Using a thought-provoking photograph, blank paper, and a series of questions, graduate students were asked to engage in an interactive classroom exercise that helps them understand the process and usefulness of theoretical thinking. This one-time exercise helps students envision ways they will be able to use theoretical thinking when they enter their advanced practice roles. The exercise is followed by a short, debriefing lecture on the four levels of theory as originally described by Dickoff, James, and Weidenbach. Students engage in a four-stage, systematic process of theoretical thinking that can be used as a model for clinical reasoning and problem solving, especially for ambiguous situations.

Benner Sutphen, Leonard, and Day (2009) asserted that today’s nursing students are being educated in ways that forfeit developing “skills of inquiry” (p. 31). In their report for the Carnegie Foundation, Benner et al. (2009) recommended three new pedagogies that nurse educators need to develop to educate future nurses. Specifically, they recommended that nurse educators develop ways to teach for a sense of salience, to develop clinical imagination, and to develop moral imagination (Benner et al., 2009). The teaching strategy presented here was designed for a master’s level course on Nursing Theory to develop an understanding of theoretical thinking and the four levels of theory, and it can be one way to teach for a sense of salience.

According to Benner et al. (2009), today’s clinical environment is not only complex and rapidly paced, it is often “under-determined” (p. 82). This means that the typical clinical environment has many pieces of changing information, with many possible high-stakes decisions to be made, but only one or two preferred outcomes. Benner et al. (2009) advocated teaching to develop clinical reasoning skills to support the moment-to-moment thinking of nurses in clinical practice. They specifically mentioned teaching for a sense of salience, which helps practitioners “discern what is more or less important in a clinical situation” (Benner et al., 2009, p. 25). They recommended expanding the focus on critical thinking to include multiple ways of thinking because as professional expertise becomes more technologically complex, the need for high-level response increases. The holistic perspective that nurses can bring to any clinical situation must be supported by many ways of thinking.

Background

Theoretical thinking involves thinking about intangible, conceptual, but complex entities, including the unknown future, in a structured (linear) or unstructured (nonlinear), but cogent, coherent manner. When nursing theory began to be developed within our discipline, nurse scholars sought information from non-nurse scholars who understood theory and theoretical thinking. Dickoff, James, and Wiedenbach (1968) wrote the now classic article about theory in a practice discipline that described four levels of theory: (1) factor-isolating, (2) factor-relating, (3) situation-relating, and (4) situation-producing. However, their elevated philosophical language rendered the content of their article inaccessible for most nurses. Dickoff et
al. (1968) addressed nurse scholars about four levels of theoretical thinking in an era when linear thinking, quantitative research, and the empirical pattern of knowing were prevalent and highly valued (Carper, 1978). After 1968, nonlinear nursing theories were developed and now are widely used. Together with Carper’s (1978) identification of four patterns of knowing (empirical, aesthetic, ethical, and personal), the movement toward nonlinear theories, and increased use of qualitative research, different ways of thinking about nursing-specific knowledge were developed. Today, linear and nonlinear perspectives are affirmed as valuable for our discipline. Because evidence-based practice has signaled a strong return to the empirical pattern of knowing, teaching strategies to develop linear theoretical thinking can be useful in new ways.

**Purpose**

This exercise teaches students to differentiate among four levels of knowledge and to learn how to seek different types of information. By introducing four generic questions in a stepwise sequence, the exercise helps students learn how to think about the information needed to support clinical reasoning, especially for ambiguous clinical situations. Introducing this sequential, four-stage process of linear theoretical thinking is useful because students begin to develop their own clinical imagination by thinking about the information they have and the information they do not have but that they need. This exercise introduces a way to build the skills of inquiry, which are needed to remain on the cutting edge of contemporary clinical practice.

**Classroom Exercise: What Do You See?**

The interactive classroom exercise was designed to help students engage in each level of theoretical thinking. Begin by handing out blank paper while explaining the general process: a photograph will be displayed and students will be asked to answer a series of questions related to the photograph. Students will have time to make their observations and write their thoughts after each question is posed. The first question is “What do you see?” Display the selected photograph (Figure), and ask students to study the photograph for 60 seconds before writing a list of everything they see.

