Psychiatric nurse educators are challenged to prepare graduates in meeting the needs of individuals with a mental illness within an increasingly technology-based environment. This requires the development and evaluation of educational strategies that immerse students in web-based learning. This article presents an overview of a hybrid teaching design that includes classroom teaching and asynchronous threaded discussion in a teaching module in an undergraduate psychiatric nursing course. Evaluation of student preferences, advantages and disadvantages, and learning, as well as qualitative evaluation of students’ description of critical thinking, supports the value of online teaching in psychiatric nursing education.

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The Institute of Medicine Committee on the Health Professions Education Summit (IOM-CHPES; Greiner & Knebel, 2003) has noted the challenge to professionals of assimilating an increasingly complex knowledge and technology base into educational practices to prepare clinicians for practice. The committee also noted challenges associated with a growing consumerism that is influenced by the public’s ability to access health-related information on the Internet. The IOM-CHPES has identified a number of areas that should be addressed by health care educators, including teaching strategies to improve learners’ skills in identifying and applying evidence-based research and the use of informatics.

In answering the IOM-CHPES’s call for educational innovations to reduce the quality chasm in health care, nurse educators need to address not only issues of scholarly teaching but also the scholarship of teaching. A scholarly teacher is one who applies the scholarship of others to a particular teaching endeavor, whereas the scholarship of teaching seeks to improve teaching through the systematical exploration and scholarly dissemination of new knowledge on teaching and learning (Cambridge, 1999).

Nurse educators are keenly aware of the need to include evidence-based clinical practice into course content, yet they often fail to recognize the need to develop and apply the literature related to evidence-based nursing education, especially as it relates to web-based and web-enhanced teaching designs.

Psychiatric nurse educators are challenged to prepare graduates in meeting the health care needs of individuals with a mental illness within an environment that requires the use of technology-based information. This includes the ability to efficiently manage electronic records, access and synthesize the best evidence that affects practice decisions, and effectively communicate with colleagues as nurses participate in interdisciplinary practice, education, and research. These goals call for targeted educational innovations that are
grounded in sound theory and supported by solid evidence.

BACKGROUND

In reviewing the literature on the evaluation of traditional classroom versus online teaching methods, Ryan, Carlton, and Ali (1999) reported finding fewer systematic evaluations of methods than descriptions of the methods and experiences. Others have noted that only a few studies were aimed at interactions in online course discussions (Hamera & Wright, 2004).

In an effort to describe the state of evaluation in health-related web-based education, Chumley-Jones, Dobbie, and Alford (2002) conducted a review of the literature on web-based learning from 1992 to 2001. They included articles from medicine, dentistry, and nursing. Of the 206 web-based learning articles found, only 35 were evaluative. The authors concluded that the state of evaluation of web-based health care education is in its infancy and called for educators to develop a systematic approach to evaluating web-based teaching efforts. In addition, Thurmond (2002) noted the need for a theoretical framework in assessing the quality of web-based teaching and cautioned against "jumping on the Internet-course bandwagon" (p. 20) without using a theoretical approach to evaluation.

In designing frameworks for developing and assessing outcomes and practice in web-based nursing courses, a number of nurse educators (Billings, Connors, & Skiba, 2001; Billings, 2000; Jefferies, 2000; Sternberger, 2002) have incorporated the seven principles for good undergraduate education set forth by Chickering and Gamson (1989). Such principles include encouraging contacts between students and faculty, developing reciprocity and cooperation among students, using active learning techniques, giving prompt feedback, emphasizing time on task, communicating high expectations, and respecting diverse talents and ways of learning. These principles have been further revised to reflect the educational needs in a technical era (Chickering & Ehrmann, 1996; Chickering & Gamson, 1989). The authors asserted that web-based and web-enhanced teaching designs offer several advantages to traditional classroom teaching, such as self-directed learning, asynchronous discussion formats (participants not interacting at the same time), group problem solving, and exposure to real-world problems, conflicting views, and paradoxical data sets. Situated in this manner, web-based learning has the potential to expand and enrich skills related to analysis, synthesis, application, and evaluation of complex real-world concerns.

