Responding in Writing to Clinical Cases: The Development of Clinical Reasoning in Nursing

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Introduction

The purpose of this article is to describe and illustrate, by presenting a sample case, the concept of clinical reasoning examinations used in the baccalaureate nursing program at the University of Louisiana at Lafayette (UL Lafayette). Clinical reasoning exams have been developed by faculty for use in all four major upper division nursing courses in the curriculum. In each of these ten credit hour courses, five credit hours is allocated to the didactic component of the course and five credits is assigned to the related clinical practicuum. The student receives one grade for the course - the letter grade earned in the didactic portion. In the clinical component, the students are evaluated as satisfactory or unsatisfactory. In order to successfully complete the course, the student must earn at least a 74 average in the didactic portion and must also be evaluated by faculty as satisfactory in the clinical component.

In the theory portion of the course, students are most often evaluated using multiple choice unit exams which are structured in content and presentation (format) as similarly as possible to the National Council Licensure Examination for Registered Nurses (the NCLEX-RN) format. Questions on these exams are developed by the faculty and are focused primarily at the cognitive levels of application and analysis. One exam per course, the clinical reasoning exam, is not a multiple choice examination. In its current iteration, the clinical reasoning exam is a "paper and pencil" exam, however, it may be structured in different ways including computerized formats allowing free text entry by students.

There are several reasons for the incorporation of the clinical reasoning exams in the curriculum. One intent of the exam is to allow students the opportunity to write and to present knowledge in a method other than the multiple choice format. In addition, the clinical

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reasoning exam enables students to practice writing in discipline specific language. Students should have the opportunity to learn and practice the characteristic mode of writing that is specific to the discipline as part of their educational programs (Odell, 1980). With the proliferation of computerized clinical documentation systems in many health care institutions, students are afforded decreasing amounts of time and occasion to practice discipline specific writing.

Perhaps the principal reason clinical reasoning exams were incorporated into the major nursing courses at UL Lafayette is to facilitate students' focus on writing to enhance critical thinking and clinical reasoning skills. The clinical reasoning strategy allows students to utilize writing to develop higher level critical thinking skills and conceptual clarity. The faculty sought ways to measure these skills other than using student scores on multiple choice exams and evaluation of students' clinical performance. Faculty subscribe to the philosophy that writing skills are also thinking skills (Allen, Bowers, & Diekelman, 1989).

The clinical reasoning exam is a methodology that can be used to determine if the student has achieved critical understanding of course content. This paper will describe the development, structure, and evaluation of clinical reasoning examinations utilized in the Department of Nursing at the University of Louisiana at Lafayette. A sample exam will be used to illustrate the critical thinking skill or ability that is being evaluated.

Curriculum Framework

Despite the early efforts of nursing leaders such as Florence Nightingale, who employed methods of teaching that required elements of writing-to-learn (WTL) and critical thinking, as late as 1991 Kintgen-Andrews summarized that nursing education plays a nominal role or has little impact on generic critical thinking. However, it was thought that nursing education could play a role in improving skills in clinical judgement. In 1992, in response to a burgeoning discourse on critical thinking and its importance to the profession of nursing from the nursing education community, the National League for Nursing added critical thinking as one of the "required" outcomes of nursing education in its evaluation criteria for Baccalaureate and Higher Degree Programs. In that document, critical thinking was defined as "the students' skills in reasoning , analysis, research, or decision-making relevant to the discipline of nursing." The challenge for nurse educators was how to develop critical thinking skills of students and also how to measure whether (and how much) development occurred during the undergraduate nursing education process.

At approximately the same time, faculty and administrators in the Department of Nursing at UL Lafayette were becoming actively engaged in learning about the WTL paradigm and in implementing WTL concepts and activities across the four year nursing curriculum. Writing intense and writing emphasis courses and assignments evolved at all levels beginning with a freshman level Introduction to Nursing course. As the WTL effort matured and faculty expertise became more sophisticated, the process evolved to include writing to evaluate students' critical thinking and decision making abilities. Prior to the implementation of WTL, students' critical thinking and decision making abilities were evaluated primarily by reviewing the student's performance on multiple choice unit exams and subjectively, by the instructor's evaluation of the student's clinical performance and of the related student prepared clinical "care plan".

It is the belief of the faculty in the Department of Nursing that writing is an important method to be utilized in the development of critical thinkers. However, much like psychomotor skills which need to be performed repetitively to achieve proficiency, learning to think critically is a process that takes time and must be practiced. The addition of writing exercises and assignments at all levels of the curriculum affords the student the time for this practice (Broussard and Oberleitner, 1997).