When the students have completed their written responses, collect their written work, and ask them to share one thing they saw in the photograph that someone else has not mentioned. Write each item mentioned on the board. Once students have nothing more to add to the list, show the photograph again. Examine the photograph and the list a second time so students can see whether the list is accurate and complete. Editing the list at this point is important because in a large class, some students will see things that others did not see at first. The shared second look helps the group examine the photograph more carefully to determine whether what they thought they saw before is what they see now. Students have reported that having many people give an opinion about what they saw during this exercise helps them see the value of collaborative brainstorming for any unfamiliar clinical situations in the future.

Pose the second question: “When you look at this photograph, what one question comes to your mind?” Leave the photograph displayed and give students quiet time to reflect and to write their questions. Collect the papers and ask students to state their questions, but ask them to hold discussion of their thoughts until after the next part of the exercise. For the third question, ask the students to look at the photograph again and answer: “What is missing from the photograph?” When they are finished, before collecting their written work or asking for their responses, ask the third question in a different way: “What is missing from the situation?” After asking the third question two different ways, collect the papers and open the discussion of what is missing from the photograph and the situation. Point out the differences in what they saw with each question they answered.

Classroom discussion can be very rich. When they were asked the second question, their own “questions” were usually formulated to explain how or why this situation occurred. Students tend to naturally engage in factor-relating or explanatory thinking after having completed the factor-isolating or descriptive thinking activities of listing everything they saw in the photograph. However, when students are asked to examine the photograph for the missing elements, they tend to relate the situation to future time, and they begin to engage in situation-relating thinking, also called predictive thinking. Students can see that each type of question led to different types of thinking and produced different types of information.
Before ending this exercise, ask students to imagine that they are taking a tour of the factory and come upon this scene of the young, thin, poorly clad working girl. Ask students to imagine they are the town’s elementary school teacher: What might the school teacher think seeing this girl in this situation? What should the teacher do? Next, ask them to imagine they are the town’s pediatric nurse practitioner (PNP): What might the PNP think? What should the PNP do? Ask the students: “Does one’s occupation affect what is seen and how it is interpreted?” “Does someone’s way of seeing the world constitute a theoretical perspective?” “Do professional nurses have a unique perspective that non-nurses might not have?” Finally, ask the students: “What is unique about a nurse’s perspective?”

This photo depicts a female child factory worker in front of a large machine. Students usually mention that the young girl is very thin and that her bare feet are dirty and swollen. Most students notice that she is without a smile and yet her facial expression is not sad.

When students share the first question that came to their minds, their questions can be concrete, such as what kind of work she might be doing, but usually they have explanatory level questions in mind. However, when the third question is asked, the two things that are noticed as missing from the picture are that she is not in school (her lack of education) and that she is a child working in a factory (lack of normal childhood by today’s standards). At this point, it is important to ask the students to go a bit further in their thinking: “Where do you think her mother is?” Some think the girl’s mother works in the same factory or that her mother is dead and she is an orphan. Usually, someone mentions that this is a photograph of child labor. Once the issue of child labor is raised, ask the class, “What do you think she will be doing when she is 18 years old?” Some think she will be doing the same job. A good question here would be: “If her employer employs child laborers, will she still qualify for this job when she is 18 years old?” These questions put this child’s probable future into a new perspective. Thus, the third question asked two ways provokes a new way of thinking about and looking at this photograph of the girl in the factory. Whereas the exercise began with the question “What do you see?” students discover that the more important question was “What is missing?” If a sense of salience means that students can discern what is important in a clinical situation, teaching them to consider information that might be missing can be a valuable way to teach them the scope of what is salient.

The photographs used for this exercise come from the New York Public Library digital collection of photographs taken by the American photographer, Lewis Wickes Hine (1874-1940) (Hine, 1910). Many photographs depict child laborers in factories or mines, or people in substandard living conditions. The photographs are accessible online through the Digital Collections Gallery of the New York Public Library (http://digitalgallery.nypl.org/nypldigital/id?464381).

