

Teaching Strategies

Reverse Case Study

A New Perspective on an Existing Teaching Strategy

Benjamin A. Smallheer, PhD, RN, ACNP-BC, CCRN

Fostering students' learning through new and creative methods of teaching is a continual charge to educators. A significant challenge is the structure of an educational system that assumes everyone can learn the same material in the same way.^{1,2} Instructional methods such as a flipped classroom, high-fidelity simulation, and use of case studies are examples of teaching strategies being incorporated into nursing education to create a more diverse learning environment.^{2,3} These varied teaching methods allow educators to be less dependent on traditional methods of lecture, reading, and examinations.⁴

A case study presents a realistic situation involving a problem or conflict of variable complexity.⁵ Case studies are highly adaptive and have been used in a variety of disciplines.^{3,6} To further facilitate integration of knowledge across nursing courses, an unfolding case study can be used. An unfolding case evolves over time in a manner that is intentionally unpredictable to the learner. In doing so, it simulates real-world events and helps develop clinical reasoning and independent thinking skills.^{4,7,8} As a classroom activity, these case studies enable nursing faculty to emphasize the importance of both quality and safety of patient-centered care.^{2,7}

Traditional case studies are often limited by an innate design of engaging the lower domains of Bloom's Taxonomy (eg, remembering, understanding, and applying) as students demonstrate recall and understanding of content and apply it to a presented scenario.⁹ To promote learning at the higher levels of analyzing, evaluating, and creating, the reverse case study has gained recognition.^{3,10,11} Different from the traditional unfolding case study, in which a single scenario is presented, the reverse case study incorporates students into the development of a scenario, thus requiring them to demonstrate analysis and evaluation of the material, culminating in creating the necessary details of the case study.³ The purpose of

this article is to present a method of using the reverse case study that engages small groups into an interactive and collaborative activity, requiring negotiation and kinesthetic learning.

Using Reverse Case Study in Class

The reverse case study was presented as a graded, mid-semester in-class group assignment in a Pharmacology for Nursing Practice course. The students were assigned randomly in groups of 5 or 6. They were provided with the grading rubric at the beginning of the semester, but the details of the case were not given until the day of the assignment. Group members were encouraged to meet prior to the assignment to strategize and anticipate a plan for successful completion. The students were told that any resources (eg, textbooks, Internet, lecture material, shared documents, etc) could be used in construction of the final product.

Students analyzed the information provided, evaluated its credibility, created the background information of "what happened," and then completed the case aspects of "what to do next." In doing so, the higher domains of analyze, evaluate, and create of Bloom's Taxonomy were engaged.

Scenario

In designing the case study, the students were presented with a scenario involving a noncommunicative patient. The scenario document provided sufficient patient information in the form of a focused physical examination along with minimal laboratory and diagnostic testing information. A physical "bag of drugs" representing the fictional patient's home medications also was given to each group. Each bag contained 15 prescription medication bottles, each containing an empty drug blister pack to a medication with administration instructions. The minimal subjective information provided within the case encourages free thinking and rationalization of decisions throughout the assignment.

Students were given the first hour of the class to develop an admission medication reconciliation, identify potential drug-drug interactions and the physiologic manifestations of these reactions, develop a probable medical and surgical history list, and identify probable reason for admission. At the beginning of the second hour of class, the groups were provided with additional information pertaining to their patient, which included the hospital course and an updated

Author Affiliation: Assistant Professor, School of Nursing, Vanderbilt University, Nashville, Tennessee.

The author declares no conflicts of interest.

Correspondence: Dr Smallheer, 461 21st Ave S, 309 Godchaux Hall, Nashville, TN 37240 (benjamin.a.smallheer@vanderbilt.edu).

Accepted for publication: May 6, 2015

Published ahead of print: June 20, 2015

DOI: 10.1097/NNE.0000000000000186

focused physical examination. Each group was required to identify medications from the patient's home list appropriate for continuation at discharge along with any patient-centered modifications or discontinuations to the list and discharge teaching points.

