

### **Thinking Critically for Healthcare Professionals is Critical!**

*Valerie Carter, Faculty, Dental Hygiene*

*Dental Hygiene, Health Services, and Orthotics & Prosthetics Academic Roundtable*

Critical thinking (CT) is an important skill that is necessary in all healthcare disciplines. Healthcare providers use critical thinking skills daily in the assessment and treatment of patients. There is an increase in responsibilities for patient care in our changing healthcare environment as well as an increase in demand for evidence-based health care. The Dental Hygiene, Health Services, & Orthotics & Prosthetics intervention is designed to help students understand and develop CT skills. This intervention involves presenting students with a case study that they will do individually. Once submitted, the students will then have access to an Instructional Module, where they will learn about critical thinking, inferences and assumptions and a CT model to use. An interactive tool/resource will also be available. Within this instructional module, the initial case study will be debriefed with the students. After providing this information, a second and different case study will be presented to the students to do at the end of the course. The initial case study will provide pre-assessment data and the second case study following the instructional module, will provide post-assessment data. It is hoped that the instructional module will help students learn and increase their critical thinking skills.

### **Critical Thinking Analysis in Emergency Medical Services**

*Faculty Champions: Bill Ballo and Martin VanBourgondien*

How can you evaluate how a student thinks or the process of their decision making? In Emergency Medical Services (EMS), critical thinking becomes a life or death decision. The wrong medication can cause a patient to go into cardiac arrest where the right treatment could save the patient's life. A differential diagnosis flowchart is one of the tools that the EMS Department teaches and uses to evaluate the decision making process of future EMT's and Paramedics. The flowchart allows students to evaluate their own assessment process and provides the instructor with a step-by-step form to evaluate the thought processes students are using to decide on a treatment plan. The flowchart provides a center block for students to write their assessment findings for each body system. Encircling the center block are additional blocks for students to outline four possible field impressions that students might find based upon their assessments. In these blocks, students list the signs and symptoms that would support their field impression and list the signs and symptoms that would "rule out" that same field impression. Students then rate these signs and symptoms based upon their knowledge of how strong or weak these are in supporting or "ruling out" their potential field impressions. Using this flowchart allows the instructors to assess each individual step in the critical thinking process for each student.

### **Teaching Critical Thinking in Embalming Lab**

*Gary Brown – Funeral Services*

Problem solving remains the preeminent trait of a good Embalmer and Funeral Director. Through a combination of hypothetical scenario -- as well as actual, embalming cases -- Funeral Service students learn to apply the six elements of critical thinking in Embalming Lab by working collaboratively and utilizing the Assessment Rubric for Critical Thinking (ARC) to evaluate themselves and one another. Discipline specific topics such as pre-embalming, concurrent, and post-embalming case analysis, inter alia, all fall within the critical thinking context and will be included in weekly embalming reports. Students will have access to applicable RLOs within their ANGEL online component of the clinical to assist them in conceptualizing the principles studied.

### **Students Learn How to Improve the Customer Service Experience**

*Larry Goldsmith, Instructor-in-Charge, Parks and Leisure Services*

*Hospitality & Tourism Management and Parks & Leisure Services Academic Roundtable*

This intervention is designed to teach students how to provide a superior customer experience by improving their ability to analyze and synthesize customer encounters. The central idea of this intervention is to train students on how to assume ownership of the customer's experience. Students learn through their participation in this activity that their responsibility to their customers is more than just another assigned task. This intervention requires students to develop their own customer service solutions where they must analyze their alternatives, and defend their conclusions by applying the Assessment Rubric for Critical Thinking (ARC) approach of evaluation, analysis, and synthesis as a guide. The intervention incorporates a Reusable Learning Object from Wisc-Online [the Wisconsin Technical College System] which will help students differentiate between a customer encounter and that of a customer relationship. Students will discover how they can make higher level decisions by applying critical thinking.

Fall Critical Thinking Institute for Teaching and Learning Faculty Champion Sharing Session  
September 24, 2010 HEC Lobby 11:10 a.m. to 12:00 p.m.

