

**National League for Nursing
Evaluation and Learning Advisory Committee (ELAC)**

ANNOTATED BIBLIOGRAPHY ON ASSESSMENT AND EVALUATION

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A comprehensive literature review was completed, reflecting best practices in assessment, evaluation, and grading in nursing. This annotated bibliography of the literature is organized into four areas: assessment and evaluation in (a) the classroom, (b) the online environment, (c) clinical practice, and (d) learning and simulation laboratories. There is a fifth section that provides references on the assessment of psychomotor learning and performance; that section is not annotated. This work was completed by members of ELAC and its subcommittees as noted above.

CLASSROOM ASSESSMENT

Ahmad, N. (2002). *Evaluation of teaching: Through eyes of students*. Plano: Institutional Research Office, Collin County Community College District.

This article reviews the student evaluations instruments used to evaluate learning and faculty in the classroom. The purpose of this article was to search for some standardized instruments of student evaluations. Instruments used are: Individual Developmental and Educational Assessment (IDEA), Student Assessment of Learning Gains (SALG), Instructional Assessment System (IAS), Student Instructional Report II (SIR II), Course/Instructor Evaluations Questionnaire (CIEQ), Student Evaluation of Educational Quality (SEEQ), San Francisco State University Instrument, Indiana University at Bloomington's Multi-Op (Multiple Option System of Course and Instructor Evaluation), Student Evaluation of Instruction (SEI), Murdoch University Student Survey's of Teaching, University of Alberta Instructor Designed Questionnaire System (IDQ). Timing of doing the student evaluations were suggested to take place at midterm. A great deal of controversy exists regarding how to interpret and use the student evaluation surveys.

Alexander, J. W., Polyakova, V., Johnston, L. W., Christensen, P., & Loquist, R. S. (2003). Collaborative development and evaluation of an online nursing course. *Distance Education, 24*(1), 41-56.

This article is a case study of three nursing schools that designed and taught an online undergraduate nursing course. Challenges by students and faculty encountered are discussed related to the online courses, recruitment, and retention. Qualitative and quantitative methods were used to evaluate the effectiveness of the course. Suggestions to overcome the problems encountered are given at the end of the article. Online students rated the online course lower than those receiving other methods of instruction. A reason was possibly that it was the adjustment phase of the new delivery method. Students reported too much time required in the online course while another student stated that the student had to think about every question which required a response.

All, A., & Huycke, L. (2007). Serial concept maps: Tools for concept analysis. *Journal of Nursing Education, 46*(5), 217-224.

This article discusses the difficulty of getting nursing students to be able to use and apply abstract thinking. Ways to assist students in abstract thinking are concept analysis, concept maps, and "serial concept mapping." Students and educators utilize the above listed approaches to apply nursing theory and practice. The "serial concept mapping approach is useful for online and classroom approaches.

Ambrose, M. S. (2003). Perceptions of effective teaching behaviors in a RN BSN classroom. *Widener University School of Nursing. Proquest Dissertations and Theses 2003*. Section 0969, Part 0569. 0969, Part 0569.

Today there is pressure to improve quality and effectiveness of teaching. Students evaluate instructors on their perceptions of the class while most schools accept this as the teacher's

evaluation in the classroom. This is a qualitative study examining RN-BSN students and faculty perceptions of effective teaching behaviors. A pretest and posttest measuring the students' professional attitudes is utilized. The data analysis reflected no statistical significance in professional attitude scores following the completion of this introductory course.

Baseline data was obtained from the RN students' and faculty perceptions of effective classroom teaching behaviors. Seven categories were discovered from the faculty and student responses including: "communication/collegiality, encouragement/feedback, personality traits, personal philosophy, professional competence, supportive environment specific for the adult learner and teaching strategy." Further research from this student population is necessary. This is useful for nurse educators interested in promoting behaviors that will promote an effective learning environment.

Andrade, H. G. (2000). Using rubrics to promote thinking and learning. *Educational Leadership*, 57(5), 13-18.

Rubrics are useful tools in developing critical thinking skills and in evaluating student's progress. By using a rubric for grading, the students are then responsible for the performance on the assignment. This holds the student accountable for learning and earning the grade. Descriptions of various levels of grading rubrics are useful to students as it allows them to see what the actual expectations and grading criteria are. The descriptions of the various levels of the rubric are clear and concise. This enables the student to earn whatever grade is desired by meeting the criteria. The educator's expectations need to be clear and concise. In a study, students performed better when they had the rubric versus no rubric. Valuable steps are included in designing a quality rubric.

Arter, J. (2000). Rubrics: scoring guides, and performance criteria: classroom tools for Assessing and improving student learning. *ERIC*, ED446100.

Rubrics, scoring guides, and performance criteria help both the teacher and the student in meeting course objectives. Educators become more effective in the classroom in grading student's work and more methodical in giving concise feedback to students. High quality rubrics are useful in classroom evaluations. The rubric must meet four requirements: "content, clarity, practicality, and technical soundness." Seven strategies are listed in using rubrics as an effective tool. The use of rubrics has a positive influence on education and student performance. Illustrations are given of useful rubrics listing advantages and disadvantages of each.

Arthurs, J. B. (2007). A juggling act in the classroom: Managing different learning styles. *Teaching and Learning in Nursing*, 2, 2-9

This article discusses the challenge of using teaching methods that can accommodate a variety of student learning styles. Three learning style models are discussed; Kolb's model, Fleming and Mills' sensory-based model, and the Dunn and Dunn learning style model. The author acknowledges that most students use a variety of learning styles, and that educators can maximize student learning by incorporating techniques from many methods into the classroom. Classroom strategies that keep students active in the learning process are beneficial. Although it can be challenging for faculty to include a variety of approaches, the student will benefit.

Badros, K., Seldomridge, L., & Walsh, C. (2005). Issues in critical thinking: Measurement of advanced practice students. *Nurse Educator*, 30(4), 139-140.

This article discusses problems from critical thinking encountered with advanced practice nurses using two tools: the California Critical Thinking Dispositions Inventory (CCTDI) and the Watson-Glaser Critical Thinking Appraisal (WGCTA). Advantages and disadvantages of using these two instruments are listed. Recommendations are given at the end of article for using newer versions of the tools and for educators to require more examples from students to demonstrate effective critical thinking.

Baker, S., & Pomerantz, N. (2000/2001). Impact of learning communities on retention at a metropolitan university. *Journal of College Student Retention*, 2(2), 115-126.

This article discussed learning communities of freshman developed and instituted at a commuter metropolitan university. The learning community developed, linked three courses together and grouped the students according to demographics. The learning impact on the students were assessed and evaluated. Those in the learning community had higher grade point averages, more credits, had a positive perspective about the overall college experience and had less likelihood of being on probation.

Barakzai, M., & Fraser, D. (2005). The effect of demographic variables on achievement in and satisfaction with online coursework. *Journal of Nursing Education*, 44(8), 373-380.

This article studied the effect of language in an online course. Nurse practitioner and physician assistant students of ethnically diverse backgrounds were studied. The variables were native language, gender, and prior computer experience. Successful completion and satisfaction with online coursework were evaluated and compared between the groups. No statistical difference was noted in the language and course satisfaction, gender, or prior computer experience.

Becker, K., Rose, L., Berg, J., Park, H., & Shatzer, J. (2006). The teaching effectiveness of standardized patients. *Journal of Nursing Education*, 45(4), 103-111.

This article is about teaching nursing students therapeutic communication in the classroom. A pilot study compared the standardized patients over the traditional methods of teaching in a baccalaureate nursing program. The standardized patient had a specific illness or scenario. The students that had the standardized patient reported the experience as positive, creative, and meaningful. No significant difference was observed when comparing interpersonal skills, knowledge of depression, and therapeutic communication.

Beers, G. (2005). The effect of teaching method on objective test scores: Problem-based learning versus lecture. *Journal of Nursing Education*, 44(7), 305-309.

This article reports studying the teaching methods in a school of nursing. Traditional lecture and problem based learning were compared. Test scores of both sets of students were reviewed and no statistical difference was revealed with the scores of both groups studying diabetes.

Beers, G., & Bowden, S. (2005). The effect of teaching method on long-term knowledge retention. *Journal of Nursing Education*, 44(11), 511-514.

This study repeated an earlier study comparing the difference of traditional lecture versus problem based learning (PBL). Long term knowledge retention was analyzed after 1 year after having received the content. The scores of a comprehensive test and the endocrine content were evaluated. A statistical significant difference was found as the PBL group scored higher on the endocrine content and in the repeat posttest from 1 year ago. Therefore PBL's may help students retain the information on a long term basis.

Bloom's taxonomy: Affective domain. Retrieved from <http://nwlink.com/~donclark/hrd/bloom.html> October 27, 2007.

This is a brief, concise reference that outlines Bloom's major categories in the affective domain along with examples and keywords useful in describing behaviors related to those categories.

Bonnel, W., Fletcher, K., & Wingate, A., (2007). Integrating geriatric resources into the classroom: A virtual tour example. *Geriatric Nursing, 28*(5), 301-305.

A Virtual Tour (VT) assignment is used to teach geriatric content to nursing students. VTs used in this article are based upon Vella's model. Basic concepts of the model are reviewed. In the VT exercise, students are given an assignment sheet to introduce the topic and to clarify the objective of the exercise. Students complete the VT prior to class and share the assignment as part of class discussion. The authors assert that the exercise promotes critical thinking through reflection on previous experience and review of Web-based resources. This reflection enables students to apply knowledge to future care situations.

Bowers, S. (2004). The effect of problem-based learning on nursing students' clinical decision-making and learning satisfaction. *University of South Dakota*.

Case studies are an effective tool for adult learners. This study evaluates the effectiveness of case study learning on students' clinical decision-making and learning satisfaction. This research was a quasi-experimental design that investigates the above mentioned. Nursing students from an associate degree program were studied. The learning factors in the focus of the study were critical thinking, therapeutic communication, interventions, assessment, analysis, planning, implementation, evaluation, and overall exam score. Students in the experimental group scored higher in all areas except for communication. The students in the experimental group scored higher in the interventions demonstrating a positive reflection of the use of case studies. The students also showed a high acceptance and approval of the use of case studies in the class which improved their clinical decision- making and nursing judgments.

Buckley, K. M. (2003). Evaluation of classroom-based, web-enhanced, and web-based distance learning nutrition courses for undergraduate nursing. *Journal of Nursing Education, 8*, 367-372.

A traditional nutrition nursing class of undergraduate nursing students was transitioned from a traditional to Web-enhanced to a Web-based course. Students were evaluated by exam grades and end of course grades, in addition to evaluations from students and faculty. Students' evaluations revealed positive and negative comments regarding online instruction. Those in the experimental group liked the flexibility to do the work on their time frames and liked the idea of not having to travel, in addition to the accessibility of online course materials. Those that were in

the control group had negative feelings as to not having a choice of which class style. Those that had taken the online course stated their dislike of no personal interaction with faculty and students and having a feeling of isolation.

Online class instruction requires a student to be self-motivated and self-directed and take responsibility for work in the course. No difference was found in the students' outcomes between the three different styles of class. Instructors need to be mindful of students' needs and characteristics. Students should be allowed to select which styles works best. Further studies are recommended in determining the methods of motivating and stimulating learning in nursing students in undergraduate and graduate settings.

Burman, M., Hart, A., Brown, J., & Sherard, P. (2007). Use of oral examinations to teach concepts of evidence-based practice to nurse practitioner students. *Journal of Nursing Education, 46*(5), 238-242.

Evidenced based practice is being evaluated by the use of oral exams in which a student is required to verbally present an analysis of a research article. The student is assigned an article to read and evaluate. An appointment is then scheduled with a faculty member to discuss the article and answer questions pertaining to the implications of the findings and how it would affect the student's nursing practice.

Campion, W. J., Mason, D. V., & Erdman, H. (2000). How faculty evaluations are used in Texas community colleges. *Community College Journal of Research and Practice, 24*, 169-179.

This article discusses when and how is the best time to use evaluations for faculty in Texas community colleges. The summative evaluation should be valid and reliable with reliable criteria with the goals and values of the college. A survey was sent to Texas college administrators. This article includes an analysis of the 31 survey questions asked. Conclusions were that most colleges use some form of student evaluations. The issue was what the school did with the results of the evaluations. The frequency of the faculty evaluations by students varied. There were also different standards in regards to full time or part-time faculty evaluations, in addition to the number of classes that were evaluated.

Chaves, J., Baker, C., Chaves, J., & Fisher, M. (2006). Self, peer, and tutor assessments of MSN competencies using the PBL-evaluator. *Journal of Nursing Education, 45*(1), 25-31.

This article discusses problem based learning that is used in three syllabi and enhances critical thinking, self-evaluation, and communication skills. Three groups of masters' degree students and 2 nurse faculty advisors used the PBL web-based evaluation. The findings showed that over the two semesters the ratings increased. In addition, a wide variation was found in positive and negative feedback.

Cheng, L., Rogers, T., & Hu, H. (2004) ESL/EFL instructors' classroom assessment practices: Purposes, methods, and procedures. *Language Testing, 2*(3), 360-89.

This article discusses a study that examines English as a second language (ESL) and English as a foreign language (EFL) in Canada, Hong Kong, and China. This study provides insight in evaluation of teaching and learning practices at the collegiate level.

Chiou, S. F., & Chung, U. L. (2003). Development and testing of an instrument to measure interactions in synchronous distance education. *Journal of Nursing Research*, 11(3), 188-196.

This article discussed the development and testing of an instrument that was both valid and reliable to evaluate a synchronous distance education class. A 36 item questionnaire was given to 100 students from 2 schools. The statistics showed that the survey was valid and consistent. This instrument was found to be useful for synchronous distance classes and in developing future classes in other disciplines. It was suggested that this tool needs to be tested on a larger scale and in other disciplines.