Results

During the course of the 2-hour assignment, collaboration, teamwork, prioritization, and critical thinking were observed as groups intently focused on "creating" their patient from only a physical examination and bag of medications. Students used current evidence-based practice, online medication administration resources, and pathophysiology databases. Some students made phone calls to consult with experts on a particular aspect of the case being developed. Groups were highly engaged, interactive, and conversational on how specific aspects of the patient's physical examinations correlated with medications and history.

The design of the reverse case study provides students with a perspective of the responsibilities of a nurse when admitting a patient who cannot give a clear history. Often students become focused on task and skill completion when in the clinical setting. The significant contribution of the RN to both the admission and discharge processes was more readily experienced and understood through this exercise. This variation to the reverse case study as an in-class graded assignment encouraged student groups to collaborate, perform as a team, and prioritize components of the assignment with the order of completion. Students reported feeling challenged, stressed, intrigued with the unknown history, and responsible for the patient's well-being at discharge.

Implications for Educators

Implementation of the reverse case study encountered some challenges. The large number of students in the course, number of medications in the bag of drugs, and complexity of the rubric created the greatest hurdles for implementation. Class enrollment was 144 students, which led to 28 groups. Having sufficient space for 28 groups to work with minimal distractions required reserving 4 classrooms within the school and having 4 faculty for proctoring and grading. Interrater reliability was of concern. The faculty met to review a sample case assignment with grading based on the rubric prior to the actual day of the assignment. Variation in grading, however, still occurred, and future experiences will require continued

efforts to maintain grading consistency such as including an exemplar case for faculty.

Obtaining sufficient quantities of empty medication wrappers and empty medication vials posed another challenges. In several instances, insufficient quantities of a particular medication dose were obtained to allow every drug bag to be identical. Consideration had to be given to varying indications for dosage ranges of medications and altering the administration instructions on particular vials to produce consistency with the final dosages the fictional patient was taking.

Finally, despite having the rubric in advance, the complexity of the assignment created stress among students. It is recommended not only to review the rubric with the students during course orientation, but also to review it immediately prior to the reverse case study activity.

Unfolding case studies allow students to experience the integrated nature of patient-centered care compared with learning through a focused system-by-system approach. They also allow students to use the higher levels of learning.

References

1. Gardner H. *The Unschooled Mind: How Children Think and How Schools Should Teach*. New York: Basic Books; 1991.
2. Harrison E. How to develop well-written case studies: the essential elements. *Nurse Educ*. 2012;37(2):67-70.
3. Atkinson TN. The "reverse case study:" enhancing creativity in case-based instruction in leadership studies. *J Leadersh Educ*. 2014;13(3):118-128.
4. Yousey YK. The use of unfolding case studies: innovation in online undergraduate nursing education. *J Nurs Educ*. 2013;3(4):21-29.
5. Design and Teach a Course: Case Studies. Carnegie Mellon, Eberly Center: Teaching Excellence and Educational Innovation Web site. Available at <http://www.cmu.edu/teaching/design/teach/instructionalstrategies/casestudies.html>. Accessed September 1, 2014.
6. Case Studies. Vanderbilt University, Center for Teaching Web site. Available at <http://cft.vanderbilt.edu/guides-sub-pages/case-studies/>. Accessed September 1, 2014.
7. Parker S, Gillham D, Tucker K, Kargillis C. Developing curriculum in a new educational world. *Ergo*. 2014;3(3):23-28.
8. Reese C. Unfolding case studies. *J Contin Educ Nurs*. 2011;42(8):344-345.
9. Krathwohl DR. A revision of Bloom's Taxonomy: an overview. *Theory Pract*. 2002;41(4):212-218.
10. Beyer DA. Reverse case study: to think like a nurse. *J Nurs Educ*. 2011;50(1):48-50.
11. Thomas JS. A reverse case study of mechanical failures. Paper presented at the *Proceedings of the 2012 Midwest Section Conference of the American Society of Engineering Education*; September 19-21, 2012; Rolla, Missouri.