation in creativity between subjects.

#### Summary

The desire to improve patient care provides the impetus for administrators, educators and researchers to encourage creativity. But many restrictions on practice prevent nurses from being creative. The purpose of this study was increase the awareness of the nursing profession about their creative potential.

## Chapter Two

### Literature Review

The literature review examines significant theoretical perspectives as well as recent nursing studies. There are several disciplines of thought regarding creativity, each with its own unique perspective.

#### Theoretical Literature

Leading psychoanalytic theorists such as Kris (1952) and Kubie (1958) believe the beginnings of creativity are found in pre-conscious thought. Kris (1952) identifies pre-conscious thought as being on the borderline of the unconscious and the conscious. He believes that creativity consists of inspirational and elaborational phases. In the inspirational phase the ego temporarily loosens its control over the conscious to allow periods of pre-conscious thought such as daydreaming and fantasizing. It is during these periods that the ego is receptive to primordial drives which results in creative disorganized thoughts. Later in the elaborational phase the ego subjects these ideas to logical and rational thought processes which is the final product of creative thinking.

Lawrence Kubie expands on Kris' position and contradicts Freud's (Taylor, 1975) belief that creativity is a process of the unconscious. Kubie believes the pre-conscious gathers, assembles and compares data reshuffling ideas to form creative thought. He disputes the importance of the unconscious as a source of creativity. Kubie sees the unconscious as an inhibiting force on creativity. The neurotic behaviour of fear, guilt and other aspects of personality prevent creativity from blossoming.

Alfred Adler's theory of creativity bridges the gap between the humanistic theorists such as Rogers and Maslow and that of the psychoanalysts. In his early years Adler was a disciple of Freud but later he fashioned his own beliefs regarding creativity. For Adler (cited in Hall and Lindzey, 1970) humankind possesses the creative power to shape one's life. Rather than responding to instinctual urges as might be found in Freud's interpretation of existence, a person uses creativity to interact with the world. Hall and Lindzey (1970) describe Adler's creative self as "... the yeast that acts upon the facts of the world and transforms these facts into a personality that is

subjective, dynamic, unified, personal, and uniquely stylized" (p. 126).

Maslow (1972) believes creativity plays a primary role in the development of individuals' personalities. The potential for creativity is present at the birth of every person but it fades as the individual becomes enculturated. Creativity comes from three sources of thought: the unconscious or primary creativity, conscious or secondary creativity, and a combination of the two called integrated creativity. The self actualized person who can tolerate self doubt, uncertainty and lack of order and can bring together separates or opposites is the type of person who may achieve integrated creativity.

Similarly Carl Rogers (1959) believes that motivation of creativity stems from self-actualization attempts. Rogers postulates that creativity is associated with three personality characteristics. Firstly, the individual must have an openness to experience, a lack of rigidity and a tolerance of ambiguity. Secondly the source of evaluation comes from the person. The individual is not affected by external influences. The persons sets his own criteria



for success and grades it accordingly. Lastly the creative person has the spontaneity to toy with elements, concepts and their relationships.

Contrary to the importance psychoanalytical and humanistic theorists place on creativity, behaviourists show little interest in the notion. But behaviourist do explain the existence of creativity in human beings (Woodman, 1980). Behaviourists believe creativity is a learned process which maybe explained by stimulus and response reactions.

Staats (1975) postulates that novel ideas are actually based on stimuli from the person's past and therefore are not original. Individuals faced with novel stimulation will have novel responses such as new discoveries, finding, and results. These products of the S-R response serve as new stimuli which in turn produce further novel responses. Staats argues that the combination of exceedingly large number of behavioural repertoires and the large number of stimuli provides man with the potential to meet any "novel situation".

Skinner (1974), the champion of operant conditioning, takes a slightly different position. He

recognizes a response is influenced by the stimulus but is also moulded by the consequence of the response. A painter is not just stimulated to produce a masterpiece by his interpretation of beauty, but by the potential benefits it may produce such as the appreciation by others. He further states: Operant conditioning solves the problem (of explaining creative behaviour) more or less as natural selection solved a similar problem in evolutionary theory. As accidental traits, arising, from mutations, are selected by their contribution to survival so variations in behaviour are selected by their reinforcing consequences. So according to Skinner creativity arises from the variations which occur from operant conditioning.

Gestalt theorists spend little time discussing creativity. Instead their attention is centred on problem solving. Max Wertheimer's (Weisberg, 1986) central thesis (which appears similar to other gestalt theorists) is that problem thinking requires a restructuring of the problem. A problem produces tension and stresses within a person which creates the stimulus to find a solution to the problem. The better the solution the greater decrease in tension.

Hillman and Lesner (1982) proposes a schema for the development of creativity through the life cycle. They suggest creativity develops through three distinct stages. The first stage is creative internal enrichment lasts from birth through adolescence. The individual is orientated to achieving creativity for personal fulfilment. The second stage of creative external enrichment extends from late adolescence through one's middle years. It is a time when the individual is multi-focused and socially aware but does not entirely loose egocentrism. Creativity is found in the generation of meaningful relationships such as families and the creation of products. The final stage in the development schema is creative self-evaluation which begins in old age and continues to death. Again the individual reverts back to a self centredness, but this time the task is a process of relating the internal identity to the external, and to place them in proper balance. The end product is a personal, cognitive, and emotional well being as the person approaches death.

Although common threads run through many of these theories their differences are striking. These

differences exist because each theory takes a unique view of the origins, development, motivation and processes of creativity. Creativity embraces phenomena occurring in diverse fields of endeavour and involves individuals in different stages of development, training and expertise.

Attempts to define creativity by theorists can be separated into convergent and divergent explanations. Convergent theorists suggest there are many routes to the solution of the problem. All routes focus on one particular answer. Whereas divergent theories start at one point, the problem, and find several different approaches to a solution. The most advantageous route is chosen. The work of several theorist such as Kris, Kubie, and Rogers describe divergent processes that seem particularly useful in explaining creativity in arts and literature. The gestalt theorists, most behaviourists, and the psychoanalysts describe relatively convergent processes which help to explain creative scientific discoveries.

Another split among the theorists occurs in attempting to define a grand theory of creativity. Some believe creativity should be viewed in a larger

scheme such as development over a life span. Other theorists suggest creativity occurs in a spontaneous process.

### Nursing Research

There are many calls in the literature for nurses to be creative. Unfortunately little research into nursing and creativity has occurred (Pesut, 1986). The majority of studies in nursing examine the relationship of creativity to education. Several researchers use the Torrance Tests of Creative Thinking (TTCT) in their methodology. This verbal test examines three aspects of creativity, fluency, flexibility and originality. This is the test used in this study.

Pansy Nigh Torrance (1964) investigated nursing students in a three year study to determine whether creativity was impaired, and whether previously identified creative nursing students finished the programme. Using the Minnesota Tests of Creative Thinking (a precursor to the Torrance Tests of Creative Thinking) Nigh Torrance found the creative abilities of most students showed growth rather than impairment and most creative nursing students remained in the programme.

Eisenman (1970) in a cross-sectional, longitudinal study examined nursing students attending a hospital school of nursing. He found scores measuring originality declined as students progressed in nursing school.

Marriner (1977) wondered about nursing student's perception of creativity. She questioned 590 students at a university regarding their understanding of creativity. She determined that nursing students thought themselves significantly less creative than other students.

