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ABSTRACT

         Critical thinking has been identified as essential to
development of the professional nursing role. A process, "cognitive
reengineering," has been created to facilitate critical thinking
skill development in RNs. The process is derived from adult learning
principles, techniques of consciousness-raising, and transformational
theory. Its basic components include examination, disassembly,
transformation and reassembly of assumptions, beliefs, and
perspectives using personal experience, historical research, nursing
trends, and nursing issues as content for exploration. Essential
environmental conditions include mechanisms to engage the student, a
knowledgeable facilitator, models, and peer support. Conceptual
mapping is a tool which can be used to assess student development.
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COGNITIVE REENGINEERING:

A PROCESS FOR CULTIVATING CRITICAL THINKING SKILLS IN RNs

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COGNITIVE REENGINEERING:

A PROCESS FOR CULTIVATING CRITICAL THINKING SKILLS IN RNs

INTRODUCTION

As health care reform continues its relentless though uncertain movement into the future, nursing education is running to keep up. Generalized skills including critical thinking, self-direction, leadership and communication have been accepted as necessary prerequisites for the professional role (NLN, 1993). Values associated with the professional role have been identified to include autonomy, caring, accountability and advocacy. The acquisition of these skills and values has been termed professional role socialization. For the female RN student who has been socialized through previous education and experience, resocialization is needed.
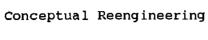
Styles (1982) states that "resocialization is the development of a professional soul." The development of this "soul" requires that the RN undergo a change in perspective related to nursing, gender roles, learning, thinking, and most importantly, herself.

Although thinking skills should be systematically cultivated throughout a nursing curriculum, this paper will limit its scope to one course for RN students in which the primary focus is the development of critical thinking through a process I have named cognitive reengineering.

In order to provide background and support for the development of this course, several related issues will be addressed. First, the process of cognitive reengineering will be described. The

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socialization of female RN students within a male-dominant culture will be explored, specifically as it inhibits professional role development. The learning environment which was created to facilitate the reengineering process will be described. The interactive role of the teacher will be explored. Finally, the mechanisms used for assessment will be explained.

COGNITIVE REENGINEEERING

The term cognitive reengineering is derived from three theoretical/conceptual bases: principles of adult education (Knowles, 1970, 1980); techniques of consciousness-raising groups (Belenky et al., 1986, Hart, 1990); and transformational theory (Mezirow, 1978, 1981, 1990).

Cognitive reengineering is a process by which a student's assumptions, beliefs, and perspectives are examined, disassembled, transformed, and reassembled. This process does not take place in isolation. Environmental conditions which must exist include, but are not limited to: a mechanism to engage the student; a knowledgeable facilitator; models of the process; and peer support. These conditions are more fully discussed in subsequent sections of the paper.

Gauging the success of the reengineering process occurs through the observation of a repertoire of behaviors leading toward more inclusive, rational and integrative perspectives. Individual and collective action based on these perspectives lends additional

evidence to a successful process. A methodology for assessing student development along the continuum of cognitive reengineering has been included later in the paper.

FEMALE RN SOCIALIZATION

The female RN student displays a unique blend of characteristics which both challenge and enrich the learning environment. Through early female socialization, the values of passivity, obedience, dependence, and nurturing are internalized. Positive reinforcement for compliant, deferent behavior occurs in the home, the classroom, and, in later years, the marriage and the work setting. Women experience societal sanctions and internalized quilt when they deviate from traditional roles. This results in a self-perpetuating form of power-focused, distorted human interaction which argues against the development of a professional role.   RN students tend to seek situations that are highly structured and in which they expect to be told what to do (Armitage, 1990). Nursing education has fostered this image through authoritarian classroom practices and placing undue emphasis on the fear of making mistakes resulting in low risk-taking behaviors. The RN students' experiences in the patriarchal health care system continue this authoritarian environment. Physicians and hospital administration expect nurses to demonstrate subordination even in areas that are purely nursing's domain.

Conversely, these women are also competent nurses, the majority of whom juggle work, family, and school obligations. They hold positions of enormous responsibility and seek validation of the life experience they have gained from the educational culture. This is often not forthcoming and the student's response is frequently hostility or withdrawal.

IMPLEMENTING COGNITIVE REENGINEERING

The goal of the final course in our RN completion program is to achieve cognitive reengineering in RN students which will facilitate their internalization and implementation of the professional nursing role. The course uses historical research and current trends and issues as content for exploration.

