Module 5 – Developing Critical Thinking Skills

Suggested Time Frame – Five to six hours

Goal Statement –

The goal of this module is to analyze and expand current ability to apply critical thinking skills to common situations encountered in the health occupations.

Module Description:

Module 5 provides an overview of critical thinking skills necessary for a successful career in the health occupations. The student activities move from simple to complex as the student identifies, differentiates and applies critical thinking skills to a variety of life and career situations. Several discipline specific critical thinking situations are provided for use in the direct application of critical thinking skills.

Objectives:

At the completion of Module 5, the student will be able to:

1. Recall definitions and descriptions of critical thinking to use as a basis for formulating a personal definition.
2. Describe and give examples of the cognitive skills and the standards of intellectual reasoning involved in critical thinking.
3. Describe the affective dispositions and thinking styles of critical thinkers.
4. Compare and contrast critical thinking, problem solving and decision-making.
5. Describe essential critical thinking skills and apply to situations commonly occurring in health occupations.

Resources:

- Alfaro, R. *Critical Thinking in Nursing.* Saunders. 2000.
- Brookfield, Stephen. *Facilitating Adult Learning and Developing Critical Thinking.* Health Occupations Institute. March 2003. http://www.geocities.com/stephenbrookfield
- Castillo, Sandra. *Strategies, Techniques and Approaches to Thinking.* Saunders. 2003.
- Durand, Kathryn. *Critical Thinking-Developing Skills in Radiography.* Davis. 1999.
- Facione, Peter. *Critical Thinking: What It Is and Why It Counts.* California Academic Press. 1998.
- Katz, J. et al, *Keys to Nursing Success.* Prentice-Hall. 2001.
- Oermann, M. Critical Thinking, Critical Practice. *Journal of Nursing Management.* 1999;30:4:40C-40I.
- Paul, R. *Critical Thinking.* Rohnert Park, CA-Center for Critical Thinking and Moral Critique. 1990
- Smith-Stoner, M. *Critical Thinking Activities for Nursing.* Lippincott. 1999.

Content Outline	Learning Activities
Objective 1. Recall definitions and descriptions of critical thinking to use as a basis for formulating a personal definition.	
A Definitions - Critical thinking is focused and controlled. It involves: 1 Purposeful, goal directed, focused thinking that questions existing ideas and patterns in order to achieve the necessary results. 2 Analysis and reflection; causing thinking to become more clear, accurate and defensible. 3 The ability to identify and understand biases 4 A process of appraising accuracy and validity of thinking in a context to ensure that the conclusions: a. Make sense in the situation b. Are based on facts, not habit c. Are independent and not other directed 5 Continuous, circular and dynamic process of a. Gathering and interpreting data; b. Planning and acting, c. Evaluating and reflecting.	A Lecture/Discussion *Discussion Item:* Ask students for their personal definition of critical thinking.
B Generalized thinking may be random, uncontrolled, unfocused, purposeless and disconnected.	B Lecture/Discussion
C The general purpose of critical thinking is to 1 Go beyond recall of facts 2 Question existing ideas in order to create newer and more useful ideas 3 Turn information into tools to use in a. Problem solving b. Decision making c. Consider goals in context of immediate and long term problems	C Lecture/Discussion
D Components of Critical Thinking Process 1 Right brain for creative thinking a. Considers multiple perspectives	D Lecture/Discussion

b. Perspective is considered a mental point of view or outlook (1) Based on cluster of related assumptions (2) Incorporating values and interests c. Uses intuition d. Creates new and better ideas 2 Left brain for rational thinking and application a. Decides which data to collect b. Uses all senses in collecting the data c. Sorts and classifies data d. Clusters data into meaningful categories e. Determines gaps in data set f. Determines accuracy of data g. Evaluates data and determines plan h. Reflects on thinking process	*Student Activity:* Formulate a personal working definition of critical thinking as it applies to your anticipated career in a health occupation. Compare your new definition with your original definition. How are they similar? How are they different? *Group Discussion:* Break into groups of three-four. Identify similarities and differences in original and working definitions of critical thinking and formulate one group definition to present to class.

Objective 2. Describe and give examples of the cognitive skills and standards of intellectual reasoning involved in critical thinking.	
A Cognitive Skills 1 Interpretation a. Ability to comprehend and express meaning or significance. b. Includes sub skills of: (1) Categorization (2) Decoding significance (3) Clarifying meaning c. Examples: (1) Recognizing and describing a problem without bias (2) Reading a persons intention in facial expression or body language– can be culturally based (3) Distinguishing a main idea from subordinate ideas in a lecture or a text (4) Constructing a tentative categorization or way of organizing study topics (5) Paraphrasing someone else's ideas in your own words (6) Identifying author's purpose, theme, or point of view	A Lecture/Discussion Categorization Activity Exercise 5.1
2 Analysis a. Ability to identify intended and inferential relationships among statements, questions, concepts, descriptions or events b. Includes Sub-skills (1) Examining ideas for assumptions and biases (2) Prioritizing (3) Identifying causes, effects and consequences (4) Identifying relationships in situations c. Examples (1) Identifying similarities and differences (2) Identifying unstated assumptions (3) Graphically organizing thoughts	2 Reflection, Analysis and Categorization Exercise 5.2
3 Inference a. Ability to identify and secure elements to	