Thomas (1979) using selected sections of a version of the Verbal Torrance Tests of Creative Thinking studied beginning and graduating students of a university school of nursing. The school was starting a new process oriented core curriculum. Initially Thomas found beginning students were more creative than the graduating old curriculum students. Later, after the process oriented students graduated, Thomas discovered students from the old curriculum programme were more creative. Thomas' methodology is questionable as she used only part of the test to determine creativity, due to time constraints.

Later Ventura (1979) compared diploma, associate degree, and baccalaureate graduating seniors using the TTCT and found diploma students scored higher in fluency while baccalaureate students scored higher in originality. In another study by Sullivan (1984) of registered nurses returning to complete a baccalaureate degree the TTCT was used to find graduating nurses scored significantly higher on all measures compared to those entering the two year programme.

Sullivan (1987) studied 46 RN students to determine their levels of creativity, clinical performance and critical thinking before and after entering a degree programme at a baccalaureate university. She found overall creativity scores were lower at graduation than at entry, but scores for flexibility were higher. Sullivan found a wide range of scores on the Verbal Torrance Test of Creativity leading her to suggest individual differences may be the reason for this phenomena.

The results of these studies are inconclusive. Differences between these results and the findings of this study are compared later in the thesis. There were no studies found comparing creativity and nursing

specialities.

### Study Instrument

The measurement instrument used in this study was the Verbal Torrance Test of Creative Thinking (VTTCT). One of two tests which comprise the Torrance Tests of Creative Thinking (TTCT). It is a well known test of creativity mainly used in schools. The VTTCT is a multiple task paper and pencil measure of an individual's creativity which assesses three mental characteristics: fluency, flexibility, and originality. The test uses six word based activities over a 45 minute period to provide an indication of creativeness. The first three activities present an intriguing picture to which the examinee responds by writing all the questions he needs to ask to find out what is happening in the scene, lists possible causes of the action depicted, and suggests possible consequences of the action. Activity four is concerned with improving a toy so children may have more fun with it. Activity five calls for a list of unusual uses for a common object. Activity seven asks for all the things that would happen if an improbable situation were true.



Torrance (1974) reports high test-retest reliability between 118 subjects using the Verbal Torrance Tests of Creative Thinking. The correlation coefficient indicated the scores for verbal fluency was .93, flexibility .95, and originality .98. High inter-scoring reliability is reported by Torrance (1974) between experienced and inexperienced markers while scoring the Thinking Verbally with Words test for 100 subjects. The correlation coefficient between scores for fluency was .99, flexibility .95, and originality .98.

Four studies to examine construct validity have been done using adult subjects. Torrance (1972) reported on these studies, which demonstrated positive correlations between the TTCT and several other tests seeking to identify creativity: Education Interest Inventory, Adjective Checklist, Cooperative School and College Ability Test, a check list of creative achievement, and the Burkhart-Bernheim Measure of Divergent Power. No negatively correlated studies were reported.

Torrance (1988) reports on two studies, one of teens tested in high school and at seven and 12 years

intervals, and another group of elementary school pupils who were tested every five years until the age of 20. In the study of high school students Torrance concluded young people identified as creative by the TTCT tend to become productive innovative adults. In the study of elementary school children an overall positive correlation occurred between criterion identifying creative and the TTCT. A significant difference was found in the correlation coefficient score between males .63 and females .57. According to Torrance the variance was related to certain teachers who encouraged creativity, having a mentor, having experience with foreign travel and living, and having a future career image during elementary school.

#### Summary

In this chapter literature on creativity has been reviewed. Initially several theorists and their perspectives of creativity were discussed. Then the literature on creativity was in nursing reviewed. Finally the reliability and validity of the research instrument was supported.

The factors contributing to creativity are diverse. This chapter describes the position of

several schools of thought represented by different theorists. The psychoanalytic school believes creativity is found in pre-consciousness thought. The Humanistic school see creativity as occurring within the self-actualized individual. Behaviourists feel creativity is a learned process probably occurring in the individuals past. Gestalt proponents spend little time discussing creativity, but place emphasis on problem solving.

The nursing research literature on creativity is sparse and contradictory. Most of the literature relates to determining creativity in degree nursing students programmes. A few studies indicate some growth in individual creative characteristics of creativity over the length of the nursing programme.

The research related to the instrument indicates the Torrance Tests of Creative Thinking is a reliable and valid research instrument.

## Chapter Three

### Methods and Procedures

This chapter includes a description of the research design and the specific procedures followed in the study. The sample selection process is described and a discussion of the instrument and statistical analysis presented.

#### Research Design

A comparative descriptive design was used to examine the creative differences among two groups of nurses and one group of nursing students.

Findings are determined by comparing the group scores within the creative categories of fluency, flexibility and originality. In addition the scores are compared with norms established by the testing company over several years of data gathering.

Bias is reduced by a reliable instrument, precise data collection procedures, and operationally defining key variables such as creativity, nursing specialities, and nursing student.

There are several potential threats to the validity of the study. There are many extraneous variables such as social status, non-nursing education,

motivation, physical and mental health, and age which may influence creativity. The absence of a pretest makes it difficult to determine the degree of change within the groups.

In this study two assumptions of the T-test, normality and homogeneity of variance may not be met. Fortunately failure to meet these assumptions is negligible as the T-test is robust to their violation. Several studies report that non-normality and the use of heterogeneous variables is inconsequential to the reliability of T-tests (Glass & Hopkins, 1972).

#### Study Instrument

The specific instrument selected is the test Thinking Creatively with Words: Verbal Booklet A (Appendix H) (Torrance, 1990e).

This test measures three aspects of creativity, fluency, flexibility and originality. Traditional factors affecting reliability such as emotions, physical constraints, motivation, and mental health factors appear to have a limited effect in test-retest and inter-rater reliability.

The test determines an overall Creativity Index or score for each subject. Content analysis of the

subjects responses is done to arrive at a raw score on the creative characteristics of fluency, flexibility, and originality. In addition an average standard score of creativity is calculated for each subject.

The procedure for scoring the tests is defined in the Manual for Scoring and Interpreting Results (Torrance, 1990a). For each of the six activities the manual provides a description of fluency, originality and flexibility which the scorer reads to gain a clear understanding of relevancy of the activity in question. The scorer then precedes to judge the responses in relation to fluency. If the response is not relevant the scorer continues to the next response. If the response is found to merit fluency credit, the 'zero originality response' list is examined to see if it can be found. A score of zero originality is given for responses found on the list and one is given for responses not on the list. The Flexibility score is determined by categorizing the response using a list found in the scoring manual. This procedure continues for all the responses in all the activities. A summary of the score is provided at the end of the Scoring Work Sheet (Appendix I).

### Setting and Sample

The sample is comprised of 20 registered nurses employed for at least two years and 10 nursing students in the final year of a two year nursing diploma programme. The registered nurses are employed at St. Joseph's Hospital of Comox BC on an acute medical or surgical unit, and at two health units on Vancouver Island. The nursing students are selected from North Island College in Courtenay, British Columbia.

St. Joseph's Hospital is an 160 bed hospital with a 60 extended care unit employing approximately 120 fulltime, 34 part time and 60 auxiliary nurses. The Upper Island Health Unit, employs approximately 20 full time and part time home care nurses in Courtenay and Campbell River. The Central Vancouver Island Health Unit employs 30 full part time nurses. North Island has 30 students in their nursing programming 15 of which are in their final year.

