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Accounting For Students' Course Achievement And Decision To Major In Accounting: A Longitudinal Examination Of Motivation And Emotion Predictors

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ACCOUNTING FOR STUDENTS' COURSE ACHIEVEMENT AND DECISION TO MAJOR IN ACCOUNTING: A LONGITUDINAL EXAMINATION OF MOTIVATION AND EMOTION PREDICTORS

by

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This dissertation, submitted by Tammy Louise Gerszewski in partial fulfillment of the requirements for the Degree of Doctor of Philosophy from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and is hereby approved.

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Tammy Louise Gerszewski
November 17, 2016

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To my husband, Wayne, you are my rock. Without you, this would not have been possible. To my mother, Marlene, and my father, Darrel (†). You encouraged me to chase my dreams, to never give up, and to believe in myself.

ABSTRACT

Accounting programs face the challenge of attracting and retaining the best students in accounting degree programs in order to meet the current and future demands of the accounting profession. Most of the past research into this issue has lacked theoretical foundations and rigor found in other disciplines. The purpose of this study was to investigate the relationships between business students' motivations and achievement emotions, and to test how these constructs predict accounting major selection and academic achievement. To achieve this purpose, two complimentary theoretical frameworks not previously applied within the accounting domain, were used: the control-value theory (CVT) of achievement emotions (Pekrun, 2006), and the self-determination theory (SDT) (Ryan & Deci, 2000).

This quantitative study involved a longitudinal survey design administered at two time intervals during the spring, 2015, semester. Participants were enrolled in either the Elements of Accounting I or II compulsory courses, with a total of 386 participants at Time 1, and 241 at Time 2. A series of statistical tests were completed to analyze the data. Significant findings emerged based on intended major: accounting or non-accounting.

Regarding the CVT framework, the results indicated value predicted accounting major likelihood for both groups of majors, and joy emerged as a mediating influence on this this relationship for the non-accounting majors. Perceived academic control predicted

academic performance for both majors, and anxiety partially mediated this relationship. Regarding SDT, autonomy predicted accounting major likelihood for both groups, amotivation completely mediated this relationship for accounting majors, and intrinsic motivation partially mediated this relationship for non-accounting majors. Competency predicted academic performance for both majors, and amotivation partially mediated this relationship for non-accounting majors.

Results also suggest that group affiliation based on intended major selection moderated value, autonomy, competency, and amotivation. Furthermore, interaction effects for these variables emerged, which indicated that non-accounting majors fair experience more negative effects during the semester when compared to accounting majors. Finally, this study supported the assertion that CVT and SDT are complimentary frameworks, and suggests that value is a connecting variable between the two frameworks.

CHAPTER I

INTRODUCTION

A significant challenge facing accounting faculty and the accounting profession is attracting enough high quality college students to accounting degree programs to meet the current and expected future demands for accountants. At the turn of the 21st century, a time when job opportunities were promising, there was a decreasing trend in enrollment of students in accounting degree programs (Heiat, Brown, & Johnson, 2007). This trend of decreasing enrollments in periods of high demand for accounting graduates previously occurred in the 1980's, and could happen in the current decade. The academy has shown some interest in exploring what attracts students to accounting programs and the accounting profession. Over 30 years ago, Paolillo and Estes (1982) identified economic factors as the most important reasons for students choosing the accounting profession. Throughout the decades since, other researchers have identified both external factors (including economic factors) and psychosocial factors as influential in students' decisions to major in accounting. However, most of this research lacked theoretical foundations, has been exploratory in nature, and lacked rigorous research design (Apostolou, Dorminey, Hassell, & Watson, 2013).

Although researchers have explored some factors that influence students' choice of major, most of this research provided no predictive ability to determine future outcomes with regard to major selection. To date, the Theory of Reasoned Action (Djatej,

Chen, Eriksen, & Zhou, 2015) and its extension, the Theory of Planned Behavior (Allen, 2004; Tan & Laswad, 2006, 2009), have been applied to study these phenomena. However, no attempt has been made by the academy to understand the diverse nature of college students' motivations and emotions' experienced in their accounting courses, and how these constructs may predict students' decision to major in accounting, and their academic performance.

Using a research design that is grounded theory, could provide more insight as to why students choose the accounting major and how their classroom experience impacts academic performance, thus yielding a more complete picture from which to identify predictive relationships. In the past decade, researchers have focused more directly on the connections between emotions, cognition, and motivations (Linnenbrink, 2006; Meyer & Turner, 2006). The purpose of the current study was to contribute to the bodies of knowledge in both the accounting education and educational psychology disciplines, using two frameworks, self-determination theory (motivation) and the control value theory of achievement emotions, to investigate and identify predictive relationships between college students' diverse motivations and emotions with accounting major selection and academic performance.

The remainder of this chapter will establish the need for the current study in two parts. First, providing evidence for the need to attract students to the accounting major. Second, establishing weaknesses in extant research exploring why students select the accounting major/profession. This will be followed by a discussion of the theoretical frameworks used for the current study, statement of purpose, identification of the

research questions, rationale for the study, delimitations, limitations, assumptions, definitions, and a final summary.

Need for the Study

As reported in the 2013 Trends report issued by the American Institute of Certified Public Accountants (AICPA) every two years, a record setting 82,177 accounting graduates (undergraduate and post-graduate) completed their degrees in 2012 (AICPA, 2013). As of year-end 2014, there were 81,782 graduates, with these numbers at best remaining stable, they could also be indicating the stagnation of graduation rates, or more concerning, the start of a decline. Simultaneously, CPA firms' demands continued to grow at record levels, with 52.9% of the 2014 graduates being recruited by public practice. Further, 91% of CPA firms surveyed expected to hire the same or more graduates within the next reporting window (AICPA, 2015).

Additionally, as of 2014, there were 1,332,700 accountant and auditor jobs, and the United States Department of Labor predicted 142,400 new jobs in this area will be created by 2024, an expected 11% faster than average growth in job opportunities compared to all occupations (Bureau of Labor Statistics[BLS], 2016). Based on this information, demand for accounting graduates will continue to be high in the foreseeable future, and it is essential that the supply of graduates is maintained. This is of concern to both the profession and accounting educators, as a diverse business student population generates the pool of future graduates and must meet the needs of multiple business majors. Thus, understanding of the motivations of students who major in accounting is important.

The research examining the predictors of students' selection of the accounting major has yielded a variety of factors influencing major selection, although results are inconsistent. External factors identified include: economic influences (Heiat, Brown, & Johnson, 2007; Mauldin, Crain, & Mounce, 2000; Tan & Laswad, 2006), parental influence (Kim, Markham, & Cangelosi, 2002; Tan & Laswad, 2006, 2009), and students' assessments of the costs and benefits of pursuing a career in the accounting profession (Chen, Jones, & McIntyre, 2008). Psychosocial factors identified include: student interest (Heiat et al., 2007; Kim et al., 2002), the experiences of boredom (Geiger & Ogilby, 2000; Tan & Laswad, 2006), and anxiety in the accounting courses (Borja, 2003), students' perceptions of their abilities (Kim et al., 2002), and students' perceptions of their accounting instructors and the accounting profession (Geiger & Ogilby, 2000; Heiat et al., 2007; Hunt, Falgiani, & Intrieri, 2004; Saemann & Crooker, 1999; Tan & Laswad, 2006).

Apostolou, Hassell, Rebele, and Watson (2010) stated "Research into the best way to identify and attract the appropriate talent is needed" (p. 183). Previous research in accounting education has not explored potential predictive relationships between these influences and achievement outcomes such as course grades and major selection. Furthermore, Apostolou, Dorminey, Hassell, and Watson (2013), noted that much of the accounting education research is atheoretical and exploratory in design; specifically "At the current state of accounting education research, empirical research designs are less rigorous compared to education research produced in other disciplines such as psychology and education" (p. 145).

While accounting education research has identified a number of factors influencing the selection of the accounting major, it has done so without grounding the methods used in any theoretical foundation, often utilizing a series of single-item questions in survey format. The results of this research offers little confidence in predictive capabilities and are largely not generalizable. Further research into students' motivations and emotions thus appears to be sorely needed.

Theoretical Frameworks

College student motivations are intricate, diverse, and dynamic. As noted by Ryan and Deci (2000) "people are moved to act by very different types of factors, with highly varied experiences and consequences" (p. 69). Taking a comprehensive approach to the study of human motivation, Ryan and Deci developed the self-determination theory, which incorporates the components of psychological need satisfaction, motivation, and well-being. Thus, when psychological needs are met, motivation and well-being are enhanced. Ryan and Deci (2000) argued that individuals can be self-motivated, externally controlled, or some variation between the two. This variation in human motivation can be attributed to "social conditions and processes [that] influence not only what people do but also how they feel while acting and as a consequence of acting" (Deci & Ryan, 2008a, p. 14). Thus, emotions that are experienced before, during, and after events are central influences on students' motivations.

Pekrun's (2006) control value theory of achievement emotions asserts a holistic view of emotions in which "emotions are seen as multi-component, coordinated processes of psychological subsystems including affective, cognitive, motivational,

expressive, and peripheral physiological processes" (p. 316). This perspective is in agreement with the definition of emotions by the dynamic systems approach (Damasio, 2004; Op 't Eynde & Turner, 2006). It has further been asserted that a connection between emotions and learning exists, "engaging students in learning, requires consistently positive emotional experiences" (Meyer & Turner, 2006, p. 377). Therefore, it is important to develop an understanding of the role emotions and the interactions between them and students' motivations have on major selection and academic performance among accounting and business students.

Postulating that similar relationships exist within the business student population, in comparison to the general or psychology students, requires further research. Using the self-determination theory (SDT) of motivation (Ryan & Deci, 2000) and the control-value theory (CVT) of achievement emotions (Pekrun, 2006) as the theoretical framework, the purpose of this study was to examine if students who are differentially motivated and experience specific achievement emotions have different outcomes related to course achievement and accounting major selection. Examining these potential predictive relationships provides a richer understanding of business students within the empirical literature. Furthermore, understanding the relationships among these variables is central to understanding the classroom experience, which can then be used to create a learning environment that fosters the attraction and retention of a sufficient pool of accounting students available to meet the demands of the profession.

Although a connection between SDT and CVT has rarely (if at all) been tested empirically, and certainly never among business students, they are complimentary

theoretical frameworks with some connection between the theories expected. For instance, in an autonomy supported environment it is assumed students will experience positive achievement emotions, while negative achievement emotions deter self-regulation and foster reliance on controlled motivation. Figure 1 below depicts the model this study investigated.

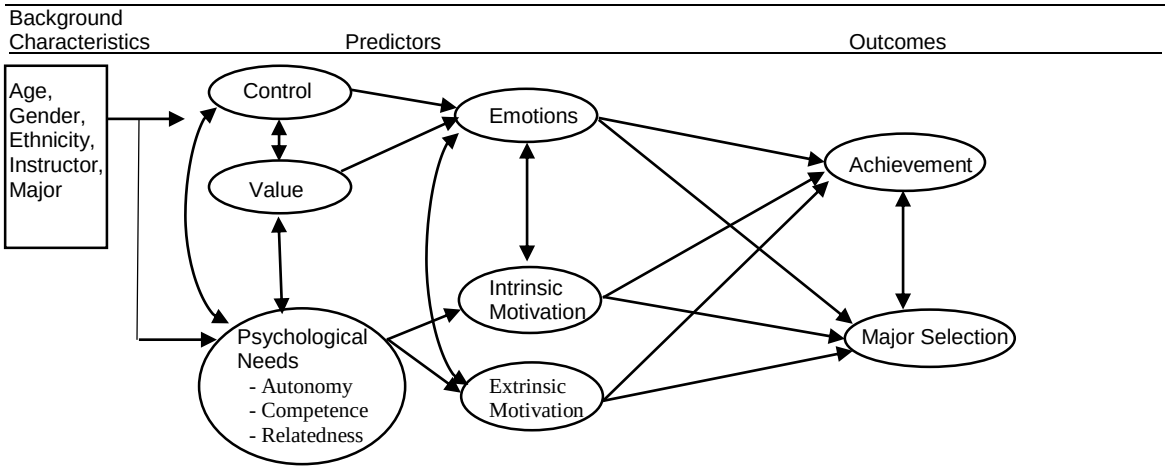


Figure 1. Conceptualization of Proposed SDT and CVT Model. This model was tested in the current study.

Statement of Purpose

The purpose of this study was to investigate the relationships between business students' motivations and achievement emotions, and to test how these constructs uniquely and concurrently predict the selection of the accounting major and academic achievement in accounting courses.

Research Questions

To fulfill this purpose, the following research questions were addressed:

1. What are the motivations and achievement emotions of business students in the introductory accounting courses?
2. How do business students' motivations and emotions relate to each other?

3. How do business students' motivations and emotions influence their accounting major selection and academic performance?
4. How do business students' motivations and emotions change over the semester? Furthermore, how does the pattern (increasing or decreasing) of these students' motivations and emotions relate to their likelihood to major in accounting and their academic performance?

Rationale for the Study

The current study extended the existing body of research related to college student motivation by studying students specifically in the business domain. The compulsory introductory accounting courses captured a diverse business student population, which has not previously been analyzed to this extent. The current study examined motivational and emotional changes that were experienced by these students over a semester of learning, which is unique to this study. Additionally, this study investigated variables influencing achievement outcomes to determine predictive relationships. Furthermore, the current study empirically tested potential connections between SDT and CVT in a new domain. Finally, the current study investigated, at a much deeper level, the factors that facilitate or thwart potential students' selection of accounting as their academic major; thereby providing invaluable information which can be utilized to identify and retain potential majors the accounting profession.

Delimitations

The scope of the current study was determined by several delimitations. First, only students enrolled in the compulsory Elements of Accounting I and II courses at a

single university institution, for a single semester, were eligible for participation in the current study. This boundary was utilized because these courses are the pool from which accounting majors are attracted. Second, students were recruited by two methods: the principle investigator was allowed to enter the classroom to explain the research and administer the instrument to participants, or students attended pre-arranged open sessions where the principle investigator explained the research and administered the instrument. The second method was implemented as some course instructors preferred the instrument not be administered during class time. Third, participants included in the current study had to consent to their final course grades being accessed by the principle investigator. This parameter was instituted to improve the investigation of the theoretical frameworks and academic achievement (final grades). Finally, the selection of the SDT and CVT frameworks determines the scope from which other researchers can compare the current study results. The instrument utilized previously researched and validated scales related to both frameworks with or without modification. Thus it is from the SDT and CVT perspectives that the current study results were analyzed and interpreted.

Limitations

The results of the current study must be interpreted with awareness of the following limitations. First, the current study included participants who were enrolled in their first or second accounting course, a majority of whom were sophomores. As such, the results of the current study may be unique to this sample and have limited generalizability for other university populations. Second, the current study was a survey design and relied on student honesty and personal interest in answering the questions. Third, although the current study utilized a longitudinal design, it was implemented

within a single semester. Interpretation of the results should keep this in mind as a longer longitudinal design could yield different results. Finally, while this study anticipated a diverse population in regards to motivations and emotions, the student participants may lack diversity in other traditional demographics such as race, age, and cultural backgrounds, due to the homogenous student body at the institution this data was collected.

Terminology

- *Control value theory of achievement emotions*: "provides an integrative framework for analyzing the antecedents and effects of emotions experienced in achievement and academic settings" (Pekrun, 2006, p.315).
    - *Achievement emotions*: specific emotions experienced during achievement activities, which effect cognition, motivation, learning, and well-being (Pekrun, 2006). Specific achievement emotions examined in the current study were enjoyment, boredom, and anxiety.
    - *Perceived academic control*: central appraisal of CVT, it "is presumed to reflect students' beliefs about whether they possess certain characteristics, as personal attributes, that contribute to their scholastic performance" (Perry, 2003, p. 315).
    - *Subjective value*: central appraisal of CVT, conceptualized as Eccles' (2005) subjective task value. The assertion is made that subjective task value is likely to mediate student achievement (Eccles, 2005). The four

elements of subjective task value include: attainment value, intrinsic value, utility value, and cost.

- *Motivation*: "The act or process of giving someone a reason for doing something…a force or influence that causes someone to do something" (Merriam-Webster.com, 2016).
- *Self-determination theory*: a motivation theory focused on human motivation and personality (Ryan & Deci, 2000). The theory asserts the three psychological needs of autonomy, competency, and relatedness must be satisfied to facilitate optimal well-being. The SDT framework provides a continuum of unique types of motivation: amotivation (no motivation), self-motivation (intrinsic/autonomous), and external motivation (extrinsic/controlled).

Summary

For the foreseeable future, a strong demand for accounting degree recipients will exist, which places continual pressure on university accounting programs to attract and retain students both in quantity and quality. Although supply concerns in the past have instigated research into the exploration of why students choose or do not choose the accounting major, most of this research has lacked theoretical foundations. Thus, evidence that has purported to explain these choices has not provided predictive capabilities that are generalizable to other universities. The purpose of this study was to investigate the relationships between business students' motivations and achievement emotions, and to test how these constructs uniquely and concurrently predict the selection of the accounting major and academic achievement in accounting courses. To accomplish

this purpose, the two complementary and well regarded theoretical frameworks of SDT and CVT were utilized. These frameworks have never been examined within the accounting education domain, and seldom (if at all) utilized together in research outside of this domain.

This chapter provided an introduction to the research problem. It introduced the foundation frameworks of SDT and CVT, both central to the current study purpose. Additionally, a clear and concise study purpose was proposed to communicate the intent of the current investigation, along with an outline of the research questions investigated, followed by a discussion of the rationale for the study. Finally, the delimitations, limitations, and terminology applicable to the study were discussed. The next chapter will provide a comprehensive review of the body of literature used to inform the study.

CHAPTER II

LITERATURE REVIEW

The purpose of this study was to investigate the relationships between business students' motivations and achievement emotions, throughout a semester long compulsory accounting course, to test the constructs that predict accounting major selection and academic achievement in the accounting course. Two complementary theoretical frameworks were adopted for this study: Ryan and Deci's (2000) self-determination theory (SDT) and Pekrun's (2006) control value theory (CVT) of achievement emotions. These frameworks have rarely (if at all) been tested together in an empirical research design. However, both frameworks look more comprehensively at why achievement outcomes are attained. SDT moves beyond basic intrinsic and extrinsic motivation assertions, and CVT moves beyond the simplicity of positive and negative emotion experiences. It was expected that connections between the two frameworks would emerge, and that both frameworks would provide valuable insight into the outcome variables of accounting major selection and course achievement (final grades).

