

Deepening Applied Learning: An Enhanced Case Study Approach Using Critical Reflection

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Conducted in a nursing curriculum, this study explores the potential role of integrating critical reflection and case studies within professional practice degree programs. Forty-six students read a book-length case study, participated in a professional development event related to the book, questioned the book's author in face-to-face interaction, and used the DEAL (Describe, Examine, Articulate Learning) Model for Critical Reflection (Ash & Clayton, 2009a; Ash & Clayton, 2009b). Feedback using the DEAL Model Critical Thinking Table was given to students after the first critical reflection essay, and students used that feedback to deepen their thinking in the second critical reflection essay. Analysis of the critical thinking scores on the first and second essays confirmed increases in the quality of student reasoning. Reflections also provided evidence of improved understanding of palliative care and student ownership of their own learning. Results suggested the value of enhancing the applied learning pedagogy of case studies through critical reflection.

Traditionally within practice disciplines, the “read it, observe it, and do it” model is frequently used in clinical settings. Students learn about a technique through lecture and readings, watch others use the technique, and then implement it themselves. Often students practice the technique in a laboratory situation and then have their mastery of it confirmed before performing it in an actual healthcare setting. This approach has been successful over the years in that students are generally able to perform specific techniques and undertake particular tasks competently (Desanto-Madeya, 2007); however, their higher order reasoning skills and critical thinking abilities are not necessarily well developed through this process (Ironsides, Tagliareni, McLaughlin, King, & Mengel, 2010; McDade, 1995; Shea, Grossman, Wallace, & Lange, 2010).

Increasingly the “read it” phase of this core model in professional practice disciplines is accomplished through the use of case studies. Shenker (2010) notes that case studies enhance learning and assist students in generalizing learning to other situations. Case studies have been integrated into lecture courses in a wide range of disciplines, including biology (Chaplin, 2009); business (Pariseau & Kezim, 2007); engineering (Prince & Felder, 2004); ethics (Whitehouse & McPherson, 2002); genetics (Styer, 2009); medicine (Thomas, 1993); nursing (Har-jai & Tiwari, 2009); psychology (McDade, 1995); science (Yadav et al. 2007); and social work (Greenwood, & Lowenthal, 2005). Case studies provide a set of facts or a scenario for student analysis and response. Instructors direct examination of the case so that students have a concrete context for learning specific concepts and practicing analytical and problem-solving skills. DeSanto-Medeya (2007) claims that case-based pedagogy is a creative learning strategy that not only enhances critical thinking and problem-solving but also decision-making skills.

Using case studies as applied learning pedagogy is similar to but distinct from problem-based learning (PBL). While the case study is designed to guide critical thinking and reflection, the related pedagogy of problem-based learning (PBL) focuses on dilemmas or problems within particular cases. In problem-based learning, students are given the facts of a case and asked to identify and pursue the relevant learning goals; they are often assigned to cooperative learning groups to enable such student self-directedness (Yadav et al., 2007). Williamson and

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Chang (2009) define the difference between case-based and problem-based learning in terms of how information is presented to students: the case-based approach presents the entire case up front while the problem-based approach presents some information initially and then invites the students to determine what else they need to know and how they can go about learning it. Herreid (2003) asserts that PBL's uniqueness has "eroded" over the past 30 years and that the term has come to be used more broadly to encompass all forms of case-based teaching. In addition, Kirschner, Sweller, & Clark (2006) assert that even though PBL is popular, empirical evidence indicates that it is less effective than pedagogical approaches that provide more guidance to students throughout the learning process.

The pedagogies traditionally associated with practice disciplines have been grounded in the conviction that the instructor plays an active role in the learning process. For example, when students participate in an internship, a practicum, or clinical experience outside the classroom, student learning is guided under academic or practitioner mentorship. Students experience professional tasks and settings, but they have little role in determining their own learning outcomes. The project under discussion here emerged in part from a desire to experiment in the classroom with an alternative balance of instructor guidance and student self-direction.

This project was intentionally designed to guide students through critically examining their learning experiences and articulating their own individualized learning. These experiences, derived from past clinical or classroom situations, combine with their emerging understanding as developed through the case study. The intention was to pilot and investigate an approach to developing critical thinking and deeper understanding of palliative care (a core set of concepts in the discipline) that enhanced "read it, observe it, do it" with a multi-faceted case study that was further enhanced through critical reflection. Goals for the students were to assume more responsibility for their own learning through the choice of which aspects of the case study and of palliative care they determined as most important; and to develop the critical reflection skills needed by self-directed learners and practitioners.

