

# A Mini-Training Session: Three (or MORE!) Rubrics for Assessing Students' Critical Thinking Learning Outcomes

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## Participant Outcomes:

- Identify Student Learning Outcomes for Critical Thinking
- Explore Alternative Critical Thinking Rubric Designs
- Review Levels of Cognitive Development
- Use Rubrics to Assess Student Papers
- Evaluate/Critique Assessment Rubric Design
- Recommend Improvements to Assessment Task Design
- Designing Assignments to Foster Improved Critical Thinking

# Identify Learning Outcomes for Critical Thinking

## ACTIVITY

List Words/Phrases That Describe the Critical Thinking Outcomes You Would Like Students to Achieve:

# Using a Rubric to Assess Critical Thinking

RUBRIC: Set of scoring guidelines for assessing student performance

Ideally, an Assessment Method Should:

- Link Assessment Results to Student Learning (Help “Close the Loop”)
- Provide Students With Useful Feedback by Pointing to Ways They Can Improve
- Provide Faculty With Useful Information for Improving Assignments/Courses/Curricula

# Miami University Experience Using WSU Rubric

Available from Washington State University at <http://wsuctproject.wsu.edu/ctr.htm>

## The Critical Thinking Rubric

1) Identifies and summarizes the **problem/question** at issue (and/or the source's position).

### Scant

Does not identify and summarize the problem, is confused or identifies a different and inappropriate problem.

Does not identify or is confused by the issue, or represents the issue inaccurately.

### Substantially Developed

Identifies the main problem and subsidiary, embedded, or implicit aspects of the problem, and identifies them clearly, addressing their relationships to each other.

Identifies not only the basics of the issue, but recognizes nuances of the issue.

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2) Identifies and presents the **STUDENT'S OWN perspective and position** as it is important to the analysis of the issue.

### Scant

Addresses a single source or view of the argument and fails to clarify the established or presented position relative to one's own. Fails to establish other critical distinctions.

### Substantially Developed

Identifies, appropriately, one's own position on the issue, drawing support from experience, and information not available from assigned sources.

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3) Identifies and considers **OTHER salient perspectives and positions** that are important to the analysis of the issue.

### Scant

Deals only with a single perspective and fails to discuss other possible perspectives, especially those salient to the issue.

(continued)

### Substantially Developed

Addresses perspectives noted previously, and additional diverse perspectives drawn from outside information.

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4) Identifies and assesses the key **assumptions**.

Scant

Does not surface the assumptions and ethical issues that underlie the issue, or does so superficially.

Substantially Developed

Identifies and questions the validity of the assumptions and addresses the ethical dimensions that underlie the issue.

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5) Identifies and assesses the quality of **supporting data/evidence** and provides additional data/evidence related to the issue.

Scant

Merely repeats information provided, taking it as truth, or denies evidence without adequate justification. Confuses associations and correlations with cause and effect.

Does not distinguish between fact, opinion, and value judgments.

Substantially Developed

Examines the evidence and source of evidence; questions its accuracy, precision, relevance, completeness.

Observes cause and effect and addresses existing or potential consequences.

Clearly distinguishes between fact, opinion, & acknowledges value judgments.

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6) Identifies and considers the influence of the **context** \* on the issue.

Scant

Discusses the problem only in egocentric or sociocentric terms.

Does not present the problem as having connections to other contexts-cultural, political, etc.

Substantially Developed

Analyzes the issue with a clear sense of scope and context, including an assessment of the audience of the analysis.

Considers other pertinent contexts.

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7) Identifies and assesses **conclusions, implications and consequences**.

Scant

Fails to identify conclusions, implications, and consequences of the issue or the key relationships between the other elements of the problem, such as context, implications, assumptions, or data and evidence.

Substantially Developed

Identifies and discusses conclusions, implications, and consequences considering context, assumptions, data, and evidence.

Objectively reflects upon the their own assertions.

**\*Contexts for Consideration**

1. **Cultural/Social:** Group, national, ethnic behavior/attitude
2. **Scientific:** Conceptual, basic science, scientific method
3. **Educational:** Schooling, formal training
4. **Economic:** Trade, business concerns costs
5. **Technological:** Applied science, engineering
6. **Ethical:** Values
7. **Political:** Organizational or governmental
8. **Personal Experience:** Personal observation, informal character

## Washington State University Critical Thinking Rubric as elaborated by Beverley Taylor

<b>1) Identifies and summarizes the <b>problem/question</b> at issue (and/or the source's position).</b>			
<i>Scant</i>	<i>Minimally Developed</i>	<i>Moderately Developed</i>	<i>Substantially Developed</i>
Does not identify and summarize the problem, is confused or identifies a different and inappropriate problem.	Identifies the main problem or question but does not recognize subsidiary or implicit aspects of the problem.	Identifies the main problem or question and some but not all of the complexities or nuances associated with the problem.	Identifies the main problem and subsidiary, embedded, or implicit aspects of the problem, and identifies them clearly, addressing their relationships to each other.
Does not identify or is confused by the issue, or represents the issue inaccurately.	Demonstrates a basic understanding of the assignment.	Demonstrates a good understanding of the assignment and related course material.	Identifies not only the basics of the issue, but recognizes nuances of the issue.
<b>2) Identifies and presents the STUDENT'S OWN <b>perspective and position</b> as it is important to the analysis of the issue</b>			
<i>Scant</i>	<i>Minimally Developed</i>	<i>Moderately Developed</i>	<i>Substantially Developed</i>
Addresses a single source or view of the argument and fails to clarify the established or presented position relative to one's own. Fails to establish other critical distinctions.	Identifies one's own position on the issue relative to other positions, but does not provide supporting evidence for the position.	Identifies, appropriately, one's own position on the issue, drawing support from experience and information from course materials.	Identifies, appropriately, one's own position on the issue, drawing support from experience and information not available from assigned sources
Fails to acknowledge the existence of valid counter arguments.	Fails to acknowledge the possible validity of other positions	Recognizes that there are other valid points of view.	Recognizes counterarguments that might be made and responds to them.
<b>3) Identifies and considers OTHER salient <b>perspectives and positions</b> that are important to the analysis of the issue.</b>			
<i>Scant</i>	<i>Minimally Developed</i>	<i>Moderately Developed</i>	<i>Substantially Developed</i>
Deals only with a single perspective and fails to discuss other possible perspectives, especially those salient to the issue.	Acknowledges that other perspectives exist, but fails to adequately present the case for these perspectives.	Appropriately addresses multiple perspectives, but omits at least one important perspective.	Addresses perspectives noted previously and additional diverse perspectives drawn from outside information.
<b>4) Identifies and assesses the key <b>assumptions</b>.</b>			
<i>Scant</i>	<i>Minimally Developed</i>	<i>Moderately Developed</i>	<i>Substantially Developed</i>
Does not surface the assumptions and ethical issues that underlie the issue, or does so superficially.	Identifies some but not all of the assumptions that have been made in their analysis. Only superficially considers the validity of those assumptions.	Identifies the assumptions made in the analysis and considers their validity, yet fails to surface important ethical issues.	Identifies and questions the validity of the assumptions and addresses the ethical dimensions that underlie the issue.

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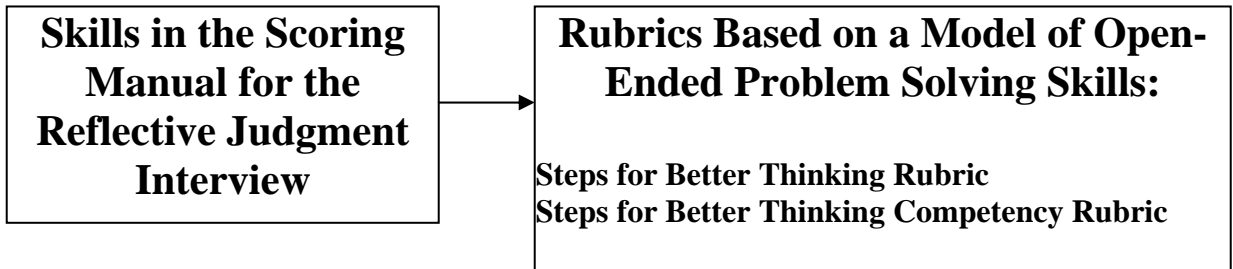
<b>5) Identifies and assesses the quality of supporting data/evidence and provides additional data/evidence related to the issue.</b>			
<i>Scant</i>	<i>Minimally Developed</i>	<i>Moderately Developed</i>	<i>Substantially Developed</i>
<p>Merely repeats information provided, taking it as truth, or denies evidence without adequate justification. Confuses associations and correlations with cause and effect.</p> <p>Does not distinguish between fact, opinion, and value judgments.</p> <p>Does not identify sources or uses inappropriate sources.</p>	<p>Provides significant supporting evidence only the student's own perspective. Evidence for other perspectives is minimal.</p> <p>Does not examine the evidence for bias or incompleteness.</p> <p>Does not recognize value judgments.</p> <p>Identifies sources but has some questionable sources.</p>	<p>Provides significant evidence for multiple perspectives. Questions accuracy and completeness. Of some evidence, but not all.</p> <p>May have some problems with cause and effect.</p> <p>May fail to properly identify some opinions and value judgments.</p> <p>Uses and cites appropriate sources.</p>	<p>Provides significant evidence for multiple perspectives. Examines the evidence and source of evidence; questions its accuracy, precision, relevance, completeness.</p> <p>Correctly identifies cause and effect.</p> <p>Clearly distinguishes between fact, opinion, &amp; acknowledges value judgments.</p>
<b>6) Identifies and considers the influence of the context on the issue.</b>			
<i>Scant</i>	<i>Minimally Developed</i>	<i>Moderately Developed</i>	<i>Substantially Developed</i>
<p>Discusses the problem from the perspective of a single discipline.</p> <p>Does not present the problem as having connections to other contexts-cultural, political, etc.</p>	<p>Recognizes the importance of issues such as political and economic feasibility their question, but does not discuss their impact.</p>	<p>Analyzes the issue considering relevant contexts, but fails to consider one important context.</p>	<p>Analyzes the issue with a clear sense of scope and context, including an assessment of the audience of the analysis.</p> <p>Fully considers pertinent contexts such as political, economic, and social.</p>
<b>7) Identifies and assesses conclusions, implications and consequences</b>			
<i>Scant</i>	<i>Minimally Developed</i>	<i>Moderately Developed</i>	<i>Substantially Developed</i>
<p>Fails to identify conclusions, implications, and consequences of the issue or the key relationships between the other elements of the problem, such as context, implications, assumptions, or data and evidence.</p> <p>Fails to reflect upon own work.</p>	<p>Draws incomplete conclusions or considers only some of the consequences of the conclusions.</p> <p>Fails to reconsider assumptions identified earlier.</p> <p>Fails to reflect upon own work.</p>	<p>Draws appropriate conclusions from evidence/data. Identifies and discusses some, but not all, consequences of these conclusions.</p> <p>Fails to consider the limitations of their own work.</p> <p>Identifies some directions for further inquiry.</p>	<p>Identifies and discusses conclusions, implications, and consequences considering context, assumptions, data, and evidence.</p> <p>Objectively reflects upon their own assertions. Acknowledges the value judgments on which their position is based.</p> <p>Identifies appropriate directions for further inquiry.</p>