The variables investigated for this study included autonomy, competence, relatedness to peers, relatedness to instructors, motivation, perceived academic control, course/task value, and achievement emotions. Student participants were selected based on their enrollment in the compulsory Elements of Accounting I and II courses. The participants were then grouped by self-report of whether they (1) had declared, or

intended to declare, accounting as either their primary or secondary major, or (2) they did not intend to declare accounting as their major. A longitudinal research design was utilized to collect the data at two intervals during the semester. This literature review is intended to synthesize the existing academic research from both the accounting education and educational psychology domains. As such, this chapter covers the following sections:

1. *Accounting Education*, which describes the demand for students with the accounting major, focuses on the existing academic research within the accounting education literature that has explored the influences of accounting major selection, and identifies weaknesses and gaps in this literature;
2. *College Students' Motivations and Emotions*, which provides a background in understanding motivation, it's diversity and variation within each human being, and describes the role of emotions in the academic environment;
3. *Theoretical Frameworks Utilized*
    A. *Self-Determination Theory*, which provides a synopsis of the theory, including an examination of the psychological needs (autonomy, competence and relatedness) and the motivation continuum; and
    B. *Control Value Theory of Achievement Emotions*, which provides a synopsis of the theory, including an examination of achievement emotions and their effects on academic performance, and the antecedents (perceived academic control and subjective value) to these emotions.

This literature review was intended to provide both support for the necessity of the current sturdy, and the historic background information necessary to structure the rationale, methods and conclusions of this study. This chapter is intended to consolidate the literature that informed this study. It is also intended to provide the foundation for the research approach used in the current study.

Accounting Education

The historic challenge and priority of accounting programs has been attracting enough of the 'right' students to the accounting major in order to meet the hiring demand of the accounting profession. Both current enrollments in accounting programs and hiring needs are at all-time high levels. Historically, enrollments in accounting bachelor's and master's programs have periodically resulted in decreasing enrollments during periods of strong demand. Yet, limited research has been dedicated to understanding, with adequate predictive ability, why students choose or do not choose the accounting major.

Graduate Demand and Enrollment Supply

Based upon the American Institute of Certified Public Accountants (AICPA) 2015 Trends report, which is published every two years, Figure 2 shows that since 2007, record setting hiring has occurred within CPA firms, which has culminated with 43,252 combined accounting bachelor's and master's graduates being hired in 2014 (AICPA, 2015). Of the 81,782 accounting bachelor's and master's graduates entering the market, 52.9% were recruited into public practice (AICPA, 2015). The demand for these students is expected to remain strong for the foreseeable future. When surveyed by the AICPA (2015), 91% of CPA firms indicated they expected to hire new accounting graduates at

the same or higher levels for the upcoming year. The National Association of Colleges and Employers (NACE) Job Outlook 2016 (NACE, 2016), indicated that business discipline graduates are the most in demand, and specifically, the bachelors of accounting graduates are in the highest demand. The United States Department of Labor, Bureau of Labor Statistics (BLS) (2016) predicted that 142,400 new accounting jobs (both public and private sectors) will be created by 2024, an 11% faster than average growth in job opportunities compared to all occupations.

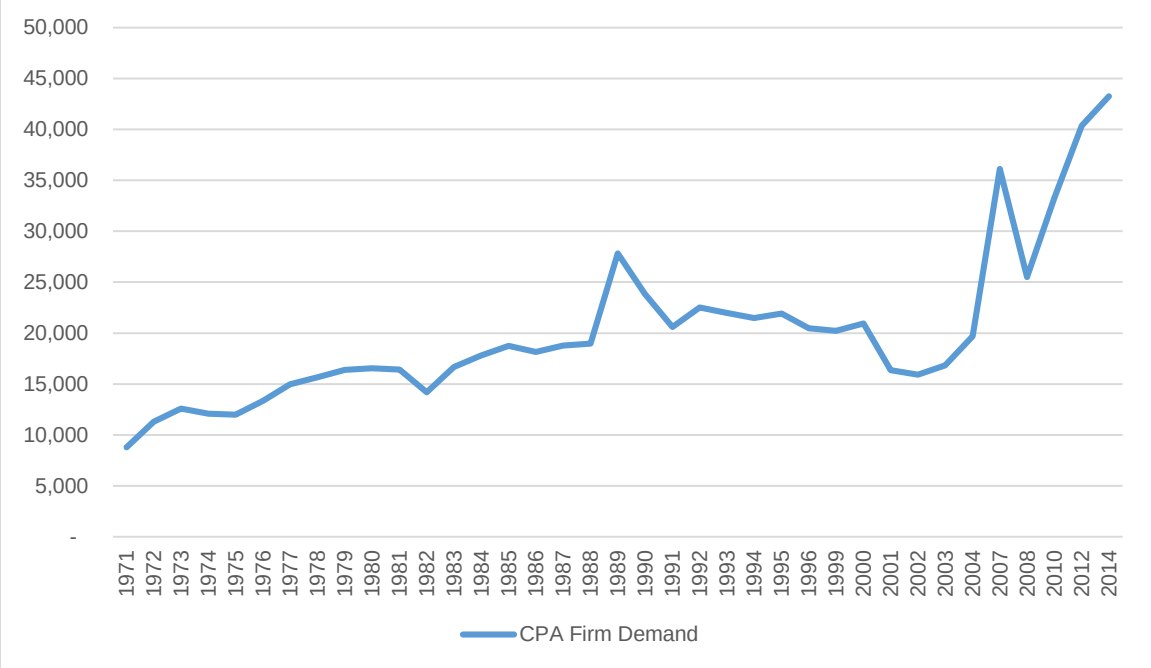


Figure 2. CPA Firm Demand Since 1971. Information from the AICPA (2015) Trends Report.

While demand for accounting graduates has set new records in the past decade, so has the number of graduates in accounting bachelor's and master's programs. Figure 3 shows the graduation rates since 1971, as reported by the AICPA. The 2011-2012 academic year saw a record setting 61,334 students graduating with an accounting

bachelor's degree, and a record setting 82,177 students graduating with either an accounting bachelor's or master's degree (AICPA, 2015). The most current academic year of 2013-2014, saw the combined total of 81,782, indicating stagnation may be occurring, as accounting bachelor's graduates declined to 54,423, while the accounting master's graduates continued to increase, resulting in 27,359 graduates (AICPA, 2015).

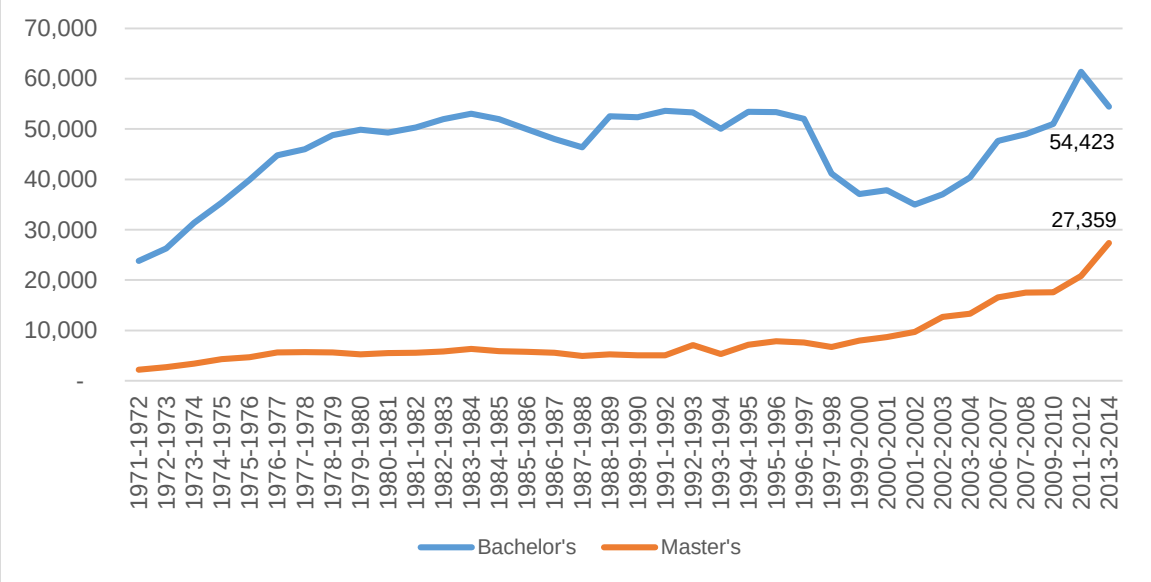


Figure 3. Accounting Degrees Awarded (Masters and Bachelors) 1971 – 2014. Information from the AICPA (2015) Trends Report.

In this same period (2013-2014), a record setting 253,082 students were enrolled in accounting degree programs. The AICPA (2015) reported that 207,071 students were enrolled in bachelor's programs, and 44,816 students were enrolled in master's programs, both historically high enrollments. This enrollment information is depicted in Figure 4.

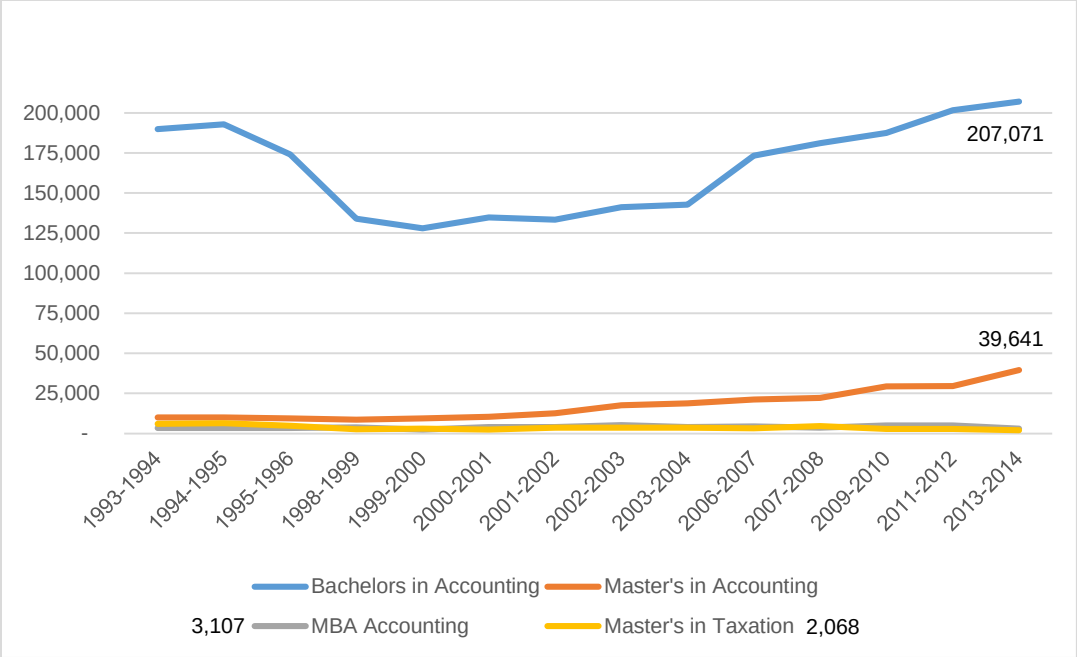


Figure 4. Accounting Degree Program Enrollments Since 1993-1994. Information from the AICPA (2015) Trends Report.

A deeper examination of the AICPA (2015) findings indicate there is a somewhat counter-cyclical nature to the number of undergraduate accounting degrees earned since recording of this data began. During the mid-to-late 1980's the number of accounting degrees being awarded was declining, and yet the demand for accountants was growing. As recently as the late 1990's the number of students enrolled in accounting degree programs and the number of students graduating with some level of accounting degrees were declining during a period of strong hiring.

The stagnation of the overall graduation rates for the 2013-2014 time period as previously mentioned is concerning to the accounting profession. Barry Melanchon of the AICPA stated, "It is critical that we're producing enough CPA's to replace the retiring Baby Boomers and that the profession is continuing to meet the ever-changing needs of the U.S. capital markets" (Vein, 2015, para. 6). The pool of potential CPA's is derived

from the pool of accounting degree graduates, which is fed by accounting program enrollments, whose students come from the general business college population. Furthermore, internal competitive pressure derives from the knowledge that business colleges must also produce majors in other high demand fields such as Finance and Business Administration/Management (NACE, 2016). With strong demand expected for the foreseeable future, it is imperative that both enrollment levels and graduation rates in accounting degree programs keep pace.

Factors Influencing Accounting Major Selection

The most recent decline in accounting program enrollments and accounting degree graduation rates occurred in the late 1990's and early 2000's. This decline spawned new interest in academic research focused on investigating accounting students' career choices and selection of their major. A variety of inconsistently identified factors emerged as potential influencers on students' selection of the accounting major and their perceptions of the accounting profession.

External factors. Much of the historic accounting education research into understanding students' choice of accounting major has utilized survey findings focused on identifying single factors that influence this decision. Many of these factors have been external in nature, such as: economic, course instructors, parents, and cost/benefit analysis.

Economic factors. Early research on this subject includes Paolillo and Estes (1982) in which they investigated factors influencing career-choice decisions of accountants, attorneys, engineers, and physicians. Their findings indicated that economic

factors were important to accountants in their career choice decisions. Specifically, availability of employment was the most important factor, followed by earnings potential, years of required education, aptitude for accounting, and teacher influence. Additionally, their results revealed that students made their career decision in the first two years of college. Gul, Andrews, Leong, and Ismail (1989) built upon Paolillo and Estes' (1982) study by focusing on first year college students' choice of major. Their findings suggested that accounting students were most influenced by job satisfaction, followed by earnings potential, job availability, aptitude for accounting, and years of required education. These findings were consistent with those of Paolillo and Estes (1982), but also introduced job satisfaction as an important factor in accounting major selection.

Hermanson, Hermanson, and Ivancevich (1995) continued this line of research by surveying university students, a majority of whom were seniors, and all of whom were members of a national business honor society. Their results indicated that accounting majors were most influenced by the economic factors of long-term opportunities, financial rewards, and employment availability when selecting their major. Further supporting these findings, in their study focused on what influenced students' choice of becoming a chartered accountant (CA), Felton, Buhr, and Northey (1994) noted that long term earnings and promising job opportunities were important factors for the CA students. However, the results for non-accounting majors in the Hermanson et al. (1995) study indicated that some students chose not to major in accounting because of non-financial factors; non-accounting majors did not like the nature of the work in accounting.

As research continued into the next century, economic factors including job opportunities and high income potential, continued to be identified by both accounting and non-accounting majors as influencers on student major selection (Heiat et al., 2007; Mauldin et al., 2000; Tan & Laswad, 2006, 2009). Since the early 2000s, growth in the demand for accountants has helped drive up the salaries in the profession, as well as job opportunities and stability. However, aside from economic factors, other important factors have emerged as potential influencers of students' accounting major selection.

Accounting course instructors. Tan and Laswad (2006) asserted that both the profession and accounting course instructors should take advantage of opportunities to promote the profession, and to influence students' decision to choose the accounting major. Students' first exposure to the accounting profession through the introductory accounting courses has shown the potential to positively impact students' perceptions of the accounting profession, regardless of major (Chen et al., 2008). Mauldin, Crain, and Mounce (2000) found that instructors may influence students' decisions to major in accounting more than the content of the accounting course does. They noted that for accounting majors, the accounting instructor was the person they talked most often with about the accounting career; however, non-accounting students indicated that no-one talked about accounting career opportunities with them (Mauldin et al., 2000). Hunt, Falgiani, and Intrieri (2004) noted that non-accounting majors formed negative impressions of accountants and the accounting profession through the accounting courses they had taken. Smith (2005) revealed contradictory findings, asserting that instructors do not have a significant impact on major selection, rather it is the introductory course itself.

However, it has been asserted that instructors must be able to create positive experiences for students early in their accounting courses in order to foster students' willingness to choose the accounting major (Kaenzig & Keller, 2011). Some researchers have scrutinized the role of instructors in the classroom, examining their effectiveness in the learning environment (Stout & Wygal, 2010), as well as their influence on students' major selection (Chen et al., 2008; Geiger & Ogilby, 2000; Kim et al., 2002; Mauldin et al., 2000). These findings suggest that introductory accounting course instructors are likely to exert significant influence over students' willingness to consider a major in accounting, thus "instructor assignment to this course is important, in part, because it can impact the supply of accounting majors to both an accounting program and the accounting profession" (Geiger & Ogilby, 2000, p. 76).

Parents. In addition to instructor influence, parental influence has been found to also influence students' decisions to major in accounting. Kim, Markham, and Cangelosi (2002) found that accounting students indicated parental influence was more significant than instructor influence to their decision making. Also, Tan and Laswad (2006, 2009) showed that for students who intended to major in accounting, their parents were more influential in this decision than the parents of non-accounting majors.

Cost and benefit assessment of accounting. Additional findings from Felton et al. (1994) indicated that CA majors believed that the benefits (challenge, trust, dynamic, career opportunities) of the CA profession outweighed the costs (time, barriers to qualifications, entry level earnings, poor image), whereas for other business majors, the costs of the profession outweighed the rewards. Chen, Jones, and McIntyre (2005)

reexamined the Felton et al. (1994) study and yielded results supporting the finding that CA majors report greater benefit to cost ratio in choosing the accounting profession. Further extending this research by conducting it at a U.S. university, Chen, Jones, and McIntyre's (2008) results substantiated the prior findings that accounting majors perceived higher benefit to cost ratio for the accounting profession.

While these findings indicate both accounting and non-accounting majors are influenced by external factors in their major selection, other research has asserted that psycho-social factors influence this decision. Thus these psycho-social factors should be explored in attempting to understand how and why students select their major. Therefore, it is important to explore the extant literature related to these factors.

Psychosocial factors. Psychosocial factors, which are related to the interrelations of individual thought and behavior with social factors, are potential influencers on student decisions. Included in this classification of potential factors influencing students' decisions to major in accounting are: students' perceptions of the accounting profession and their course instructor, interest, ability self-perceptions (i.e. self-efficacy), and emotions experienced in courses. Within extant accounting education research, these are the most prominent factors that have been posited to influence student decisions to major in accounting.

Perceptions of the accounting profession. Students' perceptions of the accounting profession have been identified as a deterrent for the selection of the accounting major (Heiat et al., 2007; Hunt et al., 2004; Saemann & Crooker, 1999; Tan & Laswad, 2006, 2009); however, the level of deterrence is more significant for non-

accounting majors (Hunt et al, 2004). Non-accounting majors "view public accounting as a career involving menial job responsibilities and having limited interactions with people" (Heiat et al., 2007, p. 92). Findings related to non-accounting majors also indicated that "traditional perceptions of precision and order in the profession discourage more creative individuals from pursuing a major in business and accounting" (Saemann & Crooker, 1999, p. 15).

However, students who are accounting majors tend to have positive perceptions of accountants and the accounting profession. Saemann and Crooker (1999) noted that accounting majors view the profession from a less traditional perspective and therefore view it as more interesting than their peer non-accounting majors. Other researchers have also concluded that accounting majors view the accounting profession positively (Geiger & Ogilby, 2000; Heiat et al., 2007; Hunt et al., 2004). Tan and Laswad (2006) proposed that the accounting profession is attracting students who view the typical characteristics of the profession in a positive way.

Student interest. Kim et al. (2002) reported that student interest in actual accounting work was the most important reason for making the decision to major in accounting, suggesting that there are other reasons beyond job opportunities and good pay that influence students when choosing their academic major. Similarly, Heiat et al. (2007) also found that students are most strongly influenced in choosing to major in accounting by having a strong interest in the subject matter. Findings conflicting with these results come from Felton et al. (1994) and Chen et al. (2005, 2008), which indicated

that accounting majors were less intrinsically focused on their career selection than non-accounting majors.

