



INTRODUCTORY ACCOUNTING: How to Help Your Students Become Better Critical Thinkers

Live webinar

Tuesday, August 25, 2020

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Panelists



Steve Matzke
Director, Faculty &
University Initiatives
AICPA



Susan Wolcott, PhD,
CPA, CMA
Independent Scholar
www.WolcottLynch.com



Deanna Foster
Assistant Professor of
Accounting
Nichols College

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- Overview: Stages of student thinking
- Examples of learning activities for students at:
 - Stage 1
 - Stage 2
- Discussion/Questions



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KEY Beliefs That Hinder Critical Thinking

📍 Excerpts adapted from Figure 4, Guide p. 9

**Stage 1:
Confused Fact-Finder**

**Stage 2:
Biased Jumper**

**Stage 3:
Perpetual Analyzer**

**Stage 4:
Pragmatic Performer**

- All problems are “black and white”
 - The student’s job is to find the correct answer as provided by experts
- Open-ended problems cannot be solved by anyone, including “experts”
 - It is sufficient to generate arguments to support one’s own position
- Supporting one conclusion denies the legitimacy of other valid viewpoints
- Open-ended problems can be solved tentatively and pragmatically based on available information
 - No generalized principles or procedures exist for further investigation/improvement

Most Introductory & Many Intermediate Accounting Students

Most Graduating Students

Entry Workplace Requirements

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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

Critical Thinking Model



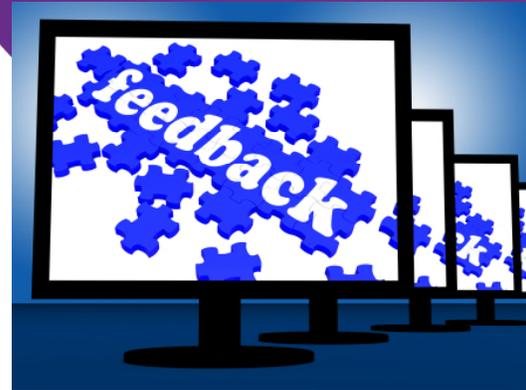
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Provide Students With Feedback Guiding Them to the Next Stage

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

Component of Critical Thinking Model	Stage 1 Basic Critical Thinking (Confused Fact-Finder)	Stage 2 Partial Critical Thinking (Sneak Jumper)	Stage 3 Emergent Critical Thinking (Perplexed 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/priorities 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 calculations and/or concepts 	<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 integrates relevant calculations and concepts Explores causes, stakeholder effects and interdependencies 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 assesses interdependencies (as needed) Summarizes the most important pros and cons of viable alternatives
Conclude	<ul style="list-style-type: none"> Indicates a conclusion, provides facts, definitions, or other "textbook" statements 	<ul style="list-style-type: none"> Reaches a biased conclusion that is inconsistent with analysis 	<ul style="list-style-type: none"> Provides 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 valid/well-justified advice (e.g. identifies implementation issues)

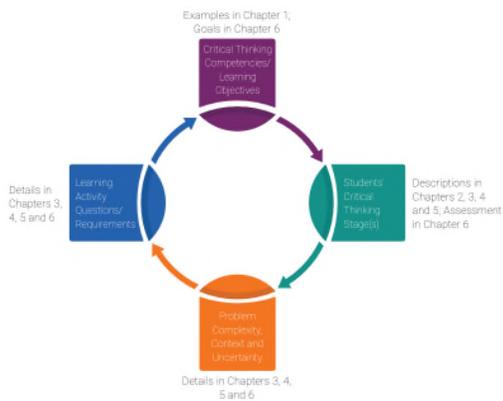


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Design Your Course to Explicitly Focus on Critical Thinking

Figure 5, Guide p. 11



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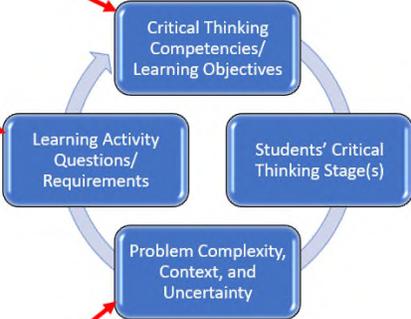
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Assignment Design Considerations for Stage 1 (Confused Fact-Finder)