# Steps for Better Thinking Performance Patterns

←Less Complex Performance Patterns		More Complex Performance Patterns→		
“Confused Fact-Finder” Performance Pattern 0 Step 1, 2, 3, & 4 skills weak	“Biased Jumper” Performance Pattern 1 Step 2, 3, & 4 skills weak	“Perpetual Analyzer” Performance Pattern 2 Step 3 & 4 skills weak	“Pragmatic Performer” Performance Pattern 3 Step 4 skills weak	“Strategic Re-Visioner” Performance Pattern 4 Strategically Integrates Step 1, 2, & 3 skills
<b>Overall Problem Approach:</b> Proceeds as if goal is to find the single, "correct" answer	<b>Overall Problem Approach:</b> Proceeds as if goal is to stack up evidence and information to support conclusion	<b>Overall Problem Approach:</b> Proceeds as if goal is to establish a detached, balanced view of evidence and information from different points of view	<b>Overall Problem Approach:</b> Proceeds as if goal is to come to a well-founded conclusion based on objective comparisons of viable alternatives	<b>Overall Problem Approach:</b> Proceeds as if goal is to construct knowledge, to move toward better conclusions or greater confidence in conclusions as the problem is addressed over time
<b>Common Weaknesses:</b> <ul style="list-style-type: none"> <li>• Fails to realistically perceive uncertainties/ambiguities</li> <li>• Does not seem to “get it”; recasts open-ended problem to one having a single “correct” answer</li> <li>• Insists that professors, textbooks, or other experts should provide “correct” answer</li> <li>• Expresses confusion or futility</li> <li>• Uses illogical/contradictory arguments</li> <li>• Cannot evaluate or appropriately apply evidence</li> <li>• Inappropriately cites textbook, “facts,” or definitions</li> <li>• Concludes based on unexamined authorities' views or what “feels right”</li> </ul>	<b>Major Improvements Over Performance Pattern 0:</b> <ul style="list-style-type: none"> <li>• Acknowledges existence of enduring uncertainties and the viability of multiple perspectives</li> <li>• Begins to use evidence logically to support conclusions</li> </ul> <b>Common Weaknesses:</b> <ul style="list-style-type: none"> <li>• Jumps to conclusions</li> <li>• Stacks up evidence quantitatively to support own view and ignores contrary information</li> <li>• Equates unsupported personal opinion with other forms of evidence</li> <li>• Inept at breaking problem down and understanding multiple perspectives</li> <li>• Insists that all opinions are equally valid, but ignores or discounts other opinions</li> <li>• Views experts as being opinionated or as trying to subject others to their personal beliefs</li> </ul>	<b>Major Improvements Over Performance Pattern 1:</b> <ul style="list-style-type: none"> <li>• Presents coherent and balanced description of a problem and the larger context in which it is found</li> <li>• Identifies issues, assumptions, and biases associated with multiple perspectives</li> <li>• Attempts to control own biases</li> <li>• Logically and qualitatively evaluates evidence from different viewpoints</li> </ul> <b>Common Weaknesses:</b> <ul style="list-style-type: none"> <li>• Unable to establish priorities for judging across alternatives</li> <li>• Reluctant to select and defend a single overall solution as most viable, or provides inadequate support for solution</li> <li>• Writes overly long paper in attempt to demonstrate all aspects of analysis (problems with prioritizing)</li> <li>• Jeopardizes class discussions by getting stuck on issues such as definitions</li> </ul>	<b>Major Improvements Over Performance Pattern 2:</b> <ul style="list-style-type: none"> <li>• After thorough exploration, consciously prioritizes issues and information</li> <li>• Articulates well-founded support for choosing one solution while objectively considering other viable options</li> <li>• Conclusion based on qualitative evaluation of experts’ positions or situational pragmatics</li> <li>• Effectively incorporates others in the decision process and/or implementation</li> </ul> <b>Common Weaknesses:</b> <ul style="list-style-type: none"> <li>• Conclusion doesn’t give sufficient attention to long-term, strategic issues</li> <li>• Inadequately identifies and addresses solution limitations and “next steps”</li> </ul>	<b>Major Improvements Over Performance Pattern 3:</b> <ul style="list-style-type: none"> <li>• Prioritizes and addresses limitations effectively</li> <li>• Interprets and re-interprets bodies of information systematically over time as new information becomes available</li> <li>• Exhibits a strategic, long-term vision</li> <li>• Spontaneously considers possible ways to generate new information about the problem</li> </ul> <b>Common Weaknesses:</b> <ul style="list-style-type: none"> <li>• Not applicable</li> </ul>

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# A Cognitive Development Approach to Critical Thinking Rubric Design



Steps for Better Thinking performance patterns 0, 1, 2, 3, & 4 correspond to Reflective Judgment Stages 3, 4, 5, 6, & 7.

## Benefits of a Rubric Based on Levels of Cognitive Development:

- Improve insights about students' critical thinking strengths and weaknesses.
- Identify the "next steps" in building student critical thinking skills.
- Provide students with more appropriate feedback for student learning.
- Improve interrater reliability.

### References:

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- Fischer, K. W., & Pruyne, E. (2002). Reflective thinking in adulthood: Development, variation, and consolidation. In J. Demick & C. Andreoletti (Eds.), *Handbook of adult development* (pp. 169-197). New York: Plenum.
- Lynch, C. L., & Wolcott, S. K. (2001). *Helping your students develop critical thinking skills* (IDEA Paper #37). Manhattan, KS: The IDEA Center. Available at [http://www.idea.ksu.edu/papers/pdf/Idea\\_Paper\\_37.pdf](http://www.idea.ksu.edu/papers/pdf/Idea_Paper_37.pdf).
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# Steps for Better Thinking Rubric