Clark, D. N., & Gibb, J. L. (2006). Virtual team learning: An introductory study team exercise. *Journal of Management Education*, 30(6), 765-787.

This article explores a grounded experiential exercise using virtual study teams. The teams were given a set of six learning objectives along with six tasks to be completed by the virtual team. The tasks involved cognitive learning, affective learning, and action learning domains. The activity was evaluated by student feedback, instructor observation, and formal evaluation of the team reports. In all three areas, the activity was found to be an effective learning experience. Students benefited from the experience by building communication, organizational, and team functioning skills.

Daggett, L., Harbaugh, B., & Collum, L. (2005). A worksheet for critiquing quantitative nursing research. *Nurse Educator*, 30(6), 255-258.

This article provides a worksheet useful to nursing students and faculty in an introductory undergraduate research nursing course

Dettmer, P. (2006). New Blooms in established fields: Four domains of learning and doing. *Roeper Review*, 28(2), 70-78.

This article describes work that expands upon the taxonomies developed by Bloom and others. The author expands the scope of the cognitive domain to include imagination and creativity. The affective domain expands to include concepts of internalization, wonder, and risk-taking. The psychomotor domain is broadened to include sensorimotor concepts that incorporate use of the five senses. A social domain is added to the taxonomy in order to incorporate concepts of communication, participation, collaboration, and initiation in the development of social intelligence. Finally, the four domains are unified to form the phases of all four domains- perception, understanding, and use of learning.

Emerson, R., & Records, K. (2007). Design and testing of classroom and clinical teaching evaluation tools for nursing education. *International Journal of Nursing Education Scholarship*, 4(1), 1-15.

Student evaluations are discussed regarding the design and psychometric testing at a graduate and undergraduate nursing school. The instruments demonstrate validity and reliability and were

easy for the students to use, recommended for schools with multiple instructors in several courses.

Goldenberg, D., Andrusyszyn, M., & Iwasiw, C. (2005). The effect of classroom simulation on nursing students' self-efficacy related to health teaching. *Journal of Nursing Education, 44*(7), 310-314.

This article was a descriptive study assessing the effect of classroom simulation on third year undergraduate nursing students. The students' role played case studies at two different times. The students improved in their confidence significantly making a recommendation to continue simulation as a method of teaching in the classroom.

Goulet, C., & Owen-Smith, P. (2005). Cognitive-affective learning in physical therapy education: From implicit to explicit. *Journal of Physical Therapy Education, 19*(3) 67-72.

The article emphasizes the importance of integrating both cognitive and affective domains of learning into education for physical therapists. The authors present an integrated learning model combining principles from Kolb's cycle of learning and Shulman's Table of Learning. The authors suggest cognitive-affective practices for classroom learning that include reflection, course materials that raise problems and create emotional disturbances, emotional risk-taking by speaking up, classroom ethos that fuels "disorienting moments", and contemplation and stillness. The authors also suggest that outcomes and assessment tools be developed to incorporate the affective aspect of learning.

Hickey, B. (2006). Lessons learned from collaborative testing. *Nurse Educator, 31*(2), 88-91.

This article discusses the use of collaborative testing with second year nursing students in an undergraduate nursing program. Students stated improvement of collaborative and communication skills in addition to critical thinking and conflict management.

Hsu, L., & Hsieh, S., (2005). Concept maps as an assessment tool in a nursing course. *Journal of Professional Nursing, 21*(3), 141-149.

Concept maps were used in a study of first year nursing students in an associate degree nursing program. Students were divided into 2 groups and assigned to do 6 concept maps over the semester with 5 having physiological issues and one had a psychosocial issue. As the study progressed, noted improvement was observed on the concept maps. The students were able to apply critical thinking and analysis with their complicated client data on the concept map.

Hughes, S. J. (2005) Student attendance during college-based lectures: A pilot study. *Nursing Standard, 19*(47), 41-49.

A questionnaire was developed to determine the factors that affect the second year nursing students in the United Kingdom. The question consisted of 48 questions of both qualitative and quantitative in nature. The main reasons given for absence were illness, family schedules, doctor appointments, and paper or homework deadlines. The absences increased when paper deadlines existed. Suggestions from the survey were that the school should foster a "family friendly" attitude and allow curriculum to be more "self-directed" towards the students in addition to scheduling deadlines further apart and allowing students to do work over holiday periods.

Jang, K., Hwang, S., Park, S., Kim, Y., & Kim, M. (2005). Effects of a web-based teaching method on undergraduate nursing students' learning of electrocardiography. *Journal of Nursing Education, 44*(1), 35-39.

This article discusses a study comparing a Web-based course with a traditional course in a baccalaureate nursing program in Korea. The study was conducted over a 4 week period. The results from the study showed the traditional class tested higher in knowledge than the online course while the web-based students scored higher in electrocardiogram interpretation than the traditional class.

Janitzi, J., & Austin, C. (2005). Measuring learning, student engagement, and program effectiveness: a strategic process. *Nurse Educator, 30*(2), 69-72.

This article discusses a four year nursing program developing a 9-step process for curriculum implementation. The process is described and a rubric of the 9 step process is included. This article is useful for nurse educators that are either in curriculum revision and would be useful for accreditation as it discusses some of the evidence that is used to show proof of what the student's have learned along the way.

Jensen, S., & Joy, C. (2005). Exploring a model to evaluate levels of reflection in baccalaureate nursing students' journals. *Journal of Nursing Education, 44*(3), 139-142.

This study used Mezirow's model to evaluate reflective levels among four year nursing students. The journals of 3rd year nursing students were examined three times in a health assessment course. The results showed that 4/5's of the students increased in critical thinking while 1/5 did not show any change in their level of thinking and analysis. This tool was reported to be helpful in assessing the student's level of journal reflection.

Johnson, J. (2005). Creating learner-centered classrooms: Use of an audience response system in pediatric dentistry education. *Journal of Dental Education, 69*, 378-381.

This article discusses the use of an audience response system (ARS) in the classroom setting to enhance and increase dental students learning in comparison to a straight lecture. By using the ARS, an increase in student participation was observed. Fifteen questions were used during the two hour lecture. This addition to the classroom lecture kept the students actively engaged, in addition to immediate feedback for the student as well as the instructor.

Johnson, J., & Mighten, A. (2005). A comparison of teaching strategies: Lecture notes combined with structured group discussion versus lecture only. *Journal of Nursing Education, 44*(7), 319-322.

This article discusses a study that compared lecture only with word processed lecture notes and discussion. The results showed a statistical significance with the two groups. There was no statistical difference in those passing the course. Recommendations from this study are to include lecture notes as this and the discussion in the course as another technique. It was suggested that this study be replicated and compare other courses and include the NCLEX results to see if there is a significant increase in success.

Kennison, M. (2006). The evaluation of students' reflective writing for evidence of critical thinking. *Nursing Education Perspectives, 27*(5), 269-273.

This article studied the inter-rater reliability of the Critical Thinking Scale (CTS). This scale was used to measure the critical thinking of an undergraduate nursing program in journaling their previous clinical days. The students were assigned to reflect on an unusually important day during their last clinical class. The CTS was compared with the California Critical Thinking Skills Test results and found that the CTS was statistically significant and was a useful scale to assess and analyze student's critical thinking. This could be applied to case studies and to problem based learning also.

Kyrkjebo, P. (2006). Teaching quality improvement in the classroom and clinic: Getting it wrong and getting it right. *Journal of Nursing Education, 45*(3), 109-116.

This article discusses open-ended questions and focus groups to assist students in the classroom. The results demonstrated that students improved during the independent assignments and personal initiative. Students had difficulty in connecting theory into the clinical realm.

Lasater, K. (2007). High-fidelity simulation and the development of clinical judgment: Students' experiences. *Journal of Nursing Education, 46*(6), 269-76.

This article discusses the use of high fidelity simulation as a class during the first semester of nursing school. This provided the students with a safety net and allowed the students to have repetitive experiences to improve in their critical thinking and communication skills.

Lashley, M. (2005). Teaching health assessment in the virtual classroom. *Journal of Nursing Education, 44*(8), 348-350.

This article describes methods used to teach health assessment in an on line environment. Videos are digitally streamed onto the Web and are accessible by students. An advantage is that students can repeatedly access the video as needed to enhance learning. Student evaluations cited advantages such as flexibility and independence in pacing their learning. The availability of other course documents on line, such as the syllabus, were also viewed as being helpful according to student evaluations. Students stated that they were still able to master the assessment skills, with the added benefit that the on line environment was less stressful than having to perform them in a classroom environment.

Latessa, R., & Mouw, D. (2005). Use of an audience response system to augment interactive learning. *Family Medicine, 37*, 12-14.

An audience response system (ARS) was tested by a group of family practitioners in North Carolina. The results were positive as it was fun, exciting gave immediate feedback, fostered learning opportunities, and was useful for polling and research studies.

MacKnight, C. B. (2000). Teaching critical thinking through online discussion. *Educause Quarterly, 4*, 38-41.

Online communication is an avenue for students to sharpen their critical and analytical skills. One important piece to remember is that not all students have the same level of critical thinking skills. Faculty must be willing to guide and direct the online course discussion to enhance critical thinking. Asynchronous discussion is helpful in getting and receiving feedback. A table is provided to assist with helpful questions. Different types of groups are discussed: buzz groups, jigsaw groups, mock trial, debating teams, case discussion, and small groups.

MacNeil, M. (2007). Concept mapping as a means of course evaluation. *Journal of Nursing Education, 46*(5), 232-234.

This article discusses concept mapping as a useful tool for class lectures. Concept maps were done by senior baccalaureate nursing students before and after the lecture. The results showed more detail in the post lecture concept map than in the pre-lecture. The interpretation was that the students had learned from the lecture and stayed actively engaged in class. Further research investigating the use of concept mapping is recommended.

McLaughlin, D. E., Freed, P. E., & Tadych, R. A. (2006). Action methods in the classroom: Creative strategies for nursing education. *International Journal of Nursing Education Scholarship, 3*(1), 1-16.

Action methods developed by Dr. Jacob Mareno in 1953 are discussed for use as tools in nursing education settings. Psychodrama uses dramatic methods to examine interpersonal relationships and deep feelings about a situation. Sociodrama focuses on role development. Specific methods include role play, role training, role reversal, doubling, soliloquy, mirroring, and concretization are described. The article discusses ways to develop the classroom setting in order to make it conducive to action methods. Phases of implementing action methods in class are outlined. The authors conclude that action methods are useful in nursing education as a means of developing skill and role identity.

McLoughlin M., & Darvill, A., (2007). Peeling back the layers of learning: A classroom model for problem-based learning. *Nurse Educator Today, 27*(4), 271-7.

This article discusses the use of problem-based learning (PBL) classroom mode. Its history and use in the United Kingdom is informative.

McLean, M. (2000). Introducing computer-aided instruction into a traditional histology course: Student evaluation of the educational value. *The Journal of Audiovisual Media in Medicine, 23*(4), 153-161.

This article discusses the use of computers in medical school. Sophomore medical students utilized both commercial and medical school computer-assisted instruction (CAI) in a histology course. The results were hard to define. The students still needed to be able to use the equipment so the CAI was helpful but the hands on skill were more valuable.

McMillan, D., Bell, S., Benson, E., Mandzuk, L., Matias, D., McIvor, M., Robertson, P., & Wilkins, K. (2007). From anxiety to enthusiasm: Facilitating graduate nursing students' knowledge development in science and theory. *Journal of Nursing Education, 46*(2), 88-91.

This article is about using Knowles' characteristics of adult learners and applying this to graduate nursing students in a nursing science theory course. The graduate students were able to apply the adult learning theory which helped them to become transformed and less stressed in doing the course work.

Moore, P., & Hart, L. (2004). Strategies for teaching nursing research online. *International*

Council of Nurses, 51, 123-128.

Nursing online classes are becoming in demand especially in the RN- BSN nursing programs. Reasons for selecting online learning classes was having a busy schedule with working and raising a family, desiring to get the degree but having to continue working, and living in a rural area and having to travel a great distance to take traditional classes. In designing an online class the technology that that will be required for the course should be selected with careful consideration. Online writing labs should be utilized, in addition to a large database with an online library. Detailed instructions must be provided for the students in addition to “providing useful instructions, good advice and warm encouragement (p. 127).” Student satisfaction was high in this study.

Myers, C. B., & Myers, S. M. (2007). Assessing assessments: the effects of two examples of achievement and evaluation. *Innovative Higher Education, 31, 227-36.*

A study of students that received bi-weekly exams scored ten points higher and one letter grade higher at end of course than those students who had a midterm and a final exam. The benefits reported were less material to study, less likely to cram for exam, and frequency of exams improved the students’ ability to improve in course.

Nitko A. (2007). *Educational assessment of students* (5th ed.). Upper Saddle River, NJ: Prentice- Hall.

This book is a good resource for test reliability and validity. It has useful tools for designing all types of test items. This book provides checklists and provides a chapter on interpreting score reports. It is useful as a reference book. Book is easy to read and provides many examples.

Oermann, M. H., & Gaberson, K. B. (2009). *Evaluation and testing in nursing education*. (3rd ed.). New York: Springer Publishing.

This book describes a variety of methods of evaluation and measurement. Qualities of effective measurement instruments are described. Types of questions discussed include matching, true-false, multiple choice, multiple response, essay, and completion. A chapter is devoted to measurement of higher-level learning, such as critical thinking. Additional chapters are devoted to test construction, administration, scoring, analysis and evaluation of written assignments. Clinical evaluation methods are also addressed. Subsequent chapters discuss social, legal, and ethical issues surrounding testing and evaluation. Additional content looks at interpretation of test scores, grading, and evaluation of programs.

