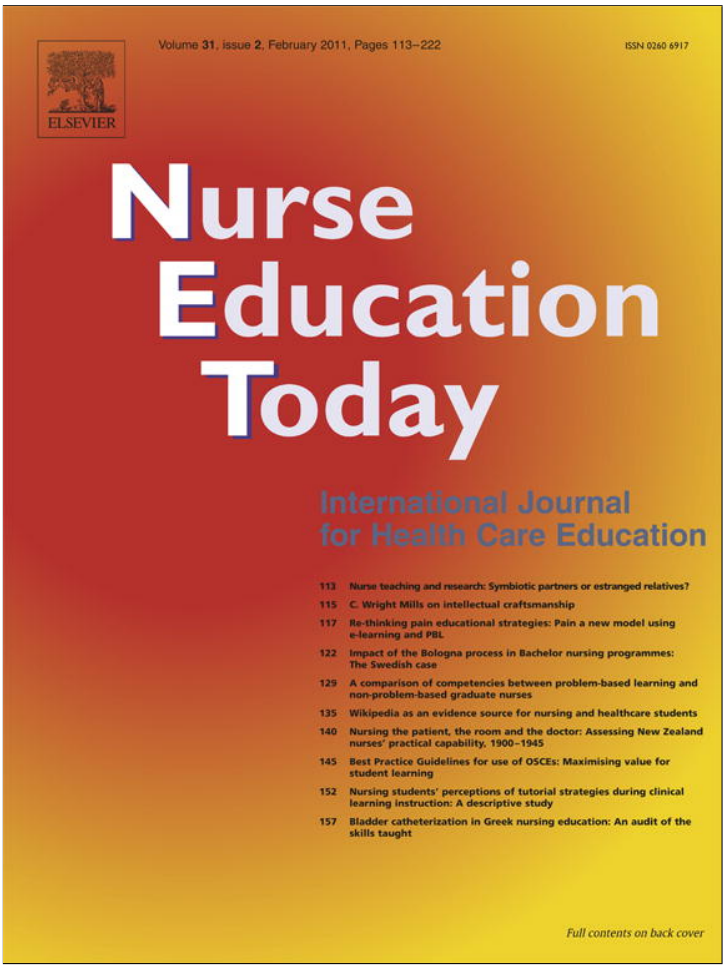

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Promotion of critical thinking by using case studies as teaching method

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SUMMARY

This paper examines the use of case studies as teaching strategies to promote critical thinking. Critical thinking and case studies are defined as teaching method. The benefits and limitations of case studies are also discussed. The literature review investigates research studies that have indicated how case studies facilitate and promote active learning, help clinical problem solving, and encourage the development of critical thinking skills. Using case studies in teaching will assist nurse educators in promoting active learning; furthermore, it will help in developing critical thinking skills, which are extremely important for nurses and other health care professionals.

Promotion of critical thinking by using case studies as teaching method

Recent changes and demands in the health care environment have identified the need for critical thinking in nursing (Simpson and Courtney, 2002). To accomplish this task, nurse educators are looking for teaching strategies to foster critical thinking in students by engaging them in active learning processes. Active learning methods include case studies, discussions or debates, experiments, field trips, role play, and Socratic questioning (Sandstrom, 2006). The purpose of this paper is to give an in-depth review of case studies as teaching strategies that promote critical thinking. The literature review of research findings in nursing, health care, and education indicates how case studies facilitate and promote active learning, help clinical problem solving, and encourage the development of critical thinking skills.

Definition of critical thinking

Critical thinking is purposeful thinking in which individuals systematically and habitually impose criteria and intellectual standards upon their thought (Paul, 1995). Critical thinkers possess the following characteristics: they are "outcome driven, open to new ideas, flexible, willing to change, innovative, creative, analytical, communicators, assertive, persistent, caring, energetic, risk takers, knowledgeable, resourceful, observant, intuitive, and 'out of the box' thinkers" (Ignatavicius, 2001, p. 37). Active learning strategies promote critical thinking by triggering cognitive processes (Youngblood and Beitz, 2001). Critical thinking skills are essential to any educated individuals, but it is especially important that they be developed and used by nurses.