**Critical Thinking Intervention for Human Services Students**

*Cheryl Kerr – Program Director and Instructor in Human Services*

The Human Services program will implement the critical thinking intervention in the introductory course HUS 1111-Introduction to Intra and Interpersonal Processes. During the first class meeting, the instructor will explain critical thinking and how this will be a focus throughout this course as well as the Human Services program. The instructor will identify which of the six critical thinking performance elements (communication, analysis, synthesis, problem-solving, evaluation, and reflection) might be emphasized in this activity. In groups, students will individually read the Human Services ARC Scenario. Each student will consider the six questions (ARC performance elements) regarding the scenario and take notes on their own while reading the scenario. Students will use Socratic thinking to probe their assumptions, alternate points of view, and the implications of their conclusions. In a collaborative effort, the group will organize their main thoughts and develop a consensus regarding their responses to the six questions that is satisfactory to all members. The instructor will structure collaborative activities throughout the course where the students will learn the 6 human services skills as well as learning the six critical thinking performance elements. Students will complete weekly journals where they will address which of the six performance elements they worked on during that week. The ARC scenario focuses on six critical human services skills that are demonstrated and learned throughout this course. It is the goal for students to develop a respect for each other's viewpoints, values and beliefs and work as a member of a team to foster critical thinking collaboratively.

**Intervention for the Medical Laboratory Technology Program**

*Valerie Polansky and Mitch Watrous – Medical Laboratory Technology*

The intervention for the Medical Laboratory Technology Program is a critical thinking module that will be placed in Week 15 of MLT 1022, Introduction to Clinical Laboratory Science, starting in Fall 2010. The module defines and explains the elements of critical thinking, discusses the importance of critical thinking in clinical laboratory work, and provides a model for analyzing a case study. The literature supports the use of case studies as an effective method for improving students' critical thinking and they are used extensively throughout the MLT program, but students often have difficulty with them, perhaps because they have never been taught how to approach them. By providing a model for case study analysis and placing it in the first course in the program, the hope is that students will be better prepared to analyze case studies in subsequent courses and that their critical thinking will improve overall. To see if the intervention and further practice with case studies improve the students' critical thinking, two assessments will be done--one at the beginning of the critical thinking module in MLT 1022 and another in MLT 2150, Clinical Correlations, the program's capstone course. Students will be presented with the same discipline-specific scenario. Their responses will be graded using the Assessment Rubric for Critical Thinking (ARC).

**Natural Sciences Intervention**

*Dr. Monica Lara, Professor*

*Pat Barbier, Science Librarian*

The intervention for the Natural sciences will be based on the use of peer-reviewed journal articles to teach the scientific method and to get students to promote analytical and creative thinking. Students will be taught the principles of Hypothesis Testing and Experimental Design by reading and discussing a published scientific journal article. They will be required to learn how to identify an original research paper and use the library's databases to find one they will then write about. The students will turn in an assignment where they have identified the parts of the paper and assessed the strength of the experimental design to test the study's hypothesis. They will discuss alternative strategies and alternative outcomes as well as discuss the significance of the area of research and how it relates to course topics.

**Podcasts for Physical Therapist Assistant (PTA) Program**

*Mary Hanlon, B.A., PTA, Faculty for Physical Therapist Assistant Program*

*Barb Heier, PT, Faculty for Physical Therapist Assistant Program*

Physical Therapist Assistants follow the plan of care directed by the Physical Therapist. Each day in the clinic, PTA's are involved in clinical reasoning and clinical decision making with their patients'. We will be presenting a series of discipline specific critical thinking and problem-solving podcasts for case scenarios, therapeutic interventions, and peer assessments. Podcasts will be presented in the 1st and 2nd semester PTA courses (lecture and lab). There will be pre-podcast discussions in classes and a post-podcast discussion forum in the PTA commons in ANGEL addressing the ARC Rubric questions. (Example case study discussions.....The students will be presented a case study and discussions will revolve around treatment choices, such as heat versus cold, and their rationale.)