Most educators have among their goals that students retain previously covered content, link it to current material, and understand why certain skills, techniques, or theories are relevant in particular circumstances. The case study approach, enhanced by a guided, formal, critical reflection process, is an especially promising pedagogy in this context. Reflection guides students in making connections between previous and current learning. The case study helps students relate that integrated learning to concrete situations—just as service, work, travel, or other experiences do in other approaches to applied learning. Ash

and Clayton (2009a; 2009b) note that well-designed critical reflection generates, deepens, and documents learning in applied learning pedagogies and helps build students' capacity to understand and direct their own learning process. In addition, critical reflection involves examination of experiences or cases in light of learning objectives, facilitates making connections between theory and practice and between previous and new knowledge. In addition, critical reflection helps students develop higher-order reasoning and critical thinking skills. Their DEAL Model for Critical Reflection was used as a framework to enhance the case study approach in the current study. The learning goals for the students included academic enhancement (e.g., better understanding of the concepts associated with palliative care) and critical thinking. The investigators also had a particular interest in the role of critical reflection in establishing a balance between instructor guidance and student self-directedness.

CASE STUDIES AS APPLIED LEARNING PEDAGOGY

The case study approach is used as a method of applied learning in many fields, including professional practice and liberal arts (Harjai & Tiwari, 2009; Pariseau & Kezim, 2007; Prince & Felder, 2004; Whitehouse & McPherson, 2002). Although McCarthy and McCarthy (2006) argue that the case study method does not meet the criterion for experiential learning because it does not involve real-life decision making, others (e.g., Kreber, 2001) suggest that if case studies are well defined they provide an effective opportunity to experience learning and apply decision making in "life-like" situations. The case study provides an opportunity to connect critical thinking, problem solving, and decision-making in the context of application. Baumberger-Henry (2003) states that case studies are an effective teaching strategy in that students are given the opportunity to use critical thinking in situations that may occur later in their professional practice. Using the case study approach is one way to add meaning and relevance to the learning process. Case studies bring actual examples to the classroom, which can be significant because theory and reality do not always align, and reality itself is not always quite as it is imagined to be (Shenker, 2010). The investigators suggest that case studies can become even more effective when critical reflection is used to enhance the learning process and deepen its associated learning outcomes.

The potential benefits of using case studies as a teaching methodology include: improved grades, enhanced capacity to apply information from multiple perspectives, and increased critical thinking (Yadav et al., 2007). Pariseau and Kezim (2007) studied the effect of using case studies on learning in business statistics. Students were divided into a control group, a group completing one case study, and a group complet-

ing three case studies. The authors found that groups using at least one case study scored significantly higher on the final comprehensive examination than the control group. Grossman, Krom, and O'Connor (2010) similarly report significantly higher final grades for students when case studies were used in every critical care nursing class as compared to students with less exposure to case studies; they also found improved communication skills resulting from simulated family situations. Grossman et al. (2010) further assert that students' decision-making abilities and capacity to provide patient care independently of their instructors improved. Although the benefits of using case studies are clear, this approach to applied learning is not widespread. In a survey of 101 college science faculty, Yadav et al. (2007) report that 79% of faculty respondents indicated that lack of preparation time was a barrier to using case studies and 68% reported challenges associated with assessing learning from case studies.

The literature extensively discusses principles of good practice in the use of case studies. McDade (1995), for example, notes that certain discussion and reflection methods increase learning from case studies. She suggests that to achieve advanced critical thinking, discussion of the case should build on concepts previously mastered and progress logically to the next level of learning. McDade offers several rationales for using case study pedagogy to advance critical thinking. Case study pedagogy provides

- a laboratory to practice skills;
- an emphasis on analysis;
- a contextual bases for analysis;
- a challenge to students' assumptions and beliefs;
- alternative choices including strengths and weaknesses;
- a learning experience that integrates "theory into practice and practice into theory";
- opportunities to develop enhanced listening skills and sensitivity to diversity;
- a way to test theories based on organizational functions;
- an opportunity to develop teamwork and collaboration;
- a way to "experience, explore, and test alternative ways of thinking"; and
- an experience to consider others' ideas, analyses, and solutions that are different than the students (McDade, 1995, p.10).

This list points fundamentally to the capacity of case studies to increase engagement of students in their own learning process; this capacity could be enhanced by incorporating critical reflection. The lessons learned from this pedagogy reach well beyond the classroom.

Students may recognize actual situations they encounter in practice as similar to the case study and be able to use the same steps to analyze and problem solve as they did with the case study in the classroom (Harjai & Tiwari, 2009; Yadav et al., 2007). Pariseau and Kim (2007) clearly state that students who are active in their education have improved learning outcomes and retention. Dunlap (1998) and Williamson and Chang (2009) assert that, along with active learning, critical reflection is important for helping students make connections between theory and practice, ultimately preparing them for their professional lives.

CRITICAL REFLECTION IN APPLIED LEARNING

The reasoning skills associated with critical reflection enable connecting classroom learning with professional experience, and this connection is key in applied learning. Schwartzman and Henry (2009) suggest that “theoretical knowledge without practical application creates the Ivory Tower intellectual incompetent to face the everyday challenges of life” (p. 5). Practical application, or any other form of experiencing theory alone, however, is insufficient. Ash and Clayton (2009a; 2009b) and Clayton (2009) use T. S. Eliot’s (1943) language of “[having] the experience, but miss[ing] the meaning” to warn of the limitations of experiential education that does not include well-integrated and effectively designed critical reflection.

