

A Matter of Perspective in the First Accounting Courses

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This study is the first to examine how point of view impacts students' perceptions and performance in the first accounting courses. Students were given two quizzes which contained the same questions and content except one version's questions were phrased from the first-person perspective and the other version's questions were phrased from the third person perspective, like popular textbooks. Analyses of matched pairs showed scores on the first-person quizzes were significantly better than scores on the third person quizzes. Results will be of interest to educators striving to enhance relevance, affect authentic interest, and improve learning outcomes in these important classes.

Keywords: accounting education, first accounting courses, first-person perspective, accounting pedagogy

INTRODUCTION

This study focuses on the first accounting courses: Introduction to Financial Accounting and Introduction to Managerial Accounting. The influence of a student's experiences in the first accounting courses is consequential in terms of their perceptions of accounting and subsequent career pursuits (Jackling & Calero, 2006; Nelson et al., 2008; The Pathways Commissioners, 2012). Research indicates that many students have unfavorable experiences in the first accounting courses (Chen et al., 2004; Marriott & Marriott, 2003; Tickell et al., 2012). Wells (2015) found that one of the major factors which contributes to students' unfavorable perceptions of accounting is an absence of context. When material is delivered from an unrelatable perspective, it can be difficult for students who do not have accounting experience to make the personal connections required to affect authentic interest. This often leads to students memorizing just enough material to pass a class (Phillips & Graeff, 2014) and is a major characteristic of surface learning (Ballantine et al., 2008). Conversely, deep learning takes place when students search for meaning by integrating new material with their personal experiences and interests (Duff & McKinstry, 2007). If relevance to students' lives stimulates interest and fosters deep learning, then accounting educators must develop ways to make the seemingly impersonal personal.

This study adds a unique contribution to accounting education literature. To the best of my knowledge, it is the first of its kind to examine how phrasing quiz questions from different points of view is associated with accounting students' performance and perceptions. Therefore, the following literature review summarizes theories and interventions indirectly related to learning accounting material from the first-person perspective, as well as research from mathematics education that explores problem presentation and phrasing. This is followed by a description of the methodology employed, results, and a discussion.

LITERATURE REVIEW

Teaching Interventions Indirectly Related to Using the First-Person Perspective

Case Studies

Case studies are said to engage and motivate accounting students (Boyce & Greer, 2012) by fostering insight into business situations that students would otherwise not experience (Dellaportas, 2015). The rationale for the case based learning approach is that students are more receptive to teaching when they are immersed or “living” in the learning experience (Grant, 2015).

Some case-based learning studies have explicitly situated students as owners or employees of the company under study. For example, Stuebs et al. (2017) place students in the role of helping a professor in a consulting engagement for “Brittney’s Boutique”. Krumwiede and Walden (2013) instruct students to “put yourself in Kay Johnson’s (owner) shoes” when considering analyzing a special order. Everaert and Swenson (2014) employ an exercise where students design toy trucks and consider the role of accounting during new product development. The authors use the possessive pronoun “your” when phrasing questions such as “Calculate your truck’s product cost”. Swain, Charles, Hobson, Stocks, and Pratt (2010) instruct students to assume they are senior staff accountants at a CPA firm when examining direct and indirect costs, breakdown of variable and fixed costs and a target net income. Although these papers did not address or examine the effect of the first person perspective, student perceptions related to the cases’ overall effectiveness were significantly higher than a neutral point.

Adaption of Existing Games

Some accounting educators have adapted board games and television game shows to increase student engagement and make material more personal. A classic game which accounting instructors have leveraged for educational purposes is Monopoly (Mastilak, 2012; Warren & Young, 2012). The game affords students opportunities to account for personal transactions such rental property investments, depreciation, other expenses, and revenue. It also allows for the construction of financial statements and financial analyses. Adaptation of Hasbro’s “The Game of Life” has also been used to personalize the accounting cycle and financial analyses (Nitkin, 2011).

Krom (2012) used FarmVille in a Managerial Accounting course to help reduce student anxiety about accounting and increase peer-to-peer interaction. The game was conducive for students to step into the role of a business owner and consider topics such as capital investments, production planning, opportunity costs, and constrained resources. Krom asserts that the FarmVille game made it easier for students to grasp managerial accounting material and this was reflected in favorable course evaluations. The author also observed that many students referenced FarmVille vocabulary and examples when asking course related questions, implying that they were using their personal experience in the simulation as a reference point from which to expand their knowledge and relate new material.