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)

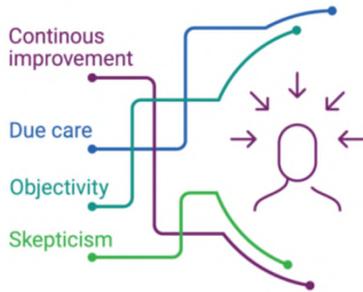
Problems should contain (see Pathways Vision Model):

- 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

Critical Thinking Model

Figure 2, Guide p. 6

Mindset



Communications



Ratio Analysis

Example for Stage 1 Students

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Ratio Questions: Original Assignment

	Fred		Firn	
	Current Year	Prior Year	Current Year	Prior Year
Net Income	53,000	40,000	16,000	14,000
Net Sales	230,000	183,000	75,000	66,000
Current Assets	90,000	69,000	90,000	79,000
Current Liabilities	81,000	63,000	19,000	17,000

Listed above is a comparison of two organizations in the same industry, Fred and Firn. Follow the prompts below listed a-c.

- For Fred and Firn calculate the current ratio for each company for each year.
- Which company has a better ability to pay short term obligations? Explain your answer.
- How do each of the companies compare to the industry average of 2.0? Explain your answer.

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Ratio Questions: REVISED Assignment

	Firm	
	Current Year	Prior Year
Net Income	16,000	14,000
Net Sales	75,000	66,000
Current Assets	90,000	79,000
Current Liabilities	19,000	17,000

Listed above is information for a company called Firm. Follow the prompts below listed a-f.

- For Firm calculate the current ratio for the current and prior year.
- Explain why the current ratio can be a useful metric.
- Suppose a competitor, Fred, had a current ratio of 1.1 for the current year and 1.1 for the prior year.
 - What does it mean when a company's current ratio is close to 1?
 - Which company (Firm or Fred) appears to have better ability to pay short term obligations? Explain your answer.

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REVISED Ratio Questions (continued)

- Suppose the industry average current ratio is 2.0. How does this information help you analyze the current ratio for Firm?
- List three stakeholders who might be interested in using information about a company's current ratio. For each stakeholder, list a type of decision in which the current ratio might be useful.
- What if there was an economic downturn and Firm is now having trouble collecting its accounts receivable. How would a downturn most likely impact the company's current ratio? Explain.

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EXPERT Skills: Financial Statement Ratios			
← Less Complex		More Complex →	
Content Knowledge	Identify	Analyze	Conclude
<ul style="list-style-type: none"> Find formulas and calculate ratios Locate financial information used in ratio calculation Explain why higher/lower ratios are generally associated with greater: profitability, liquidity, stability, activity, etc. Describe the mechanical impact of accounting entries on ratio results Locate comparative information for comparable companies/industry Recognize and adjust calculations for differences in ratio formulas in different sources 	<ul style="list-style-type: none"> Identify reason(s) for evaluating financial statement ratios Identify internal and/or external stakeholders who might be interested in ratio information Explain why ratios are not "perfect" measures of profitability, liquidity, stability, activity, etc. Explain why higher/lower ratios do not always indicate a better/worse company Explain why ratios are not the same for all companies Identify factors that cause ratio values to differ across companies and across years for the same company Identify information that might be useful for interpreting a company's ratios including competitor/ industry ratios, accounting methods/ estimates, and non-financial information Explain how it is possible for financial experts to disagree about the interpretation of a company's ratios 	<ul style="list-style-type: none"> Evaluate possible business reasons for ratios to vary across companies and across years Explore the possible strengths and weaknesses indicated by the time trend and/or competitor comparison of a company's ratios Describe the pros and cons of using ratios to evaluate a company Explain how different stakeholders might view ratios differently Incorporate non-ratio information in the interpretation of ratios Adjust for and evaluate the impact of alternative accounting methods/ estimates on ratio interpretations Organize and summarize the information from the ratio analysis Identify and evaluate the quality of assumptions underlying alternative interpretations of a company's ratios Identify and compensate for biases in ratio information and interpretation 	<ul style="list-style-type: none"> Prioritize the strengths and weaknesses of the company's ratios and other data in reaching a conclusion about the company's profitability, liquidity, stability, activity, etc. Effectively communicate your interpretation for a given setting and audience Effectively encourage others to take a specific action (e.g., grant a loan) based upon the ratio analysis Describe limitations to a conclusion resulting from a ratio analysis about a company's profitability, liquidity, stability, activity, etc. Evaluate circumstances that might cause a change in conclusions about a company's ratios Develop a plan for monitoring a company's performance in the future Investigate and work toward implementation of new, superior methods of ratio analysis