Self-efficacy. Applying the Theory of Reasoned Action (Fishbein & Ajzen, 1975), Djatej, Chen, Eriksen, and Zhou (2015) explored relationships between students' attitudinal and normative beliefs and behavioral intentions. Their findings suggest that students who believe they have strong accounting technical ability, have a positive view of the accounting profession, and receive positive encouragement from significant others in their lives have a greater likelihood to select the accounting major.

Emotions. Development of understanding the affective domain of students and its impact on student learning has been given limited exposure within accounting education research. Cohen and Hanno (1993) found non-accounting majors believed accounting was boring and thus asserted students may choose other majors. Substantiating this, Malthus and Fowler (2009) found that business majors perceived accounting as boring. Tan and Laswad (2006, 2009) similarly noted non-accounting majors believed the accounting major to be boring (significantly more so than accounting majors), and this belief may have discouraged them from selecting accounting as their major. Geiger and Ogilby (2000) reported both accounting and non-accounting majors felt their introductory accounting course was boring, and this feeling increased significantly for both groups from the beginning to the end of the semester. Their findings also suggested that for students who were initially undecided in their major selection and subsequently selected the accounting major, they experienced less increase in boredom throughout the course compared to those choosing a different major.

In addition to boredom, anxiety has been identified as a potential barrier to the accounting major selection. Bjora (2003) indicated that students new to accounting courses may experience extreme anxiety, as the difficulty in learning accounting is equal to that of learning a foreign language. Extant literature in the educational psychology discipline has more thoroughly examined the affective domain and will be discussed in greater detail throughout the remainder of this chapter.

Needed Accounting Education Research

Apostolou et al. (2010) argued that additional research in the area of identifying and attracting students to the accounting major is needed. Extant research within the accounting education domain has explored potential predictive relationships between influences and major selection on a very limited basis, and not at all when investigating achievement outcomes. Apostolou et al. (2013), further noted that much of the accounting education research has been atheoretical and exploratory in design; specifically stating that these research designs have lacked the level of rigor found in other disciplines.

From the breadth of educational psychology theories, the Theory of Reasoned Action (Djatej et al., 2015) and its refined extension, the Theory of Planned Behavior (Allen, 2004; Cohen & Hanno, 1993; Smith, 2005; Tan & Laswad, 2006, 2009), have been used within the accounting education research domain as frameworks for investigating predictive relationships of potential factors influencing accounting major selection. While accounting education research has introduced the use of theoretical frameworks from social and educational psychology, it has done so on a limited and

inconsistent basis. Most of the extant research in the accounting education domain lacks a theoretical foundation and has not been generalizable to the broader student population. Furthermore, investigations using other theoretical frameworks to better understand student motivations and achievement emotions are nonexistent; the findings of which could better inform the academy.

College Students' Motivations and Emotions

Motivation is "The act or process of giving someone a reason for doing something…a force or influence that causes someone to do something" (Merriam-Webster.com, 2016). Student motivations in the college environment are diverse and complicated. Deci and Ryan (2008a) have noted that there is tremendous variation in human motivation, and human motivation is influenced by social conditions and individual feelings. Motivation produces action, and amotivation occurs when an individual lacks the intention to act. Ryan and Deci (2000) argued that individuals can be amotivated, self-motivated (intrinsic/autonomous motivation), externally controlled (extrinsic/controlled motivation), or some variation between being self-motivated and externally controlled. These distinct types of motivation have "specifiable consequences for learning, performance, personal experience, and well-being" (Ryan & Deci, 2000, p. 69). They asserted that this variation in human motivation can be attributed to social conditions and processes that not only influence individual behavior but also how individuals feel during and after they take action. Thus, emotions, which are experienced before, during and after events are key to developing a comprehensive understanding of students' motivations.

Meyer and Turner (2006) asserted that a connection between emotions, motivation, and learning exists, requiring positive emotional experiences in the classroom, which helps build teacher-student relationships, which foster a student's motivation to learn. They argue that an effective theory that can be used to interpret and predict the interactions experienced in the classroom must integrate motivation, affect, and cognition. Linnenbrink (2006) supports this position positing "we still have much to learn about the affective experiences of students and teachers in academic contexts and how to integrate affect into existing models of motivation and learning" (p. 307). Thus, emotions and motivation should be explored together in expanding the understanding of the predictive relationships that may exist with major selection and course achievement. The following portion of this literature review will delve deeper into understanding the importance of emotion in the learning environment.

Theoretical Background of Emotion Research

Different streams of research over the past two decades have helped to illuminate the significance emotions have on student learning. "Affective issues influence why adults show up for educational programs, their interest in the subject matter, and the processes by which they engage the material, their experiences, the teacher, and one another" (Dirkx, 2006, p. 15). Discussions on emotional intelligence helped to bring emotions and their significance on learning into the forefront of educational research. Studying emotion is complex and challenging. As noted by Linnenbrink (2006), researchers are "…making great strides in assessing affect, but there are also many challenges to accurately assessing affect, especially in educational setting" (p. 312). Researchers have noted that while single emotions such as test anxiety have been deeply

examined, the broader spectrum of emotions and their impact on other cognitive processes have not (Daschmann, Goetz, & Stupnisky, 2011; Pekrun, 2006; Pekrun, Elliot, & Maier, 2009). Further investigation of emotions and the impact they have on college students is necessary to continue to develop our understanding of emotions and the implications emotions have on learning. The following is an exploration of what is currently known, understood, and purported about emotions and college student learning.

Emotions and learning. From the adult learner perspective, "personally significant and meaningful learning is fundamentally grounded in and derived from the adult's emotional, imaginative connection with the self and with the broader social world" (Dirkx, 2001, p. 64). While the dominate perspective in education is that emotions can be an impediment or a motivator for student learning, others have noted that emotions are essential to the meaning-making process in education (Dirkx, 2001; Dirkx, 2006).

While traditional cognitive learning strives to be based on scientific methods and rational thought, thus separating the mind from the body, current research reflects a changing of the role emotions play in learning. Instead of emotions being viewed as barriers and impediments to rational thought and development of knowledge, they are being viewed as playing a role that is integral, central, and holistic in relation to reason, rationality, learning, and meaning making (Merriam, Caffarella, & Baumgartner, 2007; Hill, 2001;Wolfe, 2006). Although more researchers are aware of the role of emotions and their impact on learning, the meaning of and identification of emotion varies from researcher to researcher. Dirkx (2008) outlines three broad perspectives on emotions: the

innate or inherent perspective, the social construction perspective, and the embodied perspective.

Innate perspective. The innate perspective is grounded in the physiological response of the body to stimuli, such as the fight or flight response associated with situations that create fear in an individual. Dirkx (2008) argued that this is a very simplistic perception of the importance of emotions to learning. To a lesser degree, cognitive theorists are grounded in this perspective, yet "allowing that emotional behavior remains an essentially physiological response to external stimuli but often mediated by processes of judgment and assessment or appraisal" (Dirkx, 2008, p. 12).

Physiologically, it is common knowledge that through the central nervous system of the human body, external stimuli are processed and then acted upon (Merriam, et al., 2007). "Emotions are vital to thought and to learning…emotions are enmeshed in neural networks involving reason…Emotions increase the strength of memories and help to recall the context of an experience, rendering it meaningful" (Hill, 2006, p. 76). This is supported by Wolfe (2006), who noted that emotion can enhance the retention of an experience as a long lasting memory. Further, Ross (2000) asserted that emotions are conduits of experiences, allowing the cognitive processes of the body to gather and process information.

Social construction perspective. The social construction perspective asserts that emotions are constructed from and dependent upon the situations in which they occur, thus, emotions are situational responses (Dirkx, 2008). Some within this perspective take a relativistic view of emotions, believing that emotions are experienced naturally,

however, deriving meaning from the emotion experienced in the situation is a result of knowledge gained through the individual's social and cultural background.

Embodied emotion perspective. Within the embodied emotion perspective, emotion is more than a bodily function, "…emotion represents both the experience of particular body states and our interpretation or construction of these states as mediated by sociocultural processes" (Dirkx, 2008, p. 13). The embodied emotion is a piece of a larger construct of embodied knowing. Embodied knowing takes a holistic perspective of learning and is closely tied to experiential learning (Merriam et al., 2007). "Learning in the experience is immediate, physical, and emotional" (Merriam et al., 2007, p. 192). From this perspective, the emotion that is experienced during the situation is an integral part of how and what students learn.

These three perspectives are not absolute, and variations of them are present in the literature (Merriam et al., 2007). The discourse generated from these variations "reflects an understanding of emotion as a neurophysiological response to an external or internal stimulus, occurring within and rendered meaningful through a particular sociocultural context and discourse, and integral to one's sense of self" (Dirkx, 2008, p. 13). Through this discourse, some researchers have asserted that emotions help us understand our world and help us to live in it, rejecting the idea that emotions are irrational. Solomon (2007) argued that emotions are linked to an individual's judgments of their experiences and the world they live in, and thus gives life meaning.

In the realm of education, emotions are often viewed as either positive or negative. Instinctively, positive emotions are thought to improve learning and

achievement, while negative emotions are assumed to hinder learning and achievement. Understanding the effect of emotions on college student motivation and achievement outcomes is a growing field of research.

Emotions and motivation. While the study of emotions in education has increased in the last two decades, there is still much to learn about emotions and the experiences of students and teachers in the academic environment, including their effect on student motivation and learning (Linnenbrink, 2006; Pekrun et al., 2009; Schutz & DeCuir, 2002; Meyer & Turner, 2006). There are different perspectives on emotion research within the college student motivation domain.

Dynamic systems approach to understanding emotions. This perspective asserts a comprehensive, holistic perception of emotion. In this framework, Op 't Eynde and Turner (2006) indicate that emotions are a process, and this process includes cognitive, neurophysiological, motor expression, motivational processes, and feelings, each of which regulates the other. From this perspective, "students' affective processes are no longer treated as the positive or negative side-effects of learning…they are conceived as an integral part of learning in close interaction with conative and cognitive processes" (Op 't Eynde & Turner, 2006, p. 362). There are two main assumptions regarding the construction of students' emotions and the meanings they make from them: first, the emotions and meanings are socially constructed through the students' relationship to the situation, and second, the emotions and meanings are socially situated because of the students' knowledge and beliefs (Op 't Eynde & Turner, 2006). What is most relevant from this perspective are the "appraisals, interpretations, and meanings students give to

the classroom and its practices, and upon the meanings for which they act" (Op 't Eynde & Turner, 2006, p. 371).

Control-value theory of achievement emotions. CVT is an integrative theory designed to provide a comprehensive theoretical framework for the study of emotions in learning environments. Pekrun (2006) concurred with the dynamic systems definition of emotions, and states that, "Achievement emotions affect the cognitive, motivational and regulatory processes mediating learning and achievement, as well as psychological well-being, happiness, and life satisfaction" (p. 326). Pekrun (2006) asserted that emotions promote self-regulation (intrinsic motivation) or promote dependence on external regulation (extrinsic motivation). This theory acknowledges the complex nature of the study of emotion, cognition, and motivation, and illustrates how relationships between cognitive and motivational antecedents and effects are reciprocally linked to emotions. Pekrun (2006) argued that emotion, cognition, and motivation can and should be separated and treated as conceptually independent even though they often occur in integrated ways. This is a challenge for current empirical emotion research. This theory will be further explored later in this literature review within the theoretical frameworks used for the current study.

Currently, there is no single theoretical framework that encompasses the ability to study emotion, cognition, and motivation in an established and meaningful manner. Thus, it was decided to utilize two theoretical frameworks to investigate the research questions. One framework is a holistic approach to the study of human motivations, and the second framework is a holistic approach to the study of human emotions. These two frameworks

are complimentary, yet any potential connections between the two theories have been explored on a limited basis, if at all. The remaining portion of the literature review will explain these two frameworks.

Theoretical Frameworks for the Current Study

Self-Determination Theory

SDT is a motivation theory focused on human motivation and personality (Ryan & Deci, 2000). The theory highlights the importance of individuals' innate desires and abilities to develop their personality, and regulate their own behavior accordingly. There are three main assumptions that are critical to this theory. First, SDT assumes that people are proactive in attempting to create their best possible life conditions; second, being proactive leads people to develop toward complete and integrated functioning at both the inter and intrapersonal levels; and third, to achieve inter and intrapersonal integrity, three psychological needs must be met (Vansteenkiste & Ryan, 2013). SDT contends that the psychological needs of autonomy (deCharms, 1968; Deci, 1975), competence (Harter, 1978; White, 1959; White, 1963), and relatedness (Baumeister & Leary, 1995; Reis, 1994) must be met in order for individuals to fully realize their self-motivation and personality integration (Ryan & Deci, 2000). When these needs are thwarted, optimal growth, integration, and well-being cannot be realized. In order to fully conceptualize these psychological needs, the nature of intrinsic and extrinsic motivation must be explored and incorporated into the more recent conception of autonomous and controlled motivation (Deci & Ryan, 2008b).

Amotivation, intrinsic and extrinsic motivation. Motivation in SDT is conceptualized on a continuum from no motivation (amotivation) to optimal motivation

(intrinsic) with a range of alternatives in between (extrinsic). An individual lacking intrinsic or extrinsic motivation is considered to be amotivated and has no intention to act (Deci & Ryan, 2008a). When individuals are amotivated, they either do not value the outcome, do not believe that the outcome they do value is linked to a specific behavior, or they do value the outcome and believe specific behaviors are linked to that outcome but do not believe they have the competence to perform those necessary behaviors to attain the outcome (Deci & Ryan, 2008a). Individuals who are amotivated are not self-determined and their psychological needs are not met, as such they will not develop to their full potential. Figure 4 shows the SDT continuum as conceptualized by Ryan and Deci (2000).

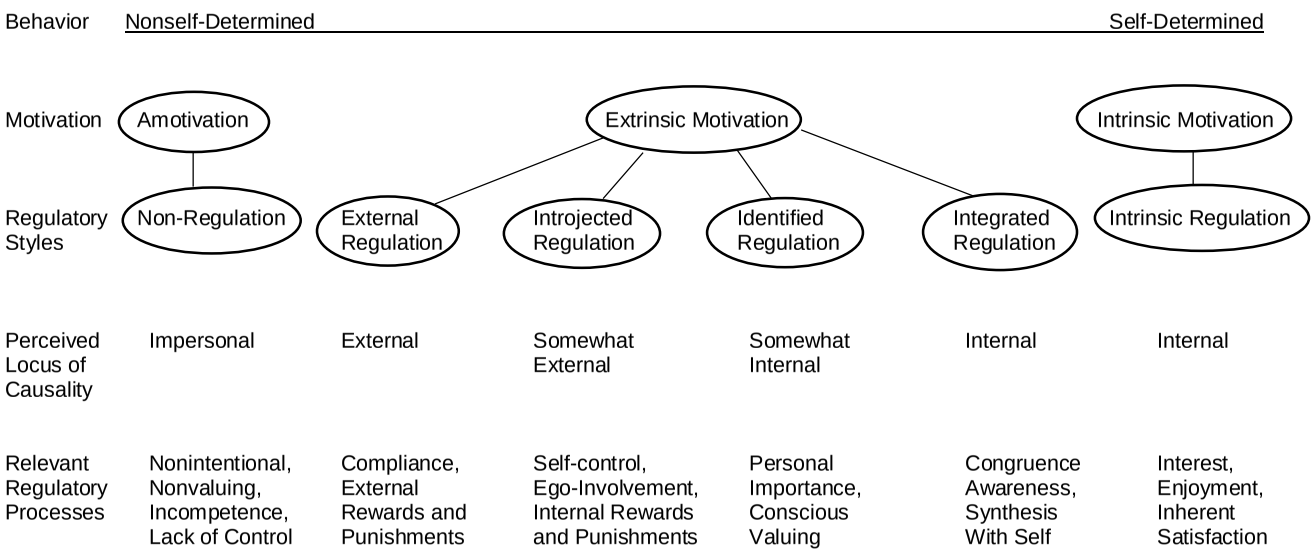


Figure 5. The Self-Determination Continuum. Adapted from "Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being," by R. M. Ryan and E. L. Deci, 2000, *American Psychologist, 55*(1), p. 72. Copyright 2000 by the American Psychological Association.

Intrinsic motivation is “the inherent tendency to seek out novelty and challenges, to extend and exercise one’s capacities, to explore, and to learn” (Ryan & Deci, 2000, p. 70). When intrinsically motivated, individuals will engage in an activity purely for the inherent satisfaction they receive from the activity itself. Supportive environments that foster intrinsic motivation also support the psychological needs of autonomy, competence, and relatedness (Ryan & Deci, 2000). However, even within supportive environments, individuals will only be intrinsically motivated by activities when they are intrinsically interested in those activities. While intrinsic motivation is self-determined, extrinsic motivation can also be self-determined if the behaviors have been internalized and integrated into an individual’s sense of self (Ryan & Deci, 2000).

Returning to the SDT motivation continuum, Ryan and Deci (2000) asserted that extrinsic motivation moves from external regulation (least autonomous) to integrated regulation (most autonomous), contending that the level of autonomy experienced within this continuum varies greatly. Extrinsic motivation “refers to the performance of an activity in order to attain some separable outcome and thus, contrasts with intrinsic motivation…” (Ryan & Deci, 2000, p. 71). Integrated regulations “have been evaluated and brought into congruence with one’s other values and needs…they are still considered extrinsic because they are done to attain separable outcomes rather than for their inherent enjoyment” (Ryan & Deci, 2000, p. 73). At this level of internalization, behaviors that are extrinsically motivated have become autonomous (of the individuals own volition), and thus, are self-determined.

Autonomous versus controlled motivation. As SDT has evolved and incorporated the concepts of internalization and behavioral regulation, the theory has shifted its focus from internal and external motivation, to a broader focus on autonomous and controlled motivation. SDT further asserts that the *type* of motivation is more important than the quantity of motivation in predicting outcomes (Deci & Ryan, 2008a). Forms of autonomous motivation include identified and integrated behavioral regulations (extrinsic motivation), as well as intrinsic behavioral regulations (intrinsic motivation). When students are autonomously motivated, they behave "with a full sense of volition and choice" (Deci & Ryan, 2008a, p. 14). Autonomy supportive environments have been linked with better performance in academic (Black & Deci, 2000) and work-related settings (Baard, Deci & Ryan, 2004), greater persistence (Pelletier, Fortier, Vallerand, & Brière, 2001), and overall better psychological well-being (Deci & Ryan, 2008a).

Forms of controlled motivation include external and introjected behavioral regulations. "Controlled motivation involves behaving with the experience of pressure and demand toward specific outcomes that comes from forces perceived to be external to the self" (Deci & Ryan, 2008a, p. 14). For example, students experiencing controlled motivation may be receiving external pressures, such as reward contingencies for achieving certain performance outcomes, which may undermine their intrinsic motivation because the students have not integrated the behavior into their being (Deci, Koestner & Ryan, 2001; Vansteenkiste & Ryan, 2013). Across domains, satisfaction of three psychological needs that are described below are critical in attainment of greater performance and overall well-being.