Educators in professional practice disciplines are familiar with the all-too-common dynamics of less-than-maximized applied learning. Too frequently, students respond to a clinical or practicum experience with the comment that they did not learn anything. McAllister, Tower, and Walker (2007) report a student commenting that “it was interesting...[but] I don’t see why we need to learn it.” (p. 304). Faculty and students are, not surprisingly, frustrated when this occurs. Faculty may design applied learning experiences with myriad educational opportunities, but if students do not get to “do it” they may think they did not have the chance to learn. Clinical paperwork is often submitted with descriptions of experiences students had in the field that lack any connection to ideas beyond the experiences themselves or any indication of their broader significance or meaning. Without effectively guided critical reflection students often fail to connect their previous learning to the current experience. DeSanto-Madeya (2007) indicates that students are often unable to connect theory and practice in medical-surgical nursing, suggesting that although they are able to memorize facts, they lack the ability to understand how to apply or connect knowledge to practice. Further, the thought processes related to the experience are often not evident in written assignments (McAllister, Tower, & Walker, 2007; DeSanto-Madeya, 2007).

The associated consequences are also familiar. Shenker (2010) wrote that if there is no connection between previous and current learning and experiences, then the learning and the other values associated with the experience will be forgotten and lost. Students can achieve high scores on exams but be unable to connect the theory they were tested on with clinical experience or use it to inform future practice. If an abstract concept is presented in the classroom, but the experience reveals a concrete and somewhat different reality, the student may not connect the two but rather view the theory and the experience as two distinct instances of two different and unrelated ideas. As summarized by Ash and Clayton (2009a), students may “not be fully aware of the nature of their own learning, its sources, or its significance” if applied learning does not include well-designed critical reflection (p. 26).

Ash and Clayton (2009a; 2009b) build on Dewey's (1910) postulate that learning does not occur simply by having experiences or by applying knowledge, but rather by thinking about that experience or application. Learning occurs by reflecting carefully and critically on what we think we know, why we think we know it, and the consequences associated with it and our use of it (Clayton, 2009). Thus, reflection as a vehicle for learning is best understood not merely as an introspective, touchy-feely stream of consciousness but rather as *critical reflection* — as an intentional, guided, meta-cognitive activity that generates, deepens, and documents learning while also building capacity for critical thinking and enabling improved practice (Ash & Clayton, 2009a, 2009b; Clayton, 2009). The challenge for educators in professional practice disciplines is to implement applied learning pedagogies with effectively designed and well-integrated critical reflection so that the power of these pedagogies is fully tapped.

INTEGRATING CASE STUDIES WITH CRITICAL REFLECTION IN A NURSING CURRICULUM

The project under discussion here attempted to enhance the traditional “read it, observe it, and do it” model with a case study approach that incorporated critical reflection. The nursing curriculum is based on American Association of Colleges of Nursing (AACN) Essentials (AACN, 2008), which clearly state the importance of critical thinking, effective communication, and integration of knowledge from the sciences and humanities to solve problems in nursing practice. The implementation of this pilot project in that curricular context began by reviewing the range of academic concepts the investigators sought to teach in order to identify one that especially needed further clarification. Schreiner, Pimple, and Bordonaro (2009) note that nursing education needs to emphasize the many complicated physical, emotional,

legal, ethical, and spiritual issues involved in supporting children and families facing life-limiting illnesses.

Palliative care involves dealing with children and families facing life-limiting illnesses, and is, therefore, of great importance in professional nursing, but it is not a well-defined concept for nursing students (Kavanaugh et al., 2009; Schreiner, Pimple, & Bordonaro, 2009; Spence et al., 2009). Although the goal of palliative care is to maintain quality of life through symptom management rather than to prolong life, recent studies show that many nurses view palliative care as having the same goals as end-of-life care such as hospice programs (Shea et al., 2010). In recent years, the investigators' academic department had adopted a standardized testing service to evaluate areas of strength and weakness within the curriculum. Palliative care had been identified as an area particularly needing enhancement. Additionally, senior nursing students had questions about palliative care, including how it was different from hospice care designed for the terminally ill patient. Thus, palliative care was chosen as the focus for the study. This project was designed to enhance students' learning regarding palliative care and their critical thinking abilities through the use of the DEAL Model to guide their critical reflection.

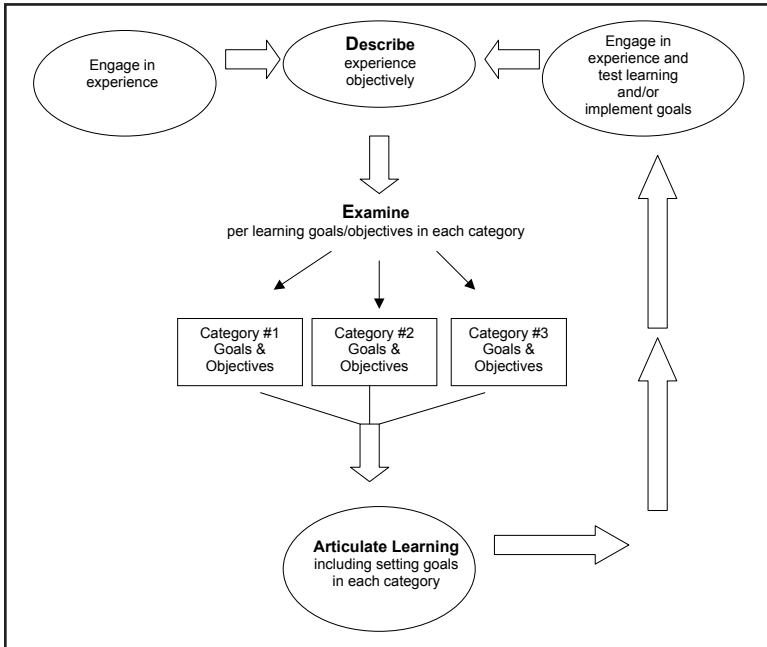
PROCEDURE FOR IMPLEMENTING CRITICAL REFLECTION