Original Games

Some accounting instructors have created and incorporated original games to make accounting more personal. One example is Hoffjan (2005) who created an accounting game, Calvados, where students split into groups of four and each group is responsible for one company. All groups encounter the same situation and compete against each other to maximize profits. The exercise concentrates on product mix decisions, transfer prices, and the complex issues involved in decision making. Students learn, tacitly from the first-person perspective, how managerial accounting decisions affect reported profits and ultimately rewards for managers.

Phillips and Graeff (2014) designed a scenario for the first accounting course where students assume different roles, buy and sell merchandise, and account for transactions by preparing journal entries and maintaining inventory records for a Mom-and-Pop candy shop. Students reported increased confidence after the activity in terms of their understanding of how a business maintains accounts and prepares financial statements. Another role playing example applicable to the first accounting course is Lehman’s (2001) where the professor assumes the role of absentee owner and “hires” students to run a small candy shop.

Students are assigned roles of “Underpaid sales representative”, “Naïve bookkeeper”, etc. Students commit a variety of frauds in an environment absent of internal controls. This is followed by an analysis of internal controls which could have prevented or detected the fraud. The exercise provides an opportunity for students to step into auditors’ and employees’ shoes to better understand the internal controls and underlying motivations which drive fraudulent activities.

Today’s original learning-based games are typically computer-based. Connolly et al.’s, (2012) literature review of empirical evidence of computer and serious games examined 129 papers from a variety of disciplines. The papers included in Connolly et al.’s review analyzed a variety of outcomes associated with games, but most prevalent were outcomes related to knowledge acquisition/content understanding and student motivation. Although Connolly et al. note research design shortcomings for some papers, their review indicates many studies show positive results related to student motivation and improved mastery of material.

Only eight papers included in Connolly et al.’s literature review pertain to business. This is consistent with Calabor et al.’s (2019) assertion that the use of learning-based games in business education is lower than other disciplines, with accounting being the lowest among business majors (Calabor et al., 2019). Two applications that pertain to accounting education are Bank On It™ (“New Online Game Makes Accounting Fun for Students,” 2014) and Accounting Challenge (ACE) (Seow & Wong, 2016). Both applications are compatible with Android and iOS devices and provide a large library of multiple-choice questions related to Financial and Managerial Accounting. However, neither game situates students in the first-person perspective.

The Introduction to Accounting and Finance simulation (*Marketplace Simulations*, n.d.) gives students “first-hand” experience launching a business and applying relevant accounting functions, such as activity based costing, pro forma accounting and financial analyses, to make informed business decisions. Bookkeeping Practice (n.d.) offers an accounting and bookkeeping practice course that implicitly situates students in the first person to record transactions for a fictitious business called Baldy’s Barber Shop.

Insight From Mathematics

Accounting is not alone in the struggle to combat unfavorable student perceptions. Many mathematics students show a lack of interest in the subject and find classes boring and irrelevant (Boaler, 2000; Mtetwa et al., 2010). Mathematics education committees contend that one major element of student disengagement is the lack of connection between students’ lives and the subject (Darby, 2008). Researchers in this field recommend curriculum approaches that focus on relevance to students’ lives, claiming that students develop a deeper understanding when they are encouraged to relate material to their own world (Harvey & Averill, 2012; Mtetwa et al., 2010).

Mathematics has contributed informative studies on the topic of personal relevance and question phrasing. Koedinger and Nathan (2004) found that differences in problem representation can affect student performance and learning when one representation is easier to comprehend than another. The study focused on high school students enrolled in a first-year algebra course. Students completed quizzes with problems that ranged in various degrees of representation from exclusive story problems to equation-only problems without stories and blended or mixed problems that the authors call “word equations”. Koedinger and Nathan found students were more successful in solving algebra story problems than mathematically equivalent equation problems. Baranes, Perry, and Stigler (1989) posit this is because story problems can activate real world knowledge which students can leverage to arrive at a solution.