Significance to nursing

Critical thinking in nursing is purposeful, outcome-directed thinking, which is driven by patients' needs and guided by professional standards. It constantly reevaluates, self-corrects, and strives to improve (Alfaro-LeFevre, 2004). Critical thinking skills are necessary in the nursing profession to provide safe and comprehensive care. Nurses work collaboratively with other professionals to meet the health care needs of patients and their families in different care settings. As providers of health services, nurses should be self-directive, creative, critical thinkers who strive for personal and professional growth, regardless of their level of practice. Nurses use critical thinking skills to problem solve and to make appropriate clinical decisions on an everyday basis.

Critical thinking and decision making skills will be increasingly necessary in nursing in the future (Clark and Hott, 2001). As described by Clark and Hott (2001), critical thinking is essential for various elements of nursing, such as knowing, diagnosing, and bridging the gap between theory and practice. According to Simpson and Courtney (2002), "Nurses must think critically to provide effective care whilst coping with the expansion in role associated with the complexities of current health care systems" (p.89). However, teaching people to think critically is a challenge. Thinking critically does not mean "knowing everything"; simply memorizing information will not help a student to become a critical thinker. Students need to recognize, for example, abnormal laboratory tests results and know what specific nursing measures need to be taken without memorizing normal laboratory results (Billings and Halstead, 2005). Regarding clients' complex and changing physical and psychosocial conditions, Martin (2002) emphasized how important critical thinking is for nurses

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involved in decision making to achieve satisfactory outcomes for them. Nurse educators should always think of different ways and new strategies to encourage active learning and enhance critical thinking skills in students.

Significance to education

Nursing education and research has recently focused on promoting critical thinking through active teaching strategies (Chen and Lin, 2003). Participation in self-assessment and evaluation makes it more likely that students will be able to set realistic personal learning goals (Billings and Halstead, 2005). When lecturing, the teacher presents information without student input, which makes it a passive learning experience. When this method is adopted, the possibility that students will determine the significance of information for themselves is eliminated. For example, rather than lecturing nursing students on what interventions should be used for clients with congestive heart failure, they could be given a scenario describing a client's age, gender, medical diagnosis, prescribed medications, and present physical and emotional status. Then, a series of questions would ask them to identify actions/interventions that are appropriate in the particular situation. Desirable learning takes place in a supportive, non-threatening environment where feedback is given. Billings and Halstead (2005) emphasized the importance of faculty's role in helping students to develop critical thinking skills by creating an environment that will empower them.

Teaching strategy identification

Youngblood and Beitz (2001) reported that active learning strategies promote critical thinking. As described by Thomas (2009), experiential learning engages students to participate actively in learning and to reflect on these active processes. Case studies incorporate ideas of experimental learning by providing student-centered education and providing opportunities that will motivate students through active involvement. Case studies also provide an avenue for using problem solving skills and promote decision making in a non-threatening environment.

Case studies allow students to “experience” real client situations that they may not have access to in a clinical setting. They promote development of critical thinking skills by offering the chance for direct data analysis that includes consideration of the outcomes. For example, by exposing student to a practical scenario in the classroom, we give him a “hands on” experience. They can read and examine real life data and attempt to resolve the situation, or at least find potential solutions to the situation without having to be in the situation at the moment. The case studies approach shows that there may be several solutions for clinical problems. Furthermore, when case studies are offered in the classroom setting, the instructor engages in a method that elicits students' immediate feedback.

Discussion of case studies

A case study (also called a case, case method, or case study method) is usually a “description of an actual situation, commonly involving a decision, a challenge, an opportunity, a problem or an issue faced by a person or persons in an organization” (Leenders et al., 2001). Cases do not give simple or explicit answers; rather, they provoke students' critical thinking, illustrate how to think professionally, and urge students to use theoretical concepts to highlight a practical problem (Dowd and Davidhizar, 1999). The features of case studies are as follows: cases are based on real life scenarios, they provide supporting data and documents to be analyzed, and an open-ended question or problem is presented for possible solution. Case studies can be presented to individuals or groups; most commonly, however, they are worked on in groups that can brainstorm solutions to problem/question presented. Cases may be presented in different forms, ranging from simple situations to complex scenarios; some include role play and real life data (Sudzina, 1999).

Case studies are used by different disciplines including nursing, health care, law, business, social sciences, and others. They engage the learner and enable students to: apply theory to practice, practice decision making skills, use different viewpoints, engage in data analysis, and synthesize course content. Cases create the need to know, enhancing the listening and cooperative learning skills of the students, building partnerships among learners and teachers encouraging attention to and self-consciousness toward assumptions and conceptions, help students learn to monitor their own thinking, and promote thinking and brainstorming (Grupe and Jay, 2000). For example, discussing cases encourages student-teacher interaction and collaboration. Students get to think about the situation and participate in identifying possible solutions. Different ideas can be examined from different perspectives.