Each senior nursing student enrolled in community health (N = 46 students) was assigned to read the book *Hotpants: A Memoir* (Cathcart, 2009) before the semester began. The book tells the story of a middle school adolescent male who struggled for acceptance among his peers while battling with the life-limiting illness of brain cancer. Each student was asked to identify passages in the book that struck a personal note, made them think twice, raised questions, or catalyzed an "aha" moment. The students would later use these marked passages when they critically examined the book in their first reflection essay during the first week of class.

The DEAL Model was introduced during the community health course orientation at the beginning of the semester, in the context of an activity designed to help new nurses in the job market make strong, professional first impressions. Two guest lecturers spoke about the importance of professionalism in community health. After the presentations, the faculty presented a graphic overview of the DEAL Model (see Figure 1) and instructed students to work in small groups to critically reflect on the presentation using this structure. This activity was designed to introduce the students to the process of critical reflection they would be using later in the semester.

Figure 1: Schematic Overview of the DEAL Model for Critical Reflection

From Ash & Clayton (2009a, p. 41). ©2009 by Missouri Western State University. Reprinted with permission.



The first step of DEAL is to *Describe* an experience (in this case, the interaction with the guest lecturers) by answering such questions as: What happened? Where did it happen? Who was and was not involved? When did it happen? During the orientation, the entire class worked together to describe the experience with the two guest lectures. Then Bloom's taxonomy (1956; Clayton 2009) was reviewed with the students to emphasize the necessary thinking needed in the critical reflection activity. In the next step of the DEAL model, students *Examine* the experience in light of the intended learning goals and objectives, in this case related to preparing professional nurses. Given the focus here on academic enhancement and the intention that students play a greater-than-usual role in directing their own learning, students were asked to identify the range of academic concepts that emerged in their interaction with the guest lecturers. Students discussed their identified concepts in small groups and then narrowed the list to one concept that would be a priority in making professional first impressions in the community. The next step is to *Articulate Learning*, which is prompted by

four key questions: (a) What did I learn? (b) How did I learn it? (c) Why is it important? and (d) What will I do because of it? Students practiced each step of the DEAL Model in this activity while also having the opportunity to discuss with one another important learning achieved through reflection on the time with the guest lecturers. At the end of the orientation exercise students were told that their first critical reflection essay would follow the same steps and would be focused on their pre-semester reading of *Hotpants: A Memoir*.

Specific directions for the critical reflection essay included its format, content, and length as well as criteria and guiding prompts. Students were given a week to write the essay, which was not to exceed three pages. The page limitation was given to help students prioritize their thoughts, rather than relying on their instructor to identify the important points in their writing. The structure of the assignment followed the steps of the DEAL Model, with prompts for *describing* the experience (e.g., Who? What? When?) followed by prompts for examining the experience from the academic perspective (e.g., What elements of current nursing curriculum relate to this experience? Does this experience challenge or reinforce my prior understanding of this material?). From this step, students selected one key idea that they would develop further into an articulation of their learning, thereby summarizing their central learning about course material, explaining the sources and significance of that learning, and considering implications for their future learning and practice. Students were also given the DEAL Model Critical Thinking Standards Table and the DEAL Model Critical Thinking Rubric (Ash & Clayton, 2009a; Ash & Clayton, 2009b; Clayton 2009), which would be used as an assessment tool (see Table 1 for excerpts from the rubric). These tools gave students a guide to high quality reasoning and clear expectations for the essay as well as grading criteria; they also allowed faculty to quantify each student's thinking and learning. Based on the work of Paul and Elder (2001), the table explains to students and supports them in applying to their own work eleven standards of critical thinking. The rubric expresses four levels of mastery for each standard.