Koedinger and Nathan (2004), as well as other authors (Cummins et al., 1988; Hall et al., 1989) assert that the process of story problem solving can be divided into two phases: the comprehension phase and solution phase. The comprehension phase involves processing the text of a story and developing internal representations of the quantitative and situation-based relationships (Nathan et al., 1992). Problem solvers use the representations from the comprehension phase to arrive at a solution (Koedinger & Nathan, 2004). Researchers believe that the difficulties students experience in solving story problems is primarily due to errors in the comprehension phase. Cummins et al., (1988) notes that certain word problems are difficult for students because the problems use linguistic forms that do not intuitively map to existing conceptual

knowledge structures. Conversely, if problems are presented in a language familiar to students, they can leverage intuitive strategies to solve them. “Grounding new representations to familiar representations has the potential to promote reliable performance by facilitating meaning making” (Koedinger & Nathan, 2004, p. 158).

METHODOLOGY

Research Questions

- **Research Question 1:** To what extent does the use of first-person question phrasing affect student performance as measured by pop quizzes?
- **Research Question 2:** To what extent does the use of first-person question phrasing affect student perceptions of quizzes?
- **Research Question 3:** To what extent does the use of first-person question phrasing affect student perceptions of accounting?

Population

The population was comprised of students enrolled in four sections of Introduction to Financial Accounting and four sections of Introduction to Managerial Accounting during the Fall 2018-19 academic year at a public university in the Northeastern United States.

Instruments and Collection of Data Related to Student Performance

Two pop quizzes in each course were used to assess the effect of question phrasing on student performance. When each quiz was presented, they were delivered as closed book, in-class quizzes. A twenty-five-minute time limit was enforced for each quiz. Questions and content included in each quiz were identical except one version’s questions were phrased from a first person perspective and the other version’s questions were phrased from a third person perspective utilizing generic “textbook” descriptors.

The first pop quiz was given to all participants on the same day of the ninth week of each semester. The second round of quizzes was delivered one week later during the tenth week of each semester. The order of the quiz versions was alternated among sections to eliminate any effect that the sequencing of quizzes could have on student performance. For example, during the first round of quizzes, one section of Financial Accounting students received the third person/textbook quiz and the other section of Financial Accounting students received the first person quiz. During the section round, each section received the alternate version of their respective quiz. Neither grades nor specific answers for the first pop quiz were discussed or publicized before the second pop quiz. Only students who took both quizzes were included in the results in an effort to compare performance at an individual level and control for moderator variables.

Financial Accounting Quizzes

The same instructor taught each of the four sections of Financial Accounting which were included in this study. The quizzes administered to Financial Accounting students were comprised of ten questions. Nine questions contained transactions for which students were required to prepare journal entries. The tenth question required students to calculate the total revenue earned from the nine transactions according to accrual-based accounting. The third person/textbook quiz contained transactions that related to a fictitious company called “Red River, Inc.” The first-person quiz contained transactions related to a tutoring business where the reader was situated as the owner. Each version’s question structure and order was the same except for the difference in perspective. The correct answers, in terms of account names, were the same for both quizzes. See Appendix 1 for the third person/textbook quiz administered to Financial Accounting students. See Appendix 2 for the first-person quiz administered to Financial Accounting students.

Managerial Accounting Quizzes

The author taught each of the four sections of Managerial Accounting included in this study. The quizzes administered to Managerial Accounting students were comprised of seven questions. The first

question provided students with five cost descriptions and asked them to identify each expense as variable or fixed. The second and third questions related to the computation of product costs using activity-based costing. The remaining questions related to cost-volume-profit relationships. The third person/textbook quiz utilized fictitious and real corporations in the questions. The first-person quiz situated students as owners of a business which produced study guides for various college courses. Each version's question structure and order were the same except for the difference in perspective. See Appendix 3 for the third person/textbook quiz administered to Managerial Accounting students. See Appendix 4 for the first-person quiz administered to Managerial Accounting students.

Instruments and Collection of Data Related to Student Perceptions

After students submitted each quiz, they were provided a hard copy questionnaire to complete. Confidentiality was maintained by using a unique identifier rather than using identifying information such as students' names. Only paired samples were included in the results. The questionnaire consisted of two sections and gathered demographic data including gender, age, GPA, class level, and major.

One section was comprised of five statements designed to assess students' perceptions of the quizzes as assessment tools. This portion of the instrument was based on student feedback gathered in a pilot study focus group and input from another experienced accounting professor. Students rated their agreement with statements using a five-point Likert type scale.