Jefferies (2000) and Sternberger (2002) described instructional models that may be useful in designing other online teaching modules. In addition to the original principles, the authors included the following dimensions in their designs: general principles, process, client teaching, critical thinking, and professional application.

PURPOSE

The purpose of this article was to apply a theoretical approach to the design and evaluation of an online teaching module. The module included an asynchronous threaded online discussion (discussion board) teaching strategy in an undergraduate psychiatric nursing course. The discussion board module represented a teaching unit in an otherwise traditional educational approach, resulting in a hybrid, combination, course model.

SETTING AND SAMPLE

Undergraduate senior nursing students participated in an online teaching module as part of a psychiatric and mental health course at the University of Texas Health Science Center at Houston School of Nursing. Two groups of students (N = 116) participated in the assignment, referred to here as Semester 1 (n = 64) and Semester 2 (n = 52).

INSTRUCTIONAL DESIGN

Framework

The framework for designing and implementing the teaching unit was based on a constructivist paradigm, which refers to a view of knowledge based on relativism rather than a positivist view based on realism. Constructivism, one of the most often cited underpinnings in web-based courses (Chumley-Jones et al., 2002; Thurmond, 2002), relies on an active learning process. Correctness of knowledge is based on the perspective one assumes (Bruner, 1990). Within this philosophical stance, a person uncovers the meaning embedded in information and engages in discussions regarding the...
nature and value of certain knowledge, thus
promoting the construction of new knowledge.
The constructivist paradigm is consistent with adult
learning models. In addition, the framework for the
teaching module was built on the sound educa-
tional design criteria recommended by Jefferies
(2000). Table 1 identifies the elements used in the
design of this project.

General Principles

General principles refer to the basic information
or principles needed to perform the learning task
(Jefferies, 2000; Sternberger, 2002). The faculty
selected the topics of eating disorders and person-
ality disorders for the online module and scheduled
this for the middle of the semester, which allowed a
timely break from the usual in-class lecture format.
These topics built on previously covered issues
central to psychiatric nursing such as mood
disorders, psychotic disorders, anxiety disorders,
and substance-related disorders. The underlying
assumptions included that the students were
adequately oriented to the course content and
faculty expectations, able to integrate previously
learned information, and, as such, better positioned
for success in learning that was not dependent on a
face-to-face learning encounter. Students were
instructed to read the assigned chapters in the text
and to review lecture slides posted on Blackboard,
a software system designed to support e-learning in
higher education (Blackboard is a registered trade-
mark of Blackboard, Inc., 1899 L St. NW, 5th Fl.
Washington, DC 20036). The lecture slides con-
sisted of information to reinforce the text as well as
supplemental material related to the topics.

Process

Process relates to the procedure for performing
the learning skills (Jefferies, 2000; Sternberger,
2002). Students were instructed to engage in
asynchronous discussion with an assigned group
about a particular critical thinking question. The
instructions for the assignment and the criteria for
evaluation were presented in detail in the course
syllabus and discussed face to face with the students
during class. Critical thinking questions were
selected from an online support site (Stuart & Laria,
2001) developed to complement the course text-
book (Cochrane, 2001; Perlin, 2001). Eating dis-
order questions focused on social and cultural
issues, health care disparities, discrimination, influ-
ence of media, therapeutic contracts, patient and
family education, consumerism, early detection, and
implications for nursing. Questions related to
personality disorders pertained to the use of
therapeutic touch; maladaptive behaviors; patient
and family education; legal, ethical, and manage-
ment concerns; and implications for nursing.