Paul and Elder (2001) provide practical ideas for improving student learning, including: designing instruction so that students can practice thinking about a new concept, making visible to them how ideas may be interconnected, clarifying what is expected, and giving students grading profiles so they can assess their own work. The DEAL Model and its associated tools for critical thinking and assessment operationalize these principles of good practice and emerge from the same commitment to continuous improvement in the quality of thinking. They also explicitly create the opportunity for students to identify, develop, articulate, and refine their own ideas. DEAL can support students in

Table 1. DEAL Model Critical Thinking Standards Rubric (excerpts)

From Ash & Clayton (2009a, p. 40). ©2009 by Missouri Western State University.
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	completely lacking (1)	under-developed (2)	good (3)	excellent (4)
Accuracy	Consistently makes inaccurate statements and/or fails to provide supporting evidence for claims	Makes several inaccurate statements and/or supports few statements with evidence	Usually but not always makes statements that are accurate and well-supported with evidence	Consistently makes statements that are accurate and well-supported with evidence
Clarity	Consistently fails to provide examples, to illustrate points, to define terms, and/or to express ideas in other ways	Only occasionally provides examples, illustrates points, defines terms, and/or expresses ideas in other ways	Usually but not always provides examples, illustrates points, defines terms, and/or expresses ideas in other ways	Consistently provides examples, illustrates points, defines terms, and/or expresses ideas in other ways
Depth	Fails to address salient questions that arise from statements being made; consistently over-simplifies when making connections; fails to consider any of the complexities of the issue	Addresses few of the salient questions that arise from statements being made; often over-simplifies when making connections; considers little of the complexity of the issue	Addresses some but not all of the salient questions that arise from statements being made; rarely over-simplifies when making connections; considers some but not all of the full complexity of the issue	Thoroughly addresses salient questions that arise from statements being made; avoids over-simplifying when making connections; considers the full complexity of the issue
Breadth	Ignores or superficially considers alternative points of view and/or interpretations	Gives minimal consideration to alternative points of view and/or interpretations and makes very limited use of them in shaping the learning being articulated	Gives some consideration to alternative points of view and/or interpretations and makes some use of them in shaping the learning being articulated	Gives meaningful consideration to alternative points of view and/or interpretations and makes very good use of them in shaping the learning being articulated
Fairness	Consistently represents others' perspectives in a biased or distorted way	Occasionally represents others' perspectives in a biased or distorted way	Often but not always represents others' perspectives with integrity	Consistently represents others' perspectives with integrity (without bias or distortion)

[Modified source: Paul, R., & Elder, L. (2001). *The miniature guide to critical thinking*. Santa Rosa, CA: Foundation for Critical Thinking.]

identifying their own most relevant concepts for reflection or guide students toward a focus on particular academic concepts. In either case the learning achieved through critical reflection is not a regurgitation of others' ideas but a self-articulation of one's own ideas.

The two instructors for the course independently scored the first critical reflection essays. Written feedback using the DEAL Model Critical Thinking Standards Table and the DEAL Model Critical Thinking Rubric was given to each student on the returned essay, and general feedback was given to the entire class orally. Students were not asked to rewrite these essays but rather to use the written feedback to improve their thinking in the next essay which, unlike the first, would be graded. The instructors' scoring of the first essay focused on providing feedback per the critical thinking standards to deepen students' learning and on evaluating the clarity of the essay. After securing consent, short excerpts from two students' essays were read to the class as samples of how to give a specific example and integrate that example with the book and with past clinical experiences.

At this point the class moved into the case study, drawing on the students' earlier reading of *Hotpants: A Memoir*. The author (now a 24 year-old college graduate) personally spoke to the class about his experience as an adolescent patient with brain cancer. Prior to the presentation, students submitted questions to the author. It was explained to the students that the author would be present to answer questions and clarify points, but because of hearing difficulties (due to the cancer treatment) all questions needed to be written and submitted in advance. After the presentation faculty led the students in a discussion of the effects a life-limiting illness had in this case.

Following the speaker's presentation students attended a departmentally required professional development event on palliative care that emphasized a holistic approach to patient care that is designed to improve the quality of life for family and patients facing a life-limiting illness. This event included presentations from palliative care team members including a physician, nurse, social workers, and a chaplain. One speaker used video clips of a patient receiving palliative care. The professional development event was a supplemental experience to the case study.

The second critical reflection essay was then assigned. Again the students were asked to use the DEAL Model—guided by the same handouts and prompts as in the first essay—to not only describe and examine the case study but to articulate their learning guided by the four key questions: What did I learn? How did I learn it? Why is it important? and What will I do because of it? The essay was designed to integrate their learning about the book, the author's presentation, the professional development event, and clinical experiences they had during their undergraduate careers. The instructors intended that the essays would demonstrate a deeper understanding of palliative care concepts that the students individually selected as important and that they would be good examples of DEAL-based case study reflections. In other words, students should demonstrate a deeper understanding of palliative care and discuss appropriate nursing interventions to improve the quality of life for patients with limiting illness. As with the first essay, the two instructors independently graded the essays using the DEAL Model Critical Thinking Rubric.