The other section of the questionnaire included six statements intended to measure students' perceptions of accounting immediately following each quiz. These statements were driven by studies which find students perceive accounting as boring and irrelevant (Picard et al., 2014; Stivers & Onifade, 2014). These perceptions are commonly formed based on students' experience in the first accounting course and heavily influence students' decisions related to their major and career pursuits (The Pathways Commissioners, 2012). Accordingly, six statements were created to assess the association between different quiz versions and students' perceptions of accounting. Students rated their agreement with the statements using a five-point Likert type scale.

Data Analysis Procedures

Research question 1 asked to what extent does the use of first-person question phrasing affect student performance as measured by pop quizzes. Descriptive statistics regarding frequencies and means were computed for these assessments. Paired sample t-tests were performed to compare students' scores on the third person/textbook pop quiz to students' scores on the first-person pop quiz. The within-subjects design controls for differences between participants. Variables such as GPA, age, level or major are inherently controlled for.

Research questions 2 and 3 asked to what extent does the use of first-person question phrasing affect student perceptions of quizzes and to what extent does the use of first-person question phrasing affect student perceptions of accounting. Descriptive statistics regarding frequencies and means were computed for these assessments. Paired sample t-tests were performed to examine the differences in student perceptions immediately following the third person/textbook quiz and first-person quiz.

Limitations

The population was limited to undergraduate students enrolled in one university. The advantage to using this approach was consistency in instruction and timing. Results are restricted to the first financial accounting and managerial accounting courses. This limits the generalizability of results to other accounting courses and disciplines. In addition, the experiment only tested select topics from typical financial and managerial accounting courses. The quizzes were not meant to be representative of all learning objectives.

RESULTS

Demographics

The sample consists of 187 undergraduate students who took both versions of the quizzes. 71 matched pairs were enrolled in Financial Accounting and 116 were enrolled in Managerial Accounting. 184 of these matched pairs completed post-quiz questionnaires which collected demographic data and measured their perceptions of the quizzes and accounting. Forty-six percent were female and 54 percent were male. The mean age was 20.24 years. The sample included 22 seniors, 47 juniors, 82 sophomores and 33 freshmen.

Quiz Scores

Total Quiz Scores

Results of the paired sample t-tests indicate a significant difference in scores for the first person pop quiz ($M = .7607$, $SD = .2053$) and third person/textbook pop quiz ($M = .6944$, $SD = .2218$); $t(186) = -5.188$, $p = .000$. One hundred out of 187 students performed better on the first person quiz and first person quiz scores were higher than third person/textbook quiz scores regardless of major. Table 1 shows mean scores and frequencies by major.

TABLE 1
TOTAL MEAN QUIZ SCORES BY MAJOR

	First Person	Third person/Textbook
Accounting	0.82	0.73
Finance	0.83	0.69
Management	0.62	0.59
Marketing	0.75	0.66
International	0.79	0.69
NonBusiness	0.73	0.64
Total	0.76	0.69

Financial Accounting Quiz Scores

Financial Accounting students' paired scores for the first-person pop quiz ($M = .7013$, $SD = .2176$) were significantly higher than scores for the third person/textbook pop quiz ($M = .6110$, $SD = .2409$); $t(70) = -6.129$, $p = .000$. Forty-eight out of 71 Financial Accounting students performed better on the first-person quiz.

Managerial Accounting Quiz Scores

Managerial Accounting students' first person pop quiz scores ($M = .7972$, $SD = .1892$) were significantly higher than their paired third person/textbook pop quiz scores ($M = .7455$, $SD = .1932$); $t(115) = -2.8$, $p = .006$. Fifty-two out of 116 Managerial Accounting students performed better on the first-person quiz.

Perceptions of Quizzes

Overall Perceptions of Quizzes

Paired samples related to perceptions of the first-person quizzes were higher, but not significantly different, than perceptions of the third person / textbook quizzes. Table 2 summarizes the results.