### **Improving Critical Thinking Skills in Radiography Students**

*Faculty Champion: Todd Van Auken M.Ed. RT(R)(MR) – Radiography*

Radiography students currently take positioning labs during the first two semesters of the program. The labs offer a hands-on approach to patient positioning that is learned didactically. Students simulate routine exams typically done in a x-ray room. They practice on each other before they perform the same type of study on a real patient in order to gain competence. Problem-based scenarios will now be added to lab curriculum in order to improve the critical thinking needed for positioning trauma patients. Students will be given a problem along with these steps to follow: 1) Meet the Problem 2) List Known Facts 3) List Unknowns and Research Unknowns 4) Generate Possible Solutions 5) Choose Most Viable Solutions 6) Report Solution <http://www.ncsu.edu/pbl/design.html> They will then go a step beyond the cognitive domain by applying and simulating the solution using a portable x-ray machine. This additional step will enhance the desired psychomotor skills of our students. These problem-based scenarios will undoubtedly aid the students when they are faced with challenging situations in the clinical environment and better prepare them for graduation and beyond.

### **The Impact of Introducing Respiratory Care Students to a Discipline Specific Critical Thinking Model**

*Steve Hardt, MA, RRT – Respiratory Care*

Critical thinking is so important to the practice of Respiratory Care that SPC graduates cannot be fully credentialed until they demonstrate adequate critical thinking skills on a specialized national examination known as the Clinical Simulation Exam (CSE). The Respiratory Care Academic Roundtable has introduced a discipline specific critical thinking and clinical problem solving model (the Mishoe model) to their students, and will allow them to work with this model in several interactive exercises available in ANGEL. They will then measure the impact of this intervention on the student's ability to solve complex clinical cases scenarios by using the Assessment Rubric for Critical Thinking (ARC). They will also review the impact of this intervention on the student's scores on the national Clinical Simulation Exam. The Respiratory Care faculty feel that allowing students to use a Critical Thinking model developed by a respiratory therapist for respiratory therapists will not only develop better critical thinkers but better clinical problems solvers as well.

### **Encouraging Collaborative Learning**

*Dr. Cynthia Grey, Veterinary Technology BAS*

*Dr. Wendy Rib, Veterinary Technology BAS*

Collaborative learning (CL) is a learning methodology where learners are involved in an interactive, team based, problem solving process to achieve a common learner outcome. Collaborative learning is effective because learners become actively engaged and socialize, creating a supportive learning community. Collaborative learning requires interaction between learners to communicate knowledge and understanding, thereby enhancing critical thinking and developing problem-solving strategies and skills. Literature supports collaborative, team based, learning as a high-quality teaching methodology that enhances team building, problem solving, and critical thinking skills through group interaction. Faculty in the BAS/VT program identified that many learners prefer to work independently. In an effort to develop team projects that are more accepted by learners, this intervention is the instrument for a phenomenological study that seeks to gain knowledge from learner's perceptions regarding team v. individual assignments. After the completion of the written assignment, learners will be asked to complete a questionnaire that explores learner's perceptions regarding his/her selection process (team v. individual). The question that the BAS-VT faculty is exploring is how to enhance a team project and create a project that learners will see as a favorable learning assignment, positively increasing their learning experience which, by the nature of the benefit of CL, will enhance their problem solving and critical thinking skills.

### **Critical Thinking Intervention in Animal Behavior**

*Ginny Price and Trish Gorham – Veterinary Technology AS*

Students will use the Critical Thinking grid (Paul & Elder, n.d.) to complete a 200 word essay about one of four topics available each week. They will then use the Critical Thinking worksheet (Paul & Elder, n.d.) to critique a classmate's essay. These discussion essays are completed for twelve lessons throughout the semester. Example of one week of topics are: Issue Post (1): 10 points, 200 words, cite source, use Critical Thinking Grid Response Post (1): 10 points, 100 words, critique classmate's post using Critical Thinking Worksheet Topics: Topic One-Note two ways in which clicker training is different from another method of animal training that you are familiar with. Note two new vocabulary words you learned in this unit and their definitions. Topic Two-What do you do specifically to condition an animal to a clicker? List the steps involved. Which type of learning is involved when an animal is conditioned to the click sound? Topic Three-How might you use a clicker in a veterinary hospital to change an animal's behavior? Note the behavior you are teaching or changing. Note how you use the clicker to teach or change this behavior. Topic Four-Define free shaping. Explain how you would free shape a specific behavior. List the steps involved.