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Evaluating Critical Thinking in Clinical Practice

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Although much has been written about measurement instruments for evaluating critical thinking in nursing, this article describes clinical evaluation strategies for critical thinking. Five methods are discussed: 1) observation of students in practice; 2) questions for critical thinking, including Socratic questioning; 3) conferences; 4) problem-solving strategies; and 5) written assignments. These methods provide a means of evaluating students' critical thinking within the context of clinical practice.

Promoting the development of critical thinking among nursing students and the measurement of critical thinking have been the focus of much research and discussion in nursing. Although varied definitions and perspectives of critical thinking have been proposed, one view is that critical thinking enables the nurse to reason and to make judgments about clients. Kataoka-Yahiro and Saylor[1(p352)] have suggested that critical thinking is reflective and reasoned thinking about nursing problems having more than one solution that is focused on decisions about what to believe and do in the situation. Similarly, Facione and Facione,[2(p131)] in their analysis of the concept of critical thinking, concluded that "critical thinking is a nonlinear, recursive process in which a person forms a judgment about what to believe or what to do in a given context." Reilly and Oermann[3] have written that critical thinking is the thought process underlying decisions and judgments made about clients under the nurse's care and other clinical decisions. Carrying out assessment, planning care, intervening with clients and families, and evaluating the effectiveness of interventions require critical thinking. Clinical practice provides the context in which critical thinking skills may be expressed.[4] Recent reviews of measurement instruments for critical thinking have examined their reliability and validity and have described alternatives such as portfolios and performance assessment.[5,6] The purpose of this article is to examine clinical evaluation strategies for critical thinking.

In the clinical setting, critical thinking enables the student to arrive at sound and rational decisions to carry out care of clients. In assessing clients, the student needs to differentiate relevant from irrelevant data, to identify cues in the data and cluster them, and to identify nursing diagnoses based on this analysis of data. Making decisions about competing diagnoses, judging when additional data are needed to arrive at a diagnosis, and generating alternate nursing diagnoses with supporting rationale require critical thinking. Critical thinking also is reflected in student ability to critique relevant nursing interventions, weigh the consequences of varied decisions possible, and consider multiple perspectives to care. As that care is provided, students evaluate client responses and the effectiveness of their nursing management. Clinical evaluation strategies provide a means of examining the student's ability to engage in critical thinking within the context of clinical practice.

Students who demonstrate critical thinking in the clinical setting raise questions about care and interventions; demonstrate a willingness to search for answers; are inquisitive, eager to acquire knowledge even when use of this knowledge is not readily apparent; consider multiple perspectives to the client's care; explore ideas and problems in new ways; and are open-minded.[2] For students to think critically with clients, they need to have an understanding of the client's problems and interventions on which to base their thinking. Answers to questions in the clinical setting and supporting rationale require a sound knowledge base.[7]

Critical thinking is not developed through one lecture nor one clinical experience, and instead, skill in thinking develops over time through varied experiences. Clinical evaluation strategies also need to monitor the development of students' thinking skills over time. Evaluation of critical thinking in practice may be formative or summative. This is an important distinction in developing an evaluation protocol for critical thinking. Formative evaluation reflects feedback to learners in clinical practice about their progress in developing critical thinking skills. Summative evaluation, conversely, measures critical thinking at the end of a point in time, for instance, at the completion of the clinical course. Clinical evaluation methods for critical thinking may be used for either formative or summative evaluation. Five methods will be discussed: 1) observation of students in practice; 2) questions for critical thinking, including Socratic questioning; 3) conferences; 4) problem- solving strategies; and 5) written assignments.

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Observation of Students in Practice

Observing students' care of clients and decisions made about that care is a primary means of evaluating critical thinking. This observation, however, needs to be combined with careful questioning by the teacher to assess the underlying rationale for students' decisions. Without such questioning, the student may be performing care outlined in the client's record without any critical thinking about that care. In evaluating students' use of critical thinking in their care of clients, the teacher should assess the following areas:

Does the student:

- collect relevant data?
- explain why these data are significant?
- differentiate relevant versus irrelevant data?
- identify cues in the data and cluster or group them?
- generate different nursing diagnoses, not only the ones identified in the client's record?
- describe data that support the diagnosis?
- consider competing diagnoses and evaluate each possibility to rule it in or out?
- provide a sound rationale for decisions made about assessment data and diagnoses?
- consider different interventions beyond those in the client record? consider the consequences of each one? decide after weighing alternatives?
- question established practices?
- demonstrate other characteristics of critical thinking in the practice setting, for instance, give reasons for decisions? ask why? seek answers? consider multiple perspectives? demonstrate a spirit of inquiry?