Psychological needs. *Autonomy* is a core component to understanding behavioral regulation. In SDT, the principle meaning of autonomy is self-governance (Deci & Ryan, 2008a; Ryan & Deci, 2006). Autonomy is defined as "self-endorsement of the reasons for behaving" (Levesque, Zuehlke, Stanek, & Ryan, 2004, p. 69), these behaviors are of the individual's own volition (Deci & Ryan, 2008a; Levesque et al., 2004; Ryan & Deci, 2006), and have internal locus of causality (Ryan & Connell, 1989). Within SDT, autonomy does not equate to independence or individualism (Ryan & Deci, 2000, 2006).

"When people are autonomously motivated, they experience volition or a self-endorsement of their actions" (Deci & Ryan, 2008b, p. 182). Autonomous behavior regulation is present when individuals are intrinsically motivated. It is also present when individuals are extrinsically motivated as long as the external motivation has been fully integrated and internalized into themselves and thus the behavior emanates from a sense of self, and not through being controlled or coerced by external forces (Deci & Ryan, 2008a; Ryan & Deci, 2000).

White (1959) asserted that *competence* is the result of an individual experiencing a feeling of interacting effectively with their environment. It is "the need to experience satisfaction in exercising and extending one's capabilities" (Levesque et al., 2004, p. 68). Ryan and Deci (2000) posited that the needs for autonomy and competence are tied closely together, and their interaction works to enhance well-being. Thus, to achieve greater well-being, it is not enough to feel competent; the individual must also feel their actions are of their own volition (Levesque et al, 2004). When this occurs, intrinsic motivation is enhanced (deCharms, 1968).

Finally, *relatedness* is the need to feel connected to others, a sense of belonging through loving and caring experiences (Baumeister & Leary, 1995; Deci & Ryan, 1985; Niemic et al., 2006). In the academic setting, attaining a connection with and feeling understood by the instructor, can satisfy students' need for relatedness. The development of satisfying relationships is therefore critical to need fulfillment and psychological well-being. While SDT is a holistic approach to the study of human motivation, it is less explicit in exploring the significance of human emotions. To address the desire to investigate the significance of emotions, the second theoretical framework of CVT was used to inform the current study and will be further explained in the following section.

Control-Value Theory of Achievement Emotions

Different threads of research over the past two decades have helped to illuminate the importance of emotions on college student learning. "Affective issues influence why adults show up for educational programs, their interest in the subject matter, and the processes by which they engage the material, their experiences, the teacher, and one another" (Dirkx, 2006, p. 15). As noted previously, single emotions such as test anxiety, have received considerable research attention. However, the broader spectrum of emotions and the impact they have on other cognitive and motivation processes have been explored on a more limited basis.

Pekrun's (2006) CVT of emotions focuses on achievement emotions, and analyzes both the antecedents to and the effects of emotions that are experienced in achievement environments. The purpose of this theory was to create a comprehensive, integrated foundation that would enhance the study of emotions, "While theories and studies prevail which address single emotions, or single functions of emotions, more

integrative approaches are largely lacking" (Pekrun, 2006, p. 315). Thus, CVT integrates assumptions from multiple theories: expectancy-value theory (approaches to emotions), attributional theory (achievement emotions), perceived control theory, and models involving the effects of emotions on learning and performance (Pekrun, 2006).

Achievement emotions. Achievement emotions are the primary focus of Pekrun's (2006) control-value theory. Pekrun (2006) defined achievement emotions as those "tied directly to achievement activities or achievement outcomes" (Pekrun, 2006, p. 317). He asserted that emotions are comprised of five psychological subsystems: affective, cognitive, motivational, expressive, and physiological processes. Of these subsystems, the primary components are affective, cognitive, motivational and physiological (Pekrun, Goetz, Frenzel, Barchfeld, & Perry, 2011). Enjoyment, for example, is an emotion that can make an individual: excited (affective), satisfied (cognitive), have strengthened intrinsic and extrinsic motivation (motivational), display a happy facial expression (expressive), and become energized (physiological). Pekrun, Goetz, and Perry (2005) identified seven discrete achievement emotions which include four positive achievement emotions (enjoyment, hope, pride and relief), and five negative achievement emotions (anger, anxiety, hopelessness, shame and boredom). This list of emotions is not finite; rather it is just the beginning as researchers further develop their understanding of the role emotions play in learning environments.

These achievement emotions are sub-categorized into activity emotions and outcome emotions (Pekrun, 2006). Achievement related activities result in activity emotions, and outcome emotions result from the outcome of the achievement related

activities. Also asserted by Pekrun (2006), is that achievement emotions can occur during momentary, situational experiences (state emotions), or they can be habitual, recurring emotions that occur across experiences (trait emotions). The current study focused on state activity achievement emotions: Enjoyment, boredom, and anxiety experienced in the accounting course classroom environment. As noted earlier in this chapter, boredom and anxiety have been identified as potential barriers to accounting major selection, and as such were selected for investigation in the current study. Enjoyment was selected for investigation as a positive, activating emotion (explained next), which may influence both major selection and academic achievement.

Achievement emotions can activate and regulate a student's interest and motivation toward learning. Positive activating achievement emotions such as enjoyment, hope and pride strengthen intrinsic and extrinsic motivation, while negative deactivating emotions such as boredom and hopelessness are harmful to intrinsic and extrinsic motivation (Pekrun, 2006). However, both positive deactivating emotions such as relaxation and relief, and negative activating emotions such as anger, anxiety and shame have more complex interactions with intrinsic and extrinsic motivation (Pekrun, 2006). Therefore, Pekrun asserts students experiencing anxiety (negative activating) in a course may have decreased interest and intrinsic motivation, however, they may still experience extrinsic motivation triggering the need to increase their effort in the course in order to avoid failure.

Within the accounting education domain, the empirical data on the broad range of emotions that can be experienced inside or outside of the classroom is non-existent.

Pekrun (2006) asserted that achievement emotions are under-researched, "we lack cumulative, generalizable knowledge about the dimensions, antecedents, and functions of different emotions experienced in academic settings" (p. 336). With the exception of test anxiety, there are limited findings that provide evidence of a link between achievement emotions and academic performance (Pekrun, Elliot, & Maier, 2009).

Testing if achievement emotions are predictors of academic performance is an ongoing research endeavor. Achievement emotions (Pekrun, 2006) studied within general and psychology undergraduate populations have been found to be both positive and negative predictors of academic performance (Pekrun, Elliot, & Maier, 2009; Ruthig et al., 2008). Enjoyment of learning (a positive achievement emotion) tends to be a positive predictor of performance; and anger, shame, boredom and hopelessness (negative achievement emotions) tend to be negative predictors of performance (Pekrun, Elliot, & Maier, 2009). Supporting these findings, Ruthig et al. (2008) found that boredom and enjoyment emotions predicted students' academic performance. Daniels et al. (2009) found that anxiety was a significant negative predictor of student achievement. Using a meta-analysis, Robbins, Oh, Le, and Button (2009) reported that emotional control had an intervening effect between self-management and academic performance. These findings suggest that emotions are a factor involved in classroom experiences, which warrant further study in accounting classes specifically.

Emotion antecedents. Two central appraisals are fundamental to determining the experience of specific achievement emotions: subjective control (perceived ability to influence) over activities and outcomes, and subjective value (positive or negative

valences or intrinsic attractiveness) of the activities and outcomes (Pekrun, 2006). Perceived control is simply defined as "people's beliefs about their capacity to influence and predict daily life events" (Perry, 2003, p. 314). Thus, individuals' perceptions are subjective and may vary from their actual capacity to influence the world around them.

In the academic environment, Pekrun asserts that *perceived academic control* (PAC) negatively predicts negative emotions, and positively predicts positive emotions, which has been substantiated by past research (Pekrun et al., 2004; Stupnisky, Perry, Renaud, & Hladkyj, 2013). Further, PAC "is presumed to reflect students' beliefs about whether they possess certain characteristics, as personal attributes, that contribute to their scholastic performance" (Perry, 2003, p. 315). Extant research supports the assertion that PAC predicts academic performance (Stupnisky, Perry, Hall, & Guay, 2012; Stupnisky, Renaud, Daniels, Haynes, & Perry, 2008). Perry, Hladkyj, Pekrun, and Pelletier (2001) noted that academic control was related to multiple outcomes, and specifically noted that students with high academic control,

> …exerted more effort, reported less boredom and anxiety, expressed greater motivation, used self-monitoring strategies more often, felt more control over their course assignments and life in general, believed they performed better at the beginning and end of their course, and obtained higher final grades. (p. 785)

The second fundamental appraisal of subjective value is the conceptualization of *subjective task value* by Eccles (2005), which asserts that achievement related choices are a result of two individual beliefs: expectation of success and the importance (value)

attached to the available options. The assertion by Eccles (2005) is if an individual perceives a task as having a high subjective task value, the task fits well with that individual's values and needs. Thus, task values are likely to influence or mediate student achievement (Eccles, 2005; Robbins et al., 2004; Wigfield & Eccles, 2000). In this regard, accounting majors may perceive the compulsory accounting course to be of greater subjective task value as compared to non-accounting majors. Subsequently, subjective task value is more likely to positively predict both likelihood to major in accounting and academic performance for accounting majors compared to non-accounting majors.

Task value is comprised of four elements: attainment value, intrinsic value, utility value and cost. Attainment value relates to an individual's personal and social identity, the personal importance of doing well (Eccles & Wigfield, 2002). Because attainment value is integral to an individual's identity and thus well-being, tasks valued as such should fulfill the basic needs of autonomy, competence and relatedness as these needs are also integral to personal well-being. Intrinsic value relates to the enjoyment gained from doing a task (Eccles & Wigfield, 2002). This component speaks directly to an individual's interest in the activity and fosters intrinsic motivation to engage for the sheer enjoyment of the activity. Utility value relates to the extrinsic usefulness of the task, and how well the task fits into an individual's future plans (Eccles & Wigfield, 2002). Cost relates to the negative consequences of engaging in the task (Eccles & Wigfield, 2002), such as loss of time and energy that could be used in engaging in other tasks.

Because of the complimentary nature of the SDT and CVT frameworks, it was anticipated that a connection between the two theories could emerge. However, each framework was utilized separately to explore the research questions proposed for this study.

Summary

This chapter focused on synthesizing research in three areas that are the foundation for the current study. First, the body of accounting education and the accounting profession issues and trends literature was examined to establish both: the historical and current need to attract and retain students to the accounting major, and what factors influence the decision to major in accounting. Second, extant literature related to college students' motivations and emotions were explored to establish their essential components within the education environment, and that to date there is no single, comprehensive, agreed-upon framework from which to study motivation, emotion, and cognition simultaneously. Third, an overview of the two theoretical frameworks utilized for this study was provided, along with rationale for the complimentary nature of them. Combined, these sections frame the rationale for the current study and establish the need for the empirical investigation to expand current understanding of accounting major selection and academic performance in the accounting course environment.

Analysis of the body of literature, which informed the rationale and provided the research approach foundation for the current study, revealed areas within the extant research that have not been fully explored. In the first section, the argument was made

that past accounting education research has (1) not only focused on individual factors with inconsistent results to explain why students choose the accounting major, but by doing so has (2) seldom utilized established theoretical foundations, thus, (3) has not been generalizable to the broader student population. In the second section, analysis of the body of literature established the need to study motivation and emotions together within the accounting learning environment, and identified the weakness of prior research being a proliferation of mini-theories, lacking a comprehensive theory to study motivation, emotion, and cognition. Finally, the third section established the appropriateness of utilizing two complementary theoretical frameworks from which to investigate the motivations and emotions experienced by business majors and the predictive relationships they have with choice of accounting major and academic performance.

Additionally, analysis of the body of literature established a need for empirical investigation, and identified the following issues that were uniquely addressed by the current study, supporting its research significance. The first section established the lack of broad investigation into the study of business students' motivations and emotions experienced in the academic environment, and also established the lack of research investigating predictive relationships between these constructs and achievement outcomes. The second section highlighted the acknowledged significance that motivations and emotions have on student learning, while it also established the need to further investigate the broader spectrum of emotions, and importantly, to utilize more comprehensive frameworks to investigate motivation, emotion, and cognition. Finally,

the third section explained the SDT and CVT frameworks and established them as valid foundations to inform the current investigation, while it also highlighted that to date, the two frameworks have seldom (if at all) been studied together, thus creating a unique foundation for the current study.

In summary, this longitudinal study extended the understanding of the significance of business students' motivations and emotions in their choice of the accounting major as well as their course academic performance, which is unique within the accounting education domain. The current study utilized SDT and CVT, complimentary frameworks, which is also unique within the extant research. The methods and research design that were utilized for the current study are discussed in the next chapter.

CHAPTER III

METHOD

This study investigated the relationships between business students' motivations and achievement emotions, and tested how these constructs predicted students' likelihood to major in accounting as well as their academic achievement in an accounting course. A quantitative study was utilized to investigate Ryan and Deci's (2000) self-determination theory (SDT) and Pekrun's (2006) control value theory (CVT) in the business education domain, and more specifically within the subject area of accounting. In addition, a longitudinal survey design was employed to investigate motivational changes experienced over a semester of learning. This study addressed the following four research questions:

1. What are the motivations and achievement emotions of business students in the introductory accounting courses?
2. How do business students' motivations and emotions relate to each other?
3. How do business students' motivations and emotions influence their accounting major selection and academic performance?
4. How do business students' motivations and emotions change over the semester? Furthermore, how does the pattern (increasing or decreasing) of these students' motivations and emotions relate to their likelihood to major in accounting and their academic performance?

This chapter outlines the research methodology of this study. Discussion will include the participants and procedures employed, and the instruments and protocols utilized to investigate the research questions. Finally, data collection and data analysis methods will be discussed.

Participants and Procedures

This quantitative study involved a longitudinal survey design with two time intervals. The purpose of this study was operationalized through the execution of a paper survey administered to students in the spring semester, 2015. The research was conducted at a large, U.S., upper Midwestern research university. The university Institutional Review Board (IRB) approved the study design, instrument, and consent prior to study implementation, and documentation of this approval is provided in Appendix A.

To reach a diverse group of participants and specifically investigate outcomes related to the accounting domain, it was determined that the Elements of Accounting I and Elements of Accounting II courses would provide the best pool of potential participants. These courses are both compulsory for a majority of business majors at this research university. These courses are the introductory level accounting courses, which are also where recruitment of potential students to the accounting major will typically occur.

Participants for this study were recruited from students enrolled in the spring, 2015, Elements of Accounting I and Elements of Accounting II courses. In total, surveys were administered to students from 13 different classes, which were taught by a total of seven different instructors. Seven of the classes were Elements of Accounting I courses, and six classes were Elements of Accounting II courses. The potential pool of student

participants enrolled in these courses (after the last day to add) on January 23, 2015, was 548 students. The Elements of Accounting I course enrollment as of this date was 306 students, and the Elements of Account II course enrollment was 242 students.

The data collection for the Time 1 interval occurred during the second week of the spring, 2015, semester, which was January 19 through January 23. During this time period data was collected in the classroom for eight classes. For the remaining five classes, the class instructors reversed their consent to allow the researcher to collect data in the classroom, or other circumstances arose and the instructor did not have class during that collection period. In order to reach those students, the researcher reserved a separate room on Wednesday, January 21 from noon to 3:00 pm, and Friday, January 23 from noon to 3:00 pm. These class instructors made announcements to their students in class, through Blackboard (a course management system), and through e-mail, encouraging students to participate in the survey.

At Time 1, 403 surveys were administered, and of these, 386 students consented to both participate in the survey and to allow their final grade data to be collected. Based on total course enrollment of 548, this is a response rate of 70.4%. Of the 386 students participating, 223 (response rate of 72.9% from total course enrollment of 306 students) were enrolled in the Elements of Accounting I course and 163 (response rate of 67.4% from total course enrollment of 242 students) were enrolled in the Elements of Accounting II course. Surveys with missing data, that is, students who did not answer every survey question including demographic questions, were included in the analysis and accounted for via SPSS with pairwise deletion.

The demographic information from the Time 1 interval collection is presented in Table 1. The results reveal that more than two-thirds of the participants were male, a majority were age 17 to 22, 72% were freshman or sophomores, and most were Caucasian. Most of the participants (94.6%) anticipated they would earn an 'A' or 'B' in the course. A majority of the participants had declared a major, with 25.5% intending Accounting to be either their primary or secondary major. Additionally, a third of the participants indicated they were somewhat to very likely to major in accounting. Almost all of the participants expected to be successful in the course they were in and 92.7% indicated earning an 'A' or 'B' would be the measurement of success.

Table 1. Time 1(Time 2) Demographic Information.

Demographic Category		Overall Sample *N* = 386(241)	%
Sex	Female	116(78)	30.1(32.4)
	Male	269(163)	69.9(67.6)
Age: *N* = (240)	17-22 years	354(220)	91.7(91.7)
	23-44 years	32(20)	8.3(8.3)
Anticipated Grade	A	204(63)	52.9(26.1)
	B	161(113)	41.7(46.9)
	C	19(58)	4.9(24.1)
	D	(6)	(2.5)
	F	2	0.5
GPA: *N* = 385(241)	3.5-4.0	102(74)	26.5(30.7)
	3.0-3.49	147(86)	38.2(35.7)
	2.5-2.99	91(61)	23.6(25.3)
	2.0-2.49	37(17)	9.6(7.1)
	0.0-1.99	8(3)	2.1(1.2)
College Status	Freshman	105(60)	27.2(24.9)
	Sophomore	173(115)	44.8(47.7)
	Junior	82(51)	21.2(21.2)
	Senior	19(9)	4.9(3.7)
	Other	7(6)	1.8(2.5)
Ethnicity	White/Caucasian	348(222)	90.2(92.1)
	African American	4(1)	1.0(0.4)
	American Indian	4(2)	1.0(0.8)
	Mexican American	6(3)	1.6(1.2)
	Asian American/Asian	16(9)	4.1(3.7)
	Multiracial	6(4)	1.6(1.7)
	Other	2	0.5
Declared a Major	Yes	303(200)	78.5(83.0)
	No	83(41)	21.5(17.0)

Table 1. cont.