Literature review

Introduction to the literature review

This research investigated case studies as teaching strategies by using the CINAHL, ERIC, and MEDLINE databases. The search was performed using the following keywords: case studies, teaching strategy, critical thinking, education, nursing education, and medicine.

Strengths of case studies

Strengths of the case study method are discussed in detail by Dowd and Davidhizar (1999). These include: providing experience of clinical dilemmas; illuminating human intentions, feelings, and misinterpretations; providing models of expert practitioners' thoughts on clinical dilemmas; increasing students' range of strategies for problem solving; helping students to identify problems and teaching them professional thinking; providing emotional preparation for the real world. Case studies promote active learning; the application of case studies helps students to understanding complex and complicated issues, as well as to parse descriptions of interrelated processes (Kunselman and Johnson, 2004). Case studies are also beneficial to teachers and instructors, helping them to rethink their approach to teaching, renewing instructors' interest in course material, and creating a higher level of enthusiasm that can be projected from teachers to students (Kunselman and Johnson, 2004). For example, teaching the same topics in a lecture format can become redundant and lose its freshness. Developing case studies and discussing them with students brings freshness, innovation, and food for thought to the table.

Limitations of case studies

Although many beneficial outcomes are observed in student learning when using the case method, there are also some limitations and obstacles that may be encountered. As discussed in Grupe and Jay (2000), disadvantages of case studies include: embedded author biases, a narrow focus on a dilemma facing a single person or group, and limitations in scope.

Case studies are useful in complex situations requiring problem solving, but they are not appropriate in teaching concrete facts. Furthermore, developing cases is time consuming and may be difficult. Cases require that faculty members have good questioning skills. Moreover, they may become frustrating for less prepared students or students who are used to more traditional methods (Billings and Halstead, 2005).

Facilitating learning through case studies

Case studies are useful in helping students to remember details and facts (Beyea, 2004). To determine how using the case method affects learning, Kunselman and Johnson (2004) conducted a research study. Case studies were used in six courses with a view to aiding students to understand complicated issues, discuss decision making processes, and engage in classroom discussion. Students' written comments and scaled responses from standard evaluation forms were used to analyze the effectiveness of case studies in facilitating learning in undergraduate courses. The study found the use of the case study method to be beneficial in criminal justice courses specifically, and in social sciences in general. Kunselman and Johnson (2004) concluded from student responses that "the case method is an effective way to enhance student learning" (p. 87).

A descriptive study by Dinc and Gorgulu (2002) examined the views of students in relation to the contents of a nursing ethics unit that was part of a "Nursing History and Ethics" course. Data were collected from 113 students using a questionnaire. Dinc and Corgulu found that:

> Case study analysis has been shown to be an effective method of teaching ethics. It facilitates easy comprehension of the theories of ethics and philosophical principles; repeated opportunities to apply philosophical material in certain situations are likely to stimulate the desire to acquire knowledge based on the perceived needs and interests of students. Case study also helps students to analyze the nature of moral problems and to distinguish these from the nonmoral problems involved in the case situation (p. 263).

In Dinc and Gorgulu (2002) research, most students found that discussions of case study analysis were very useful in developing ethical decision making skills. However, the generalizability of the findings was limited due to the small sample size.

Using case studies for clinical problem solving

The case study as a method in problem-based learning is defined by Rideout (2001): "Problem-based learning (PBL) is a form of active learning whereby students are required to learn the material and apply it to a problem (e.g., a particular case study) provided by the professor" (p.51). In PBL, the case study involves the problems to which knowledge of nursing theory and course content are applied (Richardson and Trudeau, 2003). Problem-based learning also allows for the connection of theory and practice in authentic situations (Jarvis, 2006).

An outcomes study by White et al. (1999), supported problem-based learning as an effective teaching strategy for nursing educators. In this qualitative study, RN students having used PBL were asked to evaluate it by answering a questionnaire. According to White et al. (1999), "The RN student group identified PBL as the structure or strategy that was the most helpful for their learning" (p. 34). The students stated that PBL helped them in developing following skills: "time management, taking responsibility, getting along in a group, being accountable, organizing, interacting in small groups, being professional, and using PBL skills" (p. 34). This study's limitations include its small sample size and the possibility of positive responses due to the use of small groups with overly enthusiastic faculty members.