RESULTS AND ANALYSIS

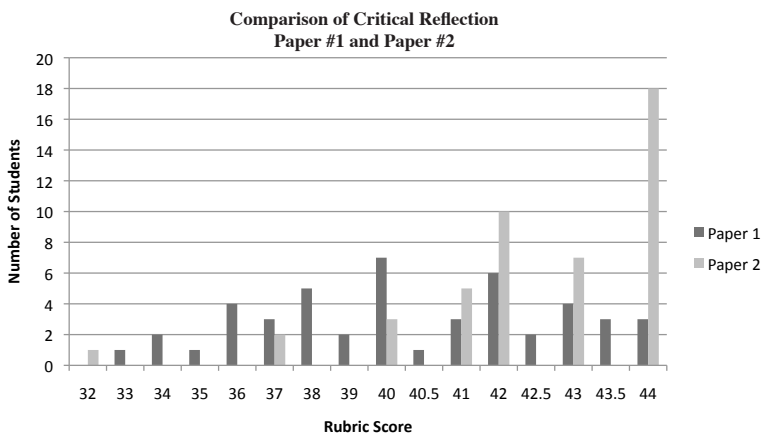
Each reflection essay was scored independently by two raters (the course instructors) for each of the 11 critical thinking standards on a scale of 1-4 and then the total score was added, for a maximum score of 44. For the first critical reflection assignment, the two raters scored 21 out of 46 essays (45.65%) in agreement, with agreement defined as the

summative scores of the raters having variance of two points (4.54%) or less. Essays with individual scores outside the range of agreement were re-read, the two instructors discussed each, and agreement was reached for all essays as each rater shared with the other the basis for her judgment in the search for consensus. With the second independent scoring, of the second round of essays, 30 out of 46 essays (65.22%) were initially scored in agreement; again, essays were reread and consensual agreement was reached. The two sets of essays were each scored upon submission, with the students' identities blinded. Given the different content of the two essay assignments, each set of essays was scored as a group. First and second scores were not compared until all 92 essays were graded. Table 2 summarizes the scores on the two sets of critical reflection essays.

Scores on the first critical reflection essay basically follow a normal distribution, while the distribution of scores on the second critical reflection essay was skewed toward the higher end of the range. A dependent t-test was used to analyze the differences in the scores on the two assignments. There was a statistically significant increase in scores from the first critical reflection essay ($M = 39.9$) to the second ($M = 42.3$), $t(45) = 5.16$, $p < .001$.

In the first set of essays, some students' work exemplified the critical reflection process with specific examples and clear connections to earlier clinical and course content, while many others included generalities and lacked depth and integration between the case and their learning. The majority of the students' essays in the second set clearly demonstrated improvement on all 11 standards, including the use of specific examples connecting past clinical, classroom, and personal experiences.

Table 2. Distribution of Critical Thinking Rubric Scores from Essay #1 and Essay #2.



During the grading process, the instructors identified academic learning about palliative care through content analysis of the essays. The two major themes that emerged included the importance of listening and the integration of earlier content learned (e.g., ages and stages of development; scope and standards of practice) with palliative care. Students demonstrated a more nuanced understanding of palliative care than in the first essays. For instance, awareness of the importance of listening in palliative care increased, as reflected in the following student quote:

...as Johnny [the book's author] arrived a respectful quiet fell over the room as a small, unassuming man entered in. He greeted us and dived into our questions. Slowly a theme emerged. As he recounted the fear and pain of cancer, we heard one thing, listen. Listen to me, was the message when he spoke passionately in response to the question, "What one thing could a nurse have done differently?"

One student demonstrated an integration of the concept of palliative care with content covered earlier in the nursing curriculum—ages and stages of development—when he reflected on his own assumptions about the speaker:

I assumed it [his greatest fear] was death, but death was the farthest thing from his mind. Instead, what he feared the most was what every adolescent fears. How was he going to establish his own identity? ...Would he ever get a girlfriend? What did his future hold and was he going to be "cool." If nurses would have just listened to him they could've altered his care to help him cope with these common issues/conflicts most adolescents have instead of just focusing mainly on his cancer.

Students also evaluated their previous tendencies in light of their emerging understanding of palliative care and identified alternate potential responses:

How often do we as nurses take for granted the requests of our patient? How often do we get in too much of a hurry to 'get everything done' and forget that the patient has feelings, too? A very important part of holistic health care is caring for the spiritual side of the patient...we need to give our patients an underlying capacity for hope...this can make a huge difference in the hope (and recovery) of each and every patient.

DISCUSSION AND IMPLICATIONS

Ash and Clayton (2009a) as well as Clayton (2009) clearly consider the DEAL Model relevant for guiding critical reflection across the range of applied learning opportunities such as practica, service-learning, research, and study abroad programs. Although this study involved nursing students, the integration of critical reflection with case studies could be applied across many disciplines and student populations. Literature from other disciplines supports the reflective use of case studies to enhance learning and critical thinking. Whitehouse and McPherson (2002) state that case studies are effective in media ethics courses only if students can actually make connections between what they are learning in class and their future jobs. This point shows the importance of selecting cases that include issues that entry-level media professionals encounter and helping students see the relevance of these issues in their own potential careers. Burian (2001) discusses the importance of reflection when using case studies in courses on the philosophy of science and indicates that reflective use of a case study allows students to reach agreement on what the issues are despite their differing assumptions and beliefs regarding the theory and behavior involved. Faculty take on the role of a coach or facilitator when they use case studies, rather than traditional lectures, to enhance learning and critical thinking. Pariseau and Kezim (2007) note that in business statistics the case study approach enhances students' ability to be more responsible for their own learning, increases critical thinking, and teaches competitiveness, while helping faculty move beyond traditional lectures and become more effective "coaches."