Olswang, L. B., Svensson, L., Coggins, T. E., Beilinson, J. S., & Donaldson, A. L. (2006). Reliability issues and solutions for coding social communication performance in classroom settings. *Journal of Speech, Language, and Hearing Research, 49, 1058-1071.*

This article discussed independent observers used to evaluate inter-rater reliability in coding behavior of third graders. There were differences noted in coding what behaviors were observed and the length of time of the behavior. It is important that there is agreement in determining the regularity and extent of the behaviors. Each observer has similar degrees, education, and interests and evaluated video tapes of the students from kindergarten to third grade. The data showed that

interval sorting and analysis was a useful method for evaluating the reliability of frequency and time of behaviors. This could be applicable to classes that utilize inter-rater reliability in grading projects, papers, and presentation. Other areas for future study are training of coders, useful in live settings

O'Lynne, C. E. (2004). Gender-based barriers for male students in nursing education programs: prevalence and perceived importance. *Journal of Nursing Education, 43*(5), 229-236.

This article discussed the barriers that are prevalent in nursing programs that deter the success of male students. A pilot tool was designed having 33 barriers and sent to a sample of 200 male nurses. Seven barriers were discovered. Recruitment of men into the nursing profession will need to be a mutual effort among nursing schools and government agencies, and hospitals. Because of the unstable economy there will be an influx of men into the nursing profession. Strategies need to be developed to reduce the barriers preventing men from matriculating into nursing and graduating from a nursing program. The sample collected was from a diverse population. Content validity was determined to be reliable. It is suggested that an ethnically diverse population be used in a larger study using the barriers from this study. It is of utmost importance to examine the relationships between nursing programs and male friendliness, in addition to attrition rate, male satisfaction of the nursing program, and the ease of evolving into a practicing nurse.

Peter, C. (2005). Learning - whose responsibility is it? *Nurse Educator, 30*(4), 159-165.

This article discusses how to transform the traditional faculty role with a different approach, becoming a coach which improves student retention and focuses on at-risk students to improve learning outcomes. Innovative ideas are given to reduce student attrition and transform students into active learners.

Plack, M. M., Williams, S., Miller, D., Malik, F., Sniffen, J., McKenna, R., & Gilner, G. Collaboration between physical therapists and physical therapist assistants: Fostering the development of the preferred relationship within a classroom setting. *Journal of Physical Therapy Education, 20*(1), 3-13.

This article discusses physical therapists (PT) and physical therapy assistants (PTA). An instructional model educated the PT students and the PTA students by teaching both groups the legal responsibilities of each group. The PT students focused on the leadership and management skills required when using a PTA. In the survey the first year PT students relied on the textbooks while the second and third year students utilized academic education, work, and clinical experience. Although this was addressing physical therapy, this may be applied to nursing, pharmacy, and medical students in its application. The model used utilized a valuable collaboration of PT and PTA students. More research is needed to analyze the effect of this model to improve the skills, knowledge, and leadership of both groups of students.

Reising, D. L. (2004). The outcome-present state-testing model applied to classroom settings. *Journal of Nursing Education, 43*(9), 431-432.

This article presented the "Outcome-Present State-Testing (OPT) model as being useful in the education of nursing students in improving critical thinking. This model may be used in the

clinical or classroom setting. It enables students to grasp theory that they may not see in the limited clinicals during tenure as a nursing student. This model presents a case study allowing the students to be actively involved with a specific case. The entire class may be involved as several students act out the client's symptoms and problems while the rest of the class determines the nursing actions and what information may be needed or required. This study collected three years of data and states it has been successful when applied in the classroom.

Rice, J., & Bell, M. (2005). Using dimensional analysis to improve drug dosage calculation ability. *Journal of Nursing Education, 44*(7), 315-318.

Medication calculations create stress for any nursing student because they have never been taught the right formulas. This article provides useful strategies of using dimensional analysis for calculating medication dosages.

Roehm, S., & Bonnel, W. (2009). Engaging students for learning with online discussions. *Teaching and Learning in Nursing, 2009*(4), 6-9.

Online discussions are a tool in extending learning beyond the classroom setting. They can be implemented in an online course or in a course supplemented with online activities. However, strategies used to lead online discussions are different from those used in the classroom. Frameworks for online discussions are offered. Student and faculty roles are discussed along with strategies to facilitate effective discussion. Overall, online discussions provide an opportunity to enhance student learning.

Ryan, M., Twibell, R., Brigham, C., & Bennett, P. (2000). Learning to care for clients in their world, not mine. *Journal of Nursing Education, 39*(9), 401-8.

This article discusses the need to provide rich cultural experiences for nursing students in the clinical setting. Stories of nurses that had these experiences as nursing students are described. This article provides depth into the rich cultural experiences both in the patients and in the diverse staff.

Salyers, V. L. (2005). Web-enhanced and face-to-face classroom instructional methods: Effects on course outcomes and student satisfaction. *International Journal of Nursing Education Scholarship, 2*(1), 1-11.

This is a report of a study conducted to determine if there are differences in learning outcomes between graduate students enrolled in a face-to-face and a web-enhanced section of the same nursing course. The students were evaluated on technical ability, learning style, learning outcomes, and course satisfaction. Results of the study indicate that there were no differences between the groups in technical ability and learning outcomes. The students in the web-enhanced section indicated greater satisfaction with the course. Technical ability was not an indicator of success in the course. The advantage of the web-enhanced course is that it allows the student flexibility in scheduling and in pace of learning.

Schaffer, M., Nelson, P., & Litt, E. (2005). Using portfolios to evaluate achievement of population-based public health nursing competencies in baccalaureate nursing students. *Nursing Education Perspectives, 26*(2), 104-112.

This article examined public health nursing competencies and use of nursing student portfolios. The evaluation of the portfolio project demonstrated improved critical thinking from the students. Included in the article are recommendations for enhancing the portfolio assignment, improving student's acceptance of portfolio project, reducing the stress, and directing the faculty in the process.

Schmidt, L. A. (2004). Psychometric evaluation of the Writing-to-Learn attitude survey. *Journal of Nursing Education, 43*(10), 458-465.

This article proposes the usefulness of the "Writing-to-Learn Attitude Survey (WTLAS) in improving the students' learning in the classroom. The students are actively engaged and through the writing in the classroom the students are able to see their thinking and validate success of the course objectives. Students need to be focused on abstract learning rather than the ability to write. This is especially useful in nursing education. Writing is utilized as feedback on the content covered and progression of the student. Faculty may use this to evaluate the student's performance in the classroom.

Skiba, D. J. (2006). Emerging technologies center. Think spots: Where are your learning spaces? *Nursing Education Perspectives, 27*(2), 103-104.

This article discusses the planning of educational classrooms and areas for conducive to learning. The spacing of the classroom environment needs to collaborate learning. Wiring for electronic devices is a necessity with both internal and external connections. Other requirements identified were spacious rooms, comfortable, and flexible, allowing digital and in-person communication.

Sonnier, I. L. (2001). Holistic education: Teaching in the affective domain. *Education, 103*(1), 11-14.

This is a brief article that outlines a model for incorporating affective learning with cognitive and psychomotor learning. The author recognizes the importance on incorporating both brain hemispheres into the learning process. The model offered illustrates the role of both brain hemispheres and emphasizes the benefits of including both cognitive and affective learning strategies.

Steadman, R., Coates, W., Huang, Y., Matevosian, R., Larmon, B., McCullough, L., & Ariel D. (2006). Simulation-based training is superior to problem-based learning for the acquisition of critical assessment and management skills. *Critical Care Medicine, 34*(1), 151-157.

This article discusses a study to show that simulation was better than problem-based learning (PBL's). The initial scores of both groups were equal while the end results of the groups after 5 days showed that the simulation group outscored the PBL group.

Steele, S., (2006). Group test review and analysis: Learning through examination. *Journal of Nursing Education, 45*(2), 95-96.

This article focused on effective use of test review for nursing students. The nursing students spent 30 minutes after the exam in groups without books, paper, and pencils and discussed as a

group what the correct answer was for each test question. Students were then given 10% of the test grade for a daily grade. Students learned the content tested on before moving on to the new content and students had positive feedback on this process.

Stein, P., Challman, S., & Brueckner, J. (2006). Using audience response technology for pretest reviews in an undergraduate nursing course. *Journal of Nursing Education, 45*(11), 469-473.

This article discusses the use of audience response system to keep pre-nursing anatomy and physiology students actively engaged in class. The ARS was used in a pretest review compared with the traditional test review and the results found there was not a significance but the students were positive in the use of the ARS technology.

Stuenkel, D. (2006). At-risk students: Do theory grades + standardized examinations = success. *Nurse Educator, 3*(5), 207-212.

This article discusses a study that has been done to examine the students that are potentially at risk. It discusses tests that have been used to determine what students will be successful in the nursing program if admitted. This article is useful as it does examine admission criteria, other variables, and tests that are useful to predict success in a nursing school. Recommendations are made at the end of the article for potential future studies.

Su, W. (2007). Writing context-dependent item sets that reflect critical thinking learning outcomes. *Nurse Educator, 32*(1), 11-15.

This article discusses how to increase nursing student's critical thinking and how to write test questions that reflect critical thinking.

Taylor, J., & Wros, P. (2007). Concept mapping: a nursing model for care planning. *Journal of Nursing Education, 46*(5), 211-216.

This article discusses concept mapping is a useful avenue to develop critical thing and evaluate the student's learning. A software program was utilized by students to aid them in connecting all the dots of the patient, nursing care, theory and critical thinking.

Theall, M., Abrami, P. C., & Mets, L. A. (2001). *The student rating debate: Are they valid? How can we best use them?* San Francisco: Jossey-Bass.

This book provides a review of the main issues involving student evaluations of faculty and list suggestions for future research. Ideas affecting the ratings are discussed: low learning, body language, lenient grading, and vocal expressiveness. Suggestions are given for a reliable evaluation process. The student rating instruments need to be revised in order to demonstrate the learner approaches to course content.

Thurmond, V. A., Wambach, K., Connors, H. R., & Frey, B. B. (2002). Evaluation of student satisfaction: Determining the impact of a web-based environment by controlling for student characteristics. *American Journal of Distance Education, 16*(3), 169-189.

Web-based courses were evaluated using Astin's Input-Environment-Outcome assessment model. This model is identified as useful in higher education assessments. This study evaluated

the relationship between environmental variables and student satisfaction. A higher number of students reported satisfaction with the web courses compared to those that were dissatisfied. A negative relationship was observed with students desiring to be a part of a group and dissatisfaction with web courses. The virtual environment influenced the student's satisfaction with the web course. More research is still needed to compare quality of a web-based class with a traditional class.

Toledo, C. A. (2006). "Does your dog bite?" Creating good questions for online discussions. *International Journal of Teaching and Learning in Higher Education*, 18(2), 150-154.

This is a very useful article discussing how to develop excellent questions over theory content that will enhance critical thinking. A table is included that discusses the question types and outcomes, probing questions with examples,

Toman, S. M., & Rak, C. F. (2000) The use of cinema in the counselor education curriculum: Strategies and outcomes. *Counselor Education*, 40(2), 105-114.

This article discusses the use of videos in a graduate counseling class that taught the students diagnosis, content, planning strategies, and morals. The students that participated approved of this technique as being useful in their learning.

Twigg, P., Rasmussen, L., & Speck, D. (2005). Developing and using classroom tests. In D. Billings & J. Halstead (Eds.), *Teaching in nursing: A guide for faculty*. (pp. 493-518). St. Louis, MO: Elsevier Saunders.

This book is a useful resource for nurse educators and may be used as a reference book.

Ustun, B. (2006). Communication skills training as part of a problem-based learning curriculum. *Journal of Nursing Education*, 45(10), 421-425.

This study was done in Izmir, Turkey and focused on communication skills examined in a problem-based learning situation. It had several phases which allowed students to first learn good communication skills, then apply that to other professionals, and then use good communication skill with a patient population. This would be an appropriate way for new students to learn therapeutic communication skills.

Weiss, D., & Schank, M. J. (2002). Professional values: Key to professional development. *Journal of Professional Nursing*, 18(5), 271-275.

Nursing education traditionally focuses on the development of the cognitive and psychomotor domains of learning. However, the importance of the affective domain cannot be overlooked as an essential component toward full professional development in nursing. This article uses the American Nurses Association Code of Ethics for Nurses as a basis by which nurses and organizations can fully embody the core values of the profession. If the core values are internalized, they are reflected in practice, thereby maintaining professional excellence.

Williams, B., Anderson, M., & Day, R. (2007). Undergraduate nursing students' knowledge of and attitudes toward aging: Comparison of context-based learning and a traditional program. *Journal of Nursing Education*, 46(3), 115-120.

This article compared problem-based learning and traditional lecture at a baccalaureate nursing school. There was no significant difference in the knowledge acquired; however the problem-based learning group had a positive attitude toward their individual aging process.

Winters, J., Hauck, B., Riggs, C. J., Clawson, J., & Collins, J. (2003). Educational innovations. Use of videotaping to assess competencies and course outcomes. *Journal of Nursing Education, 42*(10), 472-476.

The article discusses the use of videotaping of students as a method of teaching skills. Advantages and disadvantages of the tool are discussed, both from the student perspective and from the faculty viewpoint. Additional challenges, such as equipment malfunction and lack of space for videotaping are also reviewed. The authors point out that clear expectations for the assignment are crucial for success of the project. The authors conclude that videotaping is a useful teaching strategy for students, particularly for skills assessment.

Yorks, L., & Kasl, E. (2002). Toward a theory and practice for whole-person learning: Reconceptualizing experience and the role of affect. *Adult Education Quarterly 52*(3), 176-192.

The authors discuss the role of affect in learning and the Western cultural bias towards subordinating feelings in deference to logical thought. A phenomenological perspective is proposed to enhance adult learning, using Heron's theory of feeling and personhood. The benefit of implementing this approach is that it provides a foundation for learning in a diverse population, since phenomenological methods encourage adult learners to explore multiple ways of knowing.

ONLINE ENVIRONMENT

Ali, N., Hodson-Carlton, K., & Ryan, M. (2004). Students' perceptions of online learning. *Nurse Educator*, 29(3), 111-115.