TABLE 2
MEAN RATINGS FOR PERCEPTIONS OF QUIZZES

Survey question	First person	Third person / textbook
The questions made sense	4.11	4.04
I relate to the situations presented in the questions	3.17	3.04
The questions sparked my interest	2.99	2.96
I understand the material in the quiz	3.57	3.56
The questions helped me demonstrate my knowledge	3.80	3.82
Weighted average	3.53	3.48

Perceptions of Quizzes by Major

Majors were classified in three groups for analysis: (1) accounting and finance majors, (2) management, marketing, and international business majors and (3) non-business majors. Non-business majors' perceptions showed the largest variance and rated the first-person quiz higher on all five questions compared to the third person / textbook quizzes. Results of the paired sample t-tests indicate a significant difference between non-business students' perceptions of the first person ($M = 3.53$, $SD = .5920$) and third person / textbook quizzes ($M = 3.30$, $SD = .6005$); $t(42) = -2.491$, $p = .017$. There was no significant difference in perceptions of the first-person quizzes versus the third person/textbook quizzes for either group of business majors.

Perceptions of Quizzes by Course

When viewed by course, paired samples of both Financial and Managerial Accounting students rated the first-person quiz higher than the third person/textbook quiz, but the difference was not significant. The question with the largest difference in mean ratings for both courses was "I relate to the situation presented in the questions".

Perceptions of Accounting

Overall Perceptions of Accounting

Overall perceptions of accounting after taking the first-person quizzes exceeded students' perceptions of accounting following the third person/textbook quizzes but not by a significant margin. Perceptions of accounting as interesting and relevant to a student's career demonstrated the highest differences. Table 3 summarizes these results.

TABLE 3
MEAN RATINGS OF PERCEPTIONS OF ACCOUNTING

Survey question	First person	Third person / textbook
Accounting is interesting	3.29	3.20
Accounting is relevant to my career aspirations	3.75	3.68
Accounting is just a lot of rule memorizing which does not require in depth critical thinking	2.44	2.47
I like accounting	3.06	2.97
Accounting is boring	2.78	2.78
Weighted average*	3.38	3.32

* "memorizing" and "boring" questions were reverse scored to compute the weighted average

DISCUSSION

Student Performance

Overall, students achieved significantly higher scores on the first-person versions of the quizzes. These results are encouraging considering the variety of majors enrolled in the introductory accounting courses. First person quiz scores were significantly higher in both courses, with Financial Accounting demonstrating the larger difference.

A focus group of four students was conducted after the experiment to provide a deeper understanding of Financial Accounting students' experiences with the two quizzes. Two performed better on the first-person quiz, one performed better on the third person/textbook quiz, and one had the same score on both versions of the quiz. When asked to describe their experiences taking both versions of the quiz, three students described going through the first-person quiz with more confidence, less anxiety, and less intellectual strain. This sensation seemed to have different impacts on student performance. One student noted overlooking a mistake on the first-person quiz because of not reviewing answers before submitting the quiz. In contrast, the student did review the third person/textbook quiz before submitting it because they did not feel as confident in his answers. Another student described struggling with homework problems from the textbook as "not knowing what side I am on". This student found the first person phrasing helpful in understanding which party to account for. For example, the student said the first-person perspective made it "easy" to think about which party was increasing liabilities in a question that related to borrowing money from a bank. Overall, students described the experience with the first-person quiz as more natural or intuitive. Under the first-person scenario, it seemed they tried to *account for transactions*. Under the third person/textbook scenario, the researcher inferred that they tried to give the *right answers*.

If the first-person point of view facilitates more intuitive strategies to solve problems, could a similar method of teaching aid in deeper learning or help instructors better assess students' learning? Most accountants, including those who begin their careers in public accounting, ultimately wind up in managerial accounting roles (Siegal et al., 2010). These professionals inherently view situations and problems from an internal or managerial perspective (the first-person point of view). Considering this typical career track, one could assert that accounting education delivered via the first-person point of view may better represent the real-world scenarios that most accounting and other business students will encounter after graduation.

Perceptions of Quizzes

While not statistically significantly different, students rated the first-person quiz higher on four out of five questions. This warrants further study to explore whether the allusive "interest" described by Nolen (1988) is stimulated to a higher degree through questions phrased from the first person point of view. The statement demonstrating the largest difference in mean ratings was "I related to the situations presented in the questions" with mean ratings of 3.17 and 3.04 for the first person and third person/textbook quizzes respectively. Personal relevance and interest seem to go hand in hand. Educators contend that relating material to students' lives stimulates an interest which promotes deep learning (Harvey & Averill, 2012; Mtetwa et al., 2010). Consistent with students reporting a higher level of relatability to the first-person quiz, 101/187 students rated "The questions sparked my interest" to a higher degree after taking the first-person test when compared to their responses to the same question after taking the third person.