Discussion group composition averaged five
students. Each group was given a critical thinking
question on either eating disorders or personality
disorders. Initially, the students were to seek out
information related to the question independently,
initiate a discussion, and contribute to discussions
online. Students were instructed to integrate
information and others’ views on the topic with
their personal reflections and to defend their
positions with supporting evidence from cited
credible sources such as peer-reviewed literature
and national and professional-based organizations
or governmental agencies. Discussions occurred
over a 3-day period. Each group identified a leader
who posted a summary of the group’s discussion.
The instructor responded to the group’s summary

<table>
<thead>
<tr>
<th>Table 1. Elements of Instructional Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>General principles (basic information)</td>
</tr>
<tr>
<td>Building on knowledge base</td>
</tr>
<tr>
<td>Course content</td>
</tr>
<tr>
<td>Technical knowledge</td>
</tr>
<tr>
<td>Topic-specific information sources</td>
</tr>
<tr>
<td>Text</td>
</tr>
<tr>
<td>Lecture slides</td>
</tr>
<tr>
<td>Internet</td>
</tr>
<tr>
<td>Library</td>
</tr>
<tr>
<td>Process (procedure for performing skills)</td>
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<td>Procedure</td>
</tr>
<tr>
<td>Form groups</td>
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<td>Identify question</td>
</tr>
<tr>
<td>Select leader</td>
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<td>Seek independent information</td>
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<td>Initiate discussion</td>
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<td>Integrate information</td>
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<td>Respond to discussion points</td>
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<td>Provide supporting evidence for position</td>
</tr>
<tr>
<td>Summarize views</td>
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<tr>
<td>Incorporate teacher feedback</td>
</tr>
<tr>
<td>Become familiar with all summaries and feedback statements</td>
</tr>
<tr>
<td>Critical thinking and professional application</td>
</tr>
<tr>
<td>Real-world problems</td>
</tr>
<tr>
<td>Application to real world</td>
</tr>
<tr>
<td>Individual analysis of information</td>
</tr>
<tr>
<td>Group sharing of information</td>
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<tr>
<td>Synthesis of information</td>
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statements underscoring important points and providing additional material and supporting references. Following the posting of faculty comments, the class was responsible for reviewing all of the questions, summary statements, and instructor feedback and comments.

**Critical Thinking and Professional Application**

Critical thinking allows learners to solve hypothetical real-world problems through synthesis and analysis of knowledge. The professional application dimension of the model refers to the application of knowledge to real-world patient problems (Jefferies, 2000; Sternberger, 2002). In this instructional design, students responded to questions about real-world problems associated with the select disorders. These included concerns such as social stigma of obesity, recognition of cues associated with eating disorders, the appropriate use of healing touch with patients who have a personality disorder, and interventions useful in working with patients who attempt to “split” staff and family members. Students built on knowledge gained from the text and lecture materials and from information discovered individually and through group sharing, which led to the cocreation of new knowledge and in-depth analysis of the problem. Students applied new knowledge by suggesting appropriate nursing interventions and other nursing implications.

**EVALUATION**

**Methods**

The evaluation of the teaching module targeted the following domains: implementation of instructional design, technology use, student preferences, participation and contribution, learning, critical thinking and group problem solving, advantages and disadvantages, and recommendations. Both qualitative and quantitative methods were used (Table 2). Implementation of the instructional design was evaluated by expert educators not associated with the course who were experienced in web-based instruction (M.dC. and J.E.). As consultants to the project, these educators confirmed that the elements described in the instructional design were present and operational. Technology use was evaluated through teacher monitoring of student access to the Blackboard discussion board and posted learning resources. In addition, the teacher communicated with students concerning the access of the Blackboard website.

The discussions were examined for content as well as process. Content was scrutinized for logic and support of the position taken consistent with sound theoretical principles related to the topic. The problem-solving process was examined for depth of discussions and cooperation among peers. Students were asked to complete an evaluation form that consisted of one multiple-choice question on student preferences for teaching strategies and three open-ended questions: (1) compare this teaching unit facilitated critical thinking with a traditional classroom teaching method; (2) describe the pros and cons of the web-based teaching unit; and (3) suggest recommendations for improving the teaching strategy. Examination scores constituted another form of evaluation.