Describes a small study of the assessment of learning of 20 graduate students who completed a master's program delivered online. Implications for online teaching are described. Comparison of results with Constructivism Theory are provided, and use of this theory to guide online learning is advocated.

Axley, L. (2008). The integration of technology into nursing curricula: Supporting faculty via the Technology Fellowship Program. *Online Journal of Issues in Nursing*, 13(3), 11. Retrieved January 31, 2009, from EBSCOhost database.

Describes a project where nursing faculty were provided with specific mentoring in various skills designed to facilitate use of an course management system for development and evaluation of online courses. Specific discussion of the qualities of the mentor, the learning experience, and access to resources provide insight into replication of this process for institutions where faculty are lacking these skills.

Babenko-Mould, Y., Andrusyszyn, M., & Goldenberg, D. (2004). Effects of computer-based clinical conferencing on nursing students' self-efficacy. *Journal of Nursing Education*, 43(4), 149-155.

Reports a quasi-experimental research study of 42 pre-licensure baccalaureate students to determine how the addition of computer conference discussions in the final clinical course affected self-efficacy in nursing competencies and computer mediated learning. Researchers found that the computer conferencing was a positive teaching method paired with clinical practicum experiences.

Bangert, A. (2005). The seven principles of effective teaching: A framework for designing, delivering, and evaluating an internet-based assessment course for nurse educators. *Nurse Educator*, 30(5), 221-225.

Provides a case study description of the use of Chickering and Gamson's 7 principles in guiding design, delivery, and evaluation of an online course for nurse educators that concerned assessment literacy. The author concluded from data gathered that use of the 7 principles in an assessment tool (Student Evaluation of Online Teaching Effectiveness) provided an effective way to guide design and delivery of the online course through course management systems such as WebCT.

Bangert, A., & Easterby, L. (2008). Designing and delivering effective online nursing courses with the Evolve electronic classroom. *CIN: Computers, Informatics, Nursing*, 26(2), 99-105.

Provides a case study of the use of constructivist theory and the 7 principles of effective teaching to evaluate the experience of 53 students in an online nursing trends and issues course using the Evolve course platform. The use of an evaluation instrument based on the 7 principles (Student Evaluation of Online Teaching Effectiveness) provided data about student-faculty interaction, cooperation among students, active learning, and time on task. The tool provided a useful framework to assess the course and the delivery through Evolve.

Barakzai, M., & Fraser, D. (2005). The effect of demographic variables on achievement in and satisfaction with online coursework. *Journal of Nursing Education, 44*(8), 373-380.

Authors studied 290 university advanced practice students to examine the relationship between native language, gender, previous computer experience and achievement in and satisfaction with online courses. No significant differences were found between in gender, or native and non-native English speaking students' achievement or satisfaction with the online courses. No significant findings regarding prior computer experience were determined. The authors found support for online course delivery methods for rural and diverse students.

Bata-Jones, B., & Avery, M. (2004). Teaching pharmacology to graduate nursing students: Evaluation and comparison of web-based and face-to-face methods. *Journal of Nursing Education, 43*(4), 185-189.

Describes a study comparing delivery of a graduate pharmacology course via face-to-face and web-based methods. Evaluation methods used included focus groups, exam scores, and course evaluation tools. Modifications in the online course as a result of feedback were described. There were no significant differences in exam scores between the two groups, or other outcome measures.

Billings, D., & Connors, H. Best practices in online learning. In *The living book of online learning* (chap. 2). Retrieved from http://www.electronicvision.com/nln/chapter02/chapter_02.htm

Describes best practices with examples and links to helpful sites for online learning. Provides the reader with activities to evaluate the plan of their school or course relative to online programs. Describes the evaluation of the use of the best practices in web-based courses. Includes a link to the Flashlight program web site, as well as links to accrediting agencies concerned with standards for web courses.

Billings, D. (2000). A framework for assessing outcomes and practices in web-based courses in nursing. *Journal of Nursing Education, 39*(2), 60-67.

Describes development of a framework for evaluating web-based courses based on models from higher education and a review of nursing literature on distance education. The primary areas of assessment are faculty and student support, use of technology, educational practices, and outcomes. A table of definitions of the components is provided.

Billings, D., Connors, H., & Skiba, D. (2001). Benchmarking best practices in web-based nursing courses. *Advances in Nursing Science*, 23(3), 41-52.

Describes a pilot study of online nursing courses in three institutions to establish benchmarks of outcomes, educational practices, and use of technology. A survey tool was developed from an inventory from the Flashlight Program (part of the Teaching, Learning, and Technology affiliate of the American Association of Higher Education). Discussion of the results of the survey and applications provides a framework that can be applied to the evaluation of online courses.

Billings, D., Skiba, D., & Connors, H. (2005). Best practices in web-based courses: Generational differences across undergraduate and graduate nursing students. *Journal of Professional Nursing*, 21(2), 126-133.

Describes a research study comparing differences between undergraduate and graduate nursing students enrolled in web-based courses to establish benchmarks for these two groups. The instrument used was a reliable and valid instrument used in previous research (Evaluating Educational Use of the Web in Nursing instrument). Findings validated the assessment framework developed by Billings and emphasize the importance of educational practices for both groups. Findings regarding generational differences are reported.

Billings, D., & Halstead, J. (2009). *Teaching in nursing: A guide for faculty* (3rd ed.). St. Louis, MO: Elsevier.

Contains chapters on teaching and learning in online communities that discusses assessment and evaluation of courses, faculty role in online learning, and discussion on evaluating and grading learning outcomes. Studies have shown that online learning is as effective as classroom learning in terms of learning outcomes.

Bonnel, W. (2008). Improving feedback to students in online courses. *Nursing Education Perspectives*, 29(5), 290-294.

Describes evidence-based strategies to provide feedback to students in online courses. Strategies are grouped into three categories: course design strategies, faculty roles, and student participation. Types of feedback are described.

Bonnel, W., Ludwig, C., & Smith, J. (2008). Providing feedback in online courses: What do students want? How do we do that? In M. H. Oermann, (Ed.) *Annual review of nursing education*, Vol. 6, (pp. 205-221). New York: Springer Publishing Company.

The authors shared results of a student survey of online course feedback, guided by constructivist theory and using qualitative research methods. There is extensive discussion of themes that appeared from data analysis: purposes of feedback, faculty processes for providing feedback (teaching/learning strategies), and course design approaches.

Bradley, C., Erice, M., Halfer, D., Jordan, K., Lebaugh, D., Opperman, C., Owen, K., &

Stephen, J. (2007). The impact of a blended learning approach on instructor and learner satisfaction with preceptor education. *Journal for Nurses in Staff Development*, 23(4), 164-170.

Explores the development and use of a blended learning approach to preceptor training in five children's hospitals. Data showed that the blended approach enhanced achievement of learning objectives. Implications for using the blended approach for instructors are listed.

Buckley, K. Evaluation of classroom-based, web-enhanced, and web-based distance learning nutrition courses for undergraduate nursing. *Journal of Nursing Education*, 42(8), 367-370.

This descriptive study of compared examination scores, course grades, and perceptions of 58 undergraduate nursing students taking the same content of a nutrition course via three formats. No difference was found in examination scores or course grades, but differences in student perceptions of the course are described, with possible sources for the differences identified.

California State University—Chico. (2002). Rubric for online instruction. Retrieved January 30, 2009, from <http://www.csuchico.edu/celt/roi>

Contains categories to assess various aspects of online courses, including learner support and resources, instructional design and delivery, assessment and evaluation of student learning, and faculty use of feedback. Use of the rubric provides a way for a faculty member to assess their course.

Cobb, K., Billings, D., Mays, R., & Canty-Mitchell, J. (2001). Peer review of teaching in web-based courses in nursing. *Nurse Educator*, 26(6), 274-279.

The process of assessment of online courses via peer review is described. The process of performing and documenting peer review is outlined. A pilot tool for evaluation is displayed.

Cuellar, N. (2002). The transition from classroom to online teaching. *Nursing Forum*, 37(3), 5-13.

Describes the process of moving from teaching in a face-to-face classroom to online format, with extensive description of factors to consider before, during, and after implementation from a faculty and university standpoint. Evaluation of online courses is briefly addressed.

Edwards, P. Impact of technology on the content and nature of teaching and learning. *Nursing Education Perspective*, 26(6), 344-347.

This pilot study examined learning styles and motivation in relation to course outcomes in two online graduate nursing courses. Data were collected via questionnaires, interviews, standardized scales, and course assessments. While neither learning styles nor motivation accounted for variance in course grades, the tools developed for the study were deemed effective for future use.

Flashlight Program: <http://www.tltgroup.org/flashlightP.htm>

The TLT Group is a non-profit corporation that provides subscribers with tools to evaluate course materials. Templates, item banks, model surveys offer a wide variety of options that can be combined to provide evaluation and assessment data to schools or individual users.

Forbes, M., & Hickey, M. (2008). Podcasting: Implementation and evaluation in an undergraduate nursing program. *Nurse Educator*, 33(5), 224-227.

Describes podcasting of lectures as a method to deliver course content through a course management system. A descriptive survey of nursing students in courses where podcasting was used provided data about patterns of use and benefits of podcasting, including perceived effect on content, providing review and reinforcement of content, and facilitating note-taking. Other benefits are described.

Frith, K., & Kee, C. (2003). The effect of communication on nursing student outcomes in a web-based course. *Journal of Nursing Education*, 42(8), 350-358.

This study based on the theoretical framework of guided didactic conversation evaluated communication methods in a web-based course and their effects on student's learning, satisfaction, and course completion. A post-test, control group experimental design was used in a 6-week web-based course. Students in the experimental group received not only online course content, but also participated in online group activities and instructor-led chat sessions. Results did not show significant difference in the two groups based on extra contact in the experimental group, but the experimental group displayed higher levels of satisfaction with the course, as well as higher motivation to complete the course. Student learning was positively affected by interactions with instructors and other students during the course.

Fullerton, J. T., & Ingle, H. T. (2003). Evaluation strategies for midwifery education linked to digital media and distance delivery technology. *Journal of Midwifery & Women's Health*, 48(6), 426-435.

The authors described the context for distance education program evaluation and profile some strategies for conducting essential formative and summative student evaluations conducted at either distance sites and/or digital technologies.. Algorithms (decision trees) and checklists (comprehensive lists of essential components of a specific skill) can be used to document the performance of a clinical skill.

Gassert, C. (2008). Technology and informatics competencies. *Nursing Clinics of North America*, 43, 507-521.

Provides discussion of the development of informatics competencies for different levels of nursing education, as well as the TIGER (Technology Informatics Guiding Educational Reform) initiative. Discusses the research-based master list of competencies developed by Staggers and others. Tables of examples are provided. The competencies can be used to develop and evaluate educational strategies to prepare nursing students for future responsibilities.

Gilmer, M., Murley, J., & Kyzer, E. (2003). Web-based testing procedure for nursing students. *Journal of Nursing Education, 42*(8), 377-380.

Describes the benefits of web-based testing, and the process of implementing web-based testing in a nursing program. Issues of security, test format, scheduling, and communication of results are discussed. Student evaluation of the process was also conducted, and results were positive. Exam scores were not significantly different than those of paper/pencil exams. Includes a discussion of problems and how these were addressed by the program.

Goldsmith, D. (2007). Enhancing learning and assessment through e-portfolios: A collaborative effort in Connecticut. *New Directions for Student Services, 119*, 31-42.

Describes the advantages of e-portfolios as assessment tools and provides a model for their use in individual and programmatic assessment.

Halstead, J. (2005). Promoting critical thinking through online discussion. In M. H. Oermann & K. T. Heinrich (Eds.). *Annual review of nursing education, Vol. 3*, (pp.143-163). New York: Springer Publishing Company.

Describes factors to be considered in order to create a level of discussion in an online course that promotes critical thinking. Course design includes consistent design features such as course template, orientation activity, clear communication of expected outcomes, active learning strategies and a choice of learning activities. Establishing clear expectations for faculty/student interactions includes such things as attending to technology issues, establishing methods and timelines for communication and threaded discussions. Strategies for developing higher level activities online as well as classroom assessment techniques that can be adapted to the online environment are included.

Institute for Higher Education Policy (2000). Quality on the line: Benchmarks for success in internet-based distance education. Retrieved January 31, 2009 from <http://www.ihep.com>

Identifies 24 benchmarks essential for quality in internet-based distance education, resulting from a study of six institutions of higher learning with broad experience in distance education. Includes evaluation and assessment benchmarks.

Jones, J., Sackett, K., Erdley, W., & Blyth, J. (2007). Eportfolios in nursing education: Not your mother's resume. In M. H., Oermann & K. T. Heinrich, (Eds.). *Annual review of nursing education, Vol. 5*, (pp. 245-258).

Describes the implementation of eportfolios in an undergraduate nursing program, including benefits, project development and implementation issues, and evaluation.

Kozlowski, D. (2004). Factors for consideration in the development and implementation of

an online RN-BSN course: Faculty and student perceptions. *CIN: Computers, Informatics, Nursing*, 22(1), 34-43.

Describes evaluation data from 33 students in an online (hybrid) nursing issues course. Methods included Likert-type surveys, and a final focus group session. Difficulties were reported with group work, time management, communication issues, and anxiety. Faculty considerations were also identified, such as difficulties with effective two-way communication, time constraints, and handling attrition. The value of a posting of encouragement/support by the course facilitator was described.

Lashley, M. (2005). Teaching health assessment in the virtual classroom. *Journal of Nursing Education*, 44(8), 348-350.

Describes evaluation of a web-enhanced health assessment course for RN-BSN students. The most helpful aspect of the course was the digitally streamed video of the physical examination.

Lorenzetti, J. P. (2005). Beyond multiple choice: Assessment for online learning. *Distance Education Report*, 9(18), 1-2, 7.