Consent was obtained from the administrators of the appropriate agencies (Appendix A,B,C) to meet with potential subjects, explain the study and request their participation. Potential subjects in the nursing organizations were contacted by letter (Appendix D,E,F)

to ask for their participation in the study. If the subjects consented they were asked to leave their names with the appropriate administrator who contacted the researcher. Each group was tested in their own facility one week after the researcher received the appropriate number of consents.

Criteria for inclusion were that the nurse subjects be between the ages of 20 to 50, registered in the province of British Columbia, have at least two years recent experience in their chosen speciality of home care, medical or surgical nursing and be a diploma graduate. Each nurse is employed in a part or full time capacity in their respective facilities. Students were in their final year of the nursing diploma programme and between the ages of 20-50 and have no university degrees.

#### Data Collection and Analysis

Each subject was contacted by the researcher to ask if they had any questions regarding the study or the data collection procedure. The subjects were invited to a classroom where they are asked to complete a data information form (Appendix G). Written and verbal instructions regarding the test were provided.



The researcher answered all questions regarding the test. Each section of the test was timed with a stop watch and the researcher informed the subjects when the time period was over.

The researcher scored the tests using the guide provided by the TTCT distributor. Summary statistical analysis of the personal information and raw data using tables, mean, and standard deviation provides a basis for understanding the data. Bivariate analysis of the raw data using t-tests was performed at the .05 significance level. Standardized means were used to compare the test data with national percentiles.

#### Ethical Considerations

This study follows all ethical standards of the University of British Columbia (UBC), St Joseph's Hospital, North Island College, Upper Island Health Unit, and the Central Vancouver Island Health Unit. The proposal was approved by University of British Columbia's Behavioural Sciences Screening Committee for Research and Other Studies Involving Human Subjects. The researcher respected the right of the subjects to voluntarily choose to participate in this research and placed no external pressure on the

subjects. They could terminate participation in the study at any time without penalty. The right of anonymity and confidentiality was respected by not asking for personal identification. Colour coding of the three groups was the only means of identification. The rights of the subject were stated in the recruitment letter (Appendix D, E, and F).

The agencies had the right to refuse participation in the study at anytime.

#### Summary

A comparative descriptive design was used to examine the creative differences among two groups of nurses and one group of nursing students employed in different settings. The instrument used was the test Thinking Creatively with Words: Verbal Booklet A (Torrance, 1990e). Data analysis of tests for the 30 subjects included means, deviations, T-tests, standard means, and normative percentile ranks. This study met all ethical standards of the university, hospital, community college and health unit.

## Chapter Four

### Results and Discussion

The findings of the study are presented in two sections. The first section describes the demographic profile of the sample and the second presents the findings which answer the research questions.

#### Demographic Characteristics

The demographic data describe three groups of subjects: North Island College nursing students (NIC), St Joseph's General Hospital nurses (SJH), and Home Care Nurses from Upper Island and Central Vancouver Island Health Units (HCN).

These data are summarized from the Data Collection Sheet (Appendix G) which asks the subjects to provide information about themselves prior to the test.

The typical North Island College subject is female, between the ages of 20-39, with two years of college experience one of which is in nursing school and the other in generic education at North Island College. She had little or no experience in nursing before her present nursing education experience.

The typical St. Joseph's Hospital nurse is female with 3.95 years experience at her present hospital.

She is between 30-39 and has completed 3 years of study at a hospital school of nursing.

The typical home care nurse is female with more than 15 years of nursing experience, 10 of which was at her current facility. She is between 40-49 years of age and has three years of nursing education.

The age of the subjects for each group ranged from 20-49 (Table 1). The North Island College students and the St. Joseph's General Hospital nurses are all under the age of 40, whereas the majority of the home care nurses are between the ages of 40-49.

Nurses and students have varying experience in the nursing profession as described in Table 1. Two of the students had previous experience as nurses aides. The remainder of the subjects reported their registered nursing experience only. The St. Joseph's General Hospital subjects have several years of experience in the profession. Home care nurses as a group are the most experienced.

The majority of subjects have three years of nursing study. This study experience is a reflection of the age of the subjects as most are graduates of a three year nursing programmes during the 1960 and 70's.

Table 1

Characteristics of the Sample

Characteristics	Groups N=30		
	* NIC n=10	SJH n=10	HNC n=10
<u>Age</u>			
20-29	5	2	0
30-39	5	8	1
40-49	0	0	9
<u>Years of nursing experience **</u>			
2-4	1	3	0
5-9	1	2	0
10-15	0	2	0
>15	0	3	10
<u>Years of nursing study completed</u>			
First	6	0	0
Second	4	4	1
Third	0	6	9

\* NIC-North Island College students, SJH-Saint Joseph's General Hospital nurses, HNC-home care nurses

\*\* Students nursing experience as aides only.

Subjects from North Island College report a couple of years experience at their present facility as shown in Table 2. These years of experience are a combination of student nurse and generic education experience. The two subjects at Central Vancouver Island Health Unit (CVIHU) each have 17 years of experience at the facility. Similarly the eight subjects at the Upper Island Health Unit (UIHU) have an average of 10.2 years of experience. This is significantly higher than the average experience reported by the subjects at St. Joseph's General Hospital.

Table 2

Years of Experience at Present Facility

Group	Facility			
	NIC n=10	SJH n=10	UIHU n=8	CVIHU n=2
NIC	1.9	-	-	-
SJH	-	3.95	-	-
HNC	-	-	10.2	17.0

### Research Questions

The statistical data related to the research questions are reported for creativity and its three characteristics of fluency, flexibility, and originality.

#### Research Question 1

What is the level of creativity in three groups of nurses: second year diploma nursing students, medical-surgical nurses, and home care nurses?

The first research question assessed creativity in the three groups of subjects. The results are presented as means and standard deviations, standard scores and national percentiles with accompanying discussion.

#### Means and standard deviations.

Data from the six activities which comprise the Torrance Tests of Creative Thinking Verbal form A (Appendix J) were collated for each subject, transposed to the Scoring Work Sheet (Appendix I), and then formulated into summary tables. Table 3 is a summary of the raw score means and standard deviations for the three creative characteristics of fluency, flexibility, and originality which together comprise the overall creative score.

Table 3

Creativity in the Sample

Creativity	Group							
	NIC n=10		SJH n=10		HNC n=10		Total n=30	
	X	SD	X	SD	X	SD	X	SD
Fluency	91	29	82	27	88	18	87	24
Flexibility	51	12	47	11	47	9	49	11
Originality	77	29	75	25	81	17	78	23
Creativity	73	21	68	21	72	14	71	14

North Island College students scored highest in fluency and flexibility, and home care nurses scored highest in originality. North Island College students have slightly higher score in creativity than the other groups.

Torrance (1990a) suggests some broad interpretations of the characteristics of fluency, flexibility and originality. Fluency refers to the persons ability to produce a large number of ideas with



words.

Flexibility reflects the individuals ability to verbally produce a variety of ideas, to shift from one approach to another or to use several different strategies to deal with a given situation. A low score can be interpreted as resulting from rigid thinking habits, limited knowledge and experience, limited intellectual energy, and possible low motivation Torrance, (1990a). Generally, an opposite interpretation of high scores can be hypothesized. Extremely high scores in relation to fluency may characterizes subjects who do not develop ideas well. Finally originality suggests the subjects can produce ideas that are not commonplace or established.