Steps for Better Thinking ↓ SKILLS ↓	←Less Complex Performance Patterns			More Complex Performance Patterns→	
	"Confused Fact Finder" Performance Pattern 0—How performance might appear when Step 1, 2, 3, and 4 skills are weak	"Biased Jumper" Performance Pattern 1—How performance might appear when Step 1 skills are adequate, but Step 2, 3, and 4 skills are weak	"Perpetual Analyzer" Performance Pattern 2—How performance might appear when Step 1 and 2 skills are adequate, but Step 3 and 4 skills are weak	"Pragmatic Performer" Performance Pattern 3—How performance might appear when Step 1, 2, and 3 skills are adequate, but Step 4 skills are weak	"Strategic Re-Visioner" Performance Pattern 4—How performance might appear when one has strong Step 1, 2, 3, and 4 skills
<b>Step 1: IDENTIFY</b> A—Identify and use relevant information B—Articulate uncertainties	A0—Uses very limited information; primarily "facts," definitions, or expert opinions B0—Either denies uncertainty OR attributes uncertainty to temporary lack of information or to own lack of knowledge	A1—Uses limited information, primarily evidence and information supporting own conclusion* B1—Identifies at least one reason for significant and enduring uncertainty*	A2—Uses a range of carefully evaluated, relevant information B2—Articulates complexities related to uncertainties and the relationships among different sources of uncertainty	A3—Uses a range of carefully evaluated, relevant information, including alternative criteria for judging among solutions B3—Exhibits complex awareness of relative importance of different sources of uncertainties	A4—Same as A3 PLUS includes viable strategies for GENERATING new information to address limitations B4—Exhibits complex awareness of ways to minimize uncertainties in coherent, on-going process of inquiry
<b>Step 2: EXPLORE</b> C—Integrate multiple perspectives and clarify assumptions D—Qualitatively interpret information and create a meaningful organization	C0—Portrays perspectives and information dichotomously, e.g., right/wrong, good/bad, smart/stupid D0—Does not acknowledge interpretation of information; uses contradictory or illogical arguments; lacks organization	C1—Acknowledges more than one potential solution, approach, or viewpoint; does not acknowledge own assumptions or biases D1—Interprets information superficially as either supporting or not supporting a point of view; ignores relevant information that disagrees with own position; fails to sufficiently break down the problem	C2—Interprets information from multiple viewpoints; identifies and evaluates assumptions; attempts to control own biases* D2—Objectively analyzes quality of information; Organizes information and concepts into viable framework for exploring realistic complexities of the problem*	C3—Evaluates information using general principles that allow comparisons across viewpoints; adequately justifies assumptions D3—Focuses analyses on the most important information based on reasonable assumptions about relative importance; organizes information using criteria that apply across different viewpoints and allow for qualitative comparisons	C4—Same as C3 PLUS argues convincingly using a complex, coherent discussion of own perspective, including strengths and limitations D4—Same as D3 PLUS systematically reinterprets evidence as new information is generated over time OR describes process that could be used to systematically reinterpret evidence
<b>Step 3: PRIORITIZE</b> E—Use guidelines or principles to judge objectively across the various options F—Implement and communicate conclusions for the setting and audience	E0—Fails to reason logically from evidence to conclusions; relies primary on unexamined prior beliefs, clichés, or an expert opinion F0—Creates illogical implementation plan; uses poor or inconsistent communication; does not appear to recognize existence of an audience	E1—Provides little evaluation of alternatives; offers partially reasoned conclusions; uses superficially understood evidence and information in support of beliefs F1—Fails to adequately address alternative viewpoints in implementation plans and communications; provides insufficient information or motivation for audience to adequately understand alternatives and complexity	E2—Uses evidence to reason logically within a given perspective, but unable to establish criteria that apply across alternatives to reach a well-founded conclusion OR unable to reach a conclusion in light of reasonable alternatives and/or uncertainties F2—Establishes overly complicated implementation plans OR delays implementation process in search of additional information; provides audience with too much information (unable to adequately prioritize)	E3—Uses well-founded, overarching guidelines or principles to objectively compare and choose among alternative solutions; provides reasonable and substantive justification for assumptions and choices in light of other options* F3—Focuses on pragmatic issues in implementation plans; provides appropriate information and motivation, prioritized for the setting and audience*	E4—Articulates how a systematic process of critical inquiry was used to build solution; identifies how analysis and criteria can be refined, leading to better solutions or greater confidence over time F4—Implementation plans address current as well as long-term issues; provides appropriate information and motivation, prioritized for the setting and audience, to engage others over time
<b>Step 4: ENVISION</b> G—Acknowledge and monitor solution limitations through next steps H—Overall approach to the problem	G0—Does not acknowledge significant limitations beyond temporary uncertainty; next steps articulated as finding the "right" answer (often by experts) H0—Proceeds as if goal is to find the single, "correct" answer	G1—Acknowledges at least one limitation or reason for significant and enduring uncertainty; if prompted, next steps generally address gathering more information H1—Proceeds as if goal is to stack up evidence and information to support own conclusion	G2—Articulates connections among underlying contributors to limitations; articulates next steps as gathering more information and looking at problem more complexly and/or thoroughly H2—Proceeds as if goal is to establish an unbiased, balanced view of evidence and information from different points of view	G3—Adequately describes relative importance of solution limitations when compared to other viable options; next steps pragmatic with focus on efficiently GATHERING more information to address significant limitations over time H3—Proceeds as if goal is to come to a well-founded conclusion based on objective consideration of priorities across viable alternatives	G4—Identifies limitations as in G3; as next steps, suggests viable processes for strategically GENERATING new information to aid in addressing significant limitations over time* H4—Proceeds as if goal is to strategically construct knowledge, to move toward better conclusions or greater confidence in conclusions as the problem is addressed over time*

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\* Shaded cells represent emergence of minimal skills in each step. Performance descriptions to the left of a shaded cell characterize skill weaknesses. Performance descriptions to the right of a shaded cell characterize skill strengths.

# Steps for Better Thinking Competency Rubric

		<b>Performance Pattern 0 “Confused Fact Finder”</b>	<b>Performance Pattern 1 “Biased Jumper”</b>	<b>Performance Pattern 2 “Perpetual Analyzer”</b>	<b>Performance Pattern 3 “Pragmatic Performer”</b>	<b>Performance Pattern 4 “Strategic Revisoner”</b>
Step 1 Skills	Identify relevant information Circle ALL that apply	Identifies facts, definitions, and/or experts’ opinions.	Identifies information <sup>1</sup> that is relevant to the problem	Explores a wide range of relevant information <sup>1</sup>	Focuses on the most important relevant information <sup>1</sup>	Develops viable strategies for generating important relevant information <sup>1</sup> over time
	Recognize and address uncertainties <sup>2</sup> Circle ALL that apply	Identifies at least one reason for temporary uncertainty <sup>2</sup>	Identifies at least one reason for significant and permanent uncertainty <sup>2</sup>	Addresses significant and permanent uncertainties <sup>2</sup> when interpreting information	Identifies and discusses the significance of the most important uncertainties <sup>2</sup>	Develops viable strategies for minimizing important uncertainties <sup>2</sup> over time
Step 2 Skills	Integrate multiple perspectives <sup>3</sup> and clarify assumptions <sup>4</sup> Circle ALL that apply		Acknowledges more than one potential solution, approach, or viewpoint	Analyzes information from multiple perspectives, <sup>3</sup> including assumptions <sup>4</sup> and alternative objectives	Provides reasonable and substantive justification for assumptions <sup>4</sup> used in analysis	Argues convincingly using a complex, coherent discussion of own perspective; Articulates strengths and weaknesses of position
	Interpret and organize information Circle ALL that apply		Uses evidence logically to support a point of view; Correctly applies concepts/theories/techniques	Qualitatively interprets information and develops meaningful categories for analysis	Preserves problem complexity, but emphasizes the most important and/or most relevant and reliable information	Systematically re-interprets information as circumstances change or new information becomes available
Step 3 Skills	Use guidelines or principles to judge objectively across options Circle ALL that apply			Avoids reaching a biased conclusion	Maintains objectivity while establishing reasonable priorities for reaching a well-founded conclusion	Uses a systematic process of critical inquiry to build a solution; Articulates how problem solving approach and criteria can be refined, leading to better solutions or greater confidence over time
	Communicate and implement conclusions Circle ALL that apply				Appropriately tailors communication or implementation plans to the setting and audience	Provides appropriate information to motivate and engage others in long-term strategies
Step 4 Skills	Address solution limitations Circle ALL that apply				Focuses on most efficient ways to address limitations or to gather additional information	Articulates solution limitations as a natural part of addressing open-ended problems
	Engage in continuous improvement Circle ALL that apply					Identifies uncertainties and limitations as opportunities for continuous improvement; Engages in lifelong learning
<b>Overall Approach to the Problem</b> Circle ONLY ONE		Proceeds as if goal is to find the single, “correct” answer	Proceeds as if goal is to stack up evidence and information to support own conclusion	Proceeds as if goal is to establish an unbiased, balanced view of evidence and information from different points of view	Proceeds as if goal is to come to a well-founded conclusion based on objective consideration of priorities across viable alternatives	Proceeds as if goal is to strategically construct knowledge, to move toward better conclusions or greater confidence in conclusions as the problem is addressed over time

<sup>1</sup> Information can take many forms, including facts, descriptions, definitions, arguments, opinions, ideas, claims, theories, concepts, observations, research findings, values, perceptions, beliefs, influences, effects, and so on. Information can be obtained in many ways such as reading, seeing, hearing, touching, feeling, experiencing, interacting, thinking, etc.

<sup>2</sup> Uncertainties can relate to many aspects of the problem, including the problem definition, availability of solution alternatives, quality and interpretation of information, effects of alternatives, priorities and values of the decision maker and others, and so on. Temporary uncertainties relate to conditions that will become known in the future (e.g., experts will find the answer, information will become available, or effects will be knowable).

<sup>3</sup> Perspectives can relate to any type of grouping that is meaningful to the problem, such as categories of people, cultures, societies, roles, races, genders, hierarchies, theories, concepts, ideas, beliefs, attitudes, physical locations, time, disciplines, values, emotions, and so on.

<sup>4</sup> Assumptions are hypotheses, suppositions, conjectures, assertions, presumptions, beliefs, or premises that are taken for granted or that lie behind an argument. Assumptions are made because of uncertainties; the “truth” cannot be known or proven. Some assumptions are better than others. Better assumptions are more reasonable, logical, comprehensive, plausible, likely, rational, impartial, objective, justified, credible, and/or believable.

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## Washington State University Critical Thinking Rubric – Integrated (Draft 1.5 10/18/05)

Critical Thinking Skill	Very Weak (Confused Fact-Finder) 0	Partially Developed (Biased Jumper) 1	Substantially Developed (Perpetual Analyzer) 2	Excellent (Pragmatic Performer and Strategic Revisoner) 3-4
Overall Approach to Critical Thinking	Proceeds as if goal is to find the single, “correct” answer; depends on outside authority for correct answers, information, etc.	Proceeds as if goal is to stack up evidence and information to support a particular conclusion	Proceeds as if goal is to establish a detached, balanced view of evidence and information from different points of view	Proceeds as if goal is to come to a well-founded conclusion based on objective comparison of viable alternatives; Or to construct knowledge, to move toward better conclusions or greater confidence in conclusions as the problem is addressed over time.
Other Major Characteristics	<ul style="list-style-type: none"> <li>• Fails to recognize uncertainty or attributes it to “temporary” uncertainty that authority will fix.</li> <li>• Depends on authority to indicate “correct” answers</li> <li>• Uses contradictory or illogical arguments; lacks organization</li> </ul>	<ul style="list-style-type: none"> <li>• Recognizes uncertainty and multiple perspectives but does not integrate them well into overall reasoning and justification</li> </ul>	<ul style="list-style-type: none"> <li>• Situates coherent and balanced description of problem in larger context; addresses multiple perspectives, evaluates evidence</li> <li>• Has difficulty establishing priorities for judging across perspectives</li> <li>• Organizes information and concepts into viable framework for exploring realistic complexities of the problem</li> </ul>	<ul style="list-style-type: none"> <li>• Provides well-founded support for choosing one solution while objectively considering other viable options</li> <li>• But may not adequately address long-term, limitations, or next steps</li> </ul>
<b>1) Identifies and summarizes the problem/question at issue (and/or the source's position).</b>	<ul style="list-style-type: none"> <li>• Does not identify and summarize the problem; is confused or identifies a different or inappropriate problem</li> <li>• Problem stated in dichotomous terms such as yes/no, good/bad, or right/wrong</li> </ul>	<ul style="list-style-type: none"> <li>• Identifies the problem from a set of information in which the problem is clearly evident</li> <li>• Does not identify subsidiary, embedded, or implicit aspects of the problem</li> <li>• Problem stated unidirectionally, e.g. “We will prove that x is true” or “To me, x is true”</li> </ul>	<ul style="list-style-type: none"> <li>• Clearly identifies the main problem and subsidiary, embedded, or implicit aspects of the problem, and addresses their relationships to each other</li> <li>• Identifies not only the basics of the issue, but recognizes nuances of the issue</li> <li>• Problem stated in terms of a process of examining evidence from multiple points of view</li> </ul>	<ul style="list-style-type: none"> <li>• Problem stated as in Level 2, but with emphasis also on prioritizing across viable alternative solutions</li> <li>• Identifies nuances and implicit aspects of the problem; also identifies the most important problem or most important aspects of the problem</li> <li>• Identifies problems arising from limitations of current solutions; anticipates future problems</li> </ul>