Describes methods to enhance assessment of online courses: synchronous phone calls, conference calls, portfolios, and embedding assessments throughout reading assignments instead of at the end.

Lunney, M., & Sammarco, A. (2009). Scoring rubric for grading student's participation in online discussions. *CIN: Computers, Informatics, Nursing*, 27(1), 26-31.

Describes the process of establishing interrater reliability of a rubric for grading online discussions of weekly required course readings. Aspects of the tool include frequency of contributions, substance of the post, and number of times the students incorporate material from other students' posts. A brief discussion of essential components of a scoring rubric is included.

Maag, M. (2004). The effectiveness of an interactive multimedia learning tool on nursing students' math knowledge and self-efficacy.

Describes an experimental study of nursing students in a medication calculation course. Students were placed in one of four groups: text only, text and image, multimedia, and interactive multimedia. Mathematical achievement and satisfaction were measured in 96 students. Scores did not increase significantly in the study, nor were satisfaction scores significantly different, though the interactive multimedia group's score was higher. Study was limited by a short treatment time.

McGonigle, D., Mastrian, K., & Farcus, N. (2004). Usability testing for online nursing education: Thinking aloud and heuristic evaluation. In M. H. Oermann & K. T. Heinrich (Eds.). *Annual review of nursing education*, Vol.2, (pp. 125-136). New York: Springer Publishing Company.

Describes the process of assessing usability to ensure the quality of online materials. The usability issues and criteria are listed in a table. Nine attributes are also provided to use in assessment. The author suggests using three evaluators for a course, and beginning usability testing during development of the online materials.

Mitchell, E., Ryan, A., Carson, O., & McCann, S. (2007). An exploratory study of web-enhanced learning in undergraduate nurse education. *Journal of Clinical Nursing, 16*, 2287-2296.

Research study evaluated use of a web-enhanced course module by students related to their patterns of access of the module and their degree of success in the module assessment. Focus group interviews, a questionnaire, and record review were used. Advantages and disadvantages of web-enhanced learning are described. Researchers found a correlation between early and regular use of the module and success on the module assessment. The authors propose that nurse educators should monitor patterns of access to initiate problem-solving for students who are lacking.

Mixer, S., McFarland, M., & McInnis, L. (2008). Visual literacy in the online environment. *Nursing Clinics of North America, 43*, 575-582.

Describes the incorporation of the concept of visual literacy into development and evaluation of online courses. The authors offer a model (ACE – analyze, create, and evaluate) for creating visuals in course materials. An example of development of a visual literacy tool to teach transcultural nursing and the culture care theory in an online setting is provided.

O'Neil, C., Fisher, C., & Newbold, S. (2009). *Developing online learning environments in nursing education* (2nd ed.). New York: Springer.

This textbook provides comprehensive guidance for developing online educational offerings. The material is current, research-based, and practical. Chapter 9 describes what is known about assessment and evaluation of online learning. It includes a model for assessment of online learning developed by the authors, and encourages the use of faculty peer review of online courses.

Phillips, J. M. (2005). Strategies for active learning in online continuing education. *Journal of Continuing Education in Nursing, 36*(2), 77-83.

Describes the incorporation of active learning strategies into online educational programs. Provides extensive table of examples and the feedback gained from each strategy. Discusses the assessment of these strategies from the learner and the educator perspective, and how that feedback can be used to evaluate the course.

Quality Matters: <http://www.qualitymatters.org/>

This is a faculty-centered, peer review process to certify the quality of online courses and online components. It is a peer-based approach to quality assurance in online education. Though it

originated from a FIPSE grant, it is now self-supporting via institutional subscriptions. Offers course reviews via a set of 40 rubric elements, as well as education and development offerings.

Russell, C., Burchum, J., Likes, W., Jacob, S., Graff, J., Driscoll, C., Britt, T., Adymy, C., & Cowan, P. (2008). Webquests: Creating engaging, student-centered, constructivist learning activities.

Describes the WebQuest, an active learning tool to promote high-level thinking and problem-solving skills and allow assessment of information technology and information literacy competencies. Extensive examples are provided, including websites of WebQuests, as well as strategies for inclusion of WebQuests in online courses.

The Tiger Initiative (Technology Informatics Guiding Educational Reform):
<http://www.tigersummit.com/>

The purpose of the initiative is to identify information/knowledge management best practices and effective technology capabilities for nurses. TIGER's goal is to create and disseminate action plans that can be duplicated within nursing and other multidisciplinary healthcare training and workplace settings.

Over 20 nursing informatics societies and major nursing organizations such as the ANA are concerned with preparing nurses for the future with informatics competencies. As the findings from this initiative unfold, there is the potential to transform the way nursing education is delivered through inclusion of information technology.

Weiner, E. (2008). Supporting the integration of technology into contemporary nursing education. *Nursing Clinics of North America*, 43, 497-506.

Identifies the administrative considerations in evaluating the inclusion of various forms of technology into the nursing curriculum. Extensive table of technology uses, examples, and support suggestions is provided.

CLINICAL PRACTICE

Alfaro-LeFevre, R. (2004). Should clinical courses get a letter grade? *The Critical Thinking Indicator*, 1(1), 1-5.

The author describes her rationale why students should get a letter grade in clinicals. In a random survey of 79 schools, 75% award P/F, 15% award letter grades, and 6% combine theory and clinical. The author goes on to list some strategies that nurse educators would think about as clinical evaluation tools are developed or refined. The suggestions described are:

1. Be explicit about what observable behaviors or competencies you want to see in the students.
2. Develop simple, user-friendly clinical evaluation tools that, as much as possible, mirror what they'll encounter in the clinical setting.
3. Use a point system, as is often the case in the "real practice world".
4. Remember that all clinical evaluation- whether you use a P/F system or a clinical grading system- is subjective.
5. Reward what you claim is important, and make the link to critical thinking explicit.
6. Let students know they will be hearing things like the following from you.. How did you make this decision?
7. Develop empowered partnerships.
8. Give grades for work done to prepare for—or reflect on- clinical experiences.
9. Ask students for constructive well-thought-out feedback on how to keep assignments meaningful, to the point, streamlined, and minus bush work.
10. Ask for agreement from both students and faculty as to whether the behavior evaluated on clinical evaluation tools do indeed reflect desired performance in each course.

Baxter, P., & Boblin, S. (2008). Decision making by baccalaureate nursing students in the clinical setting. *Journal of Nursing Education*, 47(8), 345-350.

This article explores the skill of decision making by students. Kinds of decisions required of students are presented here as part of a larger qualitative study. Implications for nursing education are offered.

Bradshaw, M., & Lowenstein, A. (2007). *Innovative teaching strategies in nursing and related health professions*, (4th ed.).

As nursing is a practice discipline, student learning involves more than acquiring cognitive knowledge. It requires the student to demonstrate the ability theory while caring for patients and involves three dimensions- cognitive, affective and psychomotor. Faculty members find it very challenging to evaluate learning and competence in clinical settings. The clinical setting changes from one learning experience to another, which makes it very difficult to compare students. The need for the evaluator to be fair in his/her evaluation is essential. The judgment of the student's performance is either norm-referenced or criterion-referenced. Norm-referenced evaluations compare the performance of one student to another student's performance. Criterion-reference compares the student's performance to a set of criteria. Regardless of the type of evaluation

used, the faculty member can reduce bias by using a variety of methods to collect data regarding the student's performance. Several tools were discussed: clinical concept mapping, portfolio assessments, clinical journals, and clinical pathways. "The clinical pathway is an abbreviated form of clinical evaluation that provides a means for the instructor to evaluate student progress using specified criteria. Clinical pathways can be used to evaluate nursing practice and clinical learning that occur in time-limited, less traditional care settings" (427). The faculty member can direct the learning activities toward clinical outcomes. Nursing principles are emphasized.

Bonnel, Wanda. (2009). Clinical performance evaluation. D. Billings & J. Halstead (eds.), *Teaching in nursing: A guide for faculty* (3rd ed.). St. Louis: Saunders.

The author discussed general issues in the assessment of clinical performance. The practice of evaluating students' performances includes multidimensional evaluation with diverse evaluation methods completed over time. Faculty need to be aware of all participants in the evaluation, evaluation timing, and evaluation access and privacy.

Participants in evaluation include the faculty, students, nursing staff and preceptor, peer evaluations and patients. Timing of clinical evaluation includes both formative and summative processes. Issues related to privacy of evaluation data are covered by both the Family Educational Rights and Privacy Act (FERPA) and the Health Insurance Portability and Accountability Act (HIPPA).

A sample of evaluation strategies and tools were shared. The strategies included observation, written, oral, simulation, and self-evaluation. The goal of evaluation is an objective report, but one must always be aware of the subjective nature of clinical evaluations. Observation is the method used most frequently in clinical evaluations. The student's performance is compared to clinical competency expectations which are designated in course objectives. Tools used include anecdotal notes, checklists, rating scales and rubrics, and videotapes. Written communication methods allow the faculty to evaluate whether or not the student can communicate with others, how well the student can clarify and organize this/her thoughts, or apply knowledge or expand thinking. Written data helps support the observation strategy. Tools used in this method include charting and patient progress notes, concept maps, nursing care plans, process recordings, paper and pencil tests, and web-based strategies.

Oral communication strategies provide evaluation opportunities. The tools used in this method include student interviews and case presentation, and clinical conferences.

A fourth method is simulations. This can range from simple role playing with low fidelity mannequins to very complex simulations with high fidelity mannequins. Simulations provide a safe environment for student learning as well as skill validating and decrease of student stress. Tools included with this method are technology based patient simulations, role play and clinical scenarios, and standardized patient examinations. A fifth method is self-reflection and self-evaluation. Self reflection allows the student an opportunity to think about what they have learned, while self evaluation allows the student to describe and make qualitative judgments about a specific experience. Tools included with this method are portfolios, journal and logs.

The process of clinical evaluation was also described by the author. Three phases are:

1. Preparation- determining objectives and competence, identification of evaluation methods and tools, selection of clinical sites, orientation of the students to evaluation plan, and objectivity.
2. Clinical activity – orientation of the student to that role, provision of clinical opportunities, ensurance of patient safety, collection of evaluation data, provision of feedback, documentation of findings and maintenance of confidentiality, contracting with students regarding deficiencies.
3. Final data interpretation and presentation- interpretation of data, assigning grade, provision of summative evaluation. And evaluation of experience.

Chan, D. (2002). Development of the client learning environment inventory: Using the theoretical framework of learning environment studies to assess nursing students' perceptions of the hospital as a learning environment. *Journal of Nursing Education, 61* (2), 69-75.

The clinical setting is the clinical classroom. This setting is not as structured as the theoretical classroom as students are involved in activities which are unplanned and involve interactions with patients and other health care team members. According to Chan, “the clinical learning environment is a multidimensional entity that directly affects the outcomes of students’ clinical placement” (70). This article included a discussion of the historical and conceptual frameworks of various learning environments including the classroom and the clinical settings. The author developed a tool, Clinical Learning Environment Inventory, to assess the psychosocial educational perspective. The author indicated that time for clinical learning is limited, it is important that this scarce, but important learning setting be used effectively.

Chaves, J. F., Baker, C. M., Chaves, J. A., & Fisher, M. L. (2006). Self, peer, and tutor assessments of MSN competencies using the PBL Evaluator. *Journal of Nursing Education, 45*(1), 25-31. Retrieved March 1, 2006 from EBSCOhost.

This article examines a formative evaluation study focusing on three cohorts of graduate students and two nurse faculty advisors using Problem-based learning (PBL) pedagogy to measure professional competencies including critical thinking, communication skills, interpersonal relationships, and self-assessment. Findings include differences in self, peer, and faculty evaluation, and variances in faculty negative and positive feedback.

Dolan, G. (2003). Assessing student nurse clinical competency: will we ever get it Right? *Journal of Clinical Nursing, 12*(1), 132-41. Retrieved March 7, 2007 From EBSCOhost.

This article reports an evaluative research study completed in 1977 at University of Glamorgan, Wales, to determine whether a revised clinical competency system was effective. In addition to it small sample size the majority of recommendations are aimed at addressing the problems of implementing the revised clinical competency system.

Ellerman, C. R., Kataoka-Yahiro, M. R., & Wong, L.C. (2006). Logic models used to enhance critical thinking. *Journal of Nursing Education*, 45(6), 220-227. Retrieved March 1, 2006 from EBSCOhost.

This article discusses the use of concept mapping, concept papers, conceptual linking, and substruction to measure the application of logic models to enhance the development of critical thinking in undergraduate nursing and dental hygiene students.

Emerson, R., & Records, K. (2007). Design and testing of classroom and clinical teaching Evaluation tools for nursing education. *International Journal of Nursing Education Scholarship*, 4(1), 1-15. Retrieved January 26, 2009 from EBSCOhost.

This paper describes the creation of a method and a psychometric testing for clinical and didactic performance to be used in graduate and undergraduate nursing courses. The evaluation tool is short and focused on reducing the burden on students and instructors.

Gaberson, K. A., & Oermann, M. H. (2007). *Clinical teaching strategies in nursing*. New York: Springer.

This book describes essential concepts for clinical teaching in nursing, teaching methods for clinical practice, assessment and evaluation strategies, and grading clinical practice, among other content areas. It is impossible to summarize this book as each chapter is essential for all nurse educators. The chapters are:

1. A philosophy of clinical teaching
2. Outcomes of clinical teaching
3. Preparing for clinical teaching activities
4. Clinical teaching: teacher, student, and models to guide teaching
5. Process of clinical teaching
6. Ethical and legal issues in clinical teaching
7. Choosing clinical learning activities
8. Self-directed learning activities
9. Clinical simulation
10. Quality clinical education for nursing students at a distance
11. Case method, case study, and grand rounds
12. Discussion and clinical conference
13. Written assignments
14. Using preceptors in clinical teaching
15. Clinical teaching in diverse settings
16. Clinical evaluation and grading.