Perceptions of Accounting

Students' post-quiz perceptions of accounting were more favorable after the first-person quizzes, although the difference was not statistically significant. The two questions with the largest mean differences were "Accounting is interesting" and "I like accounting". Such results, in courses where students often have unfavorable experiences (Chen et al., 2004; Tickell et al., 2012), are encouraging.

Students in this study perceive accounting to be more relevant to their careers after viewing business situations from a first-person point of view with 92/187 rating "Accounting is relevant to my career aspirations" to a higher degree after taking the first-person quiz when compared to their ratings of the third person/textbook quiz. It is reasonable to believe that when individuals grasp a subject's relevance to their

potential career, they will be more motivated to learn. Many educators contend that motivation positively impacts academic performance (Chowdhury & Shahabuddin, 2007; Guay, Ratelle, Roy, & Litalien, 2010; MacLaren, Tran, & Chiappe, 2017). Student motivation as a mediating variable between first person point of view teaching and student performance may be a logical area for further study.

Conclusion

The study adds a unique contribution to accounting education literature by considering how phrasing quiz questions from different points of view is associated with accounting students' performance and perceptions. The study concentrates on what many consider the most important courses in the accounting curriculum to influence students' choice of major and career pursuits. Financial Accounting and Managerial Accounting students' scores on the first-person quizzes were significantly higher than their scores on third person/textbook quizzes.

I believe the results provide support for other researchers to further investigate the efficacy of first-person assessment phrasing or exploration of teaching methods that introduce material from the first-person point of view. In addition to superior academic performance, such a perspective may help non-accounting students appreciate the relevance of these courses and better represent the roles that most accounting students will assume after graduation.

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APPENDIX 1

Journalize the following for Red River, Inc. Answer the final question.

1. January 1: Red River, Inc. prepays its annual insurance premium of \$1,200
2. January 1: Red River, Inc. signed a contract with Tesha Investments to provide monthly services. Tesha paid Red River \$4,800 for the annual service fee.
3. January 3: Red River, Inc. borrowed \$60,000 from the bank; signed a note payable
4. January 8: Red River, Inc. paid \$47,000 for equipment
5. January 11: Red River, Inc. performed services for customers on account, \$12,800
6. January 16: Red River, Inc. received \$6,400 for services performed on account.
7. January 20: Red River, Inc. paid employee salaries of \$3,000
8. January 22: Red River, Inc. paid utilities for \$200

9. January 31: Make the adjusting entry for the Red River, Inc. and Tesha Investments contract signed on January 1.
10. Based solely on the nine journal entries above, what is service revenue for the month of January according to accrual basis accounting?

APPENDIX 2

Imagine you are the sole owner of a tutoring business where you charge classmates a fee to help them with homework. Your friend, Sarah, works for you as an employee. Journalize the nine transactions and answer the final question.

1. January 1: You prepaid your annual liability insurance bill of \$300.
2. January 1: You signed a contract with your classmate, Tim, to provide him monthly tutoring services. Tim paid you \$240 for the annual tutoring fee.
3. January 3: You borrowed \$10,000 from Fulton Bank; signed a note payable.
4. January 8: You paid \$2,500 for computer equipment that will be used for your business
5. January 11: You provided tutoring services for your classmate Emily, on account, \$100
6. January 16: You received \$100 for the tutoring services you provided to Emily.
7. January 20: You paid your employee, Sarah, wages of \$20
8. January 22: You paid the electric bill for \$75
9. January 31: You provided the monthly tutoring services that you promised to Tim in the contract signed on January 1. Make the adjusting journal entry.
10. Based solely on the nine journal entries above, what is service revenue for the month of January according to accrual basis accounting?