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New Skills for Students at Stage 1: Financial Statement Ratios			
← Less Complex		More Complex →	
Content Knowledge	Identify	Analyze	Conclude
<ul style="list-style-type: none"> Find formulas and calculate ratios Locate financial information used in ratio calculation Explain why higher/lower ratios are generally associated with greater: profitability, liquidity, stability, activity, etc. Describe the mechanical impact of accounting entries on ratio results 	<p>MAJOR OBJECTIVE FOR STAGE 1: Identify existence of ambiguities/ uncertainties that prevent a single "correct" answer</p> <ul style="list-style-type: none"> Identify reason(s) for evaluating financial statement ratios Identify internal and/or external stakeholders who might be interested in ratio information Explain why ratios are not "perfect" measures of profitability, liquidity, stability, activity, etc. Explain why higher/lower ratios do not always indicate a better/worse company Explain why ratios are not the same for all companies Identify factors that cause ratio values to differ across companies and across years for the same company 	<p>MAJOR OBJECTIVE FOR STAGE 1: Recognize that multiple perspectives are valid</p> <ul style="list-style-type: none"> Describe possible business reasons for ratios to vary across companies and across years Explore the possible strengths and weaknesses indicated by the time trend and/or competitor comparison of a company's ratios 	<p>MAJOR OBJECTIVE FOR STAGE 1: Form own conclusion and support it with evidence/ arguments</p> <ul style="list-style-type: none"> Effectively communicate your interpretation for a given setting and audience

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Fraud Paper

Example for Stage 1 Students

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Financial Fraud Paper: Original Assignment

Choose an organization that has had fraud within its financial statements. This project will consist of a short paper that discusses one corporation and how it became involved with financial statement fraud. The paper should be about two pages double spaced. References should be used when needed. Address the following below:

- Include the background of the company.
- Discuss the financial fraud scheme and when it took place. How were financial statements falsified, explain how it was done. Also, who was involved?
- How were the individuals caught?
- What authority investigated the fraud, examples include the local police, fraud accountants, or the FBI?
- What would you have done if you were aware of co-workers who were involved in this financial fraud? Would you report it to management, or to the board of directors, or would you keep quiet? Explain your answer.

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Financial Fraud Paper: REVISED Assignment

Choose an organization that has had fraud within its financial statements. This project will consist of a short paper that discusses one corporation and how it became involved with financial statement fraud. References should be used when needed. Address the following below:

Part I: Include the background of the company. Discuss the financial fraud scheme and when it took place. How were financial statements falsified? Explain how it was done. Also, who was involved? How were the individuals caught? What authority investigated the fraud? Examples include the local police, fraud accountants, or the FBI.

Part II: What was the impact on the financial statements? Who are some of the external users of the financial statements, and how did the fraud most likely impact their decision making?

Part III: What was the motivation for the perpetrator(s) to commit the fraud?

Part IV: What are the consequences for the individual(s) who committed fraud? What alternative actions could have been taken (instead of committing fraud)? Keeping in mind the code of ethics discussed in class, what would you have done if you were aware of co-workers who were involved in financial fraud? Would you report it to management or the board of directors, or would you keep quiet? Explain your answer.