In Chapter 16 clinical evaluation is defined as “a process by which judgments are made about the learner’s performance in clinical practice” (p. 269). It includes two phases: observation of the students’ performance and collecting other data about student learning in the course, and based on these observations and data, determine if the student achieved the clinical competencies. A very detailed discussion related to fairness in the evaluation of the student was also included in this chapter. Since evaluation in the clinical setting is subjective, it is imperative that the faculty

member be fair. "Fairness requires the teacher to identify own values, beliefs, and biases that may influence the evaluation process; base the clinical evaluation process on the clinical competencies and course outcomes; and develop a supportive clinical learning environment" (p. 221).

Gibbons, S. W., Adams, G., Padden, D., Ricciardi, R., Graziano, M. Levine, E., & Hawkins, R. (May 2002). Clinical evaluation in advanced practice nursing education: Using standardized patients in health assessment. *Journal of Nursing Education, 41*(5), 215-220.

The authors described the success of using standardized patients in a course for family nurse practitioner and nurse anesthetists' students. Standardized patients (SPs) are persons trained to portray a patient role in a simulated clinic. The authors stated that the use of the SPs exceeded their expectations in the learning experiences of the students.

Ham, K., & O'Rourke, E. (2004). Clinical preparation for beginning nursing students: An experiential learning activity. *Nurse Educator, 29* (4), 139-141.

A scenario developed by faculty was distributed to beginning nursing students one week prior to their first patient care clinical experience. The students were assigned to small groups. Each group was instructed to plan care, as well as participate in the simulation exercise. Care included total care so that skills could be evaluated. Each student was required to use the clinical forms to begin formulating their plan of care. At the conclusion of the simulation exercise, students were asked to reflect on the exercise. The use of this simulation contributed greatly to an increase in confidence of the students when the first patient care experience was completed.

Holaday, S., & Buckley, K. (2008). A Standardized Clinical Evaluation tool-kit: Improving nursing education and practice. *Annual Review of Nursing Education*. New York. Vol 6. 123-152. Retrieved January 21, 2009. ProQuest.

An innovative tool-kit used by three major University Nursing schools to assess, evaluate and measure student performance and growth across clinical settings and all levels of educational preparation in a nursing program. It is presented as a blueprint for assessing and evaluating levels of clinical competence based on clinical outcome objectives.

Klein, C. J. (2006). Educational innovation. Linking competency-based assessment to successful clinical practice. *Journal of Nursing Education, 45*(9), 379-383. Retrieved March 1, 2006 from EBSCOhost.

This article highlights an Associate Degree Nursing program's competency-based approach to teach and evaluate students by implementing a clinical performance examination before advancing to the next level. Since implementation, the program's NCLEX-RN pass rates have been above the national and state average.

McGregor, A. (2007). Academic success,, clinical failure: Struggling practices of a failing student. *Journal of Nursing Education, 46*(11), 504-511. Retrieved

February 16, 2009 from CINAHL Plus

This article asserts “little is known about the meaning and significance of failing to students.” Clinical failures are generally attributed to characteristics of the student or the educational process. Guides for educators are presented when assisting students at risk for failing in the clinical area.... the student/teacher interaction is deemed most important in clinical failures

McMullan, M., Endacott, R., & Gray, Morag, G., (2003). Portfolios and assessment of Competence: a review of the literature. *Journal of Advanced Nursing*, 41(3), 283-94. Retrieved March 7, 2007 from EBSCOhost.

This literature review, using CINAHL and MEDLINE articles from 1989-2001, was conducted to evaluate the use of portfolios in the assessment of learning and competence. Its aim was to clarify definitions, theory bases and approaches to competence evaluation using portfolios. It identified that criteria of portfolio evaluation should provide student with clear directions and samples as well as using qualitative research rigor criteria for evaluating the portfolio.

Oermann, M. H., & Gaberson, K. B. (2009). *Evaluation and testing in nursing Education* (3rd ed.). New York: Springer Publishing Company.

There is a chapter in this book titled Clinical Evaluation. Outcomes of clinical practice in nursing programs were discussed and summarized.. The outcomes provide the framework for learning in the clinical setting. Teachers need to be aware of their own values, beliefs, attitudes, and biases in order to evaluate fairly. A second important chapter is titled Clinical Evaluation Methods. The methods used include:

- Observation
- Anecdotal notes
- Checklists
- Rating scales
- Simulations
- Standardized patients
- Objective
- Games
- Media clips
- Written assignments: journals, care plans, concept maps, case method, unfolding cases, and case study; process recording, papers
- Portfolio
- Conferences
- Group projects
- Self-evaluation
- Clinical evaluation in distance education.

Sander, R., & Triple, K. (2008). The Virtual Clinical Evaluation Tool. *Nursing Education*, 47(1), 33-36.

A virtual clinical evaluation tool was created by this rural university. This allowed automatic mathematical computation of formative and summative scores as well as providing students and faculty ability to collaboratively input likert score for each posted evaluation outcome and word process-related comments about student's clinical performance.

Selmonridge, L. A., & Walsh, C. M. (2006). Evaluating student performance in undergraduate Preceptorships. *Journal of Nursing Education, 45*(5), 169-76.

This article explores the challenges of evaluating nursing students, mentoring preceptors who are unfamiliar with giving grades, and faculty issues with role confusion during preceptor experiences. Problems including unclear student expectations, lack of environmental control, preceptor selection, and workplace versus education values are discussed. Several solutions including preceptor/faculty mentoring, grading rubrics, and faculty site visits are explored.

Walsh, C. M., Seldomridge, L. A., & Badros, K. K. (2008). Developing a practical evaluation tool for preceptor use. *Nurse Educator, 33*(3), 113-117.

The authors described their efforts to find a perfect evaluation tool to be used by preceptors when evaluating students in the clinical area. The tool they developed is a rubric. Specific skills which are routinely done by registered nurse preceptors such as medication administration. The skill was further defined by these three features: initiative, efficiency, and performance. The preceptor had a choice of four levels to use when evaluating the student. The levels were very specific such as to receive a Level of 4, the student had to independently start administering medications, a level 3 was given if the student needed prompting on 1 occasion, a level 2 if prompting was needed on 2 occasions, and a level 1 if prompting was needed on more than 2 occasions. According to these authors, the literature is not heavy on the use of rubrics in the evaluation of clinical performances.

LEARNING AND SIMULATION LABORATORIES

Alinier, G., Hunt, W. B., & Gordon, R. (2004). Determining the value of simulation in nurse education: Study design and initial results. *Nurse Education in Practice, 4*. Retrieved January 23, 2009, from PubMed database.

The authors, all of the United Kingdom, conducted a three-year study to determine the effect of realistic scenario-based simulation on nursing students' competence and confidence in a simulated clinical environment. Using the Laerdal Sim-Man® as the simulation technology, diploma nursing students were randomized into experimental and control groups and assessed pre and post six months exposure using an Objective Structured Clinical Examination (OSCE) evaluation tool. The control group was taught via traditional method and the experimental group used simulation method. Specifically, 15, 5 minute OSCE stations were incorporated into the project. Eleven were related to clinical and psychomotor skills and four were related to cognitive skill development. The initial design and content of the simulation cases were piloted using nursing students, and the authenticity and validity of the simulation scenarios were assessed by an expert panel of clinicians and educators. Post the expert assessment, a second pilot was conducted to validate the assessment tool. All students participated in the initial OSCE sessions in order to obtain individual baseline measurements related to performance. Participation in the actual OSCE simulation project was voluntary. Those who volunteered were randomly placed into experimental and control groups. Experimental group were subsequently further divided into teams of four and required to participate in two simulation sessions. The experimental group demonstrated statistically significant improvement in performance over the control group ($p < 0.05$). The goal was to enroll 120 students in the project over time. Results of the study are intended to provide evidence to assist in reshaping nursing curricula.

The three-year project was sponsored by the British Heart Foundation and was conducted in the Hertfordshire Intensive Care and Emergency Simulation Centre, a three-bed, adult simulation intensive care unit. This article is beneficial to educators and clinicians seeking to incorporate simulation into curricula and practice. This study was done by educators who teach student nurses and paramedics (more with low-fidelity simulators). This citation may be the link to providing evidence for translational research. This citation provides a glimpse of how to incorporate simulation into nursing education from a simulated hospital ward perspective.

Arnold, J. J., Johnson, L. M., Tucker, S. J., Malec, J. F., Henrickson, S. E., & Dunn, W. F. (2009). Evaluation tools in simulation learning: performance and self-efficacy in emergency response. *Clinical Simulation in Nursing, 5*(1), e35-e43.

The aim of the study was to develop and examine the validity and reliability of two instruments, emergency response performance tool (ERPT) and emergency response confidence tool (self-efficacy), related to emergency response management and confidence. Medical and nursing education is widely integrating simulation-based education; however there is limited research on valid and reliable instruments for evaluating effectiveness of simulation-based education and performance of learners in the simulation environment. The ERPT contained 11 items and six timed tasks; the emergency response confidence tool included 17 items; and knowledge tool consisted of 11 items to assess emergency response knowledge. The study used a quasi-

experimental design consisting of 3 groups (n = 41): Group 1, nurses with greater than 10 years of critical care experience; Group 2, nurses with less than 13 months critical care experience; and Group 3, nurses with 2-8 years medical-surgical experience and no critical care experience. The findings indicated a basic level of validity, reliability, and usability. The findings guided the researchers to revise the ERPT and emergency response confidence tool. The next step in the study is to conduct another research using the revised ERPT and confidence tool with a larger sample size as well as evaluate outcomes of various educational modalities. The improvement in emergency management should result in improved patient outcomes.

Arundell, F., & Cioffi, J. (2005). Using a simulation strategy: An educator's experience. *Nurse Education in Practice*, 5. Retrieved January 23, 2009, from PubMed database.

The authors, midwifery educators from Australia, shared that if students are expected to transfer knowledge gained in a classroom to actual clinical situations or settings, educators need to consider using learning strategies, such as simulations, to promote experiential learning in classroom settings. The authors also shared that the use of simulation as a teaching strategy can be burdensome in a classroom setting, and as a result this may hinder faculty from using it as a teaching methodology. However, incorporating the use of simulations into the classroom learning activities ultimately improves the learner's ability to make appropriate decisions and integrate knowledge learned as well as allow him/her to function safely and effectively in actual clinical settings. Thus, the authors promote the use of simulation in the classroom by sharing how they as educators prepared, implemented and evaluated the use of simulations with midwifery students in a classroom setting. The goal was to provide more active-learning opportunities versus passive-learning (teacher-centered) activities for their students in order to assist in transferring knowledge and appropriate decision-making to the clinical setting. The authors developed case study simulations and embedded decision-making rules within the simulations to help students develop decision making abilities. The simulations were validated with the help of experienced midwives from clinical and academic settings. These expert midwives either evaluated a simulation involving a "term woman presenting in spontaneous labor" or a "neonate with physiological jaundice". Each simulation scenario had its set of decision rules. In the implementation of the simulation cases, students paired up (self-selected), and each was assigned to be a simulator (role-played one of the patients) or the decision-maker (midwife). Evaluation revealed active participation, with initial reservation about engaging in the process. As the student became more involved in the learning activity and accumulated more information, he/she became more involved in the process. However, faculty did note the need to provide guidance to assist learners to extend their thinking. Students responded to the coaching appropriately, and provided positive feedback to the learning strategy. The authors asserted that simulation cases can nurture learners' decision-making and position them to become more prepared as clinicians.

This article is intended for any educator desiring to incorporate active and innovative learning opportunities in a classroom setting. This article can extend into clinical practice education settings as well. This article strongly reflects the theory that simulation can be extended beyond the laboratory setting. Repeating this project from a scientific perspective would be very beneficial to those interested in integrating simulation into the classroom.

Brannan, J. D., White, A., & Bezanson, J. L. (2008). Simulator effects on cognitive skills and confidence levels. *Journal of Nursing Education, 47* (11). Retrieved January 23, 2009, from PubMed database.

Using a prospective, quasi-experimental, pre-test/post-test comparison group design, the researchers compared two instructional methods (traditional, classroom lecture versus experiential learning using a human patient simulator (HPS)) to teach content related to acute myocardial infarctions. These teaching methods served as independent variables within the study. Dependent variables in the study were cognitive skill and confidence in caring for a patient experiencing an acute myocardial infarction (MI). The investigators developed parallel forms of the Acute Myocardial Infarction Questionnaire (AMIQ): Cognitive Skills Test and the Confidence Level tools to assess participants' cognition and confidence in the study. It was hypothesized that baccalaureate nursing students who received instruction using a HPS would demonstrate greater levels of cognitive gains and confidence in performing care for a patient experiencing an MI as compared to students exposed to the traditional method of instruction. Students who participated in the HPS instructional method scored significantly higher on the AMIQ post-test as compared to those students who received the traditional lecture method ($p = 0.05$). There was no significant difference in confidence levels between groups ($p = 0.08$). However, the results support the use of simulated technologies as an experiential teaching strategy to enhance cognitive gains.

The article will be helpful to educators and clinicians. This is a good reference that may be used to provide evidence for the need for continued research.

Cangelosi, P. R. (2008). Accelerated nursing students and theater students; Creating a safe environment by acting the part. *Nursing Education Perspectives, 29*(6), 342-346.

The researcher used and evaluated narrative learning strategies in the campus skills lab with accelerated nursing students. The first part of research project was recruit four theater students with some experience in performance and an interest to act as a simulated client. Four unfolded "illness narrative" cases over 15 weeks were designed by the researcher (PI) and teaching assistant (TA) that incorporated all of the practice nursing skills with 68 accelerated nursing students. Each week prior to the lab session, students were to obtain updates including new lab and diagnostic test results which along with changes in simulated client's social history were posted WebCT. Weekly the PI or TA worked with the theater students as to what characteristics the client should portray and how to prompt the students. The first hour of the lab session was devoted to client's illness narrative and performance of appropriate skills. During the next two hours, the PI and TA facilitated students' integration of classroom, clinical practice and skills by posing additional actual patient narrative situations. Twenty-two students participated in the evaluation of the simulated client experiences. Simulated clients provided students the opportunity to develop self-confidence by honing nursing assessment and skills in a safe environment, thus helping to ensure client safety. Simulated clients cannot replace hands-on clinical experiences, but may prioritize the use of limited clinical sites by more advanced students.