Bandman and Bandman (1995), define critical thinking for nursing as, "reasoning in which we analyze the use of language, formulate problems, clarify and explicate assumptions, weigh evidence, evaluate conclusions, discriminate between good and bad arguments, and seek to justify those facts and values that result in credible beliefs and actions." (p.7). Green (2000) describes the cognitive components of critical thinking further which are often referred to as critical thinking *abilities* or *skills*. These abilities or skills may or may not be used by the individual when confronted with a particular situation or problem. The cognitive components of critical thinking include divergent thinking, reasoning, reflection, creativity, clarification, and basic support and will be defined and illustrated later in this article in the sample case.

Development, Structure, and Evaluation of the Clinical Reasoning Exam

In order to obtain a more comprehensive evaluation of students' critical thinking and clinical reasoning abilities, the faculty developed clinical reasoning examinations. On the clinical reasoning exam, students are presented with a clinical case developed by faculty. Cases are structured to correspond to the clinical focus of a

course and include maternal-child, adult health and illness, psychiatric/mental health and community nursing clinical situations. Students respond in writing to the scenarios posed in the clinical case. As the case evolves, students are to develop written responses to the case which include analysis of the data presented, interpretation and organization of data cues, formulation and defense of decisions, prioritization of actions and interventions, and provision of rationales for their decisions and actions. These activities require creativity, complex knowledge of the discipline and higher order critical thinking and writing skills. Typically, the students require from one to three hours to complete the clinical reasoning exam which is administered in the classroom setting.

Clinical reasoning exams are a component of the final course grade in each of the four upper division clinical courses. Percentages of grades devoted to the clinical reasoning exam range from 5% to 10% of the final course grade. The exam is constructed most often by the master teacher in the course with substantial input from the course's clinical faculty. Originally, two clinical reasoning exams were developed and administered by faculty in each clinical course. Due to the complexity of exam construction and evaluation and an increase in student numbers per course, only one clinical reasoning exam is developed and administered per course at this time.

Methods of evaluation of the exam vary from course to course. The exam may be structured in such a way as to facilitate one instructor being responsible for grading one of the questions on the exam for all students in the course. In other courses, the master teacher or course coordinator may choose to evaluate all components of all student exams to increase reliability of the grading.

The students are notified of the content of the exam in a general way prior to the actual exam date. For example, students may be informed that the topic of the exam is related to the nursing care of a patient who has undergone a myocardial infarction or may be related to the care of a child diagnosed with asthma. An example of a case scenario utilized in a second semester junior medical-surgical course follows. Comments related to exam components which assess and evaluate specific critical thinking skills and abilities are included.

Introductory Scenario:

You are a nurse working the night shift on a medical unit in a 200 bed community hospital. On a Saturday morning at 4:00 A.M., the Emergency Department (ED) nurse calls to notify you that you will be receiving a patient who was brought to the ED at 2:30 A.M. by the

local ambulance service. The patient was found at a rest area off of the interstate. At 4:10 A.M. the ED nurse and an orderly arrive on the unit with the patient, Mr. Ed Mason. He is intoxicated, is mumbling incoherently, and is combative. You assist the ED nurse and orderly in placing Mr. Mason in his bed. The ED nurse informs you, "We've seen Mr. Mason in the ED before - he's an alcoholic. We usually keep him a few hours and then release him but, this time he's worse. He's never been so out of it before." The nurse notifies you that his Blood Alcohol Content (BAC) is 200mg% and that she forgot to bring the patient's chart, which includes the physician's orders, with them. She'll send the chart up to the nursing unit when they return to the ED.

Section I: Pathophysiology

Discuss the effects of chronic alcohol consumption on physiological systems, particularly the Central Nervous System.

The focus of Section I is to evaluate the student's capabilities related to the lower order critical thinking ability or skill of ***basic support***. Basic support involves the utilization of knowledge level information which can often be memorized by the student in preparation for an exam. Basic support is comprised of known facts, truths, and background knowledge (Green, 2000).

Section II: Assessment

Mr. Mason has been placed in his bed. While awaiting the chart with the physician's medical orders you perform a rapid baseline assessment. Which of the following assessments should be performed by the nurse AT THIS TIME? Select as many assessment options as desired. Write a rationale for each assessment selected.