North Island College nursing students displayed an ability to produce more creative thoughts then the other groups. They were less rigid in their thinking more highly motivated then the other groups. Home care nurses are more nonconforming then the other nurses and have greater intellectual energy.

Eisenhauer and Gendrop (1990) in a review of problem solving literature related to nurses discovered nurses perceived themselves as less creative in

fluency, originality and flexibility. This study's sample however, perceived themselves differently. Several of the subjects reported to the researcher that they wished to confirm their creative ability by participating in the testing. Due to this self selection process this sample may have biased the results.

Age and experience may also be a factor in creativity. The nursing students are generally younger and have less experience in nursing and life than the other subjects. They are relatively unencumbered with the burden of nursing restrictions and routine frequently found in practice. They base their decision making on a limited knowledge base and relatively little nursing experience. Freedom from restrictions may allow them to be more creative in fluency and flexibility.

The learning environment allows the students to explore different aspects of caring. Schools of nursing believe creativity is a valued attribute Ferguson, (1992). Timberlake (cited in Freitas, Lantz & Reed, 1991) suggests students should be allowed to make mistakes, protected from evaluation and ridicule.

Such academic freedom may allow nursing students to express their creativity by displaying more fluency and flexibility in their creative thought.

Flexibility may be high among the student nurses due to the need for change. They are in a learning environment which encourages adapting to a variety of new concepts and skills. Being a student may make one receptive to change. A low score among the students in originality may relate to the structured and task oriented skills which need to be learned.

Home care nurses scored higher in originality. This higher score may be due to several reasons. Home care nurses have over 10 years of experience in their speciality, much more than the other two groups. They would fit what Benner (1982) would describe as expert practitioners in nursing. Their practice is based on knowledge, experience and intuition. They often make decisions from a intuition and feel less restricted by rules since they know them well. Home care nurses may have the freedom in practice to be more original. They may feel less pressured regarding the rules of practice.

The nature of the practice may also make a

difference in the score on originality. Home care nurses may display more originality in their practice due to the home bound nature of their patients. There are less supplies, equipment, and support staff available to care for the client. The client is not dependent on hospital resources and is encouraged to be as independent as possible. Home care nurses may need to find original solutions to unique problems more frequently in the home setting.

Standard scores.

The standard scores for the Verbal Torrance Tests of Creative Thinking Test A are used to analyze the degree of creativity of subjects as compared to a sample of 37,327 children and adults from North America Torrance, (1990b). The use of normalized standard scores allows for uniform interpretations across scores, forms, grades and from verbal to figural scores. All records were scored by a trained psychometrist (Torrance, 1990c). Standard scores are set to have a mean of 100 and a standard deviation of 20 (Torrance, 1988). Standardized means from the three groups are presented in Table 4. Standardized scores are given for fluency, flexibility, and originality.

An average standard score is then computed to serve as an overall assessment of creativity for the subject.

Table 4

Means of Standard Scores for Fluency, Flexibility, Originality and Creativity for NIC, SJH, and HNC

Means				
Group	NIC	SJH	HCN	Avg.
Fluency	106.2	100.7	104.9	103.7
Flexibility	116.8	109.1	109.1	111.6
Originality	122.8	122.2	126.8	123.7
Creativity	115.3	110.6	113.6	113.0

Table 4 shows the means of the standard scores for creativity and the characteristics of fluency, flexibility, and originality. These results show little spread between the lowest and highest standard means reported for the creative characteristics suggesting little difference between the groups. Creativity among the three groups of nurses was

consistently above the standard score of 100. Originality in particular is 20 standard points above the average. This high score suggests that nurses are especially creative when compared to the normative sample of 37,327 children and adults from North America who have completed the test.

Differences in national percentile ranks.

National percentile ranks of standard scores are found in the Torrance Tests of Creative Thinking: Manual for Scoring and Interpreting Results (Torrance, 1990a). National percentile ranks indicate the ranking of a subject's score when compared to a norm representing 2065 adults who have completed the test. A percentile of 50 represents the distribution centre (median) which is a performance level typical of the norm. A score of one is among the lowest 1% of the scores and the highest scores are found in the 99th percentile.

The numbers presented in Table 5 represent the percent of subjects' scores which are smaller than the norm. National percentile ranks for creativity, fluency, flexibility, and originality for each group of nurses are displayed.

Table 5

National Percentiles of Standard Scores for Fluency,  
Flexibility, Originality and the Creativity

Group	Percentiles			
	Students	Med-Surg.	HCN	Avg.
Fluency	59.3	51.1	58.2	56.2
Flexibility	71.5	64.6	63.5	66.5
Originality	81.0	81.8	88.1	83.8
Creativity	70.6	65.8	69.9	68.8

The distribution of the scores are interesting. All scores fall above the median suggesting a higher level of creativity than the rest of the population taking this test. The scores of all nurses fall within the third quartile for fluency, flexibility and creativity. Scores for originality for all nurses fall within the fourth quartile, indicating an exceptional ability to produce ideas which are novel.

Comparison of study data to literature.

Thomas (1987) suggests beginning nursing students exhibit more creative strength than graduating nursing students possibly as a result of too much emphasis on the technical 'one way to do it' aspects of nursing. This conservative approach to nursing education may be the reason why this study's nursing students scored higher than more clinically experienced nurses.

Another point of interest is the educational levels of the subjects. Most studies examined nurses with university degrees, whereas in this sample the nurses did not have university degrees.

Limited comparisons can be made with some of Sullivan's published data on diploma nurses. An older version of the Verbal Torrance Test of Creativity was used to determine means and create a standard score for overall creativity. Raw means of the different characteristics of creativity cannot be compared due to a poorly predicative part of the older version of the test. The activity with poor predicative value has been removed from the current version of the test (Torrance, 1990d).

Table 6 displays weak differences between



Sullivan's diploma nurses and this study's sample. The greatest difference can be seen when comparing Sullivan's data to those of the medical-surgical nurses. There is a 3.4 standard score difference.

Table 6

Comparison of the Study Sample with Sullivan's Data

	Standard Mean Scores				
	RN's* n=46	NIC n=10	SJH n=10	HNC n=10	Combined N=30
Creativity	114	115.3	110.6	113.6	113.0

\* Subjects were 46 diploma and associated degree graduates tested by Sullivan (1987).

These results could be due to individual differences as reported in Sullivan's study. There was only a 1.3 difference in standard scores between Sullivan's sample and the nursing students. The small difference in the score may suggest that at the start of nursing education creativity may be high.

### Research Question Two

Do medical-surgical nurses and home care nurses differ in measures of creativity?

This research question explored the differences in creativity between nurses practising in two different settings, hospital and the community. These two types of settings provide nurses with a variety of experiences. The medical-surgical nurses work in a small 100 bed acute care regional hospital with several medical specialists on staff. Nurses are responsible for the care of patients with a variety of illnesses from diabetes to surgical concerns. The home care nurses work in a rural area with a population of 35,000 of which 13.5 % are over the age of 65. The home care nurses visit clients in their homes to provide palliative, chronic and acute care.

Three different statistical methods were used to attempt to find differences between the two groups: means, standard deviation and T-tests. T-tests with pooled variance were performed on the variables of creativity, fluency, flexibility and originality to detect differences between the two groups. Although home care nurses scored higher on the characteristics

of fluency, originality and overall creativity there was no significant differences.