Cioffi, J. (2001). Clinical simulations: Development and validation. *Nurse Education Today, 21*.

Retrieved January 23, 2009, from PubMed database.

The author discussed utilizing a conceptual approach to simulation development. Clinical simulation needs to mimic reality, be process-based, and have validity. Varying degrees of uncertainty need to be present in simulations, as real clinical cases exhibit varying levels of relevant information with varying relationships between decision variables. Childbirth and triage assessments were studied. Simulations were developed incorporating patient assessment and patient questions. A panel of experts tested the content validity and, when appropriate, made changes to the clinical simulation. They found that the use of simulations provide a safe, interactive learning environment, along with more conceptual understanding, rather than rote knowledge. Simulation provides the integrated environment where “it really makes you aware of your thinking” process when caring for patients. It can be used for nursing students, as well as clinicians in new practice areas.

All undergraduate nursing programs, as well as staff education/development departments in hospitals may find this article beneficial.

Research-based, this article was technically-written, and hard to follow during the experimental stages, but the conclusion spoke well for the use of simulation in nursing education. Simulation provides an interactive, safe, constructive learning environment in nursing education today, while reinforcing skills in assessment, problem-solving, decision-making and collaboration. Clinical simulation is necessary today, due to decreased clinical site availability, and faculty nursing shortages. Challenges, such as facility costs, space, time, and faculty development may prevent schools of nursing from effectively utilizing this innovative teaching modality.

Curran, C. R., Elfrink, V., & Mays, B. (2009). Building a virtual community for nursing education: The town of Mirror Lake. *Journal of Nursing Education, 48*(1), 30-35.

The authors described the Ohio State University College of Nursing’s virtual community, Mirror Lake with a virtual hospital Mirror Lake Medical Center. The virtual hospital serves as the main source for patients that provide nursing students the opportunity to incorporate principles of nursing care, access fully automated medical records, and apply technologies, such as hand-held devices, and emerging technologies. Of the developed standardized clinical patient cases, 15 cases were designed and integrated across the curriculum. These clinical patients vary in depth and complexity of acquired illness, conditions, and injuries as they age. The clinical patient cases are interwoven in the classroom, homework assignments, and simulation laboratory exercises. Each patient course case provides learning objectives, current case situation, student activity, actual practice and computer activity, and informatics competency. The project team analyzed state and regional census data and generated a diverse virtual community including several genograms. In the future, students will conduct community assessments and practice environmental disasters.

Dearman, C., Lazenby, R. B., Faulk, D., & Coker, R. (2001). Simulated clinical scenarios: Faculty-student collaboration. *Nurse Educator, 26* (4). Retrieved January 23, 2009, from PubMed database.

This article describes a program implemented at Auburn University Montgomery (AUM) School of Nursing that integrated the curriculum of traditional BSN students and RN to BSN students using simulated clinical activities in the nursing laboratory. These students share the same basic curriculum, but the RN students need experience in leadership, management, and evaluation, while the traditional students need hand-on clinical experience. Within the project, a student from each program of study was paired with a faculty member, forming a triad. The RN students developed clinical scenarios for use by the traditional students to structure and prioritize necessary interventions. Faculty functioned as the patient and overall evaluator. The RNs were evaluated on the use of management skills: communication, motivation, delegation, coordination, collaboration, and evaluation, while the traditional students were evaluated on the use of critical thinking in 'real' clinical scenarios. The results of this project identified a mechanism of shared learning that benefits both experienced and novice nurses. This strategy allowed student to engage in learning critical thinking and clinical reasoning in an alternate environment that is nonthreatening and safe.

This article is intended for any educational institution desiring to incorporate active and innovative learning opportunities in a classroom setting. This article is geared to the use of simulation in the educational setting. This educational program can be used effectively by nursing educators to teach simulated clinical skills simultaneously with assisting with techniques to assist in developing clinical-reasoning and critical-thinking abilities.

Gaba, D. M. (2007). The future vision of simulation in healthcare. *Simulation in Healthcare*, 2. Retrieved January 23, 2009, from Ovid database.

The author categorizes simulation in healthcare into eleven dimensions. They are: 1) Purpose and aims of the simulation activity, 2) Unit of participation in the simulation, 3) Experience level of simulation participants, 4) Healthcare domain in which the simulation is applied, 5) Healthcare discipline of personnel participating in the simulation, 6) Type of knowledge, skill, attitudes, or behavior addressed in simulation, 7) Age of the patient being simulated, 8) Technology applicable or required for simulations, 9) Site of simulation participation, 10) Extent of direct participation in simulation, and 11) Feedback method accompanying simulation. Ensuring how simulation applications are appropriately integrated into curricula of simulation and recognizing how these dimensions may affect patient safety is paramount.

The information in this article will be beneficial for anyone interested in incorporating simulation into education or practice learning, especially from an interdisciplinary simulation perspective.

This work may contribute to IOM, JACHO, safety standards. This citation is a very insightful, futuristic view on the use of simulation and the use of simulation from IOM, JACHO, safety, and consumer perspectives.

Gore, T., Hunt, C. W., & Raines, K. H. (2008). Mock hospital unit simulation: A teaching strategy to promote safe patient care. *Clinical Simulation in Nursing*, 4(3), e57-e64.

The researchers depicted the School of Nursing's mock laboratory hospital in which they piloted a multifaceted strategy focusing on physical and clinical environmental assessments. With the emphasis of the Institute of Medicine (IOM), Quality and Safety Education for Nurses (QSEN), and American Association of Colleges of Nursing (AACN) on patient safety, nursing educators must facilitate students' clinical judgment and nursing skills to provide quality and safety patient care. Faculty constructed patient care scenarios, including patient profiles, medical charts, and a physical clinical simulation environment. Twenty-four randomly assigned beginning junior baccalaureate nursing students, prior to first clinical experience, participated in a 4-hour mock hospital unit shift. Prior to the start of the simulation experience, students received the simulation objectives. The mock simulation experience was viewed as positive by both students and faculty. Faculty reported the simulation experience provided them with the opportunity to evaluate students' clinical judgment and psychomotor skills prior to actual patient care.

Hoffmann, R. L., O'Donnell, J. M., & Yookyung, K. (2007). The effects of human patient simulators on basic knowledge in critical care nursing with undergraduate senior baccalaureate nursing students. *Simulation in Healthcare, 2*. Retrieved January 23, 2009, from Ovid database.

This article evaluated whether participation in instruction involving human patient simulators improves professional competence related to basic knowledge of critical care nursing. Human simulators (HS) as a part of a teaching-learning system have the potential to objectively measure mastery of psychomotor skills as well as subjectively measure competency of professional traits such as communication, delegation, and interdisciplinary teamwork. The study conducted used a pre- and post-test repeated measured design. Twenty-nine, senior, baccalaureate nursing students enrolled in an advanced medical-surgical nursing course were assigned to groups and completed 7 weeks of traditional clinical experience (45 hours total) and 7 weeks of high-fidelity human simulation (45 hours total). Students completed the Basic Knowledge Assessment Tool-6 (BKAT-6) prior to traditional clinical and on the last day, a human simulation experience. Each student participated in at least four clinical scenarios, all of which stressing the principals of knowledge, communication, judgment, planning, and resource management. The results showed a significant improvement on the BKAT-6 overall and substantiate the importance of simulation education in nursing to retain knowledge through a variety of senses including visual, hearing, and active participation.

The information in this article will be beneficial to any institution (academic or practice) interested in pursuing the purchase and integration of simulation into its program. This citation is geared to the use of high-fidelity human simulators in clinical and educational settings. This citation provides a glimpse at how high-fidelity human simulators can be incorporated into educational curriculum to help with knowledge attainment and retention.

Jarzemsky, P. A., & McGrath, J. (2008). Look before you leap: Lessons learned when introducing clinical simulation. *Nurse Educator, 3* (2). Retrieved January 23, 2009, from Ovid database.

The authors outline how they designed a preliminary study to determine what type of responses they would engender from eighty-five, enrolled, beginning-level, baccalaureate nursing students

($n = 48$, experiential; $n = 37$, control) when using low-fidelity simulation technologies during a clinical simulation. The goal was to determine potential benefits of the use of clinical simulation prior to moving forward with the use of simulation as a teaching strategy or purchasing more expensive, high-fidelity simulators for clinical simulations. Students were requested to self-report on their assessment of confidence, ability, stress, and critical thinking pre and post participation in a clinical simulation using low-fidelity simulators. Results revealed statistically significant improvement in the experimental group's confidence, performance, stress reduction, and ability to think more critically while functioning in a clinical simulation involving urinary catheterization, intravenous medication administration, nasogastric medication administration or sterile dressing changes. Of note, the control group was not provided a post survey assessment. The students participating in the simulation group reported spending more time studying than those in the control group. The authors noted that, based on the outcomes of the preliminary study, institutions should not allow budgetary limitations to hinder the investment of the use of simulation as a teaching strategy. The survey tool used in the study was reviewed by 12 experts in clinical education and the instrument had a Cronbach α of .91.

The information in this article will be beneficial to any institution (academic or practice) interested in purchasing and integrating simulation into its program; especially if one is dealing with a "shoe-string" budget or during economically challenging times. This citation is geared towards the use of low-fidelity versus high-fidelity simulators or technologies in clinical simulations. This citation provides a glimpse at how low-fidelity simulators can be incorporated into clinical simulations using appropriate simulation scenarios.

Lasater, K. (2007). Clinical judgment development: Using simulation to create an assessment rubric. *Journal of Nursing Education, 46*(11), 496-503.

The researcher describes the exploratory study and pilot testing of the Lasater Clinical Judgment Rubric (LCJR). The LCJR was designed based on Tanner's (2006) Clinical Judgment Model, noticing, interpreting, responding, and reflecting. The LCJR was designed to evaluate a single event requiring students to use clinical judgment. The LCJR has 11 dimensions with four developmental levels from beginning to exemplary. The Clinical Judgment Model phases identify students' gaps in understanding. The rubric identifies gap areas in which the faculty generate teaching points. The LCJR provides students information about performance expectations, feedback about their performance, and assessment of students' clinical judgment development. The rubric is not limited to evaluating students' simulation performance, but may be incorporated evaluating students' clinical performance.

Moule, P., Wilford, A., Sales, R., & Lockyer, L. (2008). Student experiences and mentor views of the use of simulation for learning. *Nurse Education Today, 28*. Retrieved January 23, 2009, from CINAHL database.

This article discussed the authors' research that evaluated whether simulation in nursing education supports the development of a range of clinical skills. The study had two phases. One investigated whether simulation could support the development of a range of clinical skills before using them in the practice setting. This phase included a sample of 69 students from their first and third years at one UK University. These students attended five simulation sessions that

covered topics including basic life support, manual handling, infection control, clinical decision making, and managing violence and aggression. These students answered multiple choice questions (MCQs) in pre- and post-tests covering the five areas of simulation. On the final day, students completed vignette scenarios, took objective structured clinical examinations (OSCEs), and provided an evaluation of the simulation experience. The vignettes were used to assess the students' ability to use theoretical and best practice. Students worked in teams to make practice decisions and deliver care, and then had a debriefing session with other student observers and the clinical staff.

The MCQs, vignettes and OSCEs were calculated and entered into a database and then analyzed using the Statistical Package for the Social Sciences. Overall, there was an increase in knowledge shown in the analyzed MCQs, with the highest of a 5.6% increase in the BLS simulation. There was some variability in the student achievement in the vignettes and OSCEs. However, both were able to draw upon the students' learning from the simulations and previous practice experience when responding. The second phase of this study obtained mentors' views and experiences of the use of simulation in the preparation of the students for practice. In this phase, six mentors who were supervising the students in the clinical setting were interviewed. Each of the interviews was conducted after the student's placement had ended in order for the mentor to be able to fully comment on any changes seen in the student's progression and development in relation to their involvement in the simulation project. Data were transcribed to produce verbatim transcripts and further analyzed based on the Miles and Huberman's (1994) framework of data reduction through coding.

Three main themes emerged from the analysis of the interview data: increased confidence, a positive and multi-faceted learning experience, and a valuable opportunity for collaborative working. In the overall compilation of the data collected and evaluation of both phases, the researchers found that simulation was positively received and offered a wide scope of interdisciplinary learning that could be further applied to inter-professional relations. Simulation also provided a scope for collaborative working between education providers and clinical staff. It was apparent through the analysis of the students' and instructors' evaluations of the simulation exercises that simulations enable safe skills practice for students and increase the students' confidence in those skills. The evidence also supports that simulation broadens student exposure to a range of practice situations that may not be commonly available in the clinical setting.

The information in this article will benefit an institution interested in pursuing the integration of simulation into its program, and provides simple, yet effective evaluation methods for the simulation learning experiences provided to nursing students. This citation may be helpful with providing evidence for translational research. This work incorporates mentors' perspectives.

O'Sullivan, P., Chao, S., Russell, M., Levine, & Fabiny, A. (2008). Development and implementation of an objective structured clinical examination to provide formative feedback on communication and interpersonal skills in geriatric training. *Journal of American Geriatrics Society*, 56(9), 1730-1735.