(continued on next page)

Critical Thinking Skill	Very Weak (Confused Fact-Finder) 0	Partially Developed (Biased Jumper) 1	Substantially Developed (Perpetual Analyzer) 2	Excellent (Pragmatic Performer and Strategic Revisoner) 3-4
2) Identifies and presents the STUDENT'S OWN <b>perspective and position</b> as it is important to the analysis of the issue.	<ul style="list-style-type: none"> <li>Does not identify the established or own point of view</li> </ul>	<ul style="list-style-type: none"> <li>Identifies one's own position on the issue, drawing support from experience and information from assigned sources</li> <li>Addresses a single view of the argument; fails to clarify the established or presented position relative to one's own; fails to establish other critical distinctions</li> </ul>	<ul style="list-style-type: none"> <li>Describes own reasoning, including assumptions, experiences, and information not available from assigned sources</li> <li>Fails to adequately prioritize issues, interfering with ability to strongly support own position</li> </ul>	In addition to Level 2: <ul style="list-style-type: none"> <li>Identifies how values and priorities were used, together with objective support from experience and other information, to establish one's own position on the issue</li> <li>Argues convincingly using a complex, coherent discussion of own perspective, including its strengths and limitations</li> </ul>
3) Identifies and considers OTHER salient <b>perspectives and positions</b> that are important to the analysis of the issue.	<ul style="list-style-type: none"> <li>Does not acknowledge the existence of multiple perspectives</li> </ul>	<ul style="list-style-type: none"> <li>Acknowledges the existence of multiple perspectives/positions provided in assigned sources, but deals primarily with a single perspective; fails to objectively discuss other possible perspectives</li> </ul>	<ul style="list-style-type: none"> <li>Compares and contrasts/ provides arguments for and against different perspectives or positions</li> <li>Addresses additional diverse perspectives drawn from outside information</li> </ul>	In addition to Level 2: <ul style="list-style-type: none"> <li>Develops new insights based on complex evaluations of other salient perspectives or positions</li> </ul>
4) Identifies and assesses the key <b>assumptions</b>	<ul style="list-style-type: none"> <li>Does not acknowledge assumptions unless explicitly asked (same as pattern 1)</li> <li>If explicitly asked to address assumptions: Responds inappropriately (e.g., provides definition or asserts a "correct" answer)</li> </ul>	<ul style="list-style-type: none"> <li>Does not acknowledge assumptions unless explicitly asked (same as pattern 0)</li> <li>If explicitly asked to address assumptions: Focuses on others' assumptions, OR identifies some assumptions but fails to analyze them, OR provides superficial analysis of assumptions</li> </ul>	<ul style="list-style-type: none"> <li>Identifies assumptions related to multiple perspectives</li> <li>Evaluates assumptions; questions their validity, including objective evaluation of own assumptions</li> </ul>	In addition to Level 2: <ul style="list-style-type: none"> <li>Addresses the most important or critical assumptions</li> <li>Develops strategies for addressing limitations related to assumptions over time</li> </ul>
5) Identifies and assesses the quality of <b>supporting data/evidence</b> and provides additional data/evidence related to the issue.	<ul style="list-style-type: none"> <li>Merely repeats information provided, taking it as truth</li> <li>Does not interpret data/evidence</li> </ul>	<ul style="list-style-type: none"> <li>Identifies data/evidence to support own conclusion</li> <li>Ignores data/evidence from other perspectives (which are missing) or that disagree with own solution</li> <li>Equates unsupported personal opinion with other forms of evidence</li> <li>Stacks up evidence quantitatively</li> </ul>	<ul style="list-style-type: none"> <li>Examines the evidence and source of evidence from multiple perspectives</li> <li>Questions evidence accuracy, precision, relevance, completeness</li> <li>Draws on additional data/evidence from outside sources</li> </ul>	In addition to Level 2: <ul style="list-style-type: none"> <li>Ranks data/evidence in terms of importance, relevance, reliability, or other qualitative factors</li> <li>Describes process for systematically generating new data/evidence or for reinterpreting the significance of data/evidence over time</li> </ul>

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Critical Thinking Skill	Very Weak (Confused Fact-Finder) 0	Partially Developed (Biased Jumper) 1	Substantially Developed (Perpetual Analyzer) 2	Excellent (Pragmatic Performer and Strategic Revisoner) 3-4
6) Identifies and considers the influence of the <b>context*</b> on the issue.	<ul style="list-style-type: none"> <li>Does not address context beyond dichotomous characterizations such as good/bad or right/wrong</li> </ul>	<ul style="list-style-type: none"> <li>Acknowledges the existence of different contexts, but discusses the problem primarily in egocentric or sociocentric terms</li> <li>Context mainly discussed in terms of conclusions pre-assumed in problem statement</li> <li>Does not present the problem as having connections to other contexts</li> </ul>	<ul style="list-style-type: none"> <li>Identifies and considers the influence of context when analyzing perspectives and data/evidence</li> <li>Identifies and considers pertinent contexts not explicitly provided</li> </ul>	<ul style="list-style-type: none"> <li>Analyzes the issue with a clear sense of scope and context, including an assessment of the audience of the analysis</li> <li>Identifies and addresses long-term considerations related to the scope, context, and audience</li> </ul>
7) Identifies and assesses <b>conclusions, implications and consequences.</b>	<ul style="list-style-type: none"> <li>Provides facts, definitions, or other “authoritative” information that mask as conclusions instead of own conclusion</li> <li>Does not address implications or consequences beyond dichotomous characterizations such as yes/no, good/bad, or right/wrong</li> </ul>	<ul style="list-style-type: none"> <li>Clearly states conclusions and reasons, but limited to supporting one perspective</li> <li>Considers implications and consequences only superficially</li> <li>Fails to address key relationships among context, assumptions, data, evidence, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Analyzes alternative conclusions, implications, and consequences</li> <li>Conclusions incorporate previously discussed problem statement, as well as key relationships among context, assumptions, data, and evidence</li> <li>Reluctant to select and defend a single overall solution as most viable; may provide inadequate support for solution</li> </ul>	<ul style="list-style-type: none"> <li>Establishes criteria to apply across alternatives to reach a well-founded conclusion</li> <li>Conclusions incorporate previously discussed problem statement, as well as key relationships among context, assumptions, data, and evidence</li> <li>Articulates how problem solving approach and criteria can be refined, leading to better solutions or greater confidence over time</li> </ul>

\* Contexts for Consideration in 6):

- a. Cultural/Social: Group, national, ethnic behavior/attitude
- b. Scientific: Conceptual, basic science, scientific method
- c. Educational: Schooling, formal training
- d. Economic: Trade, business concerns costs
- e. Technological: Applied science, engineering
- f. Ethical: Values
- g. Political: Organizational or governmental
- h. Personal Experience: Personal observation, informal character

# Practice Rating Student Papers

## ACTIVITY:

- Read the assignment and 2 student responses on the following pages.
- Use two rubrics to rate each paper (separate handouts).
- Reach a consensus on your ratings with other participants.

This assignment was used in 1998 by S. Wolcott and S. Muller in a first course taken by students at The Women's College, University of Denver. Most students work full time and are of nontraditional age.

## Essay Assignment

### Restrictions on Gender in Educational Settings

In 1993, Shannon Faulkner challenged The Citadel, an all-male cadet corps, to accept her application to the program. Some people defend The Citadel's position in restricting the military school to male students, while other people argue that such a restriction constitutes discrimination.

Answer the following question (approximately one to two pages single-spaced):

*As a student at an all-female college, what is your opinion on the above issue?*

Below is a chronology of key events in the Shannon Faulkner versus Citadel case, adapted from *The Detroit News*, August 19, 1995. **Students were not given this information** because the assignment was used during 1998, when students were still familiar with the basic facts.