Fluency reflects the subjects ability to produce a large number of ideas with words. Flexibility represents a persons ability to produce a variety of ideas, to shift from one approach to the other or use different strategies. The originality score represents the ability to produce ideas that are away from the obvious, commonplace, banal, or established.

It has been mentioned in several parts of this study the exceptional scores home care nurses received for originality (Tables 4, 5, and 6). Home care nurses display high originality scores in Table 7 as well. A high score in originality usually indicates a non-conforming individual who is able to make big intellectual leaps to 'cut corners' in obtaining solutions.

The individual scores for home care nurses in fluency, originality and overall creativity are very consistent. The standard deviation for the home care nurses reflects less of a spread in the scores when compared to the medical-surgical nurses. The scores suggest home care nurses are more consistent in overall

creativity when compared to the medical surgical nurses in this sample.

Table 7

Creativity in Medical-Surgical Nurses and Home Care Nurses

Creativity	Mean Scores				t Value	2 Tailed Prob.
	Med-Surg		HC Nurses			
	X n=10	SD	X n=10	SD		
Fluency	82	27	88	18	-.61	.549
Flexibility	47	11	47	9	.02	.983
Originality	75	25	81	17	-.67	.510
Creativity	68	21	72	14	-.56	.585

\* Significance at  $p < .05$

There are many factors which could have influenced the results. The ages of the home care nurses are within the 40-49 range, but the age of medical-surgical nurses are spread over a wide range. Dacey, (1990)

suggests one of six peak periods of creative growth occur somewhere around the 40-45 year range. Several other theorists Levinson (1978), Jung (cited in Dacey, 1990), and Erikson (cited in Levinson, 1978) suggest this period is a time of growth. Personal development may be one reason for the difference between flexibility and fluency.

Home care nurses also had more years of nursing experience than medical-surgical nurses. Home care nurses were approximately three times more experienced in nursing than the medical-surgical nurses. Home care nurses may have become expert nurses as described by (Benner, 1982). Expertness may provide these nurses with better insight into their practice and the opportunity to develop creative approaches to care.

Home care nurses are of a different generation and have come from a different background than the hospital nurses. The training provided the home care nurses was regimented and based on many rules. A generation later education of the nursing student was different in that creativity was encouraged and practice was more process oriented (Ferguson, 1992). The training home care nurses received may affect their creativity.

Research Question Three

Do registered nurses and nursing students differ in measures of creativity?

This question compared the creativity of both groups of registered nurses medical-surgical and home care with nursing students. T tests with pooled variance were performed on the variables of creativity, fluency, flexibility and originality to detect differences. No significant difference was found between registered nurses and nursing students in all aspects of creativity as indicated in Table 8.

Table 8

Creativity in Registered Nurses and Nursing Students

Creativity	Mean Scores				t Value	2 Tailed Prob.
	Nurses n=20		Students n=10			
	X	SD	X	SD		
Fluency	85	22	91	29	.67	.507
Flexibility	47	10	51	12	1.05	.302
Originality	78	21	77	29	-.14	.889
Creativity	70	17	73	21	.47	.644

\* Significance at  $p. < .05$

Today nursing school offers the student an opportunity to explore and experiment with new skills. Creativity and innovation are encouraged. The nature of the educational system provides nursing students time to develop ideas and be creative.

Many registered nurses work in an environment where creativity is not encouraged. There is little time to develop concepts and ideas to improve the workplace (Clark et al, 1991).

After several years of discussion nurse educators recognise the need for creative thinking skills to be integrated into the curricula (Cournoyer, 1990). During the last decade most graduates of nursing schools benefited from the changes in curricula and are now graduates of programmes which encourage creative problem solving.

Unfortunately the findings of this study cannot lend support to the concept that changes to the curricula have resulted in graduates who are more creative. There is no significant difference between home care nurses who graduated in the 1960's and early 1970's, medical surgical nurses who graduated in the 1980's and the present nursing students.

Similarly the results of this study cannot confirm the finding of several other nursing studies (Thomas, 1979; Sullivan, 1984; Sullivan, 1987). These studies suggest that the creativity of nursing students decreases during their education.

#### Summary

The findings of this study have been presented for 30 subjects: ten nursing students, ten medical-surgical nurses, and ten home care nurses. A demographic profile of the subjects and statistical findings to answer three questions are provided.

The demographic data indicate home care nurses are more experienced in nursing and older than the other two groups. Nursing students were younger with some experience in practical nursing. The medical-surgical nurses had an average of four years nursing experience in their present facility.

There was no significant difference among the three groups of subjects on measures of creativity when compared to a normative sample. The groups were within the average range when compared to a large normative sample for fluency, above average for flexibility, high above average range for originality except for home



care nurses who had a strong indication of expressing original concepts.

## Chapter Five

### Conclusions and Implications

The final chapter is presented in four parts: summary, conclusions, limitations, and implications. The first part provides a summary of the study. The conclusions provide a brief synopsis of deductions made from the findings. The limitations suggest some of the weaknesses of the study. Finally the implications provides direction for administration, education and research.

#### Summary

The desire to improve patient care provides the impetus for administrators, educators and researchers to encourage creativity. But many restrictions on practice prevent nurses from being creative. The purpose of this study was to inform the profession of it's creative potential.

The research questions were the following:

- 1) What is the level of creativity in three groups of nurses: second year diploma nursing students, medical-surgical nurses and home care nurses.
- 2) Do medical-surgical nurses and home care nurses differ in measures of creativity?

3) Do registered nurses and nursing students differ in measures of creativity?

Creativity is defined as the end product of a process. It has three characteristics: fluency, flexibility and originality. Fluency reflects the subjects ability to produce a large number of ideas with words. Flexibility represents a person's ability to produce a variety of kinds of ideas, to shift from one approach to another or to use a variety of strategies. Originality reflects an individual's ability to produce ideas that are away from the commonplace, banal or established. Together they provide an overall profile of creativity.

The subjects for this study were ten nursing students, ten medical-surgical nurses and ten home care nurses. The nursing students were young with some having nurses aide experience. The medical-surgical nurses worked an average of 3.95 years at their present facility. The home care nurses were the oldest and had the most nursing experience of the group.

The instrument chosen for this study was the Verbal Torrance Test of Creativity Thinking. A reliable and valid instrument which has gone through

development and testing for about 30 years.

The findings indicate no significant differences between the groups: nursing students, medical-surgical nurses and home care nurses. Neither was there significant differences among nursing students and the combined group of nurses.

All the subjects were above the mean when compared to a normative sample. The groups were within the average range when compared to a large normative sample for fluency, above average for flexibility, high above average range for originality except for home care nurses who had a strong score in originality.

### Conclusions

The major conclusions arising out of this study data are:

- 1) Characteristics of creativity between medical-surgical nurses and home care nurses did not differ significantly.
  
- 2) There was no significant difference in all aspects of creativity between the nursing students and registered nurses.

3) When compared to a large sample (37,055) of children and adults who have taken the Torrance Tests of Creative Thinking, all subjects in this study were above the population median for all characteristics of creativity including overall creativity.