The course begins by a statement that this course is different from any others which they have taken in the past. The format and expectations are explained and the emphasis on assumption-challenging and intellectual and social risk-taking is discussed. This usually results in a heightened degree of group uncertainty. Thus begins the first "disorienting dilemma" as described by Mezirow (1990). A seminar format is utilized with the choice of topics primarily determined by the students' interests. Each student starts the course with a grade of "A". This is done to provide a safe environment which encourages and nurtures risk-taking rather than penalizing for mistakes. It is emphasized that challenging the assumptions of each other and the teacher is valued

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and desired behavior. The students quickly realize that previously successful school-related behaviors such as quiet acceptance, obeying the rules, conspiring to maintain the teacher's expert status, and trying to avoid conflict will not be rewarded in this learning environment.

The second disorienting dilemma occurs when the students are assigned to read Ashley's, Hospital, Paternalism and the Role of the Nurse (1974). This book is the product of historical research which traces the manner in which nurses, as women, have been oppressed by the medical and hospital establishments. It traces the development of nursing in the United States from the beginning of the first hospital in 1750 through the 1960's.

This feminist perspective of nursing's history tends to promote an extreme emotional reactions - specifically, anger. Students have identified the sources of their anger as (a) the fact that not much has changed in the hospital system over the past 100 years, (b) the blatant devaluation and exploitation of nurses as graphically described in the book, and (c) the betrayal by their nursing education in presenting a sugar-coated version of nursing's history.

It is at this point in the course when the initiation of personal experience as source material occurs. Students spontaneously begin relating events in their lives which were triggered from their readings. These individual experiences are validated by the group, building a sense of trust and community

within the group. A collective sense of outrage permeates the classroom and blame is liberally assigned.

The only lecture in the course is presented immediately following the discussion of Ashley's book. The topic is oppressed group behavior. The information disseminated through the lecture provides the student with a new perspective on nurses' behavior in the work setting. The students acquire an understanding of the characteristics of members of all oppressed groups. With this information, they begin to perceive the negative behavior exhibited by nurses to be a result of oppression rather than gender or occupation, achieving a degree of theoretical distance from the issue.

A period of self-examination follows the disorienting dilemmas with an assessment of internalized psychological and cultural role assumptions. During this time, students often initially minimize or deny the social roles they have assumed. Through the seminar format, these students are given validation that they share a common experience. This places the problem in a larger social context necessitating collective solutions. As assumptions are challenged through critical discourse, new meaning perspectives are developed.

A position paper is a course requirement which assists the students in dialectical thinking. As confidence increases, the students debate a nursing issue emphasizing critical insight, verbal skill, and persuasion.

As new meaning perspectives emerge and the possibilities of individual and collective action are explored, the student is eager to apply what she has learned. This frequently takes the form of proselytizing in their work and family settings! In order to harness this energy and forge the link between education and social transformation, each student must conceive, implement, and evaluate a project. The only rule which accompanie the project assignment is that it must be designed to assist in the transformation of social structures which have served to oppress nurses. This project requires the students to assume personal responsibility for their profession and transforms course rhetoric into positive action.

The final stage of cognitive reengineering is entered when the students begin to find ways to integrate their new meaning perspectives into their lives. This requires a "psychological readiness" on the part of the learner which cannot be dictated by the due dates on the syllabus. There are a variety of behaviors which demonstrate this integration. It may involve revising new attitudes and assumptions to fit the reality of the work situation. For others, there may be a recapitulation of existing perspectives. A new commitment to nursing may be born incorporating change agency and political activism. Accompanying these cognitive and behavioral transformations, the students report a sense of self-affirmation and liberation arising from the sense of empowerment they have experienced.

THE TEACHING ROLE IN COGNITIVE REENGINEERING

Utilizing principles of adult learning implies a major shift in the experiences which take place in classrooms in nursing education. The educational experiences of most nurse educators have been impressively unhelpful in acquiring and using the principles of adult learning. Nurse educators teach the way they were taught. This traditional education relied on the "expert" teacher transmitting large amounts of information to the student who passively received it into memory as truth. There existed an implicit power differential which inhibited free discussion or reflective thought.

An additional problem is that graduate education in nursing often provides no skill acquisition in teaching even though most nurses with graduate degrees are found in an educational setting. As a result, their exposure to current educational thought is minimal. Limitations of nursing faculty notwithstanding, the role of teacher in this course is critical in facilitating cognitive reengineering.

When critical thinking is discussed, words such as objective, rational, and cognitive are associated with it. However, in teaching critical thinking "there is no way teachers can avoid declaring values short of denying their existence as people" (Eble, 1983, P. 32). Freire believes the teacher must have a dream. However, "I cannot manipulate the student to bring them with me to my dream. I have to make clear to them what my dream is and I have

to tell them there are other dreams I consider bad" (1987, p. 156-157). One of the challenges of this role is that teachers must be capable of seeing their own work with an open mind.