<b>1993</b>	
March 2	Ms. Faulkner sues, charging The Citadel's all-male cadet corps is unconstitutional. She had been accepted after gender references were deleted from her high school transcript, but the military college withdrew its acceptance when it discovered she was a woman.
August 12	U.S. District Judge C. Weston Houck rules Ms. Faulkner may attend day classes, but not join the corps of cadets or participate in military training.
August 24	4 <sup>th</sup> U.S. Circuit Court of Appeals stays Houck's order two days before Ms. Faulkner is to register. She spends fall semester at University of South Carolina-Spartanburg.
November 17	4 <sup>th</sup> Circuit allows Ms. Faulkner into day classes.
<b>1994</b>	
January 12	Ms. Faulkner registers, but U.S. Chief Justice William Rehnquist grants the college a stay.
January 18	Ms. Faulkner becomes first woman to attend day classes at The Citadel after Rehnquist dissolves the stay.
July 22	Houck orders Ms. Faulkner into corps of cadets following a two-week trial of her discrimination suit. The Citadel appeals.
<b>1995</b>	
April 13	4 <sup>th</sup> Circuit rules Ms. Faulkner may join the corps unless South Carolina has a court-approved program by August to provide similar leadership education for women.
May 18	Converse College in Spartanburg agrees to create a \$10 million, state-funded South Carolina Women's Leadership Institute as an alternative.
July 24	Houck rules there is no time to hold a trial on the alternative program before Ms. Faulkner enrolls as a cadet. He sets a trial for November.
July 28	The Citadel asks 4 <sup>th</sup> Circuit to block Ms. Faulkner from becoming a cadet while it appeals to U.S. Supreme Court.
August 2	The Citadel Appeals Houck's ruling that Ms. Faulkner's physical condition can't be used to keep her out. A school spokesman says she is too heavy and has a bad knee.
August 8	4 <sup>th</sup> Circuit refuses to stay its April ruling, and the school asks U.S. Chief Justice William Rehnquist to intervene.
August 9	4 <sup>th</sup> Circuit refuses to stay its ruling on physical requirements
August 11	Rehnquist and Justice Antonin Scalia refuse to keep Ms. Faulkner out, clearing the way for her to become the first female cadet in the school's 152-year history.
August 12	Ms. Faulkner, accompanied by her parents and federal marshals, reports to campus to join other new cadets.
August 18	Ms. Faulkner leaves The Citadel corps of cadets after spending four days in the infirmary. She said the stress of the past 2-1/2 years "came crashing down" on her, making her unable to remain part of the corps.

# **GENDER Student Example #1**

I believe it was improper for The Citadel to try to deny admission to Shannon Faulkner. Because The Citadel is a state-funded school, anyone who meets the academic requirements must be permitted to attend. This is a right granted by our Constitution. Anyone who thinks that Shannon Faulkner shouldn't have been admitted to The Citadel needs to think about our Constitutional rights. This country was founded on equal opportunity, and no one can deny Shannon Faulkner her Constitutional rights. This is why the courts finally forced The Citadel to admit Shannon Faulkner.

By looking at the facts in this case, it is obvious that there was only one right decision that could have been made by the courts. The right decision was to allow Shannon Faulkner, or any other qualified woman, to enter The Citadel. If the courts hadn't forced The Citadel to admit women, other state institutions would have decided it was all right to go on discriminating.

On the other hand, I don't understand why Shannon Faulkner wanted to gain admission to The Citadel to begin with. She lied on her application by not identifying her gender, and the school mistakenly assumed that "Shannon" was male. Then, once she entered The Citadel, Shannon Faulkner attempted to obtain special consideration, such as reduced workout requirements, because she was a woman. She was ultimately unable to handle the workload at The Citadel. She should have known this before she was admitted. I think that Shannon Faulkner wanted to gain publicity by trying to enter an all-male military academy. She obviously wasn't physically or mentally strong enough to be successful at The Citadel, and she shouldn't have tried to enter an academy where she would fail. She caused other, more qualified women, harm by pressing ahead where she didn't belong.

This point leads to the importance of a private school such as The Women's College. Because individuals fund private schools, those individuals can establish whatever policies they want for admission, whether based on gender, race, religion, or anything else. The Women's College provides an educational environment that meets the needs of women students, and it can legally do this because it is a private institution.

Shannon Faulkner should have applied to an educational institution where she was qualified and where she would have succeeded. However, it is important to keep in mind that The Citadel could not deny her admission based on her gender. Women should be allowed to attend any state institution they wish, even if they make the wrong choice.

## **GENDER Student Example #2**

**Opinion:** (1) a view, judgement, or appraisal formed in the mind about a particular matter, (2) belief stronger than impression and less strong than positive knowledge, a generally held view.

The topic of Shannon Faulkner is one that causes me much frustration. I have a lack of trust towards Ms. Faulkner. I believe that she used her gender as a selfish and manipulative way of obtaining access into the all-male environment of the Citadel. Many colleges and universities have traditions. Citadel tradition is that their enrollment be limited to males. The Women's College tradition is that enrollment be limited to females. If the Citadel was named "The Men's College," I don't believe Shannon Faulkner would have attempted to enter, but the prestigious name and the fact that her entry would be controversial were enough incentive for her to attempt to gain access into an environment where she did not belong. As a student in an all-female college, I find myself part of a very special, unique group of women. When a group of women come together with common ideas, hopes, and dreams, it creates an environment unlike any other; a community of strong minds, and stronger wills. If a man were to be accepted into The Women's College, I would feel he was trying to take my school and my community away from me and I, like many members of the citadel would voice my opinion.

Men and women are different. What works for one gender does not necessarily work for the other. I cannot explain the camaraderie between an all-male educational environment, but I can say that to be a part of an exclusive college for women is a wonderful fulfilling experience like no other. To be a part of such a group is an honor and a privilege, to be respected by all persons, male or female.

# More Practice Rating Student Papers

## ACTIVITY:

- Read the assignment on the following page, and then read **ONLY** the response of Student A.
- Choose a rubric to rate the response of Student A (separate handouts).
- Reach a consensus on your ratings with other participants.

## **Business Memo Assignment**

### **Management Response to SEC Inquiry**

You are the CFO of a public company that went public 11 months ago via an initial public offering (IPO). The company is currently owned 30 percent by the public and 70 percent by management and the founding family. You have just received a notice from the SEC that your company's segment reporting is inadequate. The SEC argues that you should separately report a segment for each of the two product lines your company manufactures and markets.

#### **Product Line Background:**

Your company's current segment reporting is limited to one line-of-business consisting of two product lines. Your company has been manufacturing and marketing product line A since the inception of the company. The second product line (B) was a direct outgrowth of product line A. The product lines:

- \* Are developed based on the same technologies, patents and engineering support
- \* Have similar manufacturing processes, are manufactured in the same manufacturing plant, and have 85% of the same component parts.
- \* Are integrated into your customers' machines, which are in turn sold to their end users to enhance the end users' production throughput.
- \* Require that your engineers work closely with the engineers of your customers to ensure your product can be effectively integrated into their machines.
- \* Have a global market and require a significant amount of after-sales service that is a very profitable business
- \* Are stored and shipped out of the same warehouse
- \* Are sold to customers who are classified in the same industry and have been assigned the same SIC code.
- \* Have different sales forces since the customers of each product line sell to very different end users/industries and, since your product is technical, each sales force must be trained in the unique production processes of your customers' end users.

Though sales of each product line are approximately the same, Product line A has a gross margin of 20% whereas Product Line B has a gross margin of 95%. The difference is caused by the selling price, not the cost of manufacturing. Product line B, when integrated into your customers' machines, allows their machines to operate at speeds four times faster than without your product. Thus, your customers' machines can be sold to customers at a much higher price since the increase in speed of their machines is a significant production throughput increase to their end users. In addition, the cost of your products is less than 5% of the total cost of your customers' machines.

(continued)

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**Impact on Your Company if Segment Reporting is Changed:**

Your Board of Directors and executive management have the following concerns if you change your segment reporting:

- \* Product Line B customers would likely attempt to force you to give them a price reduction
- \* The information you would be required to report would provide your competitor with too much information and may draw new competitors into your market
- \* Your shareholders could question your IPO disclosures in spite of the fact the disclosures had been scrutinized, reviewed and accepted by your lawyers, public accountants, and the SEC

The Board feels that this disclosure would be very detrimental to the financial wellbeing of the company.

You have been asked to evaluate the situation and provide your recommendation to the Board of Directors. You know from talking with your public accountants and your colleagues in other companies that the SEC has been questioning the segment disclosures of many companies. They have indicated that the increase in these types of SEC inquiries have resulted from “no-name” inquiries made by law firms on behalf of their clients, who were likely your competitors. However, you consider the SEC inquiry as a serious matter.

**Required:**

Develop a recommendation to your Board of Directors, including your analysis of the situation, the alternatives you investigated, and why you came to your recommendation.

# Business Memo: Student A

**Date:** February 17, 2000  
**To:** Board of Directors  
**From:** Student A  
**Re:** Responding to SEC Inquiry Into Segment Reporting

This memo contains my recommendation for responding to the SEC's inquiry into our line-of-business financial accounting practices. After researching this matter thoroughly and discussing it with our external auditors, I have concluded that our current accounting practice is appropriate and complies with accounting standards. Thus, I recommend that we provide the SEC with our analysis of the accounting standard and argue the appropriateness of our current practice. However, the segment reporting accounting standard is subject to interpretation, and the SEC could make a legitimate case that we should report data separately for product lines A and B. Because the reporting of segment data would most likely cause significant harm to our company, we should develop a contingency plan for addressing this matter further in case the SEC disagrees with our position. I look forward to discussing these issues with you further at the board meeting.

## Background

On February 10, 2000, we received a notice from the SEC that our company's segment reporting is inadequate and that we should report product lines A and B as if they were separate business segments. Based on discussions with my colleagues in other companies and with our auditor, I learned that the SEC has been questioning the segment disclosures of many companies. Many of these inquiries appear to have resulted from "no-name" inquiries made by law firms on behalf of their clients, who are typically competitors of the company being investigated. Thus, the SEC's inquiry into our practices might have been prompted by one of our competitors.

As we discussed during the board's conference call on February 11, segment reporting for product lines A and B would probably cause significant harm to our company and its shareholders. In particular:

- \* Product Line B customers might force us to give them a price reduction.
- \* The information might draw new competitors into our market.
- \* Shareholders could question our IPO disclosures.

## Accounting Rules

The key accounting issue in the SEC inquiry is whether our product lines A and B constitute separate "reportable operating segments" according to FASB Statement 131. The fact that our top management regularly reviews discrete revenue and expense information for each product line and makes business decisions about resources allocated to each product line could be construed to mean that the product lines are separately reportable. However, the two product lines use virtually the same technology, patents, engineering support, manufacturing processes and facilities, component parts, and warehouse facilities. Thus, the two product lines are actually two parts of the same operation. Our auditors agree with this interpretation, and they have promised to provide us with a letter that we can submit to the SEC supporting our position. I am currently drafting a detailed analysis of the provisions of Statement 131 and how they relate to our company's situation. I will be happy to share the details with you, if you would like to see them.