In the study under discussion here, most students made clear connections between the concept of palliative care and earlier course and clinical content and experiences, including ages and stages of development, pediatric nursing, and economic and social issues. The students' preconceived notions about palliative care were challenged, and many students changed their understanding of this central concept in the profession. As they were exposed to new content and asked to integrate past experiences, the students' abilities to think critically were enhanced.

A critical reflection process such as that implemented in this study may be counter-normative to many students and faculty (Clayton & Ash, 2004). Traditionally, many students want to know what they need to do to get an "A" on an assignment or to pass a course. They often believe that the teacher has the "right" answer and that if they try hard enough they will eventually arrive at the pre-determined conclusions and thus receive a high grade. Adding critical reflection to case study assignments involved asking students to develop their own learning and their higher order reasoning skills (e.g., thinking at the levels of

application and analysis). Critical reflection is designed to help build students' capacity for thinking and working in situations where there is not just one "right" answer and for valuing their own well-grounded judgments and their own experiences as well as those of teachers or peers. With its emphasis on critical thinking, integration, and individualized articulation of learning, the DEAL Model in particular encourages students to take ownership of their learning in this manner.

This process was not only new to the students but was also a learning experience for the two instructors. The authors agree with McDade (1995) and Yadav et al. (2007), who suggest that faculty must prepare differently for the case study approach than for traditional pedagogies. Rather than preparing an outline and delivering a lecture, an instructor serves as a facilitator of learning and develops questions that help students unpack the case through discussion. This may increase course preparation time and may result in a less predictable unfolding of the class period. Similarly, the authors agree with Ash, Clayton, and Atkinson (2005) regarding the need to build the capacity of faculty and students for learning how to teach and learn through critical reflection.

Students were made aware at the beginning that faculty were learning the critical reflection process alongside them. For example, the scoring process was an eye-opening experience. Guided by the rubric, the instructors found both presence and absence of explicit evidence that students could think beyond the level of factual recall and connect earlier content to present learning and thus solidify intuitive judgments. Faculty were challenged to hold themselves and their students more accountable for providing evidence. Going through such a process, faculty may come to realize more clearly that some students may be unable—or unwilling—to deepen their learning or apply content. Students may struggle to make connections between experience and course content. Students often do well with learning at the level of basic knowledge—e.g., memorization of facts—but the higher-order reasoning associated with applying and building on previous knowledge takes more effort, skill, and practice. Although the group means in this study showed a statistically significant increase on the second essay, not all students improved, which raises the question of whether the students who could not or did not connect the case study with past learning will be unable to apply content from their courses in their professional practice.

This attempt to integrate a case study approach with critical reflection allowed the two instructors to emphasize important concepts while experimenting with their pedagogical approaches. Faculty may say: "We really don't have time for this. I can't get through the content as it is." This goal of covering content may satisfy faculty needs, but what is happening with the learners—are they really learning? It is much like

the sponge effect: students soak in the faculty member's knowledge and then squeeze the sponge on an exam or during a skill competency check-off and the faculty are pleased with the results. Wiggins and McTighe (1998) contrast "covering" material with "uncovering" it, which "occurs when instructional design focuses on finding problems or questions in what may have first seemed obvious or unproblematic" and which requires students "to see and find problems, gaps, perplexing questions, and inconsistencies" (p. 107). Critical reflection can be an important part of such a learning process, and its effectiveness in that role is deepened when faculty are willing to see themselves as learners and to experimentally revise and refine their established approaches.

The instructors' use of the DEAL Model in this study provided a step-by-step or "scaffolded" approach with a buildup of expectations along with practice and input throughout the process. Giving students feedback and scores on their first critical reflection assignment encouraged them to dig deeper into their own knowledge, experience, and prior learning in their second assignment. Using lectures without cases or critical reflection is a traditional means to disseminate information; however, the approach used here allowed the students to derive their own individualized meaning from exploration of common concepts (e.g., palliative care) and to consider implications for their own future practice.

Some faculty pursuing promotion and tenure might view experimentation with pedagogical approaches with fear due to the possibility of poor student evaluations of the unfamiliar process. Although some disciplines may report that student ratings are often inflated and more positive than faculty deserve, in the experience of the instructors in this study nursing students usually are quite candid on evaluations. In a previous semester when clinical paperwork was assigned to measure learning, one student commented, "I think that the paperwork is ridiculous. It was more of a hindrance and I felt like I was being punished for other people NOT reading. It took a lot of time away from what I usually do to study and prepare for class, I hated it!!!" With the introduction of the critical reflection essays it was encouraging that, on the end of semester evaluations, the students rated the faculty highly and wrote positive responses. There were no negative comments about the critical reflection essays. The authors hypothesize that incorporating collaborative critical reflection in a guided, scaffolded manner helps make the teaching and learning process more transparent to students, which may translate into greater awareness of the complexity and messiness of learning on the students' part. Furthermore, positioning oneself explicitly as a reflective learner alongside students may build a stronger sense of community in the classroom and help students to appreciate their instructors' efforts to facilitate learning and growth. Perhaps most importantly, because of

the capacity building for critical thinking associated with critical reflection, students' judgments on final course evaluations may be grounded more thoroughly with evidence.

