



WOLCOTT LYNCH
STEPS FOR BETTER THINKING



Northern Virginia
Community College

Experiential Lessons to Develop Critical Thinkers

AAA Annual Meeting Panel Session
Monday, August 10, 2020

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Panelists



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- Identify common student strengths and weaknesses
- Introduce AICPA resources
- Use cognitive stages to improve learning design
- Discussion/Questions



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How to help your
students become
better critical thinkers

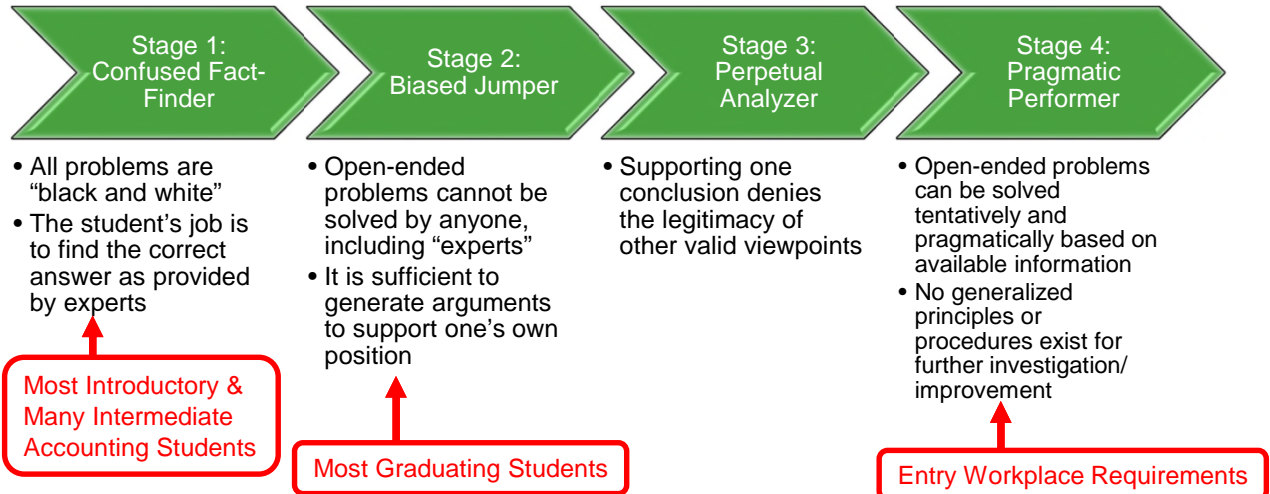
New AICPA Faculty Guide

*Available at This Way to CPA –
Education – Critical Thinking
Resources*

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KEY Beliefs That Hinder Critical Thinking

Excerpts adapted from Figure 4, Guide p. 9



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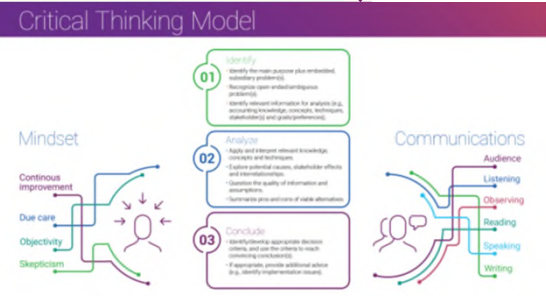
How Can We Achieve Faster Critical Thinking Growth?



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Teach Your Students a Critical Thinking Model, and Use It Repeatedly

Figure 2, Guide p. 6

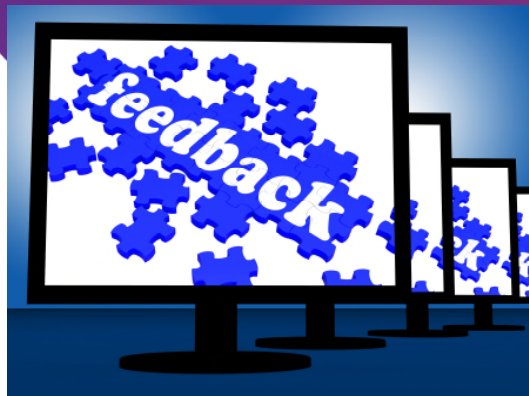


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Provide Students With Feedback Guiding Them to the Next Stage

Figure 20: Critical Thinking Skills Rubric for Stages 1, 2, 3, and 4, Guide p. 36