Questions for Critical Thinking

In addition to careful questioning of the student about patient care, other discussions with students, individually or as a clinical group, are an important strategy for evaluating critical thinking. In these discussions, the teacher can ask students about their decisions and reasons underlying each decision, options considered, and different perspectives to care that they have considered. The level of questions asked, however, is significant to avoid a predominance of factual questions and to focus more on clarifying and higher level questions. Factual questions are low-level questions, asking students to recall specific information and facts, such as, "Who should you call for...?" Clarifying questions ask students to explain their answers further, such as, "What do you mean when you say...?" Higher-level questions cannot be answered by memory alone, require an evaluation or judgment of the clinical situation, and may require comparisons across patients or clinical situations.[8] For instance, "Which approach would be best and why?"and "What is the relationship between this family's response and others you have met at the clinic?" are two higher-level questions.

An understanding of different levels of questions enables the teacher to better sequence them from low to high, using factual questions to establish the student's knowledge base and then progressing toward questions that ask for explanations, descriptions, and, lastly, evaluations and judgments about clients. Wink emphasizes that effective questioning leads students to apply previously acquired knowledge to clinical practice, to analyze problems and solutions, to improve on assessments and evaluation of care, and to develop critical thinking and problem-solving skills.[9,10]

Socratic Method

The Socratic method also may be used for assessing students' critical thinking in clinical practice. Socratic questioning has two components: systematic questioning and drawing comparisons. The first phase, systematic questioning, uses a series of questions that lead students along predetermined paths to rational thinking and involve them actively in learning.[11] Questions in this phase are open-ended, have multiple possibilities, and encourage the student to express and defend different views. The teacher should avoid questions with one correct answer. The second component of Socratic questioning encourages the student to compare problems and approaches. How are these clinical situations similar? different? What patterns are discernible? The teacher's questioning assists students in generalizing from one client situation to others. Overholser[11] has said that a basic goal of the Socratic method is increasing students' understanding of difficult concepts. Questioning encourages the learner to arrive at a general explanation and understanding of a phenomenon applicable to other possible scenarios.[11(p18)]

Paul[12] offers a different perspective of Socratic questioning based on various categories of questions for critical thinking. Table 1 provides sample questions reflecting these categories that the teacher might use in the clinical setting for clarifying students' thinking, for probing their assumptions about clients' conditions, for probing reasons for decisions and actions, for encouraging students to examine different perspectives, and for helping them evaluate the consequences of decisions before acting.

Conferences for Critical Thinking

Conferences may be used for formative and summative evaluation of students' ability to think critically and present an underlying rationale. Although most appropriate for formative purposes, student leadership of and participation in a conference may be evaluated summatively, and performance graded. Conferences for this purpose are not a reporting by students of their clinical experiences unless that reporting is combined with questions about the underlying thought process used to arrive at clinical decisions. There are different types of clinical conferences appropriate for critical thinking.

Conferences may be designed to provide information on students' ability to analyze data collected from the client. In this type of conference, the student presents data collected from the client, family, or community. Other students then critique whether the information is relevant and why. What other data should be collected? Students may be asked to identify cues in the data and decide how they relate to one another. Or, the teacher might describe a client situation and partial data set. Students then decide what additional data to collect.

Table 1. Socratic Questions for Clinical Practice

Clarification Questions

- Tell me about your client's condition/problems/needs.
- What is the most important client/family/community problem? Why?
- What do you mean when you say _____?
- Give me an example of _____.
- How does this new information relate to our earlier discussion of the family's care?

Questions to Probe Assumptions

- You seem to be assuming that your client's responses are due to _____. Tell me more about your thinking here.
- What assumptions have you made about _____?
- On what data have you based your decisions? Why?
- Your decisions about this client/family/community are based on your assumptions that _____. Is this always the case? Why or why not?

Questions to Probe Reasons

- How do you know that _____? What are other possible reasons for _____?
- Tell me why _____.
- What would you do if _____? Why?
- Is there a reason to question this information? Decision? Approach? Why?