## Contingency Plans

Although we can argue persuasively that our current reporting practice is appropriate, we need to consider the possibility that the SEC might interpret the accounting standard differently than we and our auditors do. Here are some contingency plans for us to discuss during the board meeting:

- \* Develop point-by-point arguments that contradict our own position. This will help us anticipate possible SEC objections, and we can then address those objections in our response to the SEC.
- \* Identify possible actions to take if we are unsuccessful in persuading the SEC. For example, we could consider taking the company private; private companies are not required to report segment data.

## Business Memo: Student B

February 17, 2000

TO: Board of Directors  
FROM: Student B  
SUBJECT: Recommendation about Segmentation Reporting

We have just received a notice from the SEC that it feels that our company's disclosure regarding segmentation reporting is inadequate. The SEC feels that we should report separate segments for each of the two product lines our company manufactures and markets. As a CFO, I believe that this would have a negative impact on the company. Therefore, I recommend that you not accept the SEC's inquiry.

First of all, even though the SEC feels that our company's disclosure regarding segmentation reporting is inadequate, our company's current segmentation reporting has been scrutinized, reviewed, and accepted by our lawyers, public accountants and the SEC. This means that our segmentation reporting doesn't have any problems according to GAAP and the SEC. Therefore, we don't have any duty to disclose more information about our segments. In addition, one of the reasons why the SEC has been questioning the segmentation disclosures of our company is that the SEC's inquiry to our company has resulted from "no-name" inquiries made by law firms on behalf of their clients, who are likely our competitors. So, I believe that the SEC's inquiry is a simple inquiry, not an official requirement.

The next reason is that the information we would be required to report would provide our competitors with too much information and may draw new competitors into our market. Both product lines are developed based on the same technologies, patents and engineering support. Also, both have very similar manufacturing processes and both are manufactured in the same plant. However, Product line A has a gross margin of 20%, whereas Product line B has a gross margin of 95%. The reason for the difference relates to the selling price, not the cost of manufacturing. Information about our profit margins could be very important to our competitors. It would be possible for them to use our price policy for their customers. In addition, this information can draw new competitors into our market.

The last reason is related to the second reason. If we have to disclose segment information, our customers will learn that Product line B has a gross margin of 95%. Therefore, our customers for Product line B will not be happy with our pricing policy and will probably force us to reduce our price. If we don't reduce our selling price, our customers might seek new suppliers.

I recommend that the board not accept the SEC's inquiry to disclose segment information for the reasons above. I believe that we should keep our current segment reporting policy.

## Business Memo: Student C

**To:** Board of Directors  
**From:** Student C  
**Date:** February 17, 2000  
**Re:** Segmentation disclosures for product line A and product line B

Since going public 11 months ago, the adequacy of our one line-of-business segmentation reporting has been questioned. Discussions with our public accountants and colleagues of mine in other companies has revealed that the SEC is questioning the segmentation disclosures of many companies in response to “no-name” inquiries made by law firms on behalf of their clients, who are most likely competitors.

There are several possible alternatives to consider for the segmentation reporting of our product line A and product line B. The existing segmentation reporting could be continued, the two product lines could be divided and reported separately, or some combination of the previously mentioned two alternatives could be implemented. It is imperative that we comply with SEC requirements as well as follow Generally Accepted Accounting Principles (GAAP) as mandated by the Financial Accounting Standards Board (FASB). Noncompliance could result in damaging consequences for the company. After careful consideration, I recommend further analysis of the two product lines, further investigation of SEC requirements related to the reporting of this matter and consequences of the implementation of any changes.

It is important to identify and consider the key stakeholders in this decision. First, there are standard setters such as the SEC and the FASB to consider. The SEC feels that each specific segment for the two product lines our company manufactures and markets should be reported individually. The FASB addresses this issue in statement 131. This statement defines operating segments and provides the steps necessary to determine the required disclosures. It appears that product line A and B should be reported separately in accordance with statement 131 because of the quantitative thresholds. However, without further research and financial analysis, this cannot be determined with certainty.

Changing our current segmentation reporting could have a significant impact on the company, including the board of directors, management, and existing shareholders and also outside parties such as competitors and customers. For example, the customers of product line B may force a price reduction when they find out that its gross margin is 95%. Also, the disclosed information may draw new competitors into the market and give existing competition access to new, valuable information. It also might cause existing shareholders to question IPO disclosures already made, which is “bad business” for us.

After examining this issue from the points of view of various stakeholders, I recommend that we take the necessary steps to ensure compliance with the requirements of the SEC and GAAP. Further research and analysis are required to determine what the course of action should be. It is important to identify the potential consequences of any changes that are implemented in order to buffer their impact on the company as a whole and also the other stakeholders.

# Evaluate/Critique Assessment Rubric Design

## Questions for Discussion:

- Did you and your colleagues reach consensus on the ratings?
- What are the advantages and disadvantages of this rubric?
- Does this rubric address your student learning outcomes for critical thinking?

# Improving Assignment Design

How Might the Two Student Assignments Be Modified to Improve:

- Student critical thinking performance
- Assessment reliability

# Alternative Designs for the Business Memo Assignment

[Assume students are given the original segment reporting case scenario.]

## **Potential Requirements for a Junior or Senior-Level Course:**

1. Describe the roles of the CFO, Board of Directors, and SEC in public company financial reporting.
2. Describe the accounting rules for segment reporting and list the facts of the case that relate to those rules.
3. Explain why application of the segment reporting rules is uncertain for this company.
4. Identify at least three possible responses to the SEC inquiry, and discuss the arguments for and against each response. The arguments you discuss must include, at a minimum, relevant accounting concepts and economic effects.
5. Write a memo to the Board of Directors containing your recommendation, its basis, limitations, and any other information the Board of Directors needs to make an informed decision on this matter.
6. Explain how you decided what information to include/exclude in writing your memo to the Board of Directors.

## **Potential Requirements for a Master-Level Course:**

1. Explain why application of the segment reporting rules is uncertain for this company.
2. Discuss ways in which the CFO needs to consider his/her own point of view as well as the points of view of the Board of Directors, the SEC, and other stakeholders in evaluating alternative solutions.
3. Identify and evaluate alternative ways in which the company might respond to the SEC inquiry, including contingencies for different reactions by the SEC to the company's response.
4. Write a memo to the Board of Directors containing your recommendations, their basis, limitations, and any other information the Board of Directors needs to make an informed decision on this matter.
5. Explain how you decided what information to include/exclude in writing your memo to the Board of Directors.

# “CLOSING THE LOOP”

## What Comes After Assessment?

### Scaffolding: Helping Students Develop More Complex Critical Thinking Skills

Have students address OPEN-ENDED problems (i.e., ones having more than one reasonable solution)

Provide reasonable challenges

Remember: Development is sequential; less complex skills lay the foundation for more complex skills

In general: Target one level higher than students’ existing skills

For most students, it is critical to focus on uncertainties—reasons why problems are open-ended

Most professors expect too much too soon; Keep in mind that development takes much time and practice.

Provide explicit guidance and support to help students develop new skills. For example:

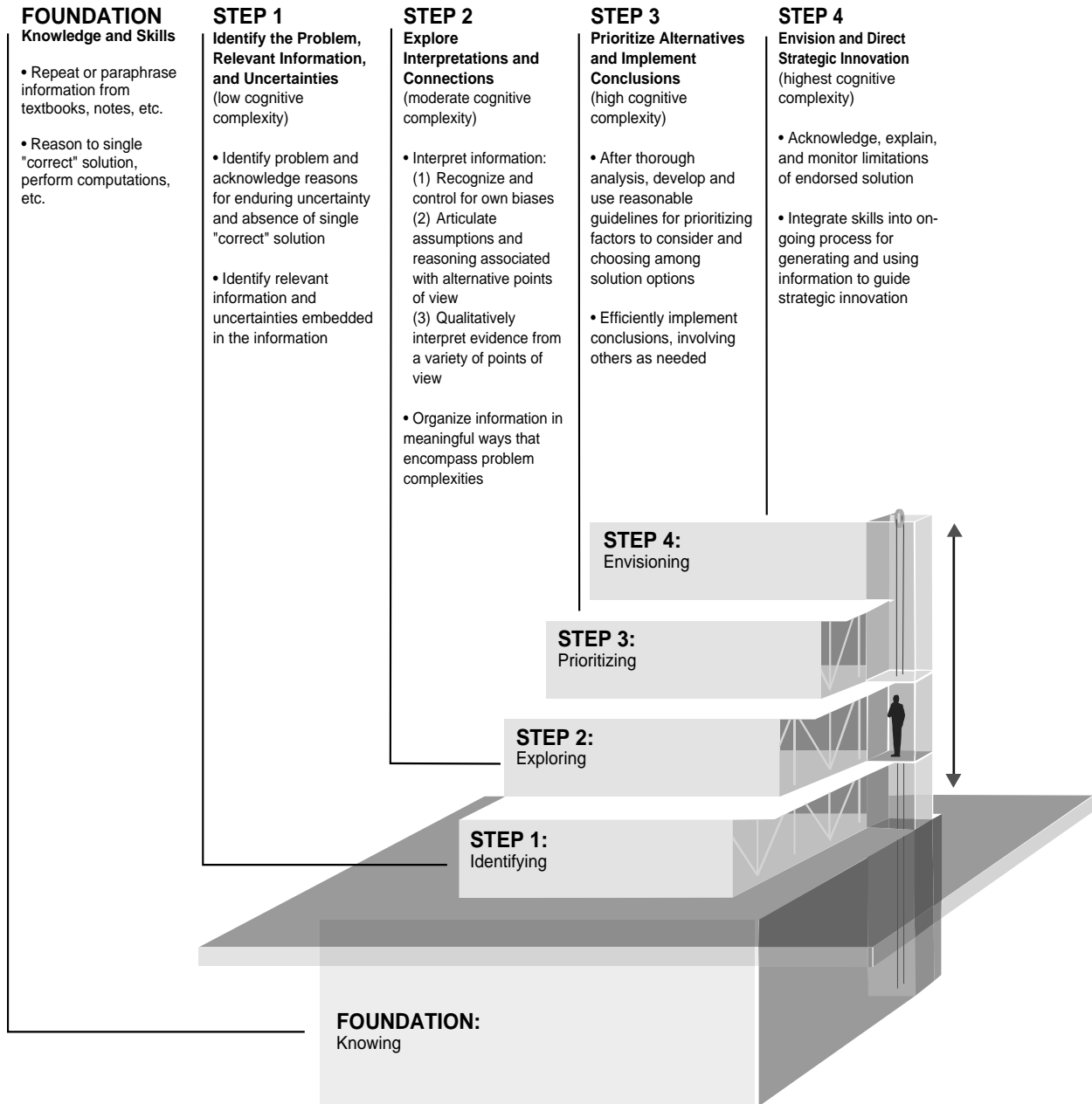
Use Steps for Better Thinking to help you and students focus on critical thinking skills (model on next page)