APPENDIX 3

1. Describe the cost behavior of each expense by labeling it “V” for variable or “F” for fixed.

Cost Item	Cost Behavior
Insurance on a Bausch & Lomb factory producing contact lenses	
Insurance on IBM's corporate headquarters	
Salary of a supervisor overseeing production of printers at Hewlett-Packard	
Commissions aid to automobile salespersons	
Steering wheels installed in BMWs	

TABLE A
DOBLES CORPORATION HAS PROVIDED THE FOLLOWING DATA FROM ITS
ACTIVITY-BASED COSTING SYSTEM:

Activity Cost Pools	Estimated Overhead Cost	Expected Activity	
Assembly	\$200,000	18,000	machine-hours
Inspection	\$100,000	1,720	inspection-hours

2. See Table A. The company makes 400 units of product D28K a year, requiring a total of 300 machine-hours and 10 inspection-hours per year. The product's direct materials cost is \$40 per unit and its direct labor cost is \$25 per unit. According to the activity-based costing system, the unit product cost of product D28K is closest to:
- \$10
 - \$35
 - \$134
 - \$75

Questions 3-7 relate to Factory Corporation, which produces product RX 99. Below are costs for Factory Corporation when it produces and sells 1,000 units. Assume the selling price of RX 99 is \$600 per unit.

Cost Item	Total
Insurance on the factory producing RX99	\$ 100,000
Corporate headquarters rent	\$ 24,000
Commissions paid to salespersons	\$ 200,000
Direct material YR2 included in RX99	\$ 250,000

3. What is the contribution margin per unit?
- \$150
 - \$50
 - \$350
 - \$476
4. If Factory Corporation sells 1,200 units of RX99, what is net income?
- \$31,200
 - \$146,000
 - \$81,200
 - \$56,000
5. If Factory Corporation sells 1,200 units of RX99, what is the variable cost per unit?
- \$324
 - \$274
 - \$474
 - \$450
6. If Factory Corporation sells 1,200 units of RX99, the fixed cost per unit is closest to
- \$124
 - \$103
 - \$303
 - \$83
7. Factory Corporation's Advertising Manager proposes investing \$100,000 in an online advertising campaign. She says this will double sales, making the total 2,000 units. What would be net income under this scenario?
- (\$74,000)
 - \$76,000
 - \$1,100,000
 - \$650,000

APPENDIX 4

Imagine that you own a business which produces study guides for various college courses, one of which is Managerial Accounting.

1. Describe the cost behavior of each expense by labeling it “V” for variable or “F” for fixed.

Cost Item	Cost Behavior
Insurance on your study guide factory	
Rent expense for your office	
Salary for your production supervisor	
Commission paid to your sales person	
Paper used for the study guides	

TABLE A
DATA FROM YOUR ACTIVITY-BASED COSTING SYSTEM

Activity Cost Pools	Estimated Overhead Cost	Expected Activity	
Printing & binding	\$10,000	18,000	machine-hours
Inspection & proof reading	\$40,000	800	inspection-hours

2. See Table A. You make 400 Managerial Accounting study guides each year, requiring a total of 100 machine-hours and 300 inspection-hours per year. The direct materials cost is \$5 per study guide and direct labor cost is \$3 per study guide. According to the activity-based costing system, the product cost of each Managerial Accounting study guide is closest to:
- \$50.55
 - \$58.55
 - \$37.64
 - \$45.64

Questions 3-7 relate to your study guide business. You pay your friend, Joe, a commission for each study guide he sells. Below are costs for your business when you produce and sell 1,000 study guides. Assume the selling price of each study guide is \$100.

Insurance on your study guide factory	\$ 2,000
Rent expense for your office	\$ 12,000
Commission paid to your sales person	\$ 30,000
Paper used for the study guides	\$ 50,000

3. What is your contribution margin per unit?
- \$20
 - \$6
 - \$56
 - \$70

4. If your company sells 1,200 study guides, what is your net income?
 - a) \$7,200
 - b) \$48,000
 - c) \$26,000
 - d) \$10,000

5. If your company sells 1,200 study guides, what is the variable cost per unit?
 - a) \$14
 - b) \$89
 - c) \$82
 - d) \$80

6. If your company sells 1,200 study guides, the fixed cost per unit is closest to
 - a) \$14
 - b) \$11.67
 - c) \$80
 - d) \$78.33

7. Joe proposes investing \$10,000 in advertising. Billboards would be placed in a prime location, directly in front of the student bookstore. Joe claims this investment will double sales, making the total 2,000 study guides. What would be net income under this scenario?
 - a) \$0
 - b) \$16,000
 - c) \$190,000
 - d) \$2,000