Teachers should present both their own opinions and those of others, distinguishing between the two. This is a critical point because the tension between differing perceptions and modes of thinking produce the disequilibrium so valuable in challenging student's present values and thought structures. The more openly teachers acknowledge subjective elements in their teaching, the more truly objective they show themselves to be.

One of the fears generated from this self-disclosure is that the teacher will no longer be regarded as the "expert". The student will be more likely to challenge pronouncements resulting in a lack of authority and power. This requires a degree of risk-taking that is at the heart of all creative teaching and learning. As Meyers (1986, p. 47) states, "In the reflective classroom, both teacher and students will appreciate the fact that some problems may remain forever a mystery".

Teachers must assure students that they are valued and respected. Challenging questions should not threaten the integrity of individuals. Thinking critically is intimidating to novice critical thinkers and they may feel attacked when being pushed into questioning familiar assumptions. This may cause them to mentally disengage from the class. Modeling and rewarding risk-taking behaviors promote trust essential to success in the classroom.

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Active listening to students' verbal and nonverbal behavior allows the teacher to understand the students' perspectives. This understanding assists the teacher to draw on students' past experiences when framing questions.
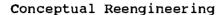
Supporting the efforts of beginning critical thinkers is essential. "Teaching students new thinking processes involves gauging very sensitively the amount of disequilibrium that will do the most good. Too much can overload students and be dysfunctional, while too little can result in warm, wonderful classes where no learning takes place . . . " (Meyers 1986, p. 15). One of the keys to successful teaching of critical thinking it to provide structure and support for the development of new meaning perspectives while simultaneously challenging the old.

Achieving an objective view of oneself is an impossible task. A transformational teacher can assi t by reflecting back to the student her attitudes and prevalent ways of thinking and acting.

Motivation of students is important in transformational teaching. It should, however, be tempered with a frank understanding of the risks inherent in challenging cultural norms. Establishing a network of peer support is important for motivation and a sense of belonging in a group. A student who has begun to act on her new perspective is often pressured by family, friends and colleagues to "change back". The support group can encourage, identify with, and nurture the student during this stress-filled time.

While all of the activities listed above are important in
transformational teaching, the most critical skill is modeling
critical thinking ideas and actions. This is accomplished through
demonstrating openness and genuineness, inviting criticism of one's
views, providing explanations for actions, and demonstrating a
willingness to change behavior as a result of external criticism.

ASSESSMENT

Conceptual mapping is a technique chosen to assess the
development of new perspectives in the students enrolled in the
course described in this paper. A conceptual map is a schematic
device for representing sets of concept meanings embedded in a
framework of propositions (Novak and Gowin, 1984, p. 15). It has
the ability to portray complex relationships with as much breadth
or specificity as desired.

The initial conceptual map drawn by the students reflects
"preengineered" assumptions on an issue, with all their flaws. As
critical discourse takes place within the group, these assumptions
are tested, contradictions and inconsistencies exposed and invalid
conclusions discovered. A reconstruction of the conceptual map
often results in the recognition of new insights and patterns.

The criteria for assessing the development of new perspectives
as visualized through conceptual mapping include the recognition
that: 1) new information is related to and subsumable under more
general or inclusive concepts (principle of hierarchical

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structure); 2) new concepts are continuously acquired and differentiated (principle of progressive differentiation); 3) new relationships between related sets of concepts or propositions are linked (principle of integrative reconciliation) (Ausubel et.al., 1978).

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THEORETICAL/CONCEPTUAL BASIS FOR PAPER ENTITLED

COGNITIVE REENGINEERING:

A PROCESS FOR CULTIVATING CRITICAL THINKING SKILLS FOR RNs

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THEORETICAL/CONCEPTUAL BASIS FOR PAPER ENTITLED

COGNITIVE REENGINEERING:

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The process of cognitive engineering has been derived from the
work of Mezirow in perspective transformation, Knowles through his
articulation of adult learning principles, and the principles and
techniques utilized in consciousness-raising. Each is particularly
appropriate for the adult RN population described in the paper.

CONSCIOUSNESS-RAISING

The roots of consciousness-raising groups can be traced back
twenty-five years to the beginning of the feminist movement of the
1960's. The foundations on which it was developed have not changed
over the years. Consciousness-raising presupposes a view about
knowledge and knowing that empowers rather than extinguishes the
individual knower (Hart, 1990)

The epistomological premise is that one must start with
personal experience as the original source material to be analyzed
-- specifically, women/oppression. This occurs through a
interactive structure of reciprocity and equality. In order for
this structure to take form, the group must be relatively
homogeneous and representative of a marginalized or oppressed
group.