Demographic Category		Overall Sample *N* = 386(241)	%
Intended Major	Accounting	82(61)	21.6(25.4)
N =379(241)	Marketing	53(32)	14.0(13.3)
	Management	100(54)	26.4(22.4)
	Finance	28(15)	7.4(6.3)
	Entrepreneurship	25(14)	6.6(5.8)
	Economics	13(11)	3.4(4.6)
	Political Science	1(1)	0.3(0.4)
	Business Administration	2(2)	0.5(0.8)
	Information Systems	14(9)	3.7(3.8)
	Other	61(42)	16.1(17.5)
Second Major	Accounting	3(1)	3.9(1.9)
N =76(52)	Marketing	13(5)	17.1(9.6)
	Management	8(5)	10.5(9.6)
	Finance	11(12)	14.5(23.1)
	Entrepreneurship	6(6)	7.9(11.5)
	Economics	8(3)	10.5(5.8)
	Political Science	1(1)	1.3(1.9)
	Business Administration	1(1)	1.3(1.9)
	Information Systems	1(1)	1.3(1.9)
	Other	24(17)	31.6(32.7)
Likelihood to Major in Accounting			
Somewhat likely to very likely		130(73)	33.7(30.4)
Somewhat unlikely to very unlikely		256(168)	66.3(69.6)
Expected Course Success: *N* = (240)			
Somewhat successful to very successful		87(208)	96.6(86.8)
Somewhat unsuccessful to very unsuccessful		13(32)	3.4(13.2)
Successful Grade	A	136(66)	35.2(27.4)
	B	222(131)	57.5(54.4)
	C	28(43)	7.3(17.8)
	D	(1)	(0.4)
Final Grade	A	(60)	(24.9)
	B	(93)	(38.6)
	C	(67)	(27.8)
	D	(15)	(6.2)
	F	(6)	(2.5)

The data collection for the Time 2 interval occurred during the sixteenth week of the spring, 2015, semester, which was April 27 through May 1. Data was collected in the classroom for seven classes. For the remaining six classes, the course instructors reversed their initial consent to allow the researcher to collect data in the classroom. In order to reach those students for the Time 2 survey, the researcher reserved a separate room on Monday, April 27 and Wednesday, April 29 from noon to 3:00 pm. These class

instructors made announcements to their students in class, through Blackboard, and through e-mail, encouraging students to participate in the second survey.

At Time 2, 250 surveys were administered. Of these, 241 students were participants at Time 1 and had consented to both participate in the survey and allow their final grade data to be collected. Of the 241 students participating, 127 were enrolled in the Elements of Accounting I course and 114 were enrolled in the Elements of Accounting II course. Surveys with missing data, that is, students who did not answer every survey question, were included in the analysis and accounted for via SPSS with pairwise deletion.

The demographic information from the Time 2 interval collection is presented in Table 1. The results reveal that more than two-thirds of the participants were male, a majority were traditional college age students, 72.6% were freshman or sophomores, and most were Caucasian. At this time interval, 73% of the participants anticipated they would earn an ‘A’ or ‘B’ in the course, down substantially from the Time 1 data (21.6% less). A majority of the participants had declared a major, with 27.3% intending Accounting to be either their primary or secondary major, up slightly from Time 1 data. Almost one-third of the participants indicated they were somewhat to very likely to major in accounting, which was a slight decrease from Time 1 data (3.3%). A majority of the participants expected to be successful in the course they were in and 81.8% indicated earning an ‘A’ or ‘B’ would be the measurement of success, a decline of 10.9% from Time 1 data.

Of the 386 participants at Time 1, 312 remained in the course to the end of the semester and received a final grade in their course. However, not all Time 1 participants completed the survey at Time 2. All of the 241 Time 2 participants received final grades. This is a retention rate of 62.4% of Time 1 participants. Interestingly, although 81.8% of Time 2 participants indicated an 'A' or 'B' to be successful grades, only 63.5% of participants actually received these as their final grade.

In conducting the change analysis, which will be discussed in Chapter 4, the maximum number of participants was 239 and the lowest number of participants was 225. SPSS was utilized to perform paired samples *t*-tests to determine change scores for participants who answered all construct questions at both time intervals. The variation in participants is due to the limiting factor that not all participants answered all construct questions at both time intervals.

Instruments and Protocols

The codebook for the proposed study can be found in Appendix B. This codebook contains all the scales used in this study. Additionally, the codebook provides construct definitions, demographic questions, and individual scale items, which are cross-referenced to the final instrument presentation.

Participation Incentives

Some of the seven class instructors provided participation points as incentives for their students to participate in the survey. One instructor provided 15 points (equivalent to one quiz for the class), one instructor provided 10 points (equivalent to instructor discretion points for the class), three instructors provided 2 points (equivalent to a portion

of the instructor discretion points for the class), and two instructors did not provide any incentive participation points. Incentives were in compliance with Institutional Review Board study approval and were granted to all students who were present when the survey was administered regardless of their completion of the survey and consenting to participation in the study.

Measures

The survey instrument administered in this study was composed of several previously validated scales that were adapted by the principal investigator where necessary. The first component of the survey was the Informed Consent document required by the Institutional Review Board (IRB). Students were asked to consent twice: first, to participation in the study; and second, to allow the principal investigator access to their final grades and their total final points earned in the course. For analysis purposes, only participants consenting to both were selected for inclusion in the current study.

The second component of the instrument was comprised of participant attribute questions. There were 10 attribute questions in total that the participants were asked to answer. Demographic questions included age, gender, ethnicity, and student status. Two questions focused on the student self-reporting their current GPA and identifying what grade they anticipated they would earn in their accounting course. Two questions focused on the students' current or anticipated major selection. One question focused on students' likelihood to major in accounting. Finally, two questions focused on students' perceptions of success in their accounting class and how they would measure success.

The final component of the survey was the study variable questions, which were grouped into three parts. Part I pertained to the CVT and included questions to investigate class-related emotions (enjoyment, anxiety, boredom), student perceptions of control, and subjective task value of the course (attainment, intrinsic, utility, cost). Part II pertained to SDT and included questions to investigate student need thwarting and satisfaction (autonomy, competence, relatedness). Part III questions pertained to student motivation (intrinsic, identified regulation, introjected regulation, external regulation, amotivation).

Additionally, final grades and total final points earned in the course were gathered for each consenting participant from their class instructor. A copy of the approved Informed Consent document can be found in Appendix C. The complete survey instrument (including participant attributes) is presented in Appendix D.

Achievement emotions. Scales from Pekrun et al.'s (2005) Achievement Emotions Questionnaire (AEQ) were utilized to measure three state emotions (enjoyment, anxiety and boredom) experienced by students within the accounting classroom (1=*Strongly disagree*, 4=*Neutral,* 7=*Strongly agree*). Pekrun et al. (2011) found the AEQ scales to be reliable and valid. The enjoyment scale was composed of four items, including "I enjoy being in class". The anxiety scale was composed of four items, including "I worry that the demands of this class might be too great". The boredom scale was composed of four items, including "I get bored in this class". Table 2 reports the survey responses per question.

Table 2. Time 1(Time 2) Achievement Emotions, Perceived Academic Control, and Value Survey Question Responses.

Survey Questions	% Some Form of Agreement	*M*	*SD*
Please indicate how you feel during class:			
Enjoyment			
Q1. I enjoy being in class.	74.3(63.9)	5.2(4.9)	1.3(1.4)
Q6. I look forward to learning a lot in this class.	84.3(73.0)	5.6(5.1)	1.2(1.3)
Q12. My enjoyment of this class makes me want to participate.	45.9(37.3)	4.4(4.2)	1.3(1.4)
Q18. I enjoy participating so much that I get energized.	13.6(12.1)	3.1(3.0)	1.3(1.4)
Boredom			
Q8. I get bored in this class.	32.8(48.5)	3.8(4.2)	1.6(1.6)
Q14. I get so bored in this class that my mind begins to wander.	27.3(41.4)	3.4(3.9)	1.6(1.7)
Q20. Because the time drags, I frequently look at the time.	32.6(46.2)	3.7(4.1)	1.5(1.5)
Q24. I have trouble staying alert because I am so bored.	21.3(29.5)	3.2(3.6)	1.5(1.5)
Anxiety			
Q3. Thinking about this class makes me feel uneasy.	21.6(26.1)	3.0(3.2)	1.6(1.7)
Q11. I worry that the demands of this class might be too great.	27.5(21.7)	3.5(3.2)	1.5(1.5)
Q17. I get scared that I might say something wrong in class, so I'd rather not say anything.	44.3(31.1)	4.1(3.5)	1.7(1.6)
Q22. I get tense in this class.	17.3(21.7)	3.0(3.2)	1.5(1.6)
Perceived Academic Control			
Q21. I have a great deal of control over my academic performance in this course.	94.3(88.8)	6.0(5.7)	1.0(1.0)
Q9. The more effort I put into this course, the better I do.	95.0(87.5)	6.3(5.8)	0.9(1.2)
Q7r. No matter what I do, I can't seem to do well in this course.	9.1(23.2)	2.5(3.0)	1.3(1.8)
Q15. I see myself as largely responsible for my performance in this course.	97.1(95.9)	6.3(6.0)	0.8(0.9)
Q13r. How well I do in this course is often due to luck.	4.2(11.7)	2.2(2.6)	1.1(1.4)
Q19r. There is little I can do about my performance in this course.	4.7(3.3)	1.9(2.1)	0.9(1.1)
Q16. When I do poorly in a course, it's usually because I haven't given it my best effort.	90.4(80.1)	5.8(5.4)	1.1(1.3)
Q2r. My grades are basically determined by things beyond my control and there is little I can do to change that.	3.7(8.3)	1.9(2.2)	1.1(1.3)
Value			
Q4. In general, I find the tasks required by this course very interesting. (Intrinsic)	57.0(52.7)	4.6(4.4)	1.3(1.4)
Q5. It is important to me that I do well in this course. (Attainment)	98.4(92.9)	6.4(6.0)	0.8(1.0)
Q10. Completing this course is very useful for what I want to do in the future. (Utility)	80.8(70.5)	5.7(5.2)	1.4(1.7)
Q23. The time and effort required to do very well in this course are worth the cost. (Cost)	71.8(68.0)	5.3(5.0)	1.4(1.3)

To confirm construct validity for use in the current study, exploratory factor analysis (EFA) was conducted that included all items, used principal axis factoring (for all EFA analysis), and used oblimin with Kaiser normalization rotation (for all EFA analysis). Results from this analysis at both Time 1 and Time 2 intervals yielded three

factors with eigenvalues greater than 1.0, and with the scree plot suggesting three values. Thus, support for construct validity of the three variables was established.

Perceived academic control. Adapted from Perry et al.'s (2001) Perceived Academic Control Scale, eight questions were used to ascertain student academic control (1=*Strongly disagree*, 4=*Neutral,* 7=*Strongly agree*). Stupnisky, Perry, Hall, and Guay (2012) found the PAC scale to be valid and reliable. Four questions included items such as, "I have a great deal of control over my academic performance". The four remaining questions were reverse coded and included items such as, "No matter what I do, I can't seem to do well in this course".

At the Time 1 interval, initial EFA yielded two factors with eigenvalues greater than 1.0, however, the scree plot suggested one factor. At the Time 2 interval, the analysis yielded one factor with an eigenvalue greater than 1.0, and the scree plot suggested one factor. The use of both positively and negatively worded questions resulted in a method effect for the EFA. Due to this method effect, the final EFA specified one factor, which resulted in 45.5% of the Time 1 interval variance being explained by one factor, and 50.9% of the Time 2 interval variance being explained by one factor, thus, construct validity was established.

Subjective task value. Four task value questions were developed, based upon the four components of Eccles' (2005) subjective task value theory: Attainment value, intrinsic value, utility value, and cost (1=*Strongly disagree*, 4=*Neutral*, 7=*Strongly agree*). The scale included items such as, "In general, I find the tasks required by this course very interesting".

Wigfield and Eccles (2000) defined these values as different components of achievement value. Therefore, while each value question is focused on a unique value, all the questions are assessing subjective task value and should be looked at together. At both time intervals, EFA was conducted and yielded one factor with an eigenvalue greater than 1.0 and a scree plot indicating one factor. This resulted in 57.2% of the Time 1 interval variance being explained by one factor, and 63.0% of the Time 2 interval variance being explained by one factor, thus, construct validity was established.

Psychological needs. Adapted from Van den Broeck, Vansteenkiste, De Witte, Soenens, and Lens (2010) need satisfaction and thwarting scales, 24 items were selected for this instrument (1=*Strongly disagree*, 4=*Neutral,* 7=*Strongly agree*). Each psychological need was surveyed using questions that identify if the students perceive the need is being satisfied, or thwarted. Van den Broeck et al. (2010) established the validity and reliability of the three factor constructs, as well as criterion-related reliability and predictive validity. Table 3 reports the findings related to these scales for both Time 1 and Time 2 intervals.

Table 3. Time 1(Time 2) Psychological Needs Survey Question Responses.

Survey Questions	% Some Form of Agreement	*M*	*SD*
Please indicate how you feel during class:			
Autonomy Satisfaction			
Q7. I feel that my decisions in this class reflect what I really want.	49.9(41.6)	4.6(4.4)	1.4(1.4)
Q13. My choices in this class express who I really am.	45.3(36.3)	4.4(4.1)	1.3(1.4)
Q23. I feel I have been doing what really interests me in this class.	46.4(45.6)	4.5(4.3)	1.5(1.6)
Autonomy Thwarting			
Q4. Most of the things I do in this class feel like "I have to."	37.3(40.0)	4.0(3.9)	1.5(1.5)
Q10. In this course, I feel forced to do many things I wouldn't choose to do.	13.6(12.1)	2.9(3.0)	1.4(1.4)
Q18. My daily activities in this class feel like a chain of obligations.	24.7(26.7)	3.3(3.4)	1.5(1.5)
Competence Satisfaction			
Q9. When I am attending this class, I feel capable at what I do.	76.9(72.1)	5.2(5.0)	1.2(1.3)
Q1. In this class I feel competent to achieve my goals.	90.4(79.7)	5.7(5.4)	1.1(1.2)
Q21. I feel I can successfully complete difficult tasks in this class.	81.4(68.5)	5.3(4.9)	1.2(1.5)
Competence Thwarting			
Q6. In this class I have serious doubts about whether I can do things well.	19.1(23.2)	3.0(3.0)	1.5(1.7)
Q11. I feel disappointed with my performance in this class.	12.9(37.4)	2.9(3.6)	1.5(1.8)
Q17. When I am attending this class, I feel insecure about my abilities.	19.3(22.0)	2.9(3.1)	1.5(1.7)
Relatedness Satisfaction - Peers			
Q12. In this class I feel connected with the students who care for me and for whom I care.	39.3(45.6)	4.4(4.5)	1.3(1.3)
Q16. I feel close and connected with other students who are important to me in this class.	38.4(45.8)	4.3(4.6)	1.3(1.2)
Q24. I experience a warm feeling with the students I spend time with in this class.	31.5(35.4)	4.2(4.2)	1.3(1.4)
Relatedness Thwarting - Peers			
Q3. When I am attending class, I feel excluded from the other students who I want to associate with.	8.4(8.0)	2.6(2.6)	1.3(1.3)
Q8. I feel that students who are important to me in this class are cold and distant towards me.	14.7(10.8)	2.1(1.9)	1.1(1.0)
Q20. I have the impression that students I spend time with in this class dislike me.	2.3(14.9)	2.0(1.9)	1.1(0.9)
Relatedness Satisfaction - Instructor			
Q2. In this class I feel connected with the instructor.	66.7(74.6)	5.0(5.2)	1.4(1.3)
Q22. I feel the instructor for this class cares about me.	72.6(75.8)	5.3(5.4)	1.2(1.2)
Q15. I experience a warm feeling with the instructor I spend time with in this class.	39.0(48.1)	4.4(4.6)	1.4(1.4)
Relatedness Thwarting - Instructor			
Q14. When I am attending class, I feel the instructor excludes me.	3.1(2.5)	1.9(1.8)	1.0(1.0)
Q5. I feel that the instructor in this class is cold and distant towards me.	1.3(2.1)	1.8(1.8)	1.0(1.0)
Q19. I have the impression the instructor for this class dislikes me.	0.5(7.1)	1.8(1.8)	0.9(1.0)

Autonomy satisfaction was surveyed using a three item scale including the question "I feel I have been doing what really interests me in this class". *Autonomy thwarting* was surveyed using a three item scale including the question "In this course, I feel forced to do many things I wouldn't choose to do". *Competence satisfaction* was surveyed using a three item scale including the question "When I am attending this class,

I feel capable at what I do". *Competence thwarting* was surveyed using a three item scale including the question "In this class I have serious doubts about whether I can do things well".

In order to ascertain differences in who students feel related to (significant others) in the classroom environment, the relatedness scales for satisfaction and thwarting were adapted to address peer relatedness and instructor relatedness separately. *Peer relatedness satisfaction* was surveyed using a three item scale including the question "I feel close and connected with other students who are important to me in this class". *Peer relatedness thwarting* was surveyed using a three item scale including the question "I feel that students who are important to me in this class are cold and distant towards me". *Instructor relatedness satisfaction* was surveyed using a three item scale including the question "I feel the instructor for this class cares about me". *Instructor relatedness thwarting* was surveyed using a three item scale including the question "I have the impression the instructor for this class dislikes me".

EFA was conducted to confirm construct validity. The initial EFA included all items (both satisfaction and thwarting), used principal axis factoring, and used oblimin with Kaiser normalization rotation. Results from this analysis at both Time 1 and Time 2 intervals yielded five factors with eigenvalues greater than 1.0, with the scree plots suggesting three factors. The results from this initial EFA indicated multiple cross-loading instances between constructs.

Next, EFA was conducted for each psychological need, including both the supportive and thwarting components (i.e. Autonomy Satisfaction and Autonomy

Thwarting). The results of this second analysis yielded results from the scree plots for both time intervals that indicated for all constructs except relatedness-peers, that one factor was present. Analysis of the scree plots did not support the thwarting constructs. Analysis of the eigenvalues when one factor was specified indicated the thwarting constructs were cross-loading with the satisfaction constructs, and for autonomy, competency, and relatedness – instructors, one factor explained between 49% and 70% of the variance at each time interval. At this time, the thwarting constructs are relatively new to research. Because the thwarting constructs appear to be so highly correlated with the satisfaction constructs, and the results did not support there was enough separation between the constructs, it was decided to eliminate the thwarting constructs from further analysis. Thus, from now on, all psychological needs are based on satisfaction (not thwarting), but will be called simply autonomy, competency, and relatedness to be more concise.

Finally, EFA was conducted on the four remaining satisfaction constructs (autonomy, competency, relatedness-instructors, and relatedness-peers). Results from this analysis yielded three factors with eigenvalues greater than 1.0, with the scree plots suggesting two factors. Autonomy and competency were noted to be cross-loading. However, based on historic research findings, autonomy, competency, and relatedness are conceptually independent constructs and all four satisfaction constructs were retained for future analysis.

Motivation. Five motivation scales were adapted from Vallerand et al.'s (1992) academic motive scale: a measure of intrinsic, extrinsic and amotivation in education.

Vallerand et al. (1992) found the Academic Motivation Scale (AMS) to be valid and reliable and acceptable for use in motivation research in the academic domain. Table 4 reports the findings related to these scales for both Time 1 and Time 2 intervals.

Table 4. Time 1(Time 2) Motivation Survey Question Responses.