The two instructors recognize ways to improve the process in its next iteration, for example by giving clearer instructions that are more explicit and customized to the course. Further refinement of the process would involve examining prompts to guide the students to the desired level of reasoning on Bloom's taxonomy and sharing with the students more examples of strong critical reflection products in which the desired integration of concepts and evidence of critical thinking are clearly present. The fact that neither faculty nor students had previous experience with a written critical reflection assignment accompanied by a grading rubric clearly had implications for the implementation of this project. Although faculty became more comfortable using the rubric on the second essay, their learning continues and they expect to improve their own skills as educators and investigators with each implementation.

There are many potential explanations for the increase in students' critical thinking scores across the two assignments that were controlled in this study. The improvements noted in the second essay may arguably be due to reviewer bias; certainly the high number of "perfect" scores (44 out of 44)—scores rarely achieved in any previous studies using the DEAL Model and its associated rubrics—suggests that the raters may not have held to as rigorous a standard in applying the rubric as they might have. The second essays may have been stronger simply because higher levels of reasoning were expected, more effort went into their development, the students were more comfortable with the process, or the students knew they would be graded. The second reflection may have been better because the students had not only read the extended case study book, but also had a face-to-face discussion with the author of the book and attended a professional event with palliative care experts, giving them more time to think and reflect carefully than they had on the first essay. By the time students produced the second critical reflection essay, they had been provided feedback on the first essay using the DEAL Model's associated critical thinking rubric. Therefore, in line with the working hypothesis of the study, the stronger scores on the critical reflection essays could have been the result of the students learning how to use the DEAL model and developing their critical thinking capacities.

Although the limitations of the study are clear, it was encouraging to the two instructors to observe students engaging with the speakers and activities during the professional development event at a level of thinking that likely would not have occurred without the integration of critical reflection with the case study. Several students commented to faculty during the two events about "getting it" or knowing better how

to connect prior and current understanding of concepts. Most of the students seemed to take the learning process seriously. It seems that the students' first critical reflection exercise and essay helped them learn to pay attention in subsequent experiences and to look for connections between previous learning and current topics.

Future implementation may include a design that more fully takes advantage of the DEAL Model's capacity to link prompts to higher levels of Bloom's taxonomy and to provide feedback on and revision of assignments using both critical thinking and Bloom-based rubrics (Ash & Clayton, 2009a). Future research may include an experimental design comparing pedagogies within the same semester and student population. The authors suggest ongoing investigation of the critical thinking rubric as applied across a range of disciplines and student populations. One question of particular interest involves the relationship between the individual critical thinking standards. Are they too interconnected for the current version of this instrument to serve as a reliable measure, for example, and under what conditions is the rubric best used holistically (as in Ash, Clayton, & Atkinson, 2005) or as in this study, separating out each individual critical thinking standard? The authors also suggest that to make a stronger argument for linking case studies with critical reflection as a basis for improved learning, investigators might consider using DEAL-based assessment alongside additional instruments. For example, a standardized professional exam could be used to measure factual learning while critical reflection products could be used to measure critical thinking, higher-order reasoning about core concepts, and student meaning making in terms of integration and potential future application. In addition, follow-up studies in the clinical practicum could be developed to identify differences among students exposed to varying combinations of case studies, critical reflection, and other pedagogical designs.

CONCLUSION

Case studies have been used effectively across several disciplines as an applied learning pedagogy. Case studies can enhance students' abilities to connect theory with practice. The case study approach integrated with critical reflection supports students in taking ownership of their learning while they learn how to think more critically and at higher levels of Bloom's taxonomy. Critical reflection as a meaning making process is initiated internally from the student's perspective rather than externally from the faculty member's perspective. This study was grounded in the experimental integration of a case study with critical reflection and included use of a critical thinking rubric to measure student learning outcomes. Using the DEAL Model of Critical Reflection

in conjunction with a case study deepened students' understanding of palliative care as well as their critical thinking abilities.

Students who have such opportunities to develop and refine their critical reflection abilities should be well prepared to function as reflective practitioners (Schön, 1983) when they become professionals and thus to engage in lifelong learning and growth. Greenwood and Lowenthal (2005) and McDade (1995) emphasize the importance of understanding how the meaning or "story" drawn from reflection on a case study provides the basis for a generalized, reflective approach in similar situations students face as practitioners. Ultimately, the authors agree with Harjai and Tiwari (2009) that for contemporary professionals (e.g., healthcare providers) to achieve excellence (e.g., expert clinical performance), graduates must be able to translate knowledge and theory into practice. The incorporation of critical reflection into applied learning pedagogies such as case studies not only supports faculty and students through the requisite learning processes but also models for students the reflective practice they will need to enact with future clients and colleagues.