The initial phases of consciousness-raising use the sharing
and discussing of personal experiences in an attempt to explore the
nature of oppression. It's important that the group be able to

validate these idiosyncratic feelings and also perceive them as a group issue rather than one individual's problem.

The acknowledgement and understanding of issues previously regarded as personal begins the transformational process as the women's frame of reference begins changing shape. It is here that the "Aha" experience occurs. Old behaviors and attitudes are begun to be perceived in a new way seen through the context of oppression.

It is critical that movement from personal experience to collective analysis occur in order to examine and understand the general. A "theoretical" distance (Hart, 1990, p 56) must be acquired and maintained in order to create fresh interpretations and new contexts. This requires increasing facility in conceptualization and abstraction. These interpretations inspire ideas for individual and collective action directed toward reclaiming full membership in society by changing the power structures that currently exist today.

While the process described here is linear, the reality could be described more accurately as a spiral which frequently circles back upon itself. Individuals may leap ahead on one topic only to find themselves holding back on the next as they are unable to see beyond a particular painful personal situation. Or, they may find assumptions which they have deeply held to be insupportable, but are not ready to relinquish them.

TRANSFORMATIONAL THEORY

Mezirow's Transformational Theory (1978) was developed as a result of research conducted on women in college reentry programs and is particularly appropriate for the RN student. The philosophical premise underlying Mezirow's theory (1990) is that "no need is more fundamentally human than our need to understand the meaning of our experience" (p. 11).

Mezirow (1990) defines learning as "the process of a new or revised interpretation of the meaning of an experience, which guides subsequent understand, appreciation and action" (p.1). This process takes place through the lens of meaning perspectives which are sets of learned assumptions regulating perception and cognition.

> Meaning perspectives are, for the most part, uncritically
> acquired   in   childhood   through   the   process   of
> socialization, often in the context of an emotionally
> charged relationship with parents, teachers or other
> mentors. The more intense the emotional context of
> learning and the more it is reinforced, the more deeply
> embedded and intractable to change are the habits of
> expectation that constitute our meaning perspectives
> (Mezirow, 1990, p. 3-4)

The learned assumptions can be either psychological or cultural. Psychological assumptions are unconscious rules which cause guilt and anxiety when they are violated, e.g., "You must perform

perfectly", or "Never get angry". Cultural assumptions are found within the dominant cultural values of a society, e.g., "A woman's place is in the home."

Mezirow uses the terms critical reflection and reflective learning as synonyms for critical thinking. He believes learning can only occur through the combination of reflection and experience which integrates the internal and external environments of the adult learner. Critical discourse is an essential component to the learning process. It is through this discourse that the learner constructs and justifies new meaning perspectives. "It is through dialogue that we attempt to understand - to learn - what is valid in the assertions made by others and attempt to achieve consensual validation for our own assertions (Mezirow, 1990, p. 354).

Perspective transformation is the process of becoming aware of how our psych logical and cultural assumptions have constrained our view of self and our relationships with others. From awareness and critical discourse comes new, more integrative perspectives which can be acted upon.

This transformation occurs in several stages. It begins with a trigger event which causes internal discomfort initiated by an external stimulus. Mezirow refers to this stage as a "disorienting dilemma" (1990). It is followed by a period of self-examination resulting in an assessment of internalized role assumptions and a distancing from stereotyped social roles. Recognition that one's problem is shared validates one's experience and often places the

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problem in a socio/cultural rather than individual context. New
meaning perspectives are developed and explored, resulting in
increased competence and confidence.   Action is planned and
implemented with feedback sought.   The final stage consists of a
reintegration into society utilizing a new perspective (Mezirow,
1981).

ADULT LEARNING

Andragogy - the "art and science of helping adults learn"
(Knowles, 1980, p. 43) relies on several assumptions about the
nature of the adult learner:

1.   Adults desire and move toward self-directedness as they
      mature.

2.   Adult experiences are a rich resource for learning. They
      learn more effectively through experiential activities,
      such as problem-solving, simulations, and case study.

3.   Adults can identify their own learning needs and their
      readiness to learn.

4.   Adults are competency-based learners who wish to apply
      knowledge. They are performance centered.

5.   Adults have multiple priorities in their lives and school
      is usually not at the top of the list.

Through the exploration of the nature of the adult learner,
suggestions for an optimal learning environment can be gleaned.
The interaction between teacher and learner should be based on

mutual respect. In order to successfully engage the student in the learning activity, relevant life and wor experience should be recognized and validated. Emphasis should be placed on the application of knowledge. The learner should be allowed choices based on their individual learning needs. Evaluation methods should be competency-based.

Flexibility should be available with regard to deadlines and due dates in the learning situation. Penalizing an adult for choosing work or family over school displays a lack of sensitivity to the multiple demands of the learner.

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