Survey Questions	% Some Form of Agreement	*M*	*SD*
Please indicate why you attend this class:			
Intrinsic Motivation (to know)			
Q2. Because I experience pleasure and satisfaction while learning new things in this class.	63.1(52.1)	4.7(4.4)	1.4(1.5)
Q7. For the pleasure I experience when I discover new things I have never seen before.	47.1(44.0)	4.4(4.1)	1.5(1.5)
Q12. For the pleasure of broadening my knowledge about subjects which appeal to me.	66.2(59.2)	4.9(4.6)	1.4(1.5)
Q20. Because my studies allow me to continue to learn about many things that interest me.	68.0(61.0)	5.0(4.8)	1.3(1.4)
Extrinsic Motivation - Identified			
Q3. Because I think this class will help me better prepare for the career I have chosen.	87.5(78.0)	5.7(5.3)	1.3(1.5)
Q8. Because eventually this course will enable me to enter the job market in a field that I like.	85.1(80.1)	5.7(5.4)	1.3(1.4)
Q13. Because this course will help me make a better choice regarding my career orientation.	76.2(73.9)	5.3(5.1)	1.5(1.5)
Q17. Because I believe this course will improve my competence as a worker.	85.6(76.8)	5.5(5.2)	1.3(1.4)
Extrinsic Motivation - Introjected			
Q5. To prove to myself that I am capable of completing this class.	63.4(57.9)	4.9(4.6)	1.6(1.6)
Q10. Because of the fact that when I succeed in this class I will feel important.	59.8(57.1)	4.8(4.6)	1.6(1.6)
Q15. To show myself that I am an intelligent person.	56.5(47.1)	4.6(4.3)	1.6(1.6)
Q19. Because I want to show myself that I can succeed in this class.	74.5(68.5)	5.2(5.0)	1.5(1.5)
Extrinsic Motivation – External Regulation			
Q1. Because without this class I cannot complete my chosen degree.	91.7(88.8)	6.1(5.9)	1.3(1.5)
Q6. In order to obtain a more prestigious job later on.	85.6(78.4)	5.7(5.4)	1.3(1.4)
Q11. Because I want to have "the good life" later on.	80.4(76.3)	5.6(5.3)	1.4(1.5)
Q16. In order to have a better salary later on.	81.9(73.8)	5.5(5.1)	1.4(1.5)
Amotivation			
Q4. Honestly, I don't know; I really feel that I am wasting my time in this class.	5.5(9.2)	2.1(2.3)	1.3(1.5)
Q9. I once had good reasons for being in this course; however, now I wonder whether I should continue.	6.0(11.6)	2.2(2.6)	1.3(1.5)
Q14. I can't see why I am in this course and frankly, I couldn't care less.	2.9(5.0)	1.9(2.2)	1.2(1.6)
Q18. I don't know; I can't understand what I am doing in this course.	4.4(7.1)	2.0(2.2)	1.2(1.4)

Students were asked to answer the question “Why do you attend this class?” by responding to scale questions using a Likert-type scale (1=*Does not correspond at all*,

4=Corresponds moderately, 7= Corresponds exactly). *Intrinsic motivation* was assessed using four questions including "Because I experience pleasure and satisfaction while learning new things in this class". *Identified extrinsic motivation* was assessed using four questions including "Because I think this class will help me better prepare for the career I have chosen". *Introjected extrinsic motivation* was assessed using four questions including "To prove to myself that I am capable of completing this class. *External regulation extrinsic motivation* was assessed using four questions including "Because without this class I cannot complete my chosen degree". *Amotivation* was assessed using four questions including "Honestly, I don't know; I really feel that I am wasting my time in this class".

Initial EFA on the motivation constructs included all items, used principal axis factoring, and used oblimin with Kaiser normalization rotation. The results from this analysis for both Time 1 and Time 2 intervals yielded four factors with eigenvalues greater than 1.0, and the scree plot indicated three factors. The pattern matrix for this initial analysis indicated both identified extrinsic motivation and introjected extrinsic motivation were cross-loading with other factors. Further analysis specified three factors, and identified and introjected continued to cross-load with intrinsic motivation. Final EFA analysis was conducted with three factors: intrinsic motivation, external regulation extrinsic motivation, and amotivation. The results from this analysis at both Time 1 and Time 2 intervals yielded three factors with eigenvalues greater than 1.0, with scree plots supporting three factors. It was determined that further analysis would focus on these

three factors. Going forward, external regulation extrinsic motivation, will be referred to as external motivation to be succinct.

Academic major and likelihood to major in accounting. Students were asked to indicate if they have declared a major. They were also asked to indicate their intended major by ranking it 1st, and if their major was not declared, to indicate the major they were most likely to choose by ranking it 1st. If the student intended to have a double major, they were asked to indicate the second major by ranking it 2nd. If they ranked accounting as their 1st or 2nd major, they were grouped as an accounting major (accounting major=1), all other selections and non-identified surveys were grouped as non-accounting majors (non-accounting major=2). Using a Likert-type scale (1=*Strongly disagree*, 6=*Strongly agree*), students were asked what the likelihood was that they would choose the accounting major. The mean (standard deviation) responses were 2.91(1.67) at the Time 1 interval, and 2.79(1.80) at the Time 2 interval. The actual range was 1.00 to 6.00 for both time intervals.

Success. Using a Likert-type scale (1=*Very unsuccessful*, 4=*Somewhat successful*, 6=*Very successful*) students were asked to indicate how successful they expected to be in the class. To determine how students measured their 'success', they were asked to indicate the grade they needed to attain in order to feel successful in this class.

Academic performance. Final grades for the course were used to measure students' academic performance. The final grades were reported by the course instructor. Final grades were measured on a scale of 1 to 5, where 1 = F and 5 = A. At the Time 1 interval, there were 386 participants. However, only 312 of these participants remained in

the course to receive a final grade. Of these, the mean grade was 3.61 with a standard deviation of 1.13 and an actual range of 1.00 to 5.00. At the Time 2 interval, the 241 respondents had a mean grade of 3.77 with a standard deviation of .98 and an actual range of 1.00 to 5.00.

Data and Data Analysis

Data was analyzed in two phases. Phase one included item level exploratory factor analysis to test for internal validity, average scale data analysis to evaluate distributions, and Cronbach's alphas to test for internal consistency (scale reliability) of the multi-item measurement scales. Phase one analysis findings have been reported throughout this chapter as appropriate. Phase two data analysis included specific analysis tools to address each research question. Phase two analysis results will be explored completely in chapter 4. All computational analysis for both phases was completed using IBM SPSS 23 (2015), a computer software statistical application.

Average Scale Data Analysis

For each scale used in the current study, the construct items were averaged, resulting in higher scores indicating stronger agreement. To examine the variable distributions, skewness and kurtosis descriptive statistics were examined. D'Agostino, Belanger, and D'Agostino (1990) indicated that variables with skewness or kurtosis greater than ±2 could be an indication of a non-normal distribution. Lei and Lomax (2005) indicated that skewness from 1.0 – 2.3 is moderately nonnormal, and +2.3 is severely nonnormal. Byrne (2010) asserted that Kurtosis is nonnormal when it is +7.0. Table 5 reports the findings of this analysis for Time 1 and Time 2 intervals respectively.

Based on the guidelines of Lei and Lomax (2005), as well as Byrne (2010), it was determined the distributions for all variables at both time intervals was suitably normal and acceptable for further analysis.

Scale Reliability

To test scale reliability, Cronbach's alphas, an indicator of the measure's consistency, were calculated for the multi-item scales used in this study. Previous researchers have indicated that a range of Cronbach's alphas from .70 to .95 are acceptable (Bland & Altman, 1997; DeVellis, 2003; Nunnally & Bernstein, 1994). As noted in Table 5, at both time intervals all of the variables in this study, with the exception of peer relatedness thwarting, met this established criterion. As previously noted, it was determined that the thwarting scales, identified motivation, and introjected motivation would be excluded from further analysis. Thus, the remaining scales demonstrated scale reliability and were retained for further data analysis.

Table 5: Time 1(Time 2) Reliability Coefficients, Skewness, and Kurtosis for Survey Items.

Measure	# of items	α	Skewness	Kurtosis
Enjoyment	4	.79(.82)	-.52(-.30)	.85(.71)
Boredom	4	.89(.92)	.26(-.00)	-.28(-.45)
Anxiety	4	.76(.74)	.33(.26)	-.29(-.45)
Academic Control	8	.82(.85)	-.74(-.67)	.49(-.04)
Value	4	.74(.80)	-.83(-.47)	1.02(-.03)
Autonomy	3	.73(.77)	-.24(-.01)	.46(-.02)
Competence	3	.84(.86)	-1.14(-.71)	2.87(-.38)
Relatedness - Peer	3	.85(.85)	-.10(-.01)	.68(.49)
Relatedness - Instructor	3	.76(.76)	-.31(-.47)	.28(.68)
Intrinsic Motivation	4	.86(.88)	-.58(-.37)	.49(-.13)
External Motivation	4	.76(.78)	-1.12(-.90)	1.95(.82)
Amotivation	4	.86(.89)	1.36(1.10)	2.43(.97)

Main Analyses

The following is a breakdown of the analysis tools utilized to address each research question.

Question 1. *What are the motivations and achievement emotions of business students in the introductory accounting courses?* Descriptive statistics including means, standard deviations, and percentage of agreement were conducted. Additional analysis included independent samples *t*-tests to determine group differences between accounting and non-accounting majors.

Question 2. *How do business students' motivations and emotions relate to each other?* Correlations were analyzed to evaluate relationships posited by SDT and CVT. Correlations were segregated between Time 1 and Time 2 intervals. Additionally, correlations within each time interval were separated based on accounting and non-accounting major groupings.

Question 3. *How do business students' motivations and emotions influence their accounting major selection and academic performance?* Multiple regression was conducted to explore predictive relationships between the independent (i.e. predictor) variables and outcome variables. For this analysis, the outcome variables were likelihood to major in accounting and final grade. Both SDT and CVT frameworks were explored. Students were grouped based on accounting and non-accounting majors.

Question 4. *How do business students' motivations and emotions change over the semester? Furthermore, how does the pattern (increasing or decreasing) of these students' motivations and emotions relate to their likelihood to major in accounting and*

their academic performance? Identifying changes in motivations and emotions was explored using paired samples *t*-tests, comparing students grouped based on accounting versus non-accounting majors. The pattern of students' motivations, emotions, and their relationships to the outcome variables of likelihood to major in accounting and academic achievement were studied in two parts. In part one, change scores were calculated (i.e.: the score at Time 1 was subtracted from the score at Time 2, such that if motivation was increasing by the end of the semester the student had a positive score) and became the independent variable. In part two, regression analysis was completed using the change score as the predictor of the outcome variables noted above (i.e.: Time 1, Time 2, change score explaining the outcome variable).

Summary

This chapter described the methodology that was employed to investigate the relationships between business students' motivations and achievement emotions, and how these constructs could be used to predict students' academic achievement in an accounting course as well as their likelihood to major in accounting. This quantitative study involved a longitudinal survey design with two time intervals. Participants for this study were recruited from a large, U.S., upper Midwestern research university, and were enrolled in the spring, 2015, Elements of Accounting I and Elements of Accounting II courses. These courses are both compulsory for a majority of business majors at this research university. Furthermore, these courses are the introductory level accounting courses which are also where potential recruitment of desired students to the accounting major occurs.

The survey instrument administered in this study was composed of a variety of previously validated scales, which were adapted as necessary. Phase one analysis results were reported in this chapter and included descriptive statistics, factor analysis, and measure reliability analysis. This analysis indicated a large, representative sample had been gathered, and that the data collected was reliable and valid. The next chapter presents results determined using more in depth analysis tools as described as phase two analysis, and these tools were selected to address each research question.

CHAPTER IV

RESULTS

The purpose of this study was to examine students' motivations and achievement emotions related to accounting major selection and course achievement. Two theoretical frameworks were the foundation for this examination. The control-value theory (CVT) of emotions is an integrated theory focused on achievement emotions and analyzes the antecedents to and effects of emotions experienced in the achievement environments on learning and performance. Self-determination theory (SDT) is a motivation theory that incorporates the innate psychological needs of individuals (autonomy, competence, and relatedness) with a continuum of motivation alternatives (from amotivation through intrinsic motivation).

This purpose was operationalized through the execution of a paper survey administered at two time intervals to students in the Spring, 2015, compulsory Elements of Accounting I and Elements of Accounting II courses. The data was analyzed in multiple phases. First, each interval collection was analyzed separately through descriptive statistics. Second, comparative group analysis utilizing *t*-tests was conducted based on student selection of the accounting major or non-accounting major. Third, regression models based on theoretical frameworks were analyzed to determine if mediation was substantiated. Fourth, change analysis was conducted to identify how student responses changed from the first interval to the second interval. Finally, group

difference analyses using *t*-tests were completed to investigate potential moderation and interaction effects. These analyses were conducted to determine the answers to the following research questions.

1. What are the motivations and achievement emotions of business students in the introductory accounting courses?
2. How do business students' motivations and emotions relate to each other?
3. How do business students' motivations and emotions influence their accounting major selection and academic performance?
4. How do business students' motivations and emotions change over the semester? Furthermore, how does the pattern (increasing or decreasing) of these students' motivations and emotions relate to their likelihood to major in accounting and their academic performance?

In Chapter III, the descriptive statistics of the sample for each time interval were presented, along with instrument item level analysis. In this chapter, further analysis of the findings at interval group levels, regression, mediation, change, moderation, and interaction effect analyses are presented.

Research Questions

Question 1: What are the motivations and achievement emotions of business students in the introductory accounting courses?

The first research question was addressed through the use of descriptive statistics conducted at the variable level by averaging the variable item scores. Table 6 presents these results and will be discussed further using the CVT and SDT frameworks.

Table 6. Time 1(Time 2) Construct Level Results.

Measure	*N*	# of items	% question agreement	*M*	*SD*	Actual Range
Enjoyment	374(240)	4	54.5(46.6)	4.59(4.31)	1.00(1.10)	1-7
Boredom	382(234)	4	28.5(41.4)	3.54(3.95)	1.34(1.40)	1-7
Anxiety	375(232)	4	27.7(25.2)	3.38(3.30)	1.21(1.21)	1-7
Academic Control	377(237)	8	91.0(82.7)	5.99(5.63)	0.68(0.89)	3.38-7(2.88-7)
Value	382(240)	4	77.0(71.0)	5.50(5.16)	0.93(1.08)	2-7(1.75-7)
Autonomy	379(237)	3	47.2(41.2)	4.49(4.26)	1.13(1.22	1-7
Competence	379(240)	3	82.9(73.4)	5.39(5.10)	1.01(1.16)	1-7(1.33-7)
Relatedness - Peer	383(239)	3	36.4(42.3)	4.31(4.44)	1.12(1.16)	1-7
Relatedness - Instructor	382(237)	3	59.4(66.2)	4.90(5.07)	1.08(1.08)	1-7
Intrinsic Motivation	382(239)	4	61.1(54.1)	4.76(4.49)	1.18(1.28)	1-7
External Motivation	379(240)	4	84.9(79.3)	5.71(5.42)	1.03(1.14)	1-7(1.25-7)
Amotivation	381(238)	4	4.7(8.2)	2.02(2.30)	1.04(1.24)	1-7

Note. A Likert-type scale was utilized where 1 = strongly disagree, and 7 = strongly agree. Some form of agreement included agree, slightly agree, and strongly agree.

Control Value Theory

Achievement emotions. At both time intervals, enjoyment questions received the highest agreement responses within the achievement emotions. At Time 1, two weeks into class, just over half of the students reported enjoyment in the class. However, more than one quarter of the students indicated experiencing both boredom and anxiety. At Time 2, sixteen weeks into class, just under half of the students experienced enjoyment, while over 40% of the students experienced boredom, and one quarter of the students experienced anxiety. Paired samples *t*-tests examining differences in Time 1 and Time 2 are discussed later in this chapter.

Perceived academic control. At both time intervals, students responded most favorably to the perceived academic control questions. From the second week of class through the sixteenth week, PAC declined just over 8%. However, a majority of students indicated they had control over their academic performance in their class throughout the semester.

Value. Students also indicated a high level of agreement in valuing the class. At the start of the semester, more than three-quarters of the students valued the class. Again, by the end of the semester a decline of 6% was noted. However, over 70% of the students continued to see value in the class.

Self-Determination Theory

Psychological Needs. Less than half of the students experienced autonomy in their class, and between the first and second time interval autonomy decreased. Since this is a compulsory course, it may be unusual that over 40% of the students still experienced autonomy by the end of the semester. Just over 80% of students experienced competence at the start of the semester, and over 70% of students retained their competence at the end of the semester.

Regarding relatedness, at the start of the semester over one-third of the students experienced relatedness with peers, and at the end of the semester this had increased to over 40% of the students. This may indicate that as the semester progressed students established or expanded their peer relationships. However, at the start of the semester almost 60% of the students experienced relatedness with their instructor, and this also increased by the end of the semester. Relatedness, both peers and instructors, were two variables that appeared to strengthen over time.

Motivation. Intrinsic motivation was experienced by over 60% of students at the Time 1 interval, but fell to just under 55% by the Time 2 interval. A greater percentage of students experienced external motivation. At the Time 1 interval, just under 85% of students indicated their motivation stemmed from external motivation. However, at the

Time 2 interval this percentage fell to just under 80%. Less than 5% of students experienced amotivation at the start of the semester. By the end of the semester, just over 8% of students indicated they experienced amotivation.

Group Differences

Independent samples *t*-tests were completed to analyze group differences between accounting and non-accounting majors. Students who indicated accounting was their primary or secondary major were placed into the accounting major group. Students who indicated anything else were placed into the non-accounting major group. In the accounting major group, at Time 1, there were 83 to 85 respondents, and at Time 2 there were 59 to 62 respondents. In the non-accounting major group, at Time 1, there were 285 to 292 respondents, and at Time 2 there were 171 to 178 respondents.

Table 7 shows the time one interval comparisons for accounting and non-accounting majors. Statistical significance was found for all tests except relatedness satisfaction – instructor. Cohen's *d* was calculated to measure effect sizes of each subscale variable. Generally speaking, an effect size where $d = .2$ is a 'small' effect size, .5 is a 'medium' effect size, and .8 is a 'large' effect size (Cohen, 1988).

Within the CVT framework, two variables had the greatest level of significance and large or approaching large effect sizes: enjoyment and value. Students who were accounting majors reported greater enjoyment and perceived greater value in the course than the non-accounting majors. Still significant but with smaller effect sizes, findings also indicated that accounting majors experience less boredom and anxiety, and perceive they have greater academic control than the non-accounting majors.