Component of Critical Thinking Skill	Stage 1: Latent/No Critical Thinking (Confused Fact-Finder)	Stage 2: Partial Critical Thinking (Emergent Explorer)	Stage 3: Emergent Critical Thinking (Perceptive Analyzer)	Stage 4: Competent Critical Thinking (Diagnostic Performer)
Identify	<ul style="list-style-type: none">• Inferred purpose as given, or• Identifies an inappropriate problem	<ul style="list-style-type: none">• Identifies the twenty-eighth problem• Recognizes that the problem is open-ended/ambiguous	<ul style="list-style-type: none">• Identifies the main purpose• Identifies relevant stakeholders and their possible goals/preferences• Identifies relevant accounting knowledge, concepts and techniques	<ul style="list-style-type: none">• In addition to Stage 3, identifies important embedded, subsidiary problem(s)
Analyze	<ul style="list-style-type: none">• Applies calculations, definitions, or other "textbook" concepts• Presents irrelevant information• Misinterprets calculation(s) and/or concepts(s)	<ul style="list-style-type: none">• Applies and describes the effects of relevant calculations and/or concepts• Partially analyzes alternatives, focusing on information supporting own viewpoint• Discounts other viewpoints	<ul style="list-style-type: none">• Thoroughly and objectively applies and interprets relevant calculation(s) and concepts(s)• Explores causes, subsidiary effects and interrelationships• Questions the quality of information and assumptions• Thoroughly discusses the pros and cons of viable alternatives	<ul style="list-style-type: none">• Objectively analyzes the most important relevant information, implications, consequences and viewpoints• Evaluates the quality of information and assumptions, and adapts integrations (as needed)• Summarizes the most important pros and cons of viable alternatives
Conclude	<ul style="list-style-type: none">• Instead of a conclusion, provides facts, definitions, or other "authoritative" statements	<ul style="list-style-type: none">• Reaches a biased conclusion that is consistent with analysis	<ul style="list-style-type: none">• Reaches, for comparison, or provides a conclusion with little or no justification	<ul style="list-style-type: none">• Identifies/chooses appropriate criteria, and uses the criteria to reach convincing conclusion(s)• If appropriate, provides value-added advice (e.g., identifies implementation issues)



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Design Your Course to Explicitly Focus on Critical Thinking

Figure 5, Guide p. 11



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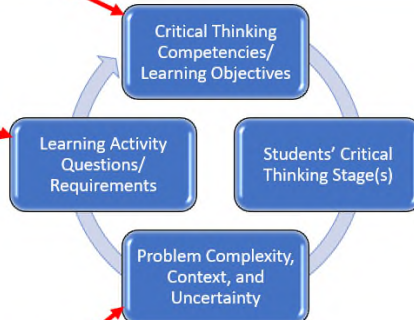
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Assignment Design Considerations for Stage 1 (Confused Fact-Finder)

Stage 1 student should learn to:

1. Identify existence of ambiguities/ uncertainties that prevent a single "correct" answer
2. Recognize that multiple perspectives are valid
3. Form own conclusion and support it with evidence/ arguments

Learning objective #1 is essential. Until students can identify uncertainties, they will be unable to achieve the other two objectives.



At Stage 1, students incorrectly believe that all problems have a single "correct" answer according to experts (e.g., professor and textbook)

Problems should contain (see Pathways Vision Model):

- Straightforward, easily understood events and circumstances
- A few sources of uncertainty
- Few accounting judgments
- Information that is either useful or not useful (i.e., relevant or not relevant)
- Few stakeholders and uncomplicated decisions
- Few consequences and clear-cut cause and effect relationships

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Introductory Financial Accounting Course

Example for Stage 1 Students

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Introductory Financial Accounting Example

Insert Your Names Here: CFO Creditor Stockholder

The Accounting Equation

1) The Luca Company

ASSETS (own)	=	LIABILITIES (owe)	+	EQUITY (owners)
???		Insert number of BLUE M&Ms below		Insert number of RED M&Ms below
Solve for Assets				
	=		+	

2) The Pacioli Company

ASSETS (own)	=	LIABILITIES (owe)	+	EQUITY (owners)
Insert number of BROWN M&Ms below		Insert number of ORANGE M&Ms below		???
				Solve for Equity
	=		+	

3) The GAAP Company

ASSETS (own)	=	LIABILITIES (owe)	+	EQUITY (owners)
Insert number of YELLOW M&Ms below		???		Insert number of GREEN M&Ms below
		Solve for Liabilities		
	=		+	

Inspiration:

- 12 Scofield, B. W. & Dye, W. (2009). Introducing the accounting equation with M&M's. *American Journal of Business Education*, 2(7), 127-138.



bit.ly/mmaccountingequation

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Introductory Financial Accounting Example

Discussion Questions

1. Can this equation describe a business's financial position? Support your decision.
2. Describe the risk of each company's financial position.
3. Do any of the companies have more liabilities than owners' equity? Is this possible? Is this desirable? How does a company get more liabilities than owners' equity?
4. Do any of the companies have more owners' equity than liabilities? Is this possible? Is this desirable? How does a company get more owners' equity than liabilities?
5. Question for CEO: For which company would you desire to lead? Why?
6. Question for Creditor: For which company would you provide a loan? Why?
7. Question for Stockholder: In which company would you invest? Why?