Questions on Differing Perspectives

- What are other possibilities? Alternatives?
- How might the client/family view this situation? Does anyone (in the clinical group) view this differently? Why?
- Tell me about different interventions that might be possible and why each one would be appropriate.
- What are other ways of approaching the staff?

Questions on Consequences

- Is this occurs, then what would you expect to happen next? Why?
- What are the consequences of each of these possible approaches? What would you do in this situation and why?
- What would be the effect of _____ on the community?
- If this is true, then what?

In a conference, students might analyze a data set with the goal of identifying all possible nursing diagnoses and the data needed to reject or accept each diagnosis. In a variation of this, the teacher, or student, may describe a clinical situation and one perspective of the health problem. Students then identify other possibilities.

Along a similar line, conferences can focus on students' ability to critique different nursing interventions. In this type of conference, students describe care they provided to their clients or decisions they made in practice; then, as a group, they generate other possible approaches with supporting rationale. Or the teacher might describe a patient problem and ask, "What would you do next?"

In a critical incident conference, the teacher describes an incident involving a patient, family, or community, which may be real or simulated, and discusses with students relevant theory for analyzing it. Students ask questions about the incident and identify individually the health problem and possible actions to be taken. After each student defends his or her own decisions, the group arrives at a consensus. The teacher generalizes this incident to other clinical situations.

Other conferences might involve debates about clinical issues and analysis of problems encountered by students in the clinical setting. Case scenarios may be placed in a grab bag from which students select a scenario for critique and present their findings to the group, allowing for group discussion. One advantage of conferences is that they provide for group critique from which students may gain ideas they would not have arrived at themselves.

Problem-Solving Strategies

Short written scenarios about clinical problems and issues provide another means of evaluating critical thinking in clinical practice. Reilly and Oermann[3] describe two types of problem-solving strategies: 1) brief descriptions of clinical situations that the learner analyzes and uses to arrive at decisions about interventions and 2) descriptions of clinical events requiring an immediate action. In a decision-making situation, a variation of these, students analyze the situation, identify alternate courses of action and the consequences of each, and arrive at a decision.[3] Students may respond to these scenarios in writing, for feedback and grading, or may discuss them in a conference format.

Written Assignments

Written assignments provide another means of evaluating students' critical thinking in clinical practice. Assignments for this purpose should be short and should focus on an aspect of thinking, not be long term papers for which students often summa-

rize the literature, which may or may not reflect their own thinking. Meyers has written that term papers often prove to be exercises in "recapitulating the thoughts of others."[13(p70)] As a result, students summarize the ideas of others without exercising their own critical thinking about the material. A series of short assignments provide practice for students in critical thinking and an opportunity for faculty to give prompt feedback to them. Meyers has suggested that effective written assignments for critical thinking should 1) be brief; 2) provide for stepwise development of skill in thinking, beginning with recognizing issues, identifying key concepts, and asking appropriate questions, then progressing to more complex thinking skills such as recognizing assumptions and critiquing arguments; 3) build on one another; 4) focus on real problems and issues; and 5) include clear and specific directions to guide their analysis.[13(p72-73)] Examples of written assignments for critical thinking, appropriate for either formative or summative evaluation, include short papers (one page) that: 1) compare different data sets; 2) compare nursing interventions and anticipated results; 3) analyze an issue encountered in the clinical agency, alternate approaches that could be used, and why each one would be effective; 4) compare the different decisions possible, the consequences of each, and the student's own decision; and 5) analyze case studies.

Use of Multiple Strategies

Other evaluation strategies, such as simulations and games, also may be designed to evaluate critical thinking in practice; these are effective particularly for formative evaluation. As faculty develop strategies for evaluating critical thinking in the clinical setting, it is important to remember that critical thinking, similar to other abilities, is not developed by one method alone, nor should it be evaluated by only one strategy. Students' development of thinking skills should be evaluated over time using multiple strategies, some for formative evaluation purposes and others for summative evaluation. In the clinical setting, when in doubt, ask students: What else is possible? and Why?

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Today's corporate clinical climate demands innovative solutions to complex clinical problems. Providing opportunities for drawing outside the lines of conventional thinking, searching out creative approaches, and understanding new ideas are of tremendous value in a health care environment where change is constant.

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