Table 7. Independent Samples *t*-Tests – Time 1(Time 2) Comparison between Accounting and Non-Accounting Majors. *(1 = Strongly Disagree, 7 = Strongly Agree)*

Subscale Variables	Larger number means…	Acctg *M*	Non *M*	*t-value*	*df**	*p*	*d*
CVT:							
Enjoyment	Student experiences more enjoyment in the classroom.	5.13(4.97)	4.43(4.08)	5.78(5.85)	366(238)	.000(.000)	.74(.91)
Boredom	Student experiences more boredom in the classroom.	3.15(3.35)	3.67(4.16)	-3.12(-3.93)	374(232)	.002(.000)	.38(.60)
Anxiety	Student experiences more anxiety in the classroom.	3.05(2.71)	3.45(3.51)	-2.72(-4.63)	367(230)	.007(.000)	.34(.72)
Academic Control	Student perceives they have more control over their academic performance.	6.19(5.94)	5.93(5.52)	3.06(3.25)	369(235)	.002(.001)	.38(.50)
Value	Student perceives the course has more value.	6.17(6.12)	5.30(4.83)	9.84(11.17)	189(153)	.000(.000)	1.10(1.50)
SDT:							
Autonomy	Student experiences a greater sense of self-governance in the classroom.	5.15(5.22)	4.29(3.92)	6.46(8.08)	371(235)	.000(.000)	.82(1.23)
Competence	Student perceives they have more capacity to complete class tasks.	5.80(5.78)	5.28(4.87)	4.24(5.65)	371(238)	.000(.000)	.53(.86)
Relatedness Peer	Student experiences connections with peers in the class.	4.64(4.69)	4.22(4.35)	2.70(1.78)	119(89)	.008(.078)	.35(.28)
Relatedness Instructor	Student experiences a connection with the instructor of this class.	5.09(5.20)	4.84(5.02)	1.85(1.13)	374(235)	.065(.261)	.22(.16)
Intrinsic Motivation	Student experiences more inherent satisfaction from attending this class.	5.39(5.38)	4.58(4.17)	6.50(8.17)	162(148)	.000(.000)	.76(1.11)
External Motivation	Students experiences more external outcomes by attending this class.	6.18(6.04)	5.58(5.20)	4.83(6.11)	371(145)	.000(.000)	.63(.83)
Amotivation	Students attend this class without intention to engage in class activities.	1.66(1.71)	2.12(2.50)	-4.37(-5.65)	179(165)	.000(.000)	.50(.75)

Note. *Degrees of freedom adjusted for unequal variances between the groups, affecting Value, Relatedness Peer Satisfaction, Intrinsic Motivation, External Regulation, and Amotivation.

At the Time 2 interval, accounting majors continued to experience greater enjoyment and perceived greater value in the course than the non-accounting majors. Additionally, accounting majors experienced less anxiety. The remaining variables had similar significant findings with medium level effect sizes, indicating that accounting

majors continued to experience less boredom and perceived they had greater academic control than the non-accounting majors.

Within the SDT framework, two variables had the greatest level of significance and large or approaching large effect sizes: autonomy and intrinsic motivation. At the Time 1 interval, students who were accounting majors experienced greater autonomy and intrinsic motivation in the course than the non-accounting majors. Other findings which were significant but had smaller effect sizes indicated that accounting majors experienced less amotivation, greater external motivation, and greater competence than non-accounting majors.

At the Time 2 interval, four variables had the greatest level of significance and large effect sizes: autonomy, intrinsic motivation, competence, and external motivation. Students who were accounting majors experienced greater autonomy, intrinsic motivation, competence, and external motivation in the course than non-accounting majors. Additionally, accounting majors experienced less amotivation at the end of the semester.

Overall, the findings from both time intervals suggest that accounting majors experience more positive activating emotion (enjoyment), less negative deactivating emotion (boredom), and less negative activating emotion (anxiety). Results also suggest that accounting majors perceived they have greater academic control and perceive greater course value than the non-accounting majors. Additionally, the results indicate that accounting majors experience greater satisfaction of their basic psychological needs, and

have higher motivation (both intrinsic and external) in the course than the non-accounting majors.

Question 2: How do business students' motivations and emotions relate to each other?

The second research question was addressed by conducting Pearson correlations. This analysis was completed to measure the strength of the linear relationships among the study variables. The correlations were segregated between time intervals and based on accounting major and non-accounting major groupings. The Time 1 correlations for accounting majors and non-accounting majors are presented in Tables 8 and 9 respectively. The Time 2 correlations for accounting majors and non-accounting majors are presented in Tables 10 and 11 respectively. The results are presented in the construct of each framework. Initial discussion is focused on determining if the results support the frameworks. Final discussion is focused on the research question.

Correlations among CVT Variables

In support of Pekrun's (2006) CVT, at both time intervals the linear correlations among the CVT variables were significant for both accounting and non-accounting majors. Enjoyment was negatively correlated with both boredom and anxiety, and positively correlated with perceived academic control (PAC) and value. Boredom and anxiety were negatively correlated with PAC and value. However, differences were noted between the groups.

Table 8. Correlations Accounting Majors Time 1.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Enjoyment	-												
2. Boredom	-.71*	-											
3. Anxiety	-.60*	.64*	-										
4. PAC	.40*	-.47*	-.57*	-									
5. Value	.60*	-.61*	-.50*	.54*	-								
6. Autonomy	.65*	-.53*	-.53*	.52*	.63*	-							
7. Competency	.48*	-.56*	-.70*	.77*	.59*	.63*	-						
8. Relatedness Peers	.33*	-.26	-.30*	.32*	.21	.49*	.29*	-					
9. Relatedness Instructor	.60*	-.57*	-.45*	.36*	.47*	.51*	.47*	.46*	-				
10. Intrinsic Motivation	.67*	-.51*	-.56*	.31*	.61*	.65*	.47*	.33*	.44*	-			
11. External Motivation	.16	-.05	.04	.14	..36*	.27	.15	.05	.21	.24	-		
12. Amotivation	-.37*	.46*	.46*	-.53*	-.50*	-.43*	-.57*	-.23	-.30*	-.39*	-.29*	-	
13. Final Grade	.23	-.07	-.18	.16	.19	.28	.22	.08	-.01	.19	.03	-.09	-
14. Accounting Likelihood	.28	-.34*	-.42*	.43*	.54*	.48*	.60*	.11	.14	.39*	.32*	-.40*	.24

Note. *$p < .01$

Table 9. Correlations Non-Accounting Majors Time 1.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Enjoyment	-												
2. Boredom	-.60*	-											
3. Anxiety	-.30*	.43*	-										
4. PAC	.27*	-.28*	-.49*	-									
5. Value	.68*	-.41*	-.28*	.42*	-								
6. Autonomy	.59*	-.39*	-.26*	.42*	.68*	-							
7. Competency	.51*	-.31*	-.60*	.62*	.57*	.56*	-						
8. Relatedness Peers	.24*	-.22*	-.04	.09	.24*	.37*	.20*	-					
9. Relatedness Instructor	.53*	-.42*	-.13	.19*	.40*	.41*	.31*	.37*	-				
10. Intrinsic Motivation	.64*	-.37*	-.30*	.32*	.60*	.56*	.41*	.24*	.31*	-			
11. External Motivation	.26*	-.05	.01	.17*	.35*	.34*	.15	.17*	.19*	.34*	-		
12. Amotivation	-.41*	.34*	.44*	-.61*	-.55*	-.45*	-.53*	-.16*	-.29*	-.37*	-.30*	-	
13. Final Grade	-.04	-.07	-.09	.12	.02	.01	.08	-.01	-.05	-.08	-.11	-.08	-
14. Accounting Likelihood	.33*	-.18*	-.09	.08	.41*	.36*	.20*	.04	.05	.40*	.10	-.18*	-.02

Note. *$p < .01$

Table 10. Correlations Accounting Majors Time 2.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Enjoyment	-												
2. Boredom	-.61*	-											
3. Anxiety	-.47*	.51*	-										
4. PAC	.48*	-.38*	-.65*	-									
5. Value	.46*	-.14	-.39*	.56*	-								
6. Autonomy	.56*	-.35*	-.53*	.56*	.57*	-							
7. Competency	.31	-.30	-.71*	.67*	.37*	.59*	-						
8. Relatedness Peers	.05	-.09	-.22	.16	.22	.41*	.34*	-					
9. Relatedness Instructor	.53*	-.63*	-.47*	.45*	.25	.41*	.49*	.23	-				
10. Intrinsic Motivation	.52*	-.28	-.18	.44*	.51*	.60*	.26	.25	.25	-			
11. External Motivation	.06	.20	.11	.07	.25	.16	-.00	.15	-.04	.38*	-		
12. Amotivation	-.35*	.36*	.51*	-.46*	-.43*	-.52*	-.58*	-.25	-.27	-.50*	-.12	-	
13. Final Grade	.31	-.28	-.50*	.50*	.23	.45*	.58*	.13	.32	.14	-.06	-.39*	-
14. Accounting Likelihood	.25	-.06	-.36*	.32	.49*	.46*	.42*	.23	.06	.15	.04	-.46*	.38*

Note. *$p < .01$

Table 11. Correlations Non-Accounting Majors Time 2.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Enjoyment	-												
2. Boredom	-.65*	-											
3. Anxiety	-.36*	.34*	-										
4. PAC	.24*	-.19	-.60*	-									
5. Value	.66*	-.46*	-.25*	.32*	-								
6. Autonomy	.63*	-.45*	-.28*	.32*	.60*	-							
7. Competency	.54*	-.36*	-.63*	.69*	.53*	.56*	-						
8. Relatedness Peers	.35*	-.28*	-.11	.09	.31*	.55*	.23*	-					
9. Relatedness Instructor	.46*	-.42*	-.14	.21*	.33*	.49*	.32*	.49*	-				
10. Intrinsic Motivation	.70*	-.49*	-.31*	.24*	.71*	.62*	.50*	.36*	.31*	-			
11. External Motivation	.12	-.06	.12	.02	.40*	.33*	.14	.32*	.27*	.26*	-		
12. Amotivation	-.44*	.39*	.43*	-.46*	-.61*	-.35*	-.55*	-.20*	-.25*	-.34*	-.30*	-	
13. Final Grade	.10	-.10	-.33*	.36*	.19	.20*	.39*	.11	.12	.11	.03	-.31*	-
14. Accounting Likelihood	.45*	-.23*	-.09	-.05	.38*	.34*	.20*	.11	.12	.39*	.13	-.21*	.07

Note. *$p < .01$

At the end of the semester (Time 2), for accounting majors (business students who have indicated accounting as their primary or secondary major), PAC was negatively correlated with boredom. Thus, the less PAC they experienced the greater the boredom they experienced. Additionally, there was no correlation between how students valued the class and boredom. However, the less non-accounting majors valued the class, the greater the level of boredom they experienced. Also interesting, for the non-accounting majors, there was no correlation between PAC and boredom.

The results suggest that CVT variables are related to the outcome variables of likelihood to major in accounting (accounting likelihood) and final grades. Focusing on the Time 2 interval results, which occurred at the end of the semester, for both groups anxiety was negatively correlated, and PAC was positively correlated, with final grades. Additionally, for both groups, value was positively correlated with students' likelihood to major in accounting.

There were also some observed group differences. Within the accounting major group, anxiety was negatively correlated with likelihood to major in accounting. Surprisingly, for accounting majors enjoyment was not positively correlated with their likelihood to major in accounting. However, enjoyment was positively correlated and boredom was negatively correlated with non-accounting majors' likelihood to major in accounting.

Correlations among SDT Variables

In support of Ryan and Deci's (2000) SDT, most of the linear correlations among the SDT variables were significant for both groups. For both groups at the Time 1

interval, when the psychological needs for autonomy, competency, and relatedness were satisfied, there was a positive correlation with intrinsic motivation and a negative correlation with amotivation. However, differences emerged at the Time 2 interval. For accounting majors, relatedness-peers and relatedness-instructors became nonsignificant in the correlations with motivation, and only autonomy remained a significant correlation with intrinsic motivation and amotivation. Regarding non-accounting majors, psychological needs retained significant correlations with intrinsic motivation and amotivation.

The results suggest that SDT was able to explain the outcome variables of final grades and likelihood to major in accounting. Focusing on the Time 2 interval, results indicate that for both groups, autonomy and competency were positively correlated, and amotivation was negatively correlated with both final grades and likelihood to major in accounting. These correlations were stronger for the accounting majors, but still significant for both groups. Thus, students with greater autonomy and competency, and lower amotivation, achieved higher grades, and were more likely to select the accounting major. Also interesting to note was that non-accounting majors who were intrinsically motivated were more likely to major in accounting, however, this correlation did not emerge for accounting majors.

Achievement Emotions and Business Student Motivations

Results suggest that emotions are correlated with motivations. For both accounting and non-accounting majors enjoyment was negatively correlated with amotivation, and boredom and anxiety were positively correlated with amotivation.

Enjoyment was positively correlated with intrinsic motivation for accounting majors, however, this was a stronger correlation for the non-majors. Additionally, boredom and anxiety were negatively correlated with intrinsic motivation for the non-accounting majors. External motivation was not strongly correlated with emotion. These results suggest that for all business students, emotions are related to both intrinsic motivation and amotivation. Thus, the more students enjoy class, the more likely they are to be intrinsically motivated and experience less amotivation.

Additionally, these results support the Chapter 1 suggestion that CVT and SDT could be connected through value and emotions. For example, the correlations suggest that if non-accounting majors value the class, and feel their psychological needs are being met, they are more likely to be intrinsically motivated, and more likely to major in accounting. While multicollinearity is apparent in these results, prior research has argued for conceptual independence of these variables. Additional analysis tools were utilized to further refine the study results.

Question 3: How do business students' motivations and emotions influence their accounting major selection and academic performance?

The third research question was addressed by conducting multiple regressions to explore the predictive relationships between students' emotions and motivations (independent variables) and their likelihood to major in accounting and their academic performance (outcome variables). This analysis was segregated by time intervals and based on accounting major and non-accounting major groupings. The Time 1 regression models for accounting majors and non-accounting majors are presented in Tables 12 and 13 respectively. The Time 2 regression models for accounting majors and non-accounting

majors are presented in Tables 14 and 15 respectively. The results are presented in the context of each framework.

Multiple Regression of Emotions

Using the CVT framework, multiple regressions were utilized to test the predictive relationships between emotions, perceived academic control, and subjective task value with likelihood to major in accounting and academic performance (final grades). Findings suggest that students' major selection moderated these relationships. As shown in Tables 12 and 13, at the Time 1 interval, the CVT of Emotions model was significant for predicting students' likelihood to major in accounting for both groups.

Table 12. Multiple Regression Accounting Majors Time 1.

	Likelihood to Major			Final Grade		
Predictor	B	SE	β	B	SE	β
CVT:						
Enjoyment	-.12	.13	-.13	.21	.23	.16
Boredom	.04	.09	.07	.16	.13	.22
Anxiety	-.12	.10	-.17	-.30	.16	-.33ˆ
PAC	.15	.16	.11	.52	.24	.30*
Value	.71	.18	.55***	.05	.28	.03
R^2			35.8			27.5
SDT:						
Autonomy S	.11	.12	.14	.10	.22	.09
Competency S	.49	.11	.58***	.22	.21	.20
Relatedness Peer S	-.03	.07	-.04	.04	.13	.05
Relatedness Instr. S	-.20	.08	-.29*	-.16	.14	-.18
Intrinsic Mot.	.10	.10	.12	.22	.17	.21
External Reg.	.23	.09	.24*	-.13	.16	-.12
Amotivation	.00	.11	.00	-.07	.24	-.05
R^2			48.9			16.2

Note. ˆ $p < .10$, *$p < .05$, **$p < .01$, ***$p < .001$. CVT = Control Value Theory Framework, SDT = Self-Determination Theory Framework.

The results indicate the CVT model is a significant predictor of accounting major selection for both accounting majors ($R^2 = .36$) and non-accounting majors ($R^2 = .22$), and at the variable level, value was the most significant predictor of likelihood to major in accounting for both groups. Regarding academic performance, the CVT model was only

significant for predicting final grades for accounting majors (R^2 = .28). PAC was the most significant predictor variable (p = .04), however, although less significant, anxiety emerged as a possible predictor variable as well (p = .06). Because the CVT of Emotions model asserts that emotions are key, these findings indicate weaker support of this theory. However, these results were based on the Time 1 interval, which occurred early in the semester.

Table 13. Multiple Regression Non-Accounting Majors Time 1.

	Likelihood to Major			Final Grade		
Predictor	B	SE	β	B	SE	β
CVT:						
Enjoyment	.13	.09	.12	-.11	.13	-.11
Boredom	.05	.06	.06	-.06	.09	-.07
Anxiety	.00	.06	.00	-.10	.09	-.12
PAC	-.19	.11	-.12ˆ	.13	.14	.09
Value	.54	.10	.44***	-.05	.12	-.05
R^2			21.6			3.9
SDT:						
Autonomy S	.35	.08	.35***	.07	.11	.07
Competency S	-.09	.08	-.09	.03	.11	.03
Relatedness Peer S	-.14	.06	-.14*	-.11	.08	-.11
Relatedness Instr. S	-.10	.06	-.10	-.00	.08	-.00
Intrinsic Mot.	.29	.06	.31***	-.13	.08	-.15
External Reg.	-.07	.06	-.07	-.11	.08	-.11
Amotivation	-.03	.07	-.03	-.20	.09	-.21*
R^2			23.1			6.7

Note. ˆ p < .10, *p < .05, **p < .01, ***p < .001. CVT = Control Value Theory Framework, SDT = Self-Determination Theory Framework.

As shown in Tables 14 and 15, the Time 2 interval results for accounting majors support the CVT model as a predictor of likelihood to major in accounting (R^2 = .28), and value remained the significant predictor of this outcome (β = .41, p = .01), again providing limited support of the CVT of Emotions model. However, the results for non-accounting majors at the Time 2 interval shows greater support of the CVT of Emotions model, and suggest the model significance increased (R^2 = .35). Additionally, at the coefficient level, four variables emerged as predictors of likelihood to major in

accounting: Enjoyment (β = .43, p = .000), Boredom (β = .19, p = .032), Value (β =.34, p = .000), and PAC (β = -.26, p = .002). Surprisingly, a positive relationship with boredom and a negative relationship with PAC emerged. These effects indicate multicollinearity may be producing error in the findings.

Table 14. Multiple Regression Accounting Majors Time 2.

	Likelihood to Major			Final Grade		
Predictor	B	SE	β	B	SE	β
CVT:						
Enjoyment	-.02	.16	-.02	.02	.15	.02
Boredom	.08	.10	.13	.02	.09	.03
Anxiety	-.22	.12	-.30	-.23	.12	-.31ˆ
PAC	-.04	.17	-.04	.36	.16	.39*
Value	.44	.16	.41**	-.14	.16	-.13
R^2			28.3			32.6
SDT:						
Autonomy S	.33	.13	.44*	.20	.13	.26
Competency S	.09	.12	.12	.31	.12	.43**
Relatedness Peer S	.02	.07	.04	-.07	.07	-.13
Relatedness Instr. S	-.13	.08	-.21	.03	.08	.04
Intrinsic Mot.	-.23	.14	-.27	-.05	.14	-.06
External Reg.	.03	.11	.03	-.07	.11	-.08
Amotivation	-.31	.14	-.34*	-.06	.13	-.07
R^2			36.5			39.5

Note. ˆ $p < .10$, *$p < .05$, **$p < .01$, ***$p < .001$. CVT = Control Value Theory Framework, SDT = Self-Determination Theory Framework.

Table 15. Multiple Regression Non-Accounting Majors Time 2.