Design assignments to focus on specific skills



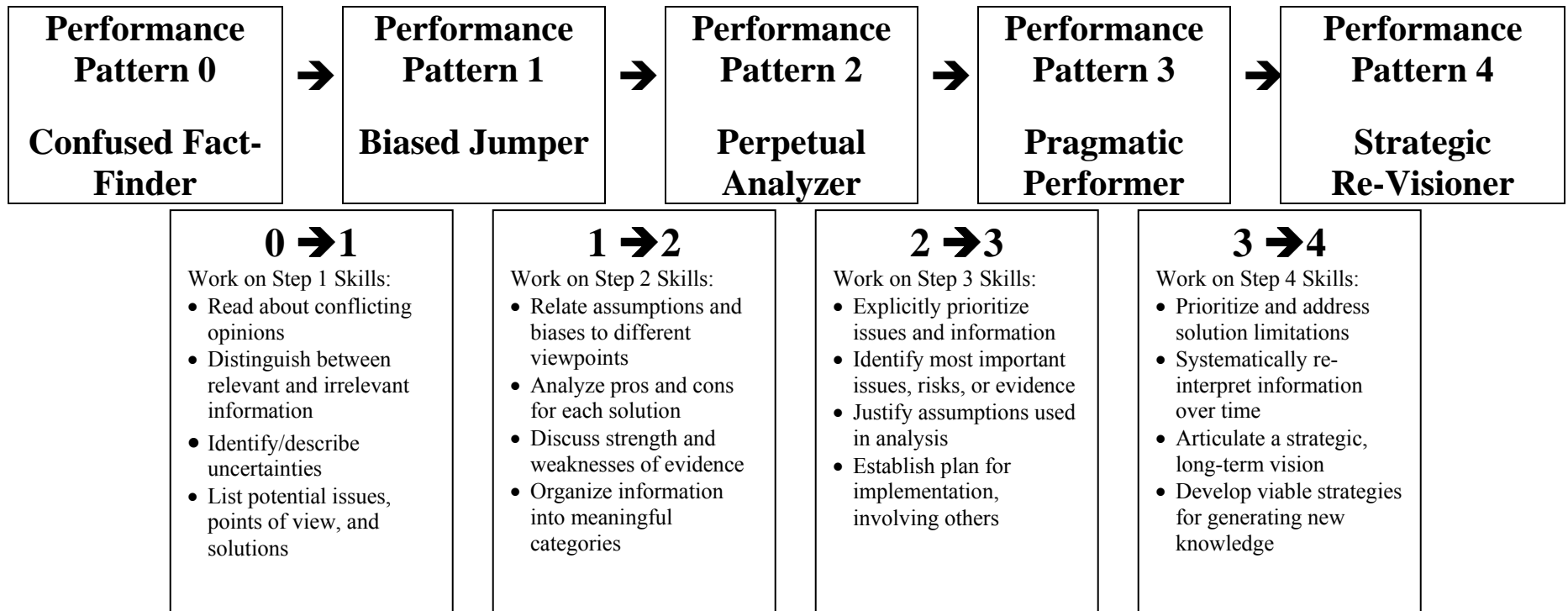
# STEPS FOR BETTER THINKING

## A Developmental Problem Solving Process



© 2006, Susan K. Wolcott. All rights reserved. Materials herein may be reproduced within the context of educational practice or classroom education, provided that reproduced materials are not in any way directly offered for sale or profit. Please cite this source: Wolcott, S. K. (February 9, 2006). Steps for Better Thinking: A Developmental Problem Solving Process [On-line]. Available: <http://www.WolcottLynch.com>. Model evolved from ideas presented in King and Kitchener's (1994) reflective judgment model of cognitive development and Fischer's (Fischer & Bidell, 1998) dynamic skill theory.

# Linking Assessment to Teaching & Learning: Specific Learning Activities to Promote Improved Thinking Skills



For more ideas, see *Templates for Designing Assignment Questions* on the next page.

# Templates for Designing Assignment Questions

←Less Complex Skills		More Complex Skills→	
Step 1—Identifying	Step 2—Exploring	Step 3—Prioritizing	Step 4—Re-Visioning
<p><b>Identifying Relevant Information:</b></p> <ul style="list-style-type: none"> <li>* List data or types of information relevant to _____</li> <li>* Identify relevant information in _____ (a textual passage such as a case, article, or piece of literature)</li> <li>* Identify or access relevant theories, laws, standards, or rules for _____</li> <li>* Identify factors or issues related to _____</li> <li>* Identify various potential points of view or solutions to _____</li> <li>* Describe arguments in favor of _____</li> </ul> <p><b>Identifying Uncertainties:</b></p> <ul style="list-style-type: none"> <li>* Describe uncertainties concerning _____</li> <li>* Identify and describe uncertainties about the interpretation or significance of _____</li> <li>* Identify risks associated with _____</li> <li>* Describe why there is no single, “correct” way to _____</li> <li>* Identify reasons why _____ might change or vary</li> </ul>	<p><b>Interpreting Information From Multiple Viewpoints:</b></p> <ul style="list-style-type: none"> <li>* Describe the pros and cons (or advantages/disadvantages, or strengths/weaknesses) of _____</li> <li>* Analyze the costs and benefits of _____</li> <li>* Explain how ambiguities affect your analysis of _____</li> <li>* Identify assumptions associated with _____ (a point of view or alternative)</li> <li>* Interpret _____ from the viewpoint of _____</li> <li>* Appropriately use _____ (a technique) to analyze _____</li> <li>* Objectively evaluate _____ information</li> <li>* Explain how alternative solutions might affect _____ (one or more individuals, organizations, groups, or other stakeholders)</li> <li>* Analyze the quality of information and evidence related to _____</li> <li>* Identify own biases and explain how those biases were controlled when _____</li> <li>* Identify the effects of _____ on _____</li> </ul> <p><b>Organizing Information:</b></p> <ul style="list-style-type: none"> <li>* Develop meaningful categories for analyzing information about _____</li> <li>* Organize the various aspects of _____ to assist in decision making</li> </ul>	<p><b>Prioritizing and Concluding:</b></p> <ul style="list-style-type: none"> <li>* Develop and use reasonable guidelines for drawing conclusions regarding _____</li> <li>* Assess the amount of uncertainty (or degree of risk) of _____</li> <li>* Objectively consider _____ when making a decision about _____</li> <li>* Prioritize _____</li> <li>* Consider _____ in reaching a conclusion</li> <li>* Develop reasonable recommendation for _____</li> <li>* Address the costs and benefits of _____ in reaching a conclusion about _____</li> <li>* Develop reasonable policies for _____</li> <li>* Develop an effective plan for addressing _____</li> </ul> <p><b>Effectively Involving Others in Implementation:</b></p> <ul style="list-style-type: none"> <li>* Take actions to implement the best solution to _____</li> <li>* Organize _____ (a communication) so that it is meaningful to the receiving party</li> <li>* Communicate _____ effectively for _____ (a given setting and audience)</li> </ul>	<p><b>Acknowledging Limitations:</b></p> <ul style="list-style-type: none"> <li>* Identify and describe potential future developments in _____</li> <li>* Describe limitations to a recommendation about _____</li> <li>* Strategically/proactively consider contingencies and future developments related to _____</li> </ul> <p><b>Creating and Monitoring Strategies</b></p> <ul style="list-style-type: none"> <li>* Develop and monitor strategies for _____</li> <li>* Implement appropriate corrective action for _____ over time</li> <li>* Acknowledge changing circumstances and reconsider _____ (a solution) as appropriate</li> <li>* Continuously monitor and update _____, as needed</li> <li>* Develop strategic uses of _____</li> <li>* Manage _____ under changing or unusual demands</li> <li>* Apply continuous improvement principles to _____</li> </ul>

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## Examples of Open-Ended Problems and Potential Questions