1. General physical assessment
2. Color of lips and nailbeds
3. Gag reflex
4. Skin color
5. Amount and color of sputum
6. Medical history
7. Blood pressure and pulse
8. Bruises and scars
9. Medication history
10. Inspection of the abdomen

Section II allows the instructor to evaluate the abilities of the student related to *divergent thinking* and *reasoning*. Divergent thinking is the ability to analyze a range and diversity of options, opinions, and judgements (Perry, 1978). The student learns to recognize and evaluate data in order to reach decisions related to the importance of that data. To arrive at the decision the student must weigh and have the ability to discern and discount extraneous, irrelevant, or superfluous data. In the clinical case described above, the student must make decisions regarding the importance and validity of the ten options listed by the instructor in the assessment category. Note that the instructor has qualified the request by adding a time delimiter, *at this time*, which should also influence the student's thought and selection processes.

Novice students or students without refined critical thinking or clinical reasoning skills often lack discrimination ability and may select most, if not all, of the options offered as correct since all of the possible selections are credible options for this case. None of the options can be discounted immediately by the student because it does not pertain to the case. For example, students recognizing the importance of a baseline medication history may indicate this assessment as important to obtain. The more astute student will recognize that since the patient is currently intoxicated he would not be considered a reliable or credible source of information *at this time*.

Allowing the student to state rationales for the selection of assessment priorities allows for the instructor to further evaluate the student's *reasoning* capabilities and to validate the student did not just hazard a correct guess. As the term implies, reasoning involves the principles of logic including inductive and deductive reasoning. Presenting rationales allows the student the ability to use persuasion and to present arguments substantiating or validating decisions.

Section III: Intervention

Based on the previously assessed data, what would be the most appropriate INITIAL nursing intervention? Choose only ONE intervention. Defend your choice of initial intervention.

1. Give magnesium sulfate injection as per standing order protocol.
2. Place side rails up and bed in low position.
3. Order a meal tray from dietary as per the patient's request.
4. Encourage the patient to drink a minimum of 100 ml of fluid per hour.

5. Initiate deep breathing exercises q 1 - 2 h.
6. Write a nursing order to maintain this patient on strict and accurate I and O.
7. Put mitts on Mr. Mason's hands so that he will not scratch his skin.
8. Perform an accurate baseline weight measurement.

Section III allows the instructor to evaluate the student's abilities related to *reflection*. The student must consider all of the data presented in the case thus far in order to reach a decision. Reflection entails contemplation and deliberation. According to Green (2000), reflection is critical thinking as a multidimensional construct; it is not just a linear or step-by-step process. Reflective thinking involves integrating past experiences and knowledge into the present situation and drawing potential alternatives and conclusions.

Prior to the final sections of the reasoning exam, the scenario advances further and the student is given additional data related to the progression of the case:

> You obtain the patient's chart on the unit. The following brief medical history is on the chart: Mr. Mason is a 45 year old welder who has a history of heavy alcohol intake and sporadic employment. His alcoholic binges appear to coincide with the times he is unemployed. He has been drinking since the age of 13 and his alcohol intake has escalated over the past 30 years to the point that he now consumes a fifth of whiskey every 2 days.
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> Section IV: Nursing Diagnosis
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> Based on the analysis of the data provided in the previous section related to Mr. Mason, list THREE nursing diagnoses, high risk diagnoses, or collaborative problems in PRIORITY order. Give rationales for each of your choices.
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> Section V:
>
> What other information about this case would you like to have that was not provided that would help in making decisions regarding this patient's care?

Sections IV and V allow for the student's use of *creativity* and *clarification*. These sections also allow the instructor to evaluate the student's ability to contextualize information i.e, to transfer facts

from one context to another (Allen, Bowers, & Diekelman, 1989). In the process of writing concisely, students are virtually forced to conceptualize clearly. Students must develop higher order conceptual skills upon which to base their decisions. Higher order decision making skills are recursive rather than linear (Allen, Bowers, & Diekelman, 1989). Finally, the last two sections in the exam enable the student to provide information in language specific to the discipline of professional nursing and allow for the instructor to evaluate the student's ability to communicate that ability precisely and accurately in written form.

Conclusion

The clinical reasoning exam is another methodology that can be used to determine if the student has achieved critical understanding of course content. Critical understanding moves the student to higher levels of objective analysis and allows the student in a professional discipline to synthesize and apply the knowledge unique to the discipline. The faculty in the Department of Nursing at UL Lafayette remain committed to the concept of using writing to develop critical thinking and clinical reasoning skills and abilities of nursing students. They continue to explore alternative means to evaluate those skills including using interactive computerized scenarios which are currently being produced.

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