4) When compared to a sample of adults (3,028) who have taken this test all subjects were considered average for the characteristic of fluency, above average for flexibility and overall creativity. Nursing students and medical-surgical nurses were above average for originality, and home care nurses were considered to have strong originality abilities. The home care nurses have a strong ability to produce ideas that are not obvious, commonplace or banal. A strong score in originality indicates they are nonconforming people with an ability to make mental leaps and to cut corners in obtaining solutions.

5) There were minimal differences in overall creativity between the subjects from this study and that of Sullivan's.

### Limitations

- 1) It is impossible to generalize the results of this study to the nursing population due to the small sample design. Any conclusions or generalizations that are reached are applicable only to those nurses in the selected work and study facility.
- 2) This study is limited by the sampling criteria. It does not have statistical significance for those nurses working in other specialities.
- 3) This study does not control for individual life experience, motivation, training in creativity and other extraneous variables.
- 4) This study does not control completely for temporal changes such as the place where the test was take or the time of day at which it occurred.
- 5) This study is limited to a particular concept of creativity and does not stray from that perspective.

### Implications for Nursing Administration and Practice

One of the conclusions of this study is that nurses and nursing students are more creative then the majority of others who have taken this test. Administrators need to support nurses in their use of creativity in practice.

Administrators are the gate keepers of creativity. They hold the key to the door which is inhibiting the creative talents of nurses and nursing students. To be creative nurses need a nurturing safe environment where creativity can be encouraged. To use their creativity nurses need the time to develop ideas, the support of their administrators to make mistakes without fear of retribution and the freedom to explore the boundaries of nursing. These challenges must be done in an atmosphere of trust and openness.

Barriers to creativeness must be breached to provide nurses the opportunity to improve practice. Administrators should think twice about responding to requests for creativity with statements like: "...we've already tried that and it didn't work" or "...there is not enough time" or "...there is no money in the budget."

Nurse administrators can take up the creative challenge by working with nursing staff to find ways of encouraging innovation.

Another conclusion of this study is nurses and nursing students have the ability to produce many unique ideas. Administrators may wish to make use of

these talents by promoting avenues for their development such as shared governance and participatory management programmes.

#### Implications for Nursing Education

There are several implications related to education which are suggested by this research. This study determined students were more creative than nurses although the literature suggests a decrease in some characteristics of creativity by the end of their education.

One study (Vernon, 1979) showed that 90% of five year olds with high creativity dropping to 10% by age seven. And only 2% of the population showed high creativity beyond age eight (Prince, cited in Vernon 1979). The drop in creativity appears to start when traditional schooling begins. Creativity must be encourage as the student progresses through school.

Most educators recognize the need to encourage creativity in their students. This experimental process is time consuming and difficult considering the need to protect patients by means of checks and balances which leaves little room for error. The challenge to teachers is to encourage creativity and



limit risks.

Teachers may need to move away from didactic teaching methods which foster convergent thinking to more creative teaching methods which promote divergent thinking. For teachers there is a time to teach didactically and a time to teach creatively. Knowing when those times are may be difficult.

#### Implications for Nursing Research

Further research in creativity and nursing is required. There are several questions left unanswered by this research: Would the results be significant in a randomized experimental study? What degree of creativity is there between working diploma nurse and employed baccalaureate nurses? Does creativity differ between home care nurses, medical-surgical nurses and other specialities such as nurses working in a psychiatric or critical care unit? Is there a difference in creativity between diploma and degree graduates? Is there a difference in creativity taught between diploma and degree programmes students?

Nursing students, medical-surgical nurses and particularly home care nurses showed strong tendencies towards originality, the ability to produce unique

ideas. It would be interesting to confirm whether this is a trait found in all nurses, diploma nurses only, experienced nurses or nurses in certain specialities. Does the profession attract individuals who are creative, or does it instill originality in those who become nurses?

This study examines creativity from one view point. It limits it's perspective to a verbal interpretation of creativity. It does not examine other creative perspectives such as figural creativity. A better understanding of the context of creativity is needed to determine where the profession needs to place it's emphasis. Before doing research we need to ask hard questions such as: What aspects of nursing will be enhanced by a greater degree of creativity? What aspects of nursing will need to be enhanced by a greater degree of technical excellence?

#### Summary

The findings of this study indicate nursing students and nurses are creative individuals who are sometimes restricted in their abilities. The administrators and educators are encouraged to use and develop the talents of practising nurses. There is

further research needed to better define nursing's relationship with creativity.

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## Appendix A

2264 Strathcona Cres.  
Comox BC  
V9N 4K7  
May 25, 1991

North Island College,  
Courtenay, BC  
V9N 2C4

To Whom it May Concern:

I am a Masters of Nursing in Science student conducting research into the area of creativity and nursing as partial fulfilment of my degree. I would like to recruit 10 nursing students in their final year of the nursing programme as subjects. The volunteers are required to meet the criteria of being between the ages of 20-50, have no university degree and are in their final of nursing studies. It is hoped the college can identify potential subjects and provide them with the attached letter.

The test I wish to administered is a 55 minute paper and pencil test called the Verbal Torrance Tests of Creative Thinking. It can be conducted at the College or St. Joseph's Hospital whichever is more convenient for the students.

Results of the study and it's interpretation will be reported to the College in the Fall. I would appreciate meeting with a representative from the College at you earliest convenience. I may be reached at my office phone number 334-1164.

Yours Sincerely,

Dan Woodrow RN

## Appendix B

Strathcona Cres.  
Comox BC  
May 25, 1990

Continuing Care Division  
Upper Island Health Unit  
640 Cumberland Ave.,  
Courtenay, BC  
V9N 2C5

To Whom it May Concern:

I am a Masters of Nursing in Science student conducting research into the area of creativity and nursing as partial fulfilment of my degree. I would like to request the Health Unit's assistance to recruit 10 Home Care nurses employed at the Health Unit to be volunteers in a study of creativity.

Each volunteer is required to meet the criteria of graduating from a college or school of nursing (not a university), a registered nurse between the ages of 20-50, and be employed in a part or full time capacity for the last two years as an employee of the health unit. Once nurses with these criteria are identified a letter similar to the one attached could be distributed through the pay department requesting the nurse's participation.

The test I wish to administered is a 55 minute paper and pencil test called the Verbal Torrance Tests of Creative Thinking. Use of the education room for this purpose would be appreciated.

Results of the study and it's interpretation will be reported to the local Continuing Care Division in the Fall. I would appreciate discussing this with a representative of the Continuing Care Division at your earliest convenience.

Yours Sincerely,

Dan Woodrow RN

## Appendix C

2264 Strathcona Cres.  
Comox BC  
May 25, 1990

St. Joseph's Hospital  
1950 Comox Ave.  
Comox, BC  
V9N 4L3

To Whom it May Concern:

I am a Masters of Nursing in Science student conducting research into the area of creativity and the working nurse as partial fulfilment of my degree. I would like to request the Hospitals assistance to recruit 10 nurses employed of St. Joseph's Hospital as volunteers to study creativity and nursing.

Each volunteer is required to meet the criteria of being a graduate of a college or school of nursing (not a university), a registered nurse between the ages of 20-50, and be employed in a part or full time capacity for the last two years as in an medical-surgical setting in the Hospital. Once nurses with these criteria are identified a letter similar to the one attached could be distributed through the pay department requesting the nurse's participation.

The test I wish to administered is a 55 minute paper and pencil test called the Verbal Torrance Tests of Creative Thinking. Use of the education room for this purpose would be appreciated.