draw reasonable conclusions based on evidence or data b. Includes sub skills of (1) Querying evidence (2) Considering alternatives (3) Drawing preliminary conclusions (4) Recognizing need for additional data when necessary c. Examples (1) Identifying important areas for assessment (2) Questioning completeness of assessment (3) Considering alternative options while weighing probable benefits and risks	c Examples of Critical Thinking Exercise 5.3
4 Explanation a. Ability to state and justify results of analysis in specific, relevant terms. b. Includes sub-skills of (1) Providing rationale for conclusions based on evidence and data (2) Seeing relationships between data c. Examples (1) Applying basic knowledge and criteria used in decision-making (2) Explaining connections between data	
5 Evaluation a. Ability to assess the credibility and logical strength of conclusions and evidence leading to the conclusions b. Includes sub-skills of (1) Judging relevance (2) Determining significance c. Examples (1) Continuously assessing data for relevance to a situation (2) Ensuring that the assessed data continues to support the conclusion and resulting action plan	
6 Self-regulation a. Ability to self-consciously monitor thinking according to the standards of reasoning. b. Includes sub-skills (1) Self-examination (2) Self-correction	6 Autobiographical Exercise Exercise 5.4

c. Examples (1) Examine views on a controversial issue for personal biases or self interest (2) Double-check calculations to ensure accuracy (3) Change conclusions when examination reveals that data on which conclusion was made was insufficient or faulty	
B Standards of Intellectual Reasoning 1 Clarity a. Gateway standard that must be present in order to determine whether the thinking is either relevant or accurate. b. Unclear statements (1) When made verbally or in writing, become obvious when the listener or reader gives feedback (2) More difficult to determine when evaluating one's own thinking c. To elicit clarity in thinking or in responding to another, ask yourself or the speaker to (1) Express point in another way (2) Elaborate further on the point (3) Give another example 2 Accuracy a. Statement can be clear and be also inaccurate b. To determine accuracy, ask self or the speaker (1) Is that really true? Answer: (a) "Yes" (b) "No" (c) "I don't know" (2) If yes, what evidence is there to support the statement or belief? (3) If "no", where can we (I) find the accurate information? (4) If "I don't know", how can we (I) validate or negate the accuracy of the data or statement?	B Lecture/Discussion

3 Precision (Specificity)
   a. Statement can be clear and accurate, but not precise or specific enough to be significant or valid in the situation
   b. To determine specificity in thinking or in statements, ask yourself or the speaker to
      (1) Be more precise (specific)?
      (2) Give more details?

4 Relevance
   a. Statement or thinking can be clear, accurate and precise but not relevant to the question or situation.
   b. To ensure relevance in thinking or in information being presented, ask yourself or the speaker to
      (1) Restate the issue for clarification
      (2) Make a connection between the question or issue and the response
      (3) Specify how the statement relates to the issue

5 Depth/Breadth
   a. Statement, response or thinking can be clear, accurate, precise and relevant but be superficial or narrow in addressing the issue.
   b. To ensure depth in thinking or in information being presented, ask yourself or the speaker to
      (a) Make sure the complexities in the situation are addressed
      (b) Consider the consequences of the response, decision, action?
      (c) Consider whether the response addresses the most significant factors in the situation
      (2) To ensure breadth in thinking or responding, ask yourself or the speaker to consider whether or not
         (a) Another point of view should be sought.
         (b) All pertinent perspectives have been addressed.
         (c) Another way of approaching the situation would be useful.

6 Logic a. Thinking is logical when pieces fit together intelligibly and it makes sense overall. b. To ensure logic in thinking and in information being presented, ask yourself or the speaker if the (1) Thinking or conclusion makes sense. (2) Conclusions are derived from the data presented. (3) Pathway from the issue to the conclusion is consistent.	