Rubric for Revised Fraud Assignment

Criterion	Stage 1: Weak (1-2 points)	Stage 2: Average (2-4 points)	Stage 3-4: Professional (4-5 points)	Score
Part I Fraud Scheme and Investigation	<ul style="list-style-type: none"> Provides little or no information on the background of the company, the fraud scheme and how it was done. Student is able to identify investigating body. 	<ul style="list-style-type: none"> Provides a background and brief explanation of the fraud scheme and investigation, but only partially explains the mechanics of the fraud. Lacks explanation of how the financials were falsified. Student identifies investigating body. 	<ul style="list-style-type: none"> Provides background information on the organization. Explains the fraud scheme and the mechanics of how the financial statements were falsified. Describes how the company or individuals were caught and identify the investigating body. 	
Part II Effect on the Financial Statements and Outside Users	<ul style="list-style-type: none"> Unable to explain the effect of the fraud on the financial statements. Does not explain the impact on outside users. 	<ul style="list-style-type: none"> Explains only the impact on one financial statement, not the financials as a whole. Partially explains the impact on one external group of financial statement users. 	<ul style="list-style-type: none"> Correctly explains the effects on each of the affected financial statements. Explains the impact on outside users of the financial statements, including both investors and creditors. 	
Part III Motivation Behind Fraud	<ul style="list-style-type: none"> Provides little or no explanation of the motivation behind the fraud. 	<ul style="list-style-type: none"> Partially explains the motivations behind the fraud. 	<ul style="list-style-type: none"> Thoroughly explains the reasons for the fraud. 	
Part IV Ethical Consequences and Alternatives	<ul style="list-style-type: none"> Identifies only one alternative. Does not identify uncertainties about how or whether to report the fraud. Provides disconnected statements. Demonstrates little to no understanding of ethical issues. Does not reach a conclusion. 	<ul style="list-style-type: none"> Identifies only a small number of alternatives. Identifies only a small number of uncertainties about how to respond. Provides logical but one-sided arguments, focused on the conclusion. Demonstrates some understanding of how the decision might impact self. Does not fully clarify values and trade-offs in reaching a conclusion. 	<ul style="list-style-type: none"> There is an understanding of ethical consequence to the falsified financials. Identifies a wide range of viable alternatives. Incorporated understanding of uncertainties into an evaluation of alternatives. Demonstrates complex understanding of how ethical decisions can impact self. Clarifies values and trade-offs in reaching a conclusion. 	
			TOTAL	

Student Writing

Examples for Stage 1-2 Students

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WorldCom: Employee Response to Fraud

Requirements: (Students read an SEC report about the fraud.)

1. What appeared to be the motivation behind the fraud?
2. How did improper capitalization of line costs improve the reported financial results? Describe the effects on the balance sheet, income statement, and statement of cash flows. You do not need to include dollar amounts in your description; however, you need to explain the effects well enough for me to determine whether you understand how this fraud affected the financial statements.

3. Many people at WorldCom were either aware of or actively participated in the company's fraud. Suppose you were an employee at WorldCom who became aware of the fraud. Analyze alternative actions you could have taken and propose a course of action. As you analyze this situation, be sure to address uncertainties about how you should respond, the possible effects of your actions on others as well as yourself, and how you weighed issues in reaching a conclusion. (This part of the assignment should be 1-2 pages, single spaced.)

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Response of Student at Stage 1

3. "If I was an employee in that company, I would call attention of the Board of Director to such incident and I would advise them to make an investigation on the subject matter since the Board of Director have a final says in management of company. It is better to make Board of Director to aware what was going on in the company and let them take a legal action of that matter."

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Response of Student at Stage 2

3. "There are three major actions one can take after finding out about the fraud in the company. First, one can act passive, pretend nothing ever happened and let the fraud continue (committing a crime at the same time?). Second, one can actively join the bad guys and commit even bigger crime. The third option is to blow the whistle and be honest. Most of us would probably want to be honest, but the company may be prepared to put pressure on people to keep them quiet. Even peer pressure can be enough pressure to ensure employee loyalty. Not to mention maybe the most powerful tool, money. Nobody wants to risk their job and future incomes. I wouldn't. The easiest and the best way to deal with a fraud is to try to get away from it. I would try to sneak out from the company and find another job. After making sure I have another job, I could disclose the fraud."