The open-ended question responses were examined for recurrent and variant themes by two of the authors (J.S.M. and J.E.) experienced with qualitative analytic methods. Responses were read and reread independently. Responses were organized according to the questions asked and then into categories based on logic and coherence. In the case of responses to how the teaching unit facilitated critical thinking, categories were examined for relationships and organized into themes. The analysts periodically engaged in analytic discourse until an agreement was met, ultimately
resulting in a consensus of the findings. The themes were organized into a schematic rendition that served as an overarching representation of the responses. The responses pertaining to the questions about the pros and cons as well as recommendations were also clustered into categories based on content analysis as these questions generated more concrete responses than the critical thinking question.

RESULTS

Implementation of Instructional Design and Technology Use

Consultation sessions with colleagues experienced in web-based instruction confirmed the presence of the design criteria underpinning this project. The integrity of the technology emerged as a concern as a number of technological difficulties occurred. Several students e-mailed the instructor to note that the university’s Blackboard system was inoperative (down) and that the usual access route was temporarily inaccessible. These problems occurred several times each semester and lasted from a few minutes to several hours, resulting in angst among the students who were faced with a time-limited assignment. However, one of the more computer-savvy students suggested to all other participants a generally successful alternative route for accessing the courseware. In this manner, the group demonstrated cooperative group work that simulated a real-world problem and allowed for the emergence of leadership.

During the second semester, a more serious technical glitch occurred. Two days after the teacher had posted comments related to the summary statements, all of the instructor’s entries for the entire semester were systematically deleted from the university Blackboard server. This severely affected the teaching module and required modifications to the final examination so as to not penalize students for their inability to access the deleted material.

Student Preferences

Forty-six percent of the 116 students enrolled in the course completed the evaluation form. Most of the respondents (65%) preferred at least one web-based learning module per course. This is in comparison with 13% preferring a totally traditional approach, 20% preferring several web-based modules per semester, and 2% preferring a totally web-based approach to the course.

Participation and Contribution

Student participation and contribution were evaluated based on modifications to discussion board grading criteria as suggested by Collison, Elbaum, Haavind, and Tinker (2000). Grades ranged from 0 to 5 points (M = 4.1). Most students (65%) earned the maximum 5 points, indicating a very high level of participation and quality of responses.

Learning

Learning was demonstrated in two ways, through examination of discussion content and through objective testing. Examination of the discussion content revealed theoretical adequacy as students referred to information from peer-reviewed journals. For example, in discussing anorexia nervosa, one group of students referred to Andrist (2003), Paxton (2002), and Hardin (2003). Examples of recent web-based information included www.4woman.gov, the federal government’s source of women’s health information (National Women’s Health Information Center, n.d.) and www.nimh.nih.gov/publicat/eatingdisorders.cfm#ed1 (National Institute of Mental Health, n.d.).

Students were tested for knowledge as part of a comprehensive 100-item final examination. Six test items corresponded to information related to the teaching module and contained questions designed to evaluate knowledge gained from the required readings, lecture slides, and discussion board summaries and teacher comments. The mean score for the six module-specific items was 84%. This is in comparison with the 80% mean overall score on the examination. Because of the technical problems experienced during Semester 2, the examination questions were modified to reflect information contained in the text and lecture slides. Thus, the examination scores from this semester are not reported here, as they do not reflect the discussion board component of the course.

Critical Thinking and Group Problem Solving

Students were asked how the online module facilitated critical thinking when compared with a traditional classroom method of instruction. The responses varied between the two semesters. Students in both groups acknowledged that the online discussion board learning activity fostered critical
thinking and was superior to traditional classroom learning in this regard. However, thematic analysis of the responses uncovered two separate levels of understanding and participating in critical thinking and group problem solving (Figure 1).

Semester 1 responses primarily referred to active learning. These students explained how active learning required that they take the initiative to participate in the learning activity. For example, one student wrote,

I feel this exercise encouraged more critical thinking than a lecture, because I was forced to read comments, research the disease, and make a constructive response. In a lecture it’s easier to zone out or just read over notes later.