Debriefing After This Exercise

A short debriefing lecture about the four levels of theory defined by Dickoff et al. (1968) is given immediately after the classroom exercise. As each level of theory is named, it is related to the stage in the exercise where that level was illustrated, and the generic questions for those four levels of information are reinforced. The philosophical language used by Dickoff et al. (1968) is translated into more commonly used, memorable terms. Thus, factor-isolating level of theory becomes the descriptive level and is related to the “What” questions, such as “What is this?” “What do I see?” and “What do I know?” The process of listing known factors in a situation is mentioned as one way to answer the “What” question.

The methods used for descriptive level research and for descriptive statistics are mentioned so that students become aware that these four levels of knowledge can be used to create new knowledge later in their careers. Factor-relating level of theory, which is called the explanatory level of knowledge, is related to the “Why” or “How” questions, such as “Why did this happen?” or “How did this happen?” At this level, explanations are sought to put the isolated pieces of information together into some meaningful rationale. Situation-relating level of theory is called predictive and is related to the exercise question “What is missing from the situation?” The basic question that situation-relating knowledge answers is: “If nothing is done to change this situation, what will the future outcome be?” Situation-relating knowledge is knowledge about future outcomes. Evidence-based practice relies on analysis of accumulated evidence to predict and achieve high-level outcomes. Therefore, this level of knowledge is related to understanding what will happen if purposeful action is not taken. Predictive knowledge informs prescriptive or the situation-producing level of knowledge. Being clear about the outcomes to avoid and those to achieve, recommendations can be prescribed with greater confidence about “What to do.” With each level of knowledge, the comparable research methods are mentioned to link this exercise with ways that students will be able to develop new knowledge in their professional futures.

Translating the work of Dickoff et al. (1968) about theory in a practice discipline into understandable, memorable concepts is worth the effort of this exercise. The photographs are intriguing; they evoke a haunting curiosity about situational elements that are missing. The interactive group exercise is demanding. It requires attention, engagement, and response to an ambiguous situation. Conducted in a spirit of inquiry, this process models collaboration as a successful, respectful group effort wherein each person’s contribution is considered and treated with care. Given that the written work is not graded, the exercise should be nonthreatening. Having students hand in their written work before each stage of discussion can help teachers understand how well particular students understood the lesson. For students who speak English as a second language, it is possible to lose them when the language itself seems confusing. However, if students hand in their written work after the discussions have occurred, and they have had a chance to amend their original writings with notes during the discussion, teachers will lose the chance to understand their students’ learning.

One call from Benner et al. (2009) is to change our ways of teaching so students will develop a sense of salience. This photograph is not about a particular clinical encounter, yet the exercise provides a model for students to learn the importance of different types of questions that lead to different types of knowledge. Because the photograph is a two-dimensional im-
age, it offers minimal information. However, the photograph also limits competing elements that might need to be considered within a multidimensional clinical encounter. To ensure that students have learned the four levels of knowledge, they complete a homework assignment. They examine the Executive Summary of a report (To Err is Human [Kohn, Corrigan, & Donaldson, 2000] or Keeping Patients Safe [Page, 2004]), write a paper about the four levels of knowledge, and select quotations that represent each level of knowledge.

Clinical situations today are rapidly paced, extremely complex, and, as Benner et al. (2009) have helped us understand, underdetermined. As the semester unfolds, short film scenes are used in class to help students understand how to use theory in practice. With film scenes, many more human dimensions are considered. Students learn to analyze the scene and determine whether needed information was available to and used by the nurse. By engaging students in these additional classroom exercises, nurse educators help students enter into a situation in a nonthreatening manner accompanied by teachers who have mastered clinical nursing practice to learn how to engage in theoretical thinking.

Conclusion

In an era when evidence-based practice is diminishing the felt need for theoretical thinking, this exercise helps students understand the need to develop structured intellectual skills to engage in future-oriented problem solving. The classroom exercise introduces a search for missing information. Students learn that clinical reasoning involves not only the facts that are known, but also the unspoken, unseen elements that can affect a patient’s future in a profound way. Learning these skills can help students face future clinical challenges with confidence, creativity, curiosity, and intelligence.

References