Stage 1 student should learn to:

1. Identify existence of ambiguities/ uncertainties that prevent a single "correct" answer
2. Recognize that multiple perspectives are valid
3. Form own conclusion and support it with evidence/ arguments

Inspiration:

- 13 Scofield, B. W. & Dye, W. (2009). Introducing the accounting equation with M&M's. *American Journal of Business Education*, 2(7), 127-138.



bit.ly/mmaccountingequation

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 Figure 20: Critical Thinking Skills Rubric for Stages 1, 2 3, and 4, Guide p. 36

Component of Critical Thinking Model	Stage 1 Little/No Critical Thinking (Confused Fact-Finder)	Stage 2 Partial Critical Thinking (Biased Jumper)	Stage 3 Emergent Critical Thinking (Perpetual Analyzer)	Stage 4 Competent Critical Thinking (Pragmatic Performer)
Identify	<ul style="list-style-type: none"> Recites purpose as given, or Identifies an inappropriate problem 	<ul style="list-style-type: none"> Identifies the clearly-evident problem Recognizes that the problem is open-ended/ambiguous 	<ul style="list-style-type: none"> Identifies the main purpose Identifies relevant stakeholders and their possible goals/ preferences Identifies relevant accounting knowledge, concepts and techniques 	In addition to Stage 3: <ul style="list-style-type: none"> Identifies important embedded, subsidiary problem(s)
Analyze	<ul style="list-style-type: none"> Applies calculations, definitions, or other "textbook" concepts Presents irrelevant information Misinterprets calculation(s) and/or concept(s) 	<ul style="list-style-type: none"> Applies and describes the effects of relevant calculations and/or concepts Partially analyzes alternatives, focusing on information supporting own viewpoint Discounts other viewpoint(s) 	<ul style="list-style-type: none"> Thoroughly and objectively applies and interprets relevant calculation(s) and concept(s) Explores causes, stakeholder effects and interrelationships Questions the quality of information and assumptions Thoroughly discusses the pros and cons of viable alternatives 	<ul style="list-style-type: none"> Objectively analyzes the most important relevant information, implications, consequences and viewpoints Evaluates the quality of information and assumptions, and adapts interpretations (as needed) Summarizes the most important pros and cons of viable alternatives
Conclude	<ul style="list-style-type: none"> Instead of a conclusion, provides facts, definitions, or other "authoritative" statements 	<ul style="list-style-type: none"> Reaches a biased conclusion that is consistent with analyses 	<ul style="list-style-type: none"> Reaches no conclusion, or Provides a conclusion with little or no justification 	<ul style="list-style-type: none"> Identifies/develops appropriate criteria, and uses the criteria to reach convincing conclusion(s) If appropriate, provides value-added advice (e.g., identifies implementation issues)

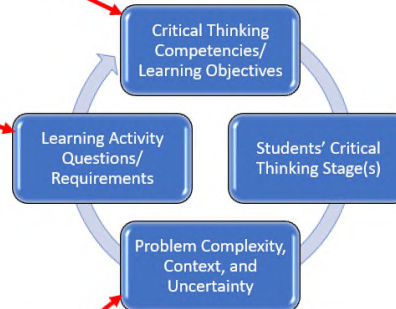
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Assignment Design Considerations for Stage 2 (Biased Jumper)

Stage 2 student should learn to:

1. Delay judgment until thorough analysis is completed
2. Identify and control biases that interfere with objective and thorough critical thinking
3. Conduct thorough, high-quality analyses from multiple viewpoints

Learning objective #1 is critical. Until students delay judgment, they will continue to focus on their own biased point of view and perform only partial analyses.



At **Stage 2**, students believe that it is sufficient to stack up arguments to support one's own position

Problems may contain (Pathways Vision Model):

- Moderate scope and interaction of events and circumstances
- Multiple sources and degrees of uncertainty
- Several accounting judgments
- Questions about the degree of information usefulness
- Multiple stakeholders and decisions involving multiple factors
- Some uncertain cause and effect relationships

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Introductory Management
Accounting Course

OR

Beginning: Cost
Accounting Course

Example for
Stage1 & 2
Students

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Wake-Up Coffee: Budgeting Hourly Labor Costs

You have recently been hired by the CFO of Wake-Up Coffee, which owns and operates a chain of retail coffee shops. You work in the finance department, and your first assignment is to develop a budget for fixed and variable costs for the retail stores. You are having difficulty deciding how to handle labor costs for hourly workers. Each store manager sets a weekly schedule for hourly workers, adjusting the schedule periodically for changes in sales volumes. In addition, the store manager can send workers home early if sales on a particular day are lower than expected. In previous budgets, hourly labor was treated as a variable cost. However, a certain number of workers is needed to run the store, and managers are reluctant to send workers home early too often for fear of losing good employees. Accordingly, you are wondering whether hourly labor costs should be treated as a fixed cost in next year's budget.