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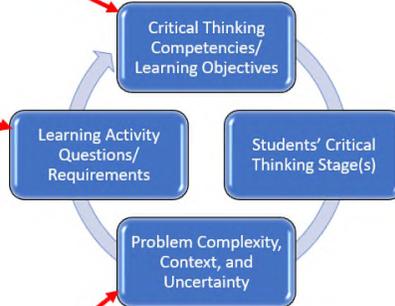
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Assignment Design Considerations for Stage 2 (Biased Jumper)

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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Depreciation

Example for
Stage 1-2
Students

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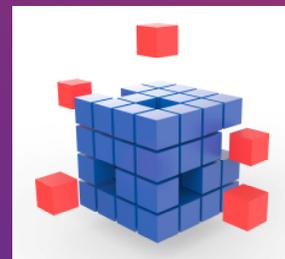
Basic Accounting for Depreciation – Original Assignment

On 1/1/18, Foster Company purchased a brand-new piece of technological equipment for its headquarters, for \$20,000. The useful life of the equipment was 5 years and had no salvage value. However, after two years of using the equipment, a pandemic forced the organization to close temporarily. In addition, when the company re-opened after three months, the organization was no longer using the equipment as much as they used to. There have also been changes in the industry and uncertainty regarding how much the equipment will be used in the future. This resulted in an adjustment to the useful life of the equipment to a total of 6 years.

Required:

- Using the straight-line method of depreciation, calculate the depreciation expense to be recorded at the end of 2018 on 12/31/18. Assume that no depreciation was recorded earlier during the year. Provide the journal entry that would be made at the end of 2018.
- Using the straight-line method of depreciation, calculate the depreciate expense to be recorded at the end of 2020 on 12/31/20. Assume that no depreciation was recorded earlier during the year of 2020. Provide the journal entry that would be made at the end of 2020.
- How does this change in useful life impact future financial statements?

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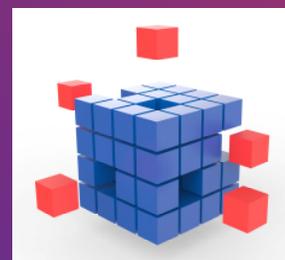
Basic Accounting for Depreciation – REVISED Assignment

On 1/1/18, Foster Company purchased a brand-new piece of technological equipment for its headquarters, for \$20,000. The useful life of the equipment was 5 years and had no salvage value. However, after two years of using the equipment, a pandemic forced the organization to close temporarily. In addition, when the company re-opened after three months, the organization was no longer using the equipment as much as they used to. There have also been changes in the industry and uncertainty regarding how much the equipment will be used in the future. This resulted in an adjustment to the useful life of the equipment to a total of 6 years.

Required:

- Ignoring the information in the preceding paragraph, explain how a company would typically estimate the useful life for a tangible asset.
- If there is uncertainty about the continued use of the equipment, what should happen to the estimated useful life of the equipment? What should happen to the book value of the asset?

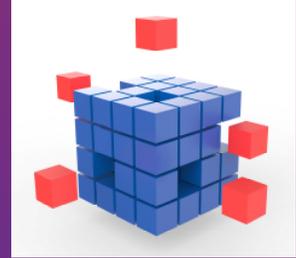
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REVISED Assignment (continued)

- d. Using the straight-line method of depreciation, calculate the depreciation expense to be recorded at the end of 2018 on 12/31/18. Assume that no depreciation was recorded earlier during the year. Provide the journal entry that would be made at the end of 2018.
- e. Using the straight-line method of depreciation, calculate the depreciate expense to be recorded at the end of 2020 on 12/31/20. Assume that no depreciation was recorded earlier during the year. Provide the journal entry that would be made at the end of 2020.
- f. Will changing the useful life impact the total amount of depreciation expense that will be recorded overall for that one piece of equipment? Why or why not?
- g. Will the change in useful life after 2020 impact previously-issued financial statements (i.e., the financial statements for 2018 and 2019)? Why or why not?
- h. How will the change in useful life after 2020 impact the financial statements issued in future years (i.e., beginning in 2021)?