The article describes a pilot study that used Objective Structured Clinical Examination (OSCE) strategy to assess and evaluate communication and interpersonal skills of 17 multidisciplinary geriatric fellows representing medical, dental, and psychiatry disciplines. The OSCE scenarios were problem-based and simulated clinical practice cases, including elder abuse, medication-error disclosure and caregiver stress. The OSCE consisted of three stations using standardized patients (SP) and preceptors who evaluated each candidate using designed checklists and an abbreviated version of the Master Interview Rating Scale. The SPs completed a 4 hour training session and preceptors, local geriatric medicine faculty, received instructions through e-mail. The preceptors observed each interview through closed-circuit television. Each candidate received structured formative feedback from preceptors and SPs on each OCSE station. The majority of the candidates reflected the OSCE scenarios were a valid representation of clinical practice and one of the most powerful teaching session in their training. The researchers indicated that even though the OSCE is valid, it is often logistically demanding and expensive. A question the researchers raise is remediation for candidates who fail.

Prion, S. (2008). A practical framework for evaluating the impact of clinical simulation experiences in prelicensure nursing education. *Clinical Simulation in Nursing*, 4(3), e69-e78.

The author's article proposes the use of Austin's (1991) input, environment, and outcome (I-E-O) model as an organizing structure for measuring students' simulation performance. Input variables include what the student brings to the simulation experience, such as previous health care experiences; prerequisites skills and content knowledge relevant to simulation scenario; self-confidence in clinical skills; previous clinical simulation experiences; etc. Environment variables consist of factors affecting the actual learning experience: instructor's level of experience and training; simulation equipment available; quality of the simulation experience; student's preparation for simulation experience; congruence with clinical cases; etc. Outcome variables result from effective input and environment variables and include knowledge or understanding; skill performance; critical thinking skills, and self-confidence. The author identifies instruments and approaches that may be used to measure input, environmental, and outcome variables. Austin's I-E-O model provides a framework for defining relevant variable and developing an evaluation plan.

Radhakrishnan, K., Roche, J. P., & Cunningham, H. (2007). Measuring clinical practice parameters with human patient simulation: A pilot study. *International Journal of Nursing Education Scholarship*, 4 (1). Retrieved January 23, 2009, from PubMed database.

This article discusses the author's pilot study which attempted to identify the nursing clinical practice parameters influenced by the use of a patient simulators (Sim-Man®) by evaluating the clinical performance of 12 BSN students in safety, basic assessment skills, prioritization, problem-focused assessment, ensuing interventions, and delegation and communication in a complex, two-patient simulated assignment. Six students spent the semester completing clinical requirements with no simulated practice (control). The other six completed their clinical requirements along with simulated practice. At the end of the semester, both groups participated in a two-patient clinical simulation scenario and were further evaluated using a faculty-

developed Clinical Simulation Evaluation Tool (CSET). This tool listed expected behaviors with a numerical scale to indicate performance in that behavior. The Chi-Square Test was used to compare differences between the two groups' scores. Through this study, it was found that students who practiced with the patient simulator in addition to the traditional clinical training had markedly higher scores compared to the control group (traditional clinical training alone) on patient identification (related to the safety category; $p = 0.001$) and on assessing vital signs (related to assessment; $p = 0.009$). As the first study to test a nursing student's performance with complex two-patient simulations, the study ultimately linked the use of simulation practice with better performance in nursing students' patient identification and assessment of vital signs.

This work will benefit institutions looking to incorporate simulation into their curriculum for BSN nursing students. This citation is beneficial to educators and clinicians. This research study has a low n . However, the results of this pilot study will help to guide future studies.

Rauen, C. A. (June 2004). Simulation as a teaching strategy for nursing education and orientation in cardiac surgery. *Critical Care Nurse*, 24(3), 46-51.

The use of a top-of-the-line high fidelity human patient simulator at a nursing school and also in a hospital critical care setting was described. A combined knowledge of physical and behavioral science and technical and clinical education is required of all health care professionals. These actual settings in a hospital pose actual risks to a patient. Thus the use of simulator is preferred. According to the author, "simulated clinical situations involve only a few safety concerns and allow instructors and preceptors to completely control the events" (48). The use of a patient simulator is seen as an essential teaching tool in clinical nursing courses in both undergraduate and graduate nursing education. Faculty is able to emphasize the development of critical-thinking skills during these simulation exercises. Scenarios are developed which require the students to use classroom knowledge, incorporate assessment skills, and create and implement a plan of care.

Ravert, P. (2008). Patient simulator sessions and critical thinking. *Journal of Nursing Education*, 47 (12). Retrieved January 23, 2009, from PubMed database.

In this article, the author's research project measured the differences in critical thinking abilities between three groups of baccalaureate nursing students using enrichment and non-enrichment learning opportunities. The first group participated in an enrichment learning opportunity involving five patient scenarios using a high-fidelity patient simulator (simulator group; $n = 12$), the second group also participated in an enrichment learning opportunity by participating in five small group discussions involving patient scenarios (non-simulator group; $n = 13$). The third group participated in a standard education method (control group; $n = 15$). The first group was referenced as the simulator group, the second was identified as the non-simulator group and the third was the control group. Using the California Critical Thinking Disposition Inventory and California Critical Thinking Skills Test instruments, all three groups experienced a moderate to large effect size in critical thinking disposition and critical thinking skills scores. The Control group experienced a large effect size with the CCTDI and the other two groups experienced Moderate effect size; The two enrichment learning opportunities experienced a large effect size; control moderate with the CCTST.

This work will benefit educators and researchers interested in evaluating effective learning styles and critical thinking/clinical reasoning abilities at various educational levels. This citation is geared to the use of simulation in the educational setting.

This article reflects research using METI simulator, whereas other research publications tend to utilize Laerdal products (e.g., Sim-Man®).

Rentschler, D. D., Eaton, J., Cappiello, J., McNally, S. F., & McWilliam, P. (2007). Evaluation of undergraduate students using objective structured clinical evaluation. *Journal of Nursing Education, 46*(3), 135-139.

The authors designed a descriptive pilot study to evaluate senior nursing students' clinical competencies through using simulated and standardized patient (SP) objective structured clinical examination (OSCE) format. The creation of the NURSEOSCE included eight case studies depicting culture diversity, age, and developmental stage interwoven in adult health, maternity, pediatrics, mental health, and community health situations, and the hiring and training SPs. For each case, a 10-item checklist tool was developed to evaluate students' knowledge and understanding. Students' interpersonal skills were evaluated by the SPs using the 11-item, 5-point Likert scale, Nursing Interview Interaction Scale (NIIS). Forty-nine out of 54 senior students agreed to participate in the NURSEOSCE study. A consideration for nursing programs prior to in the development and implementation of OSCEs as an assessment measure is the investment of personnel time and financial cost. The students, faculty and standardized patients reported the OSCE project was valuable. Recommendations were to refine include constructive feedback training for SPs and develop additional diversity and age-related cases.

Rushforth, H. E. (2007). Objective structured clinical examination (OSCE): Review of literature and implications for nursing education. *Nurse Education Today, 27*, 481-490.

The purpose of this article was to review the literature and provide a historical perspective, summarize benefits and disadvantages, address reliability and validity, and need to conduct future research on pilot OSCEs for contributions to professional nursing education. OSCE evidence-based research for nursing is limited. There is increasing recognition in the OSCE scenarios of a need to balance clinical skills, knowledge and competencies along with ensuring the a balance between validity and reliability. An OSCE, simulation that reflects the real world does not replace real world hands-on clinical practice. The author concludes the OSCE strategy would assess students' skills and competencies with greater objectivity and uniformity, but it has limitations in terms of increasing student stress and demands on academia in the areas of faculty time, cost, staffing, and ensuring confidentiality of OSCE stations.

Waldner, M. H., & Olson, J. K. (2007). Taking the patient to the classroom: Applying theoretical frameworks to simulation in nursing education. *International Journal of Nursing Education Scholarship, 4* (1). Retrieved January 23, 2009, from PubMed database.

The central theme of this article discussed integrating theoretical knowledge in clinical simulation. Benner's skill acquisition theory explains five levels of competency, which show

how student practice experiences incorporate theoretical knowledge. The early novice stages, after experience, lead to competent, proficient, and expert levels of nursing practice. Kolb's theory of experiential learning includes four learning styles which the learner reflects on, after the experience. Discussion of findings in clinical simulation is an imperative learning segment in both theories. Acquiring skills and integrating what is learned is seen as "experience" in clinical simulation.

This article will be beneficial to all simulation or staff educators who utilize clinical simulation. This theoretical framework may also help when initializing or validating use of simulation. May also be beneficial in supporting data to state Boards of Nursing, as simulation is more than skills acquisition. This citation supports the theoretical framework behind simulation utilization. This citation helps to provide theoretical support for the use of clinical simulation in nursing education today.

ASSESSMENT: PSYCHOMOTOR DOMAIN (not annotated)

- Beachey, W. D. (2004). A comparison of problem-based learning and traditional curricula in baccalaureate respiratory therapy education. (Doctoral dissertation, University of North Dakota)
- Binstadt, E. S., Walls, R. M., White, B. A., Nadel, E. S., Takayesu, J. K., Barker, T. D., Nelson, S. J., & Pozner, C. N. (2007). A comprehensive medical simulation education curriculum for emergency medicine residents. *Annals of Emergency Medicine*, 49(4), 495-504.
- Bosco, A. M., & Ward, C. (2005). Welcome to the techno highway: development of a health assessment CD-ROM and website. *Contemporary Nurse: A Journal for the Australian Nursing Profession*, 20(1), 21-27.
- Dix, G., & Hughes, S. (2005). Teaching students in the classroom and clinical skills environment. *Nursing Standard*, 19(35), 41-47.
- Ehrenberg, A. C., & Högblom, M. (2007). Problem-based learning in clinical nursing education: integrating theory and practice. *Nurse Education in Practice*, 7(2), 67-74.
- Emerson, R. J., & Records, K. (2007). Design and testing of classroom and clinical teaching evaluation tools for nursing education. *International Journal of Nursing Education Scholarship*, 4(1), article 12. Retrieved May 3, 2007 from <http://www.bepress.com/ljnes/vol4/iss1/art12>.
- Field, M., Burke, J. M., McAllister, D., & Lloyd, D. M. (2007). Peer-assisted learning: a novel approach to clinical skills learning for medical students. *Medical Education*, 41(4), 411-418.
- Haigh, J. (2007). Expansive learning in the university setting: the case for simulated clinical experience. *Nurse Education in Practice*, 7(2), 95-102.
- Hravnak, M., Beach, M., & Tuite, P. (2007). Simulator technology as a tool for education in cardiac care. *Journal of Cardiovascular Nursing*, 22(1), 16-24.
- Jones, J. L. (2002). *Specifying the psychomotor domain of the construct of nursing competence*. Unpublished dissertation – Western Michigan University, Kalamazoo, Michigan, December 2002.

The purpose of this study was to identify the psychomotor skills entry level nurses need as a requirement for licensure. The author collected the data by reviewing syllabi and objectives from all medical-surgical nursing courses, maternal-child nursing courses, and psychiatric nursing courses from six nursing schools. There were three universities and three community

colleges in the study. In addition, interviews were conducted on a total of twelve faculty members, two from each of the six schools. One of the two had to be a medical-surgical nurse educator and the second had to be either a maternal – child nurse educator or a psychiatric nurse educator.

The author conducted the interviews herself. There were three questions posed to each of the interviewees:

1. Does a well-defined domain currently exist?
2. What specific psychomotor skills do you believe are critical for entry-level nurses to have?
3. What skills should NOT be included in the domain? (52-53)

Four of the twelve did not believe a well-defined domain existed, seven were unsure, and one did not respond to the question. There was consensus on two general areas of psychomotor skills, which were basic physical assessment and medication administration. A third skill mentioned by the faculty interviewees was foley catheter insertion and care. Interestingly, the faculty interviewees believed that critical care skills family and machinery/equipment family were skills outside the domain for the entry-level nurse.

A review of the curricular syllabi also indicated the psychomotor skills taught most frequently were medication administration and physical assessment.

Lashley, M. (2005). Teaching health assessment in the virtual classroom. *Journal of Nursing Education, 44*(8), 348-350.

McCausland, L. L., Curran, C. C., & Cataldi, P. (2004). Use of a human simulator for undergraduate nurse education. *International Journal of Nursing Education Scholarship, 1*(1), article 23. Retrieved May 3, 2007 from <http://www.bepress.com/ljnes/vol1/iss1/art23>.

Morgan, R. (2006). Using clinical skills laboratories to promote theory-practice integration during first practice placement: an Irish perspective. *Journal of Clinical Nursing, 15*(2), 155-161.

Radhakrishnan, K., Rache, J. P., & Cunningham, H. (2007). Measuring clinical practice parameters with human patient simulation: a pilot study. *International Journal of Nursing Scholarship, 4*(1), article 8. Retrieved May 3, 2007 from <http://www.bepress.com/ljnes/vol4/iss1/art8>.

Salyers, V. L. (2007). Teaching psychomotor skills to beginning nursing students using a web-enhanced approach: a quasi-experimental study. *International Journal of Nursing Education Scholarship, 4*(1), article 11. Retrieved May 3, 2007 from <http://www.bepress.com/ljnes/vol4/iss1/art11>.

Spunt, D., Foster, D., & Adams, K. (2004). Mock code: a clinical simulation module. *Nurse Educator, 29*(5), 192-194.

- Terman, K. A. (2007). Clinical simulation laboratories and the clinical nurse specialist. *Clinical Nurse Specialist: The Journal for Advanced Nursing Practice*, 21(2), 66-67.
- Wellard, S. J., Woolf, R., & Gleeson, L. (2007). Exploring the use of clinical laboratories in undergraduate nursing programs in regional Australia. *International Journal of Nursing Education Scholarship*, 4(1), article 4. Retrieved May 3, 2007 from <http://www.bepress.com/ljnes/vol4/iss1/art4>.
- Winters, J., Hauck, B., Riggs, C. J., Clawson, J., & Collins, J. (2003). Educational innovations. Use of videotaping to assess competencies and course outcomes. *Journal of Nursing Education*, 42(20), 472-476.

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