Developing critical thinking skills by using the case method

Using the case study method encourages the development of the critical thinking skills. By using cases and solving practical problems, students learn how to apply theoretical concepts (Dowd and Davidhizar, 1999). Cases present situations and "food for thought" making students think, ask questions, and use their knowledge to answer those questions; thus, they elicit critical thinking. The case study method gives students opportunities to relate critical thinking to nursing care situations that they might encounter in practice (Baumberger-Henry, 2003; Campbell, 2004). Burbah et al. (2004) conducted a study confirming that introducing a leadership course that integrated several active learning techniques increased critical thinking in students. The study involved 80 students enrolled in an introductory leadership course at a Midwestern university. Some of the active learning techniques used in the study included case studies, student presentations, contextual scenarios, and role play (Burbah et al., 2004). Pre- and post-test scores measuring critical thinking skills showed significant improvement in critical thinking in students after completion of the course that used active learning techniques (Burbah et al., 2004). The inability to control external variables was acknowledged as a limitation of the study. A recommendation was made to give greater attention to "the integration of critical thinking skills into discipline-based courses" (p. 486).

Mayo (2004) described the benefits of case-based instruction (CBI) in promoting critical thinking and connecting theory to practice in psychology and other disciplines. In his 2004 study involving 122 college students, Mayo assigned half of the students to receive CBI and the other half to receive traditional instruction in a psychology course. The academic performances of participants were compared. Both groups were instructed in a similar manner, including similar lecture material, testing formats, and other materials given in class. The only difference was the presence or absence of CBI. Results were calculated based on students' numerical averages from scores on three unit tests and a final examination. Student performance in the CBI condition differed significantly from that in the control group ($t = 3.59$, $p < .001$). Mayo (2004) argued that "the conclusions derived from classroom-based techniques and research across disciplines represent a growing body of evidence in support of CBI as a useful tool for critical thinking in the undergraduate curriculum" (p. 143). In another study, Perkins (1991) broadly presented the usefulness of teaching CBI in stating that "concrete illustrations of important psychological principles can be found in almost any interesting life, and the details of a particular case will sometimes stimulate further thinking by the student" (p. 98). Moreover, in their study, Kunselman and Johnson (2004) concluded that "integrating case studies will provide well-rounded critical thinkers, which in turn, will result in students becoming better informed" (p. 92).

Summary of literature review on promoting critical thinking through case studies

The literature reviewed here has shown that case studies are based on real life situations; they are effective teaching strategies that promote active learning, encourage the development of critical thinking skills, provide student-centered instruction, and help with problem solving, analysis, and problem identification. Case studies are used to teach nursing, health care, law, business, and social science students. They are beneficial for both students and teachers. The development of critical thinking skills through using case studies as a teaching method is evident throughout the literature and research studies. Several studies were also reviewed that showed case studies to be helpful, as indicated by students, in nursing education (Dinc and Gorgulu, 2002; White et al., 1999), psychology (Mayo, 2004), and criminal justice (Kunselman and Johnson, 2004). Furthermore, they have been found to promote critical thinking skills (Burbah et al., 2004; Kunselman and Johnson, 2004; Mayo, 2004) and problem solving skills (White et al., 1999). The case method has been shown to facilitate and enhance student learning (Kunselman and Johnson, 2004).

Conclusion

As Martin Luther King said, "The function of education is to teach one to think intensively and to think critically" (Hobbs, 2010). Case studies, one of the active methods of teaching, have been shown to promote and facilitate active learning, help clinical problem solving, and encourage the development of critical thinking skills. Despite the overwhelming evidence of its efficacy, the case study method is not being implemented enough in practice by educators in nursing schools or professional organizations. In conclusion, I want to emphasize that possessing this information on the benefits of using case studies should encourage more nurse educators to use case studies as teaching method to promote critical thinking in their practice with students and clinicians.

Teachers use a wide variety of methods and modes of delivery to facilitate active student learning. As argued by Kunselman and Johnson (2004), the case study method is a method of active learning that provides students with a variety of important skills; more specifically, "active learning helps students develop problem solving, critical-reasoning, and analytical skills, all of which are valuable tools that prepare students to make better decision and become better students and, ultimately, better employees" (p. 92). Using case studies in teaching will assist nurse educators in promoting active learning. It will help students to make meaning of knowledge in practical settings, give them opportunity to link theory to practice, and help them in developing critical thinking skills. Based on this literature review, I call out to educators today to use case studies more widely.

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