Objective 3. Describe the affective dispositions and thinking styles of critical thinkers.	
A Affective Dispositions (Approaches to life) 1 Inquisitive – a. Curiosity about a wide range of issues b. Concern about becoming and remaining well informed 2 Judicious – prudence in suspending, making or altering judgments 3 Truth-seeking – honesty in facing own biases, prejudices, stereotypes or egocentric tendencies 4 Confident in reasoning – fair-minded in appraising reasoning 5 Open-minded and flexible regarding a. Divergent world views b. Opinions of others c. Alternatives 6 Analytical a. Willing to examine views b. Willing to revise views when honest reflection suggests that change is warranted 7 Systematic – a. Uses similar thinking approach each time b. Spends time in each step relative to the urgency and complexity of the issue.	A Lecture/Discussion *Student Activity:* Develop a chart including the Affective Dispositions and Thinking Styles important in the development of critical thinking skills. Include a rating scale (1-5) to rate yourself on each of these attributes. Bring to class for discussion. *Group Discussion:* In a group of four - five students, share your personal chart and identify those areas of strength and those needing improvement. Considering that all of the attributes are important form groups to enhance strengths and minimize weaknesses. Be sure to include diversity in thinking styles when forming your groups.
B Thinking Styles 1 Thinking Styles based on Myers/Briggs Personality Types (see Module IV, Obj.2,A,1-b) 2 Perception a. Sensing (1) Perceives world specifically through the five senses (2) Looks for facts b. Intuitive (1) Perceives the world globally (2) Looks for meaning 3 Judgment a. Thinking (1) Uses objective data (2) Seeks justice b. Feeling	B Lecture/Discussion

(1) Uses subjective data (2) Seeks fairness 4 Attitude a. Judging (1) Orders the environment (2) Likes to plan b. Perceiving (1) Keeps things flexible and open (2) Likes to be spontaneous 5 Domain a. Introvert (1) Thinks quietly (inside self) (2) Draws energy from being quiet b. Extravert (1) Thinks out loud (2) Draws energy from being with people	

Objective 4. Compare and contrast critical thinking, problem solving and decision-making.	
A Critical thinking is a process that is useful and goal-directed. It is used as a tool in problem solving and decision-making.	A Lecture/Discussion Interrelationships of Critical Thinking, Problem Solving and Decision Making Handout 5.1
B Problem solving overlaps with the process of decision-making because every identified problem requires some sort of decision, even if the decision is to do nothing	B Lecture/Discussion
C Problem Solving differs from Critical Thinking in that problem solving requires one right answer, while critical thinking considers several alternatives.	C Lecture/Discussion
D Steps in Problem-solving a. Observe b. Assess and analyze (1) Inquire or Question (basic component of critical thinking as well) (2) Determine type of solution required (a) No solution (b) Further investigation for understanding (c) Timing of the solution depends on urgency or complexity of problem c. Brainstorm possible solutions (1) Investigate further (2) Weigh consequences (risk/benefit) of solutions (3) Select one solution d. Plan – set goals e. Implement - action f. Evaluate – refer back to assessment and goals set g. Refine the plan based on reassessed data	D Lecture/Discussion
E Decision-making involves using critical thinking skills during problem solving process 1 Brainstorming – a. Consider all possible choices	E Lecture/Discussion

b. Evaluate the best one to use 2 Planning – goal setting asks the questions: a. "Why is this decision necessary?" b. "What are the desired results?" c. "What is the relative value of the result?" 3 Activate or Implement the Plan 4 Evaluate the results.	

Objective 5. Describe essential critical thinking skills and apply to situations commonly occurring in health occupations.	
A Knowledge base 1 Recall information that applies to a given situation a. Determine accuracy of information b. Recognize when there are gaps in information 2 Determine relevance of missing information to the specific situation 3 Determine the best source to fill in the missing data	A Lecture-Discussion Critical Thinking Exercises Exercises 5.5 – 5.11 Answer Keys 5.5 – 5.11
B Knowledge with experience 1 Recall common expectations in a common situation 2 Recognize when assessed data deviates from normal expectations 3 Recognize causes and effects 4 Anticipate consequences of action or non-action	B Lecture/Discussion
C Ability to cluster data to formulate a hypothesis or draw a preliminary conclusion 1 Identify deviations from normal expectations 2 Cluster assessed data and determine need for more data (fill in the gaps) 3 Attach meaning (significance) to the cluster of relevant cues 4 Validate thinking with colleague or more experienced clinician	C Lecture/Discussion
D Ability to consider multiple options depending on the urgency or complexity of the situation	D Lecture/Discussion
E Ability to communicate to other members of the allied health care team. 1 Communication among health care team members a. Frequently takes place in a time urgent, rapid-paced environment b. May take place by telephone rather than face to face c. Usually involves reporting of important	E Lecture/Discussion

changes requiring determination of an action

2 Communication frequently involves persons with unequal status in the relationship
   a. Doctor-Nurse
   b. Radiologist-Radiological Technician
   c. Dentist-Dental Hygienist
   d. Emergency Nurse or Physician-EMT
   e. Psychiatric Nurse – Psychiatric Tech.

3 Requirements of communication
   a. Prior to the communication
      (1) Fact gathering
      (2) Compilation of relevant supportive data
      (3) Organization of data
      (4) Determination of significance of the problem, issue or concern
   b. During the communication
      (1) Clear statement of intent of the communication
      (2) Concise statement of the problem, issue, concern
      (3) Focused description of supporting data
      (4) Assertive request
   c. Following the communication
      (1) Repeat significant information required to meet legal requirements (physician orders)
      (2) Follow procedure for documenting results of communication
      (3) Implement and evaluate the plan
      (4) Evaluate and refine plan