Required:

Provide the CFO with your recommendation about how hourly labor costs should be treated in next year's budget. (1-2 pages, single spaced)

[This assignment was given to cost accounting students on the first day of the course, with the written paper due on the second day of the course. This assignment would also be appropriate during an introductory management accounting course.]

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Response of Student at Stage 1

“My idea would be to make it a variable cost and not change it. Since there is no set amount of time someone could be there they cannot be certain it would be a fixed cost. For this reason it would have to stay as a variable. No matter how much they can try to make certain set hours, it would be divided among several people instead of one. For this reason it would be hard to make it a fixed because it would involve several accounts as opposed to one set account.”

Rating Comments:

The student identifies uncertainty about the amount of worker time and uses it as a reason for continuing the existing method. However, the next sentence denies uncertainty, suggesting that the student does not perceive the cost classification as uncertain. In addition, the student does not seem to understand the business setting and provides an illogical/confusing reason against the alternative classification.

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Targeted Skills for Students at Stage 1: Wake-Up Coffee Assignment



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Content Knowledge	Identify	Analyze	Conclude
<ul style="list-style-type: none"> Correctly apply the definitions of cost behavior (fixed, variable, mixed) costs to the situation at Wake-Up Coffee Determine that the wages of part-time employees who work a regular work schedule would generally be classified as a fixed cost 	<ul style="list-style-type: none"> Approach the budget classification as an <i>open-ended problem</i> having more than one potentially reasonable solution Identify three potentially viable alternatives for classifying labor costs in Wake-Up Coffee's budget: fixed, variable, or mixed (i.e. semi-variable) Recognize that unanticipated fluctuations in business volume and other factors are likely to prevent absolutely accurate planning/ budgeting of labor costs Use only relevant information when discussing the budgetary classification of labor costs 	<ul style="list-style-type: none"> Describe possible business reasons why labor costs might differ from the budget Describe the potential effects of the budget classification on operational decisions made by managers Recognize that managers might alter work schedules based on changing business conditions, causing a change in the behavior of future labor costs Describe the potential effects of unknown work hours on employee behavior Distinguish between analyzing the classification of labor costs in the budget and analyzing the actual behavior of labor costs Summarize the potential pros and cons of alternative budget classifications Identify and compensate for own assumptions and biases when analyzing the alternatives 	<ul style="list-style-type: none"> Effectively communicate recommendation to the manager Objectively weigh the pros and cons when reaching a conclusion Identify additional information that might lead to a better budget classification Acknowledge the implications of limitations in the recommended labor cost budget classification

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Targeted Skills for Students at Stage 1 and Stage 2: Wake-Up Coffee Assignment



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Content Knowledge	Identify	Analyze	Conclude
<ul style="list-style-type: none"> Correctly apply the definitions of cost behavior (fixed, variable, mixed) costs to the situation at Wake-Up Coffee Determine that the wages of part-time employees who work a regular work schedule would generally be classified as a fixed cost 	<ul style="list-style-type: none"> Approach the budget classification as an <i>open-ended problem</i> having more than one potentially reasonable solution Identify three potentially viable alternatives for classifying labor costs in Wake-Up Coffee's budget: fixed, variable, or mixed (i.e. semi-variable) Recognize that unanticipated fluctuations in business volume and other factors are likely to prevent absolutely accurate planning/ budgeting of labor costs Use only relevant information when discussing the budgetary classification of labor costs 	<ul style="list-style-type: none"> Describe possible business reasons why labor costs might differ from the budget Describe the potential effects of the budget classification on operational decisions made by managers Recognize that managers might alter work schedules based on changing business conditions, causing a change in the behavior of future labor costs Describe the potential effects of unknown work hours on employee behavior Distinguish between analyzing the classification of labor costs in the budget and analyzing the actual behavior of labor costs Summarize the potential pros and cons of alternative budget classifications Identify and compensate for own assumptions and biases when analyzing the alternatives 	<ul style="list-style-type: none"> Effectively communicate recommendation to the manager Objectively weigh the pros and cons when reaching a conclusion Identify additional information that might lead to a better budget classification Acknowledge the implications of limitations in the recommended labor cost budget classification

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Additional Questions and Discussion