Results of the study and it's interpretation will be reported to the Hospital in the Fall. I would appreciate discussing this with a Hospital representative at your earliest convenience.

Yours Sincerely,

Dan Woodrow RN

## Appendix D

2264 Strathcona Cres.  
Comox BC  
May 25, 1991

To Whom it May Concern:

I am a Masters of Nursing in Science student conducting research into the area of creativity and nursing as partial fulfilment of my degree. I am recruiting volunteers willing to participate in a 55 minute paper and pencil test to examine creativity.

The individual test results are kept completely confidential and no names or identifying marks are used to distinguish individual results. The test will be held at Upper Island Health Unit or Central Vancouver Island Health Unit at this time which is convenient for you to attend.

Each volunteer should be a staff nurse registered in the province of British Columbia between the ages of 20-50 employed in a part or full time capacity for a period of two years in home nursing care in your present health unit. She must be a diploma graduate who has not yet obtained a degree in nursing.

The volunteer has the right to refuse to participate or withdraw at any time during the study. If the nurse does not wish to be involved or withdraws it will have no affect on their standing as an employee.

If you would like to participate in this research please leave a message with Administrator or contact me for more information at 334-1164. If you are unable to participate please pass this letter on to someone who may be interested.

Yours Sincerely,  
Dan Woodrow RN

## Appendix E

2264 Strathcona Cres.  
Comox BC  
May 25, 1991

To Whom it May Concern:

I am a Masters of Nursing in Science student conducting research into the area of creativity and the working nurse as partial fulfilment of my degree. I am looking for volunteers willing to participate in a 55 minute paper and pencil test to examine creativity. The individual results of the test are kept completely confidential and no names or identifying marks are used to distinguish individual scores.

Each volunteer is expected to be between the ages of 20-50, in their final year of the nursing diploma programme offered at North Island College and have no university degree.

The student has the right to refuse to participate or withdraw from the study at any time. If the student does not wish to be involved or desires to withdraw it will have no affect on their standing in the class.

If you would like to participate in this research please contact me at 335-1164. If you cannot participate please pass this invitation to someone who is interested.

Yours Sincerely,

Dan Woodrow RN

## Appendix F

2264 Strathcona Cres.  
Comox BC  
May 25, 1991

To Whom it May Concern:

I am a Masters of Nursing in Science student conducting research into the area of creativity as partial fulfilment of my degree. I am recruiting volunteers willing to participate in a 55 minute paper and pencil test to examine creativity.

The individual test results are kept completely confidential and no names or identifying marks are used to distinguish individual results. The test will be held at St. Joseph's Hospital. The date and time will be established once the individual's availability is known.

Each volunteer should be a staff nurse registered in the province of British Columbia, between the ages of 20-50 employed in a part or full time capacity for a period of two years in an medical or surgical setting at St. Joseph's Hospital. She must be a diploma graduate who has not yet obtained a degree in nursing.

The volunteer has the right to refuse to participate or withdraw at any time during the study. If the nurse does not wish to be involved or withdraws it will have no affect on their standing as an employee.

If you would like to participate in this research please leave a message with your ward manager or contact me for more information at 334-1164. If you are unable to participate pass letter on to someone who may be interested.

Yours Sincerely,  
Dan Woodrow



## Appendix G

Date:

Number of years of work study at your present facility:

North Island College \_\_\_\_\_

St. Joseph's Hospital \_\_\_\_\_

Upper Island HU \_\_\_\_\_

Central Van. Island HU \_\_\_\_\_

Please indicate with a check mark your choice:

Age:

20-29 \_\_\_\_\_

30-39 \_\_\_\_\_

40-49 \_\_\_\_\_

50+ \_\_\_\_\_

Sex:

Female \_\_\_\_\_

Male \_\_\_\_\_

Highest educational level obtained:

Grade 12 \_\_\_\_\_

First year North Island College \_\_\_\_\_

Second year North Island College \_\_\_\_\_

Third year North Island College \_\_\_\_\_

University degree \_\_\_\_\_

Experience in nursing:

Student	_____
less than 2 years	_____
2-5 years	_____
5-10 years	_____
10-15 years	_____
greater than 15 yrs	_____

## Appendix H

CONSENT FOR PARTICIPATION IN THE RESEARCH STUDY  
CREATIVITY AND NURSING

(date) \_\_\_\_\_

I (name) \_\_\_\_\_ consent to  
participation in

the study of creativity and nursing. I have read the  
letter of

introduction explaining the study and am aware of my  
right to

refuse to participate or withdraw at anytime.

(signature) \_\_\_\_\_  
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differences between the three groups and creativity.

Appendix I

**SCORING WORKSHEET**

**TORRANCE TESTS OF CREATIVE THINKING, VERBAL FORMS A and B**

Student Name \_\_\_\_\_ Age \_\_\_\_\_ Grade \_\_\_\_\_ Sex \_\_\_\_\_ Scorer \_\_\_\_\_ School \_\_\_\_\_ Test Date \_\_\_\_\_ Form \_\_\_\_\_

Item Resp. No.	Activity 1		Activity 2		Activity 3		Activity 4		Activity 5		Activity 7	
	Orig. Score	Flex. Cat.	Orig. Score	Flex. Cat.	Orig. Score	Flex. Cat.	Orig. Score	Flex. Cat.	Orig. Score	Flex. Cat.	Shf.	Orig.
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**SCORE SUMMARY**

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Act. 5				
Act. 7				
<b>TOTAL</b>				<b>Battery Average</b>
<b>Standard Score</b>				
<b>Nat'l. %ile</b>				

**COMMENTS:**

Appendix J

# THINKING CREATIVELY WITH WORDS

By E. Paul Torrance

## VERBAL BOOKLET A



NAME \_\_\_\_\_

AGE \_\_\_\_\_ SEX \_\_\_\_\_

SCHOOL \_\_\_\_\_

GRADE \_\_\_\_\_

CITY \_\_\_\_\_

DATE \_\_\_\_\_



SCHOLASTIC TESTING SERVICE, INC.  
 480 Meyer Rd., P.O. Box 1056  
 Bensenville, IL 60106-8056

**Activities 1-3: ASK-AND-GUESS**

The first three activities will be based on the drawing below. These activities will give you a chance to see how good you are at asking questions to find out things that you don't know and in making guesses about possible causes and consequences of happenings. Look at the picture. What is happening? What can you tell for sure? What do you need to know to understand what is happening, what caused it to happen and what will be the result?





**Activity 1. ASKING.** On this page, write out all of the questions you can think of about the picture on the page opposite this one. Ask all of the questions you would need to ask to know for sure what is happening. Do not ask questions which can be answered just by looking at the drawing. You can continue to look back at the drawing as much as you want to.

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**Activity 2. GUESSING CAUSES:** In the spaces below, list as many *possible* causes as you can of the action shown in the picture on page 2. You may use things that might have happened just before the things that are happening in the picture, or something that happened a long time ago that made these things happen. Make as many guesses as you can. Don't be afraid to guess.