Students noted that the exercise stimulated collaborative learning through sharing of ideas and “was a learning tool for building our teamwork skills.” Some students remarked that the discussion board allowed them to express and develop their own ideas and drew out those students who tend not to speak up in class. Furthermore, they observed that learning was fostered as they were able to analyze and synthesize the content in ways that the classroom method did not permit. Thematic analysis revealed two styles of active learning: (1) independent learning and (2) cooperative learning, both of which rely on initiative. These themes were also reflected in the individual and group performances associated with the discussions as the posted comments were at the information level with efforts to support one another’s remarks and minimal reflection on different points of view. Thus, the group problem solved by (1) actively seeking new information, (2) building on the ideas of each other, and (3) supporting each new idea.

Semester 2 responses referred to a discriminating type of thinking. Students explained that they needed to rely on individual initiative to find information on their own. They noted that the online assignment transferred the responsibility for learning to students. “We were responsible for researching and ‘presenting’ our own material, instead of passively learning in a classroom ‘receiving’ a lecture.” They also acknowledged that, compared with the traditional classroom approach, the assignment gave them more incentive to investigate a problem. Discriminating thinking included patterns of cooperative critique and cooperative dialectic. Students referred to “a flow of ideas between each other with plenty of time for reflection,” “time to discuss the topic thoroughly,” and being “able to synthesize and recognize others’ points of view.”

These patterns were evident as the students discussed the need to work out differences of opinion and build consensus. This analysis was supported by the group’s contributions to the discussions as they challenged each other’s thinking in a constructive fashion through debate.

Advantages and Disadvantages

Most students recognized both advantages and disadvantages in participating in the assignment (Table 3). Although some students voiced negative views, most others were favorable, with some being quite enthusiastic about the opportunity to participate in the online assignment noting that they appreciated the adult learning environment
and the time to contemplate and develop knowledge about a particular topic. Among the most often cited advantages were the convenience of online learning and the ability to share ideas without the restrictions of time and environment imposed in a traditional classroom.

Having to choose a leader without extra credit was the most negative aspect of the students’ experiences. Many students engaged in long discussions about who would serve as the leader, with many giving explanations for why this was neither convenient nor fair. In addition, many students communicated this concern to the teacher face to face and by e-mail. Nevertheless, the teacher restated that the emergence of a group leader without incentive was a reflection of real-world professionalism; therefore, a leader must emerge. It is important to note that although this was a trend among many groups in both semesters, there were a number of groups that functioned without this being a concern. It is also important to note that these group dynamic difficulties are often observed in classroom environments and may not reflect a problem intrinsic to Internet-based education.

**Recommendations for Improvement**

Recommendations appeared to reflect a level of uncertainty and angst associated with a new instructional design. Some students suggested more instructor involvement in the discussion that might include redirecting during mid discussion. Time emerged as a factor as some students suggested allowing more than 3 days to discuss a question whereas others recommended a stricter time frame for each student to begin discussing. The concern for the grade led to the suggestion that examples of good discussion be provided and that there be a trial run before grading. The most frequent suggestion was for the teacher to assign the leader or give that person extra credit, noting that there was too much work for one person to write a brief summary.

**DISCUSSION**

The transition from onsite to online teaching requires an adaptive process for both instructors and students. Many instructors who have become interested in developing Internet-based teaching feel compelled to create entirely new courses, an overwhelming proposition, especially when an efficient infrastructure for technological support is not continuously available. One effective option to facilitate the transition is to adopt a hybrid information approach (Brewer, DeJonge, & Stout, 2001) in which part of the course is offered onsite while some modules are placed online, as described in this article. If desirable and after appropriate evaluation, this initial effort can then be augmented progressively until an entirely online course is developed. One major benefit of the hybrid approach is that it gives both instructors and students an opportunity to adapt and adjust to online learning while providing diverse instructional modalities.