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New Skills for Students at Stage 1: Straight-Line Depreciation

← Less Complex		More Complex →	
Content Knowledge	Identify	Analyze	Conclude
<ul style="list-style-type: none"> • Find the formula to calculate straight-line depreciation. • Locate information to calculate straight-line depreciation. • Create an adjusting journal entry for depreciation at year-end. • Explain how to estimate useful life for straight-line depreciation. • Describe the impact of a change in estimated useful life for total depreciation expense using straight-line depreciation. • Identify changes in the financial statements due to changes in estimated useful life. 	<p>MAJOR OBJECTIVE FOR STAGE 1: Identify existence of ambiguities/uncertainties that prevent a single "correct" answer</p> <ul style="list-style-type: none"> • Explain why the estimated useful life for a tangible asset is uncertain. • Identify internal and/or external stakeholders who might be interested in depreciation information • Identify factors that cause estimated useful lives of assets to differ across companies and across years for the same company 	<p>MAJOR OBJECTIVE FOR STAGE 1: Recognize that multiple perspectives are valid</p> <ul style="list-style-type: none"> • Analyze how changes in accounting assumptions impact the financial statement information used by stakeholders. • Explain why disagreement might exist about the estimated useful life of an asset. 	<p>MAJOR OBJECTIVE FOR STAGE 1: Form own conclusion and support it with evidence/arguments</p> <ul style="list-style-type: none"> • Effectively communicate information about changes in the estimated useful life of a tangible asset for a given audience.

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Relevant Costs

Example for Stage 1-2 Students

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Janet Baker's Residence Decision

Janet Baker is deciding where to live during her second year in college. During her first year, she lived in the residence hall. Recently her friend Rachel asked her to share an off-campus apartment for the upcoming school year. Janet likes the idea of living in an apartment, but she is concerned about how much it will cost.

To help her decide what to do, Janet collected information about costs. She would pay \$400 per month in rent. The minimum lease term on the apartment is six months. Janet estimates that her share of the utility bills will be \$75 per month. She also estimates that groceries will cost \$200 per month. Janet spent \$350 on a new couch over the summer. If she lives in the residence hall, she will put the couch in storage at a cost of \$35 per month. Janet expects to spend \$7,500 on tuition and \$450 on books each semester. Room and board at the residence hall would cost Janet \$2,900 per semester (four months). This amount includes a food plan of 20 meals per week. This cost is nonrefundable if the meals are not eaten.



Adapted from Problem 1.39, Eldenburg & Wolcott, *Cost Management (2e)*, Wiley. Used with permission.

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Typical Way to Write a Requirement

Suppose Janet asks for your advice. Turn in your answers to the following.

- A. Write a memo to Janet with your recommendation. Refer in your memo to the information that would be useful to Janet.
- B. How did you decide what information to include in your memo to Janet? Write one or two paragraphs explaining your thought process.

Requirement B can provide very useful information for assessing student thinking:

Stage 1: Confused by requirement B; very little to say

Stage 2: Usually repeat arguments stated in the memo

Stage 3+: Bring up more valid issues they considered and the decisions they made in writing the memo

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Additional Guidance to Help Students Think Through the Janet Baker Problem

1. Use ONLY the cost information collected by Janet for the following tasks.
 - a. List all of the costs for each option. Note: Some costs may be listed under both options.
 - b. Review your lists and cross out the costs that are irrelevant to Janet's decision. Explain why these costs are irrelevant.
 - c. Calculate and compare the total relevant costs of each option.
 - d. Given the cost comparison, which living arrangement is the better choice for Janet? Explain.
2. Identify uncertainties about the costs collected by Janet.
 - a. Determine whether each cost is likely to be (i) known for sure, (ii) estimated with little uncertainty, or (iii) estimated with moderate or high uncertainty.
 - b. For each cost that is known for sure, explain where Janet would obtain the information.
 - c. For each cost that must be estimated, explain why the cost cannot be known for certain.

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(continued)

3. List additional information that might be relevant to Janet's decision (list as many items as you can).
 - a. Costs not identified by Janet.
 - b. Factors (including uncertainties) other than costs.
4. Explain why conducting a cost comparison is useful to Janet, even if factors other than costs are important to her decision.



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Resources: <https://linktr.ee/AICPA>

Email Susan: swolcott@WolcottLynch.com



How to help your
students become
better critical thinkers

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Additional Questions and Discussion



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Thank you

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