Topic (Subject) and Potential Scenario Given to Students	Examples of Open-Ended Questions Addressing Different Aspects of Steps for Better Thinking			
	Step 1	Step 2	Step 3	Step 4
<p><b>Accounting for Bad Debts:</b> Give students a scenario in which a company uses credit reports and other information to make credit decisions. In the scenario, the company has experienced an unexpected increase in bad debts.</p>	<ul style="list-style-type: none"> <li>• Identify and explain possible reasons why management might not foresee an increase in bad debts.</li> <li>• Explain why credit reports can't be used to know for sure which customers will pay and which will become bad debts.</li> </ul>	<ul style="list-style-type: none"> <li>• Discuss the strengths and weaknesses of using credit reports to make credit decisions.</li> <li>• Given bad debt problems, discuss the pros and cons of extending credit to customers.</li> </ul>	<ul style="list-style-type: none"> <li>• Analyze the company's credit policies and practices and recommend improvements to management.</li> </ul>	<ul style="list-style-type: none"> <li>• Develop a plan for monitoring the performance of the company's credit policies and practices.</li> </ul>
<p><b>Education—Effectiveness of the Public Schools:</b> You are the leader of a community task force that has been asked to establish strategies for evaluating the effectiveness of the public schools in your metropolitan school district. The task force has received very different recommendations from two national experts. One focuses on the use of standardized, norm referenced test scores. The other includes a wider range of alternative indicators, such as curricular innovations, portfolios, and satisfaction ratings.</p>	<ul style="list-style-type: none"> <li>• How is it possible for two national experts to give very different recommendations for evaluating public school effectiveness?</li> <li>• Identify resources that will help you evaluate the two recommendations.</li> </ul>	<ul style="list-style-type: none"> <li>• What are the pros and cons for each recommendation?</li> <li>• Who are the various stakeholders for the work of the task force? For each stakeholder group, discuss whether the group is likely to have a preference for one of the two recommendations.</li> </ul>	<ul style="list-style-type: none"> <li>• Develop a plan for the work to be performed by the task force. Explain the reasons for the design of your plan.</li> <li>• Which expert recommendation do you think is better? How did you prioritize issues in arriving at your conclusion?</li> </ul>	<ul style="list-style-type: none"> <li>• Assume that the school district adopts the recommendations of the expert you consider to be better. Explain how the school district could use the evaluation results over time to improve educational effectiveness.</li> </ul>
<p><b>Communication (Any Course):</b> Give students a scenario in which they need to prepare a written communication for a specific audience.</p>	<ul style="list-style-type: none"> <li>• Prepare a list of information that might be appropriate to include in the communication.</li> <li>• Explain why uncertainties exist about the best way to communicate to the audience.</li> </ul>	<ul style="list-style-type: none"> <li>• Describe the information needs of the audience.</li> <li>• Describe the pros and cons of including one or more pieces of information in the written communication for this audience.</li> </ul>	<ul style="list-style-type: none"> <li>• Create a written communication for the audience that provides appropriate information prioritized for the setting and audience.</li> </ul>	<ul style="list-style-type: none"> <li>• Create a written communication for the audience that provides appropriate information for the setting and audience, including recommendations for strategies the audience member(s) might employ to monitor performance or processes in the future.</li> </ul>

Examples (continued)

Topic (Subject) and Potential Scenario Given to Students	Examples of Open-Ended Questions Addressing Different Aspects of Steps for Better Thinking			
	Step 1	Step 2	Step 3	Step 4
<p><b>Military Law</b>            You have just arrived at your first duty station at Grand Forks AFB, ND. You are the missile maintenance squadron section commander. This is your first duty day and while MSgt Big, your first sergeant, is showing you around TSgt Small approaches and says "Sir/Ma'am it's SSgt Loser again. He was 30 minutes late for work this morning and his uniform looks like he slept in it." MSgt Big tells TSgt Small, SSgt Loser's supervisor, to have SSgt Loser report to your office in 10 minutes. Welcome to North Dakota!</p> <p>You meet with SSgt Loser who tells you that he overslept. He also explains that his wife just left him and she did all his laundry and ironed his uniforms. You dismiss SSgt Loser and tell him to put on a proper uniform and you will deal with him later when you have more facts.</p> <p>Meanwhile, MSgt Big has told me, the Commander, about SSgt Loser. I come to your office, welcome you to North Dakota, tell you to find out what's up with SSgt Loser and give me a recommended course of action.</p> <p>SSgt Loser does not show up for work the next day and is nowhere to be found.</p> <p>Pertinent sections of the UCMJ and maximum punishment tables are appended to your textbook.</p> <p>Adapted from a problem developed at the U.S. Air Force Academy</p>	<ul style="list-style-type: none"> <li>• What are your options?</li> <li>• What else do you need to know before making your recommendation and why do you need to know it?</li> </ul>	<ul style="list-style-type: none"> <li>• Do you have any personal beliefs or assumptions that may interfere with your ability to make an objective recommendation? If so, what are they and how did you overcome them?</li> <li>• What are the arguments for and against each possible recommendation'?</li> </ul>	<ul style="list-style-type: none"> <li>• What is your recommendation? What is the basis for your recommendation? How did you decide between the various options available to you?</li> </ul>	<ul style="list-style-type: none"> <li>• What are the limitations of your recommendation? Is it possible to minimize the effects of those limitations?</li> </ul>

Examples (continued)

Topic (Subject) and Potential Scenario Given to Students	Examples of Open-Ended Questions Addressing Different Aspects of Steps for Better Thinking			
	Step 1	Step 2	Step 3	Step 4
<p><b>Health Care—Elderly Patient</b>            Tiny Miss Ruth sat hunched without words in her wheelchair, living the final stages of Alzheimer’s-like dementia. Her 91-year-old hands slid over the beautiful but slick cover of Birds and Blooms magazine. Birds, gardening, and reading had always been her interests. Now she couldn’t read or talk about her favorite topics; she couldn’t even hold the magazine. This frustrated and angered her! She flailed and she hummed, communicating her agitation. Quietly and with a very heavy heart, I watched, saying little but thinking much. “What might I do to improve her quality of life?”</p>	<ul style="list-style-type: none"> <li>• What have you observed about Miss Ruth and her situation?</li> <li>• What is currently being done to care for Miss Ruth?</li> <li>• What does current literature say about caring for people like Miss Ruth?</li> <li>• What theories and evidence are available?</li> <li>• Do different facilities provide different kinds of care for people like Miss Ruth? If so, why don’t they all provide the same kind of care?</li> <li>• Who has input into the care Miss Ruth receives?</li> <li>• Why might these people view her needs and care differently?</li> <li>• What factors might you need to consider as you explore this problem?</li> </ul>	<ul style="list-style-type: none"> <li>• What biases and assumptions might affect how you view this situation, and how might you compensate for your biases?</li> <li>• Evaluate evidence from the literature and from your observations of Miss Ruth’s situation from a variety of perspectives, including a traditional maintenance model of care, a restorative model of care, the perspective of her family members, the nursing home administrator, nursing director, and social worker.</li> <li>• What are the similarities/differences across the different perspectives about how to care for Miss Ruth?</li> <li>• How might you organize your analyses to help you reach a conclusion about the best way to care for Miss Ruth?</li> </ul>	<ul style="list-style-type: none"> <li>• What priorities have you given to different factors that must be considered in deciding how to care for Miss Ruth?</li> <li>• Why do you believe those priorities are most appropriate?</li> <li>• Given those priorities, what do you recommend regarding Miss Ruth’s care?</li> <li>• How will you present your ideas to those who are interested in her care?</li> <li>• How might you deal with people’s different assumptions and biases if you were part of a team that would decide about Miss Ruth’s care?</li> <li>• Do you anticipate any disagreement? If so, how will you deal with that?</li> </ul>	<ul style="list-style-type: none"> <li>• As you work with Miss Ruth, what additional information do you want to gather?</li> <li>• Why is this information important?</li> <li>• How can you go about getting that information in a systematic fashion?</li> <li>• What might cause you to reconsider Miss Ruth’s care plan?</li> </ul>

Examples (continued)

Topic and Potential Scenario Given to Students	Examples of Open-Ended Questions Addressing Different Aspects of Steps for Better Thinking			
	Step 1	Step 2	Step 3	Step 4
<p><b>Hong Kong Dollar—Introduction to Business Course</b>            Read the following two articles:</p> <ul style="list-style-type: none"> <li>• “Deutsche Bk Calls For 20% HK Dlr Devaluation, Then Float,” by Liz Rudall and Raymond Tsoi, <i>Dow Jones Newswires</i>, January 30, 2003.</li> <li>• “What’s in a Peg?” <i>The Economist</i>, October 31, 2002.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify and discuss uncertainties about whether the HK dollar should be delinked.</li> </ul>	<ul style="list-style-type: none"> <li>• Discuss pros and cons of delinking the HK dollar.</li> </ul>	<ul style="list-style-type: none"> <li>• Should the HK dollar be delinked from the U.S. dollar? Explain what was most important in reaching your conclusion.</li> </ul>	<ul style="list-style-type: none"> <li>• Discuss whether it would be possible for you to change your mind about this question in the future.</li> </ul>
<p><b>Self-Made Man—History course</b>            Background: During the late nineteenth-century, the United States experienced tremendous economic growth in its manufacturing sector. This occurrence was both the cause and result of large-scale immigration from Europe and the emergence of the modern corporation which came to dominate the business community. For a few, vast fortunes were being made. For some, there was a rise to middle-class prosperity. For many, life was a struggle near or in economic poverty.</p> <p>Given this background, this became the question: How did one account for the great inequalities of wealth? What was the explanation for why some people prospered so greatly while others struggled? For some the answer was given in a set of ideas collectively known as the "self-made man" theory, (also commonly known as the theory of "rugged individualism.")</p>	<ul style="list-style-type: none"> <li>• In one paragraph, explain why there are uncertainties about whether theories such as the “self-made man” theory provide good descriptions of historical events.</li> </ul>	<ul style="list-style-type: none"> <li>• In two-to-three paragraphs discuss the validity of the "self-made man" theory by noting both the praise and the criticism made of it.</li> <li>• In one page, discuss how your own personal work history (or someone in your family) relates to the principles of the "self-made man" theory. Do you find the theory to be accurate or not? Why?</li> </ul>	<ul style="list-style-type: none"> <li>• In one page, cite the principles of the "self-made man" theory which are the most or least valid. Explain.</li> </ul>	