This article provides an integrated model for developing and evaluating an online discussion board teaching module. Incorporating asynchronous discussion board teaching was a valuable complement to traditional classroom teaching in an undergraduate psychiatric nursing course. The module enhanced active learning, cooperation, and discriminating thinking in a context of real-world problems. As the instructor moved from teacher to facilitator, the learners moved from the passive to the active learner mode. This pedagogical paradigm shift requires a mutual flexibility and commitment as instructors relinquish some of their traditional power (from “the sage on the stage” to “the guide on the side”) and learners become the focus of the learning process (Weimer, 2002). Some of the resistance among the students reported here may be an expression of reluctance or inability to accept the responsibility for learning (Felder & Brent, 1996).
Students described both positive and negative aspects of the learning module, noting convenience of an online assignment as a strong benefit. This is consistent with findings reported by others (Leasure, Davis, & Thievon, 2000; Ryan et al., 1999) who also reported that increased computer use confidence and exposure to learning opportunities not available in the classroom were additional advantages.

In addition, the quantity as well as quality of the discussion were superior to in-class discussions in the same group of students, suggesting that the method of teaching generated more opportunities for knowledge building and engagement of otherwise reticent students. This observation is in line with that reported by Coulehan, Williams, and Nasser (1995), who reported that online discussions were deeper, more diverse, and engaged more students than the traditional classroom teaching method.

Some students’ comments suggested that they were uncomfortable with the shift to a more active style required of online learning. Students’ resistance to learner-centered instruction is a common reaction to the increased burden placed on them. First, learner-centered instruction requires more work and self-determination. Second, student-centered learning tends to be more threatening to students who may lack confidence in their self-learning ability. Third, a learner-centered course may be beyond some students’ capabilities (Weimer, 2002). There was significant resistance to the notion of an emerging leader, and some were not pleased with the amount of reading required. However, most recognized the value of the teaching module in spite of the discomfort and unfamiliarity. Goodwin (2002) suggested that web-based teamwork is achievable to highly motivated students but challenging to others. This is one possible explanation for the challenges noted in this evaluation, particularly related to leadership issues.

The differences noted in the responses related to critical thinking between the two groups represent a change in understanding the meaning of critical thinking. This shift moved understanding critical thinking as a form of active learning to one of discriminating thinking. This may be attributed to the instructor’s increased experience as well as a result of positive reports from previous students. These findings suggest that when the culture of a degree program is traditionally classroom based, web-based innovations should be introduced gradually. Following a study of students’ perceptions on distance learning environment experiencing new technologies, Cartwright and Menken (2002) recommended that faculty and administrators should not assume that students familiar with distance learning environment will transition easily to new distance learning technologies. The authors noted the need for formative as well as summative approaches to the evaluation of innovative approaches to education.

Among the important lessons learned from the evaluation, first and foremost, is the need to ensure the integrity of the technology used with reliable backup strategies. For example, it will be important in the future to construct all online discussion postings in another document and copy the content into the web-based courseware program.

CONCLUSIONS AND IMPLICATIONS

The trend in teaching toward more active learning experiences is evident in the current educational climate (Jefferies, 2000; Sternberger, 2002; Weimer, 2002). Using the Internet to promote problem solving is the next logical step to ensure that students have the skills to function in a dynamic health care environment (McGrath, 2002). However, educators need systematic methods of evaluating such innovations. Chumley-Jones et al. (2002) recommend that the focus on education should be directed toward learners’ needs rather than assume that methods that use technological advances are superior. There is a need for more sophisticated measures to evaluate the content and process of online educational strategies, particularly as related to asynchronous discussions (Hamera & Wright, 2004).

The instructional design and evaluation methods described in this article can serve as a guide for educators who are focused on web-based undergraduate nursing education. As noted by Billings and Halstead (2005), the success of transitioning from onsite to online education demands several levels of adaptation and collaborative planning: institutional support, technology support, faculty development, learner support, and adequate evaluation methodology. Students need to be socialized to being an active participant (an antecedent to initiative) in the learning environment. With increased exposure to the teaching method,
students will become more accustomed to collaborative participation in asynchronous threaded discussions and develop better time management skills needed to be successful in a technology-based real-world work environment.

REFERENCES