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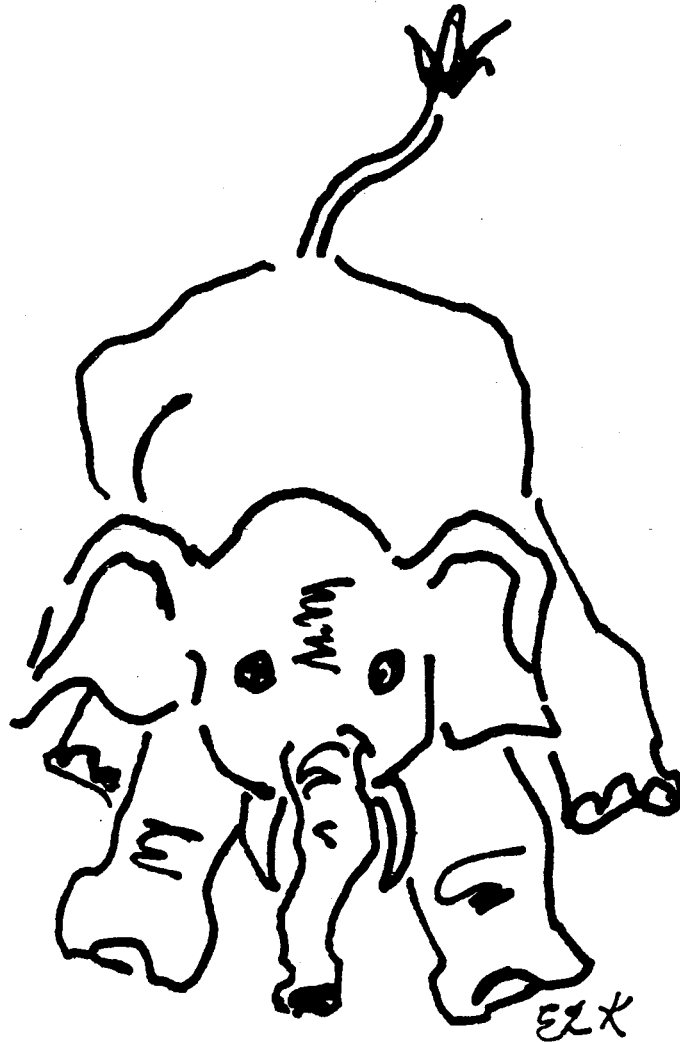
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**Activity 3. GUESSING CONSEQUENCES:** In the spaces below, list as many possibilities as you can of what might happen as a result of what is taking place in the picture on page 2. You may use things that might happen right afterwards or things that might happen as a result long afterwards in the future. Make as many guesses as you can. Don't be afraid to guess.

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**Activity 4: PRODUCT IMPROVEMENT**

In the middle of this page is a sketch of a stuffed toy elephant of the kind you can buy in most dime stores for about one to two dollars. It is about six inches tall and weighs about a half pound. In the spaces on this page and the next one, list the cleverest, most interesting and unusual ways you can think of for changing this toy elephant so that children will have more fun playing with it. Do not worry about how much the change would cost. Think only about what would make it more fun to play with as a toy.



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**Activity 5: UNUSUAL USES (Cardboard Boxes)**

Most people throw their empty cardboard boxes away, but they have thousands of interesting and unusual uses. In the spaces below and on the next page, list as many of these interesting and unusual uses as you can think of. Do not limit yourself to any one size of box. You may use as many boxes as you like. Do not limit yourself to the uses you have seen or heard about; think about as many possible new uses as you can.

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**Activity 6: UNUSUAL QUESTIONS**

In this activity, you are to think of as many questions as you can about cardboard boxes. These questions should lead to a variety of different answers and might arouse interest and curiosity in others concerning boxes. Try to think of questions about aspects of cardboard boxes which people do not usually think about.

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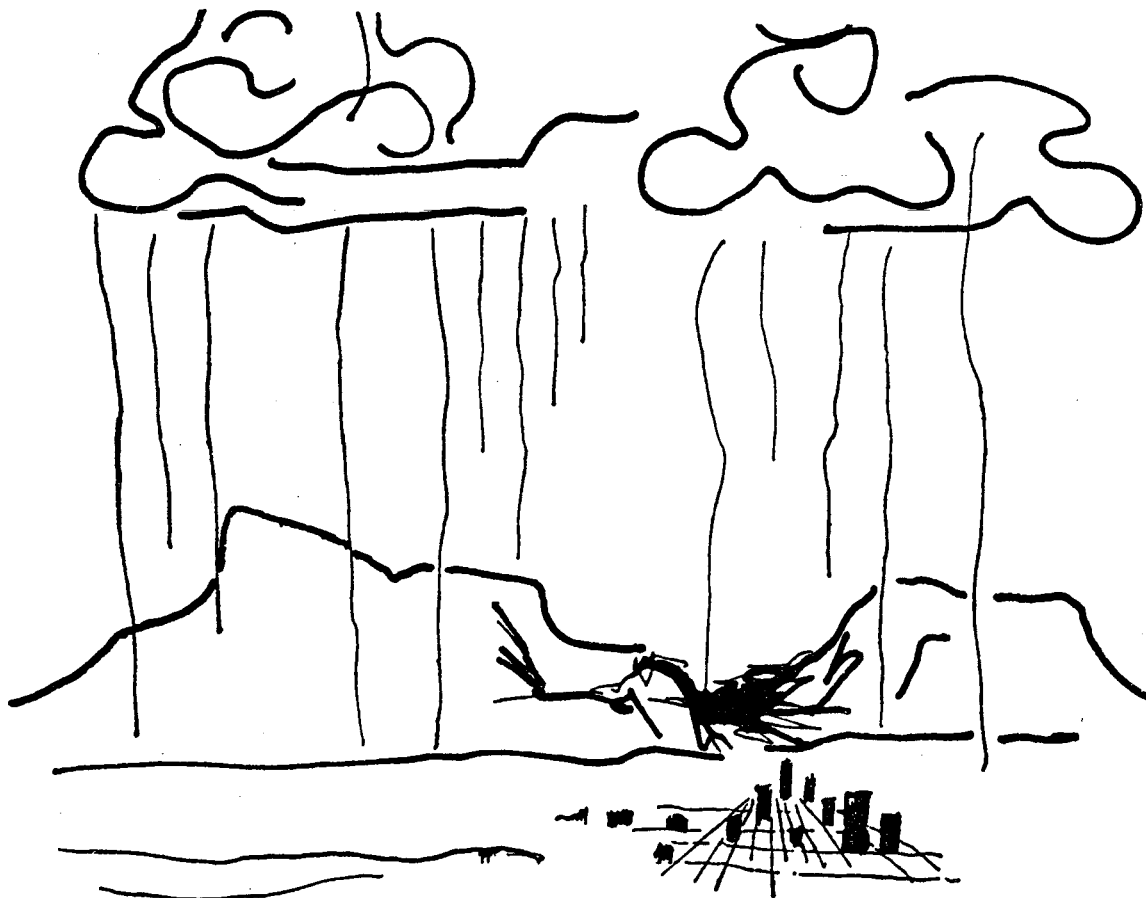
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### Activity 7: JUST SUPPOSE

You will now be given an improbable situation—one that will probably never happen. You will have to *just suppose* that it has happened. This will give you a chance to use your imagination to think out all of the other exciting things that would happen IF this improbable situation were to come true.

In your imagination, *just suppose* that the situation described were to happen. THEN think of all of the other things that would happen because of it. In other words, what would be the consequences? Make as many guesses as you can.

The improbable situation—JUST SUPPOSE *clouds had strings attached to them which hang down to earth.* What would happen? List your ideas and guesses on the next page.



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