	Likelihood to Major			Final Grade		
Predictor	B	SE	β	B	SE	β
CVT:						
Enjoyment	.35	.09	.43***	-.12	.11	-.13
Boredom	.12	.06	.19*	-.00	.07	-.00
Anxiety	-.05	.07	-.06	-.20	.08	-.23*
PAC	-.27	.09	-.26**	.21	.11	.19ˆ
Value	.32	.08	.34***	.14	.11	.13
R^2			35.0			15.0
SDT:						
Autonomy S	.26	.09	.32**	.03	.10	.04
Competency S	-.07	.08	-.09	.30	.10	.33**
Relatedness Peer S	-.11	.08	-.13	.03	.09	.03
Relatedness Instr. S	-.02	.07	-.02	-.01	.08	-.01
Intrinsic Mot.	.20	.07	.29**	-.10	.08	-.13
External Reg.	.08	.07	.10	-.05	.08	-.05
Amotivation	-.01	.06	-.01	-.16	.07	-.19*
R^2			22.3			18.0

Note. ˆ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

While the CVT model was only significant in predicting final grades for accounting majors at the Time 1 interval, results at the Time 2 interval differed. At the end of the semester, the results suggest that the CVT model is significant for predicting final grades for both groups, but is a better model for the accounting majors ($R^2 = .33$) than the non-accounting majors ($R^2 = .15$). At the coefficient level, both PAC and anxiety emerged as predictors of final grades, but with varying significance for each group. For accounting majors, PAC was the most significant predictor of final grades ($\beta = .39$, $p = .031$) with anxiety approaching significance ($\beta = -.31$, $p = .059$). For the non-accounting majors anxiety was the most significant predictor of final grades ($\beta = -.23$, $p = .02$), with PAC approaching significance ($\beta = .19$, $p = .054$).

Multiple Regression of SDT

Using the SDT framework, multiple regressions were utilized to test the predictive relationships between psychological needs and motivation with likelihood to

major in accounting and academic performance (final grades). Findings suggest that students' major selection moderated these relationships. At the Time 1 interval, the SDT model was not significant in predicting final grades for either the accounting majors or non-accounting majors. However, this model was significant for predicting students' likelihood to major in accounting for both groups. The results indicate that for accounting majors the SDT model was a significant predictor of accounting major selection (R^2 = .49). Within this model, at the coefficient level, competency (β = .58, p = .000), relatedness-instructor (β = -.29, p = .011), and external regulation-extrinsic motivation (β = .24, p = .011) were significant predictors of likelihood to major in accounting.

Regarding non-accounting majors, the SDT model was a predictor of likelihood to major in accounting (R^2 = .23). At the coefficient level, autonomy (β = .35, p = .000), relatedness-peers (β = -.14, p = .023), and intrinsic motivation (β = .31, p = .000) were significant predictors of likelihood to major in accounting. Surprisingly, a negative relationship with relatedness-peers and relatedness-instructors with likelihood to major in accounting emerged, indicating that students who had decreased relatedness with their peers (non-accounting majors) or instructor (accounting majors), the more likely they were to major in accounting. These effects indicate multicollinearity may be producing error in the findings.

The Time 2 interval results for accounting majors support the SDT model as a predictor of likelihood to major in accounting (R^2 = .37), with autonomy (β = .44, p = .014) and amotivation (β = -.34, p = .028) as significant predictors of this outcome. The results for non-accounting majors at the Time 2 interval suggest the model continues to

be significant (R^2 = .22). Additionally, at the coefficient level autonomy (β = .32, p = .004) and intrinsic motivation (β = .29, p = .002) were predictors of likelihood to major in accounting.

While the SDT model was not significant in predicting final grades for either group at the Time 1 interval, results at the Time 2 interval indicate otherwise. At the end of the semester, the results suggest that the SDT model is significant for predicting final grades for both groups, but is a better model for the accounting majors (R^2=.40) than the non-accounting majors (R^2 = .18). At the coefficient level, competency was a predictor of final grades (β = .43, p = .011) for the accounting majors, and both competency (β = .33, p = .002) and amotivation (β = -.19, p = .033) were predictors for non-accounting majors.

Multiple Regression Results Summary

In summary, both the CVT and SDT frameworks were effective at explaining both likelihood to major in accounting and final grades. Within the CVT framework, value emerged as a predictor of both intended accounting majors and intended non-accounting majors' likelihood to major in accounting. The more students in both groups valued their accounting course, the more likely they were to major in accounting. For the non-accounting majors, enjoyment also emerged as a predictor of this outcome. These were the students who entered the class thinking they would not be accounting majors, yet after experiencing enjoyment in their course, indicated a greater likelihood to actually major in accounting. Additionally, for both types of majors, anxiety emerged as a negative predictor and PAC a positive predictor of final grades.

Within the SDT framework, autonomy emerged as a predictor of both intended accounting majors and intended non-accounting majors' likelihood to major in accounting. The more students in both groups experienced self-governance, felt their actions in the course were of their own volition, the more likely they were to major in accounting. Coupled with autonomy, for the non-accounting majors, intrinsic motivation also emerged as a predictor of this outcome. Furthermore, intended accounting majors who indicated greater levels of amotivation during their course were less likely to actually major in accounting. Thus the absence of motivation leads to a decreased likelihood to major in accounting, the result of which is for these students to select a different major.

Additionally, final grades were higher for both intended accounting majors and non-accounting majors who experienced competency, and were lower for intended non-accounting majors who experienced greater amotivation in their course. Thus, with both groups, the more competent students felt in the course, the higher their academic performance; and students who did not intend to major in accounting and lacked motivation received worse grades.

Tests of Mediational Relationships

To more fully investigate CVT and SDT frameworks and their ability to predict likelihood to major in accounting and final grades, tests of mediational relationships were completed using the Time 2 data. Mediation occurs when a variable is introduced that reduces the effect of the independent variable on the dependent variable. Mediation can be said to occur in a model through a four multiple regression process: 1) the independent

variable has a significant effect on the mediator, 2) the independent variable has a significant direct effect on the outcome (dependent) variable, 3) the mediator has a significant direct effect on the outcome variable, and 4) once the mediator is added to the model, the effect of the independent variable on the outcome variable is reduced (Baron & Kenny, 1986). This analysis was segregated based on accounting major and non-accounting major groupings. The Sobel Test (Sobel, 1982) was applied to confirm the presence of mediational effects. Results will be discussed in the context of the CVT and SDT frameworks.

CVT mediational analysis. Mediational analysis was utilized to investigate if emotions acted as mediators for perceived academic control and value in predicting the outcome of likelihood to major in accounting and academic performance (final grades). As stated previously, four multiple regressions were employed to test for mediation. As shown in Table 16, findings suggest that for accounting majors value has a direct effect on these students' likelihood to major in accounting, and emotions did not mediate this relationship.

Table 16. Tests of Mediational Relationships at Time 2: CVT and Likelihood to Major in Accounting.

Emotion	n	Control, value → emotion	Control, value → acct. likelihood	Control, value, emotion → acct. likelihood	Sobel Test: Test Statistic Control, Value	Sobel Test: *p*-value Control, Value	Control, value → acct. likelihood: Predictive effect [a]	Final model R^2
Accounting								
Enjoyment	60	.33*, .28*	.07, .45**	.07, .45**, -.00			na, direct	.25
Boredom	57	-.45**, .12	.09, .44**	.11, .43**, .05			na, direct	.24
Anxiety	59	-.63***, -.04	.06, .46**	-.08, .45**, -.23			na, direct	.27
Non-Acctg								
Enjoyment	173	.03, .65***	-.19*, .44***	-.20**, .20*, .37***	-.51 2.16	.61 .03*	indirect, partial	.26
Boredom	170	-.04, -.45***	-.22**, .54***	-.22**, .52***, -.03			direct, direct	.26
Anxiety	166	-.57***, -.08	-.20**, .43***	-.30***, .42***, -.17*			indirect, direct	.19

[a] Direct = control/value (C/V) predicts accounting likelihood with no mediation by emotions, complete = C/V prediction of accounting likelihood completely mediated by emotion, partial = C/V prediction of accounting likelihood partially mediated by emotion, indirect = C/V prediction of accounting likelihood mediated by emotion with no initial direct effect, na = C/V does not predict accounting likelihood.

Note. Standardized Beta (β) regression coefficients presented with exception of unstandardized coefficients in the Sobel test. * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed).

However, with non-accounting majors, the relationship between value and accounting likelihood was partially mediated by enjoyment ($R^2 = .26$). In other words, the students who valued the course enjoyed it more, and for that reason they were more likely to major in accounting. This finding was confirmed by applying the Sobel Test. Figure 6 below illustrates this relationship.

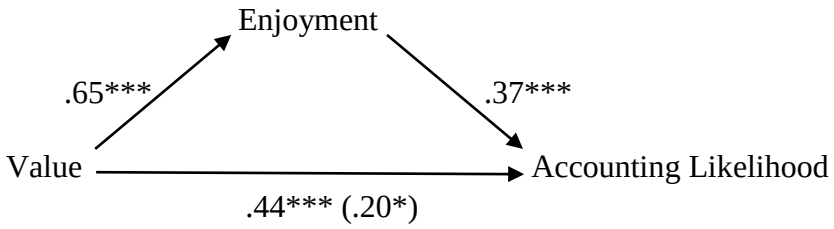


Figure 6. Mediated Relationship between Value and Accounting Likelihood for Non-Accounting Majors.
[a]Statistical significance is * $p < .05$, *** $p < .001$

Regarding the outcome of final grades, as shown in Table 17, findings suggest that anxiety partially mediates the predictive effect of perceived academic control with both accounting and non-accounting majors. Figure 7 illustrates the findings for accounting majors ($R^2 = .31$). In this model, anxiety was a significant predictor of final grades at the $p = .059$ level, which meets the more liberal .10 significance standard.

Table 17. Tests of Mediational Relationships at Time 2 – CVT and Final Grades.

Emotion	n	Control, value → emotion	Control, value → final grade	Control, value, emotion → final grade	Sobel Test: Test Statistic Control, Value	Sobel Test: *p*-value Control, Value	Control, value → final grade: Predictive effect [a]	Final model R^2
Accounting								
Enjoyment	60	.33*, .28*	.55***, -.09	.52***, -.11, .10			direct, ns	.27
Boredom	57	-.45**, .12	.57***, -.10	.54***, -.09, -.08			direct, ns	.27
Anxiety	59	-.63***, -.04	.56***, -.09	.38*, -.10, -.28ˆ	-2.11 .31	.04* .76	partial, ns	.31
Non-Acctg								
Enjoyment	173	.03, .65***	.32***, .09	.32***, .13, -.07			direct, ns	.13
Boredom	170	-.04, -.45***	.32***, .06	.32***, .06, -.01			direct, ns	.12
Anxiety	166	-.57***, -.08	.31***, .10	.21*, .08, -.18*	-2.17 -.82	.03* .41	partial, ns	.15

[a] Direct = control/value (C/V) predicts final grade with no mediation by emotions, complete = C/V prediction of final grade completely mediated by emotion, partial = C/V prediction of final grade partially mediated by emotion, indirect = C/V prediction of final grade mediated by emotion with no initial direct effect, na = C/V does not predict final grade.

Note. Standardized Beta (β) regression coefficients presented with exception of unstandardized coefficients in the Sobel test.

ˆ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed).

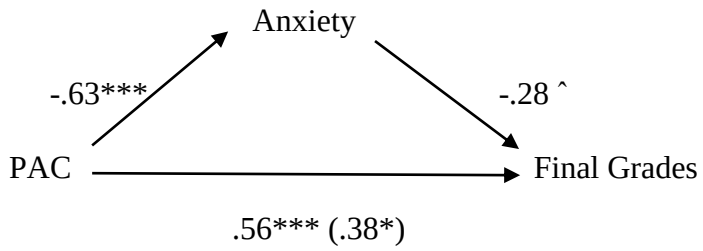


Figure 7. Mediated Relationship between Perceived Academic Control and Final Grades for Accounting Majors.
[a]Statistical significance is ˆ *p* < .10, * p < .05, *** p < .001

Figure 8 illustrates the findings for non-accounting majors (R^2 = .15). Both results imply that the relationship between control and final grades is partially explained by control reducing anxiety. In other words, the more in control a student feels, the less anxiety they will experience, and the better they will perform. The findings were confirmed by applying the Sobel Test.

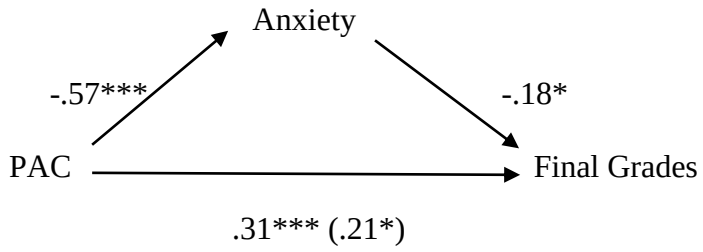


Figure 8. Mediated Relationship between Perceived Academic Control and Final Grades for Non-Accounting Majors.
[a]Statistical significance is * p < .05, *** p < .001

SDT mediational analysis. Mediational analysis was utilized to explore whether motivations acted as mediators of psychological needs in predicting the outcome of likelihood to major in accounting and academic performance (final grades). As shown in Table 18, findings suggest that for accounting majors amotivation completely mediated both competency and autonomy as predictors of likelihood to major in accounting (R^2 = .33).

Table 18. Tests of Mediational Relationships at Time 2: SDT, Motivation and Likelihood to Major in Accounting.

Motivation	n	Aut, Comp, Rel-P, Rel-I → mot	Aut, Comp, Rel-P, Rel-I → acct. like.	Aut, Comp, Rel-P, Rel-I, mot → acct. like.	Sobel Test: Test Stat. Aut, Comp, Rel-P, Rel-I	Sobel Test: *p*-value Aut, Comp, Rel-P, Rel-I	Aut, Comp, Rel-P, Rel-I, → acct. likelihood: Predictive effect [a]	Final model R^2
Accounting								
Intrinsic	60	.68***	.36*	.47*			direct	.31
		-.18	.32*	.29			ns	
		.02	.04	.04			ns	
		.06	-.25	-.24			ns	
				-.16				
External	60	.25	.36*	.36*			direct	.29
		-.13	.32*	.31*			direct	
		.12	.04	.04			ns	
		-.11	-.25	-.25			ns	
				-.03				
Amotivation	59	-.29*	.37*	.29	-1.42	.16	complete	.33
		-.43**	.31*	.20	-1.17	.24	complete	
		.01	.03	.03	.05	.96	ns	
		.06	-.24	-.22	-.43	.66	ns	
				-.25ˆ				
Non-Acctg								
Intrinsic	168	.42***	.43***	.30**	2.37	.02*	partial	.19
		.28***	-.00	-.09	-.93	.35	ns	
		.08	-.10	-.13	-.85	.40	ns	
		-.02	-.02	-.01	.11	.92	ns	
				.30***				
External	169	.18**	.44***	.42***			direct	.16
		-.07	.01	.01			ns	
		.27	-.11	-.14			ns	
		.08	-.02	-.03			ns	
				.11				
Amotivation	169	.01	.45***	.45***			direct	.16
		-.52***	-.00	-.03			ns	
		-.08	-.09	-.10			ns	
		-.04	-.02	-.03			ns	
				-.05				

[a] Direct = control/value (C/V) predicts accounting likelihood with no mediation by emotions, complete = C/V prediction of accounting likelihood completely mediated by emotion, partial = C/V prediction of accounting likelihood partially mediated by emotion, indirect = C/V prediction of accounting likelihood mediated by emotion with no initial direct effect, na = C/V does not predict accounting likelihood.

Note. Standardized Beta (β) regression coefficients presented with exception of unstandardized coefficients in the Sobel test.

ˆ p < .10, * *p* < .05, ** *p* < .01, *** *p* < .001 (two-tailed).

This indicates that if students do not experience competency or autonomy, this can lead to amotivation, and in turn to a decreased likelihood to major in accounting. In this model, amotivation was a significant predictor of likelihood to major in accounting at the $p = .086$ level, which meets the more liberal .10 significance standard. Although the Sobel Test did not reach the standard significance level, the pattern of the coefficients suggest there is a mediational relationship present in the findings. The lack of significance may be attributed to the small sample size (n = 59). Figure 9 depicts these results.

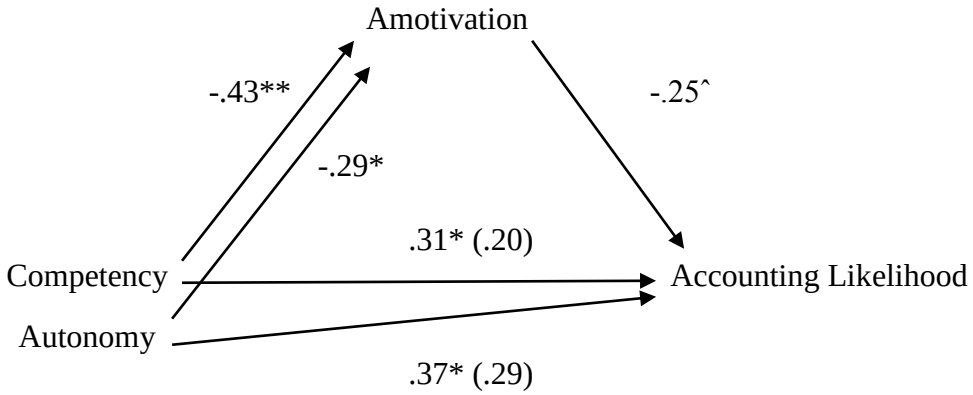


Figure 9. Mediated Relationship between Competency and Autonomy, and Likelihood to Major in Accounting for Accounting Majors.
[a]Statistical significance is ˆ $p < .10$, * $p < .05$, ** $p < .01$

For the non-accounting majors, intrinsic motivation partially mediated autonomy, and this finding was confirmed with the Sobel Test. This model suggests there is a strong direct effect between autonomy and the likelihood that students self-reporting as non-accounting majors, may change their mind and become accounting majors. Thus, non-accounting majors who feel self-governed, their actions in the class are of their own volition, are more likely to major in accounting. Intrinsic motivation partially mediated this, indicating the more autonomy students experience in class the more they feel

intrinsically motivated, and thus, the more likely they are to major in accounting. Figure 10 depicts this relationship.

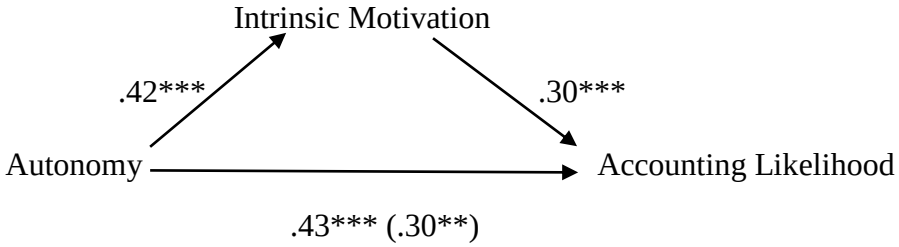


Figure 10. Mediated Relationship between Autonomy and Accounting Likelihood for Non-Accounting Majors.
[a]Statistical significance is ** p <.01, *** p < .001

Regarding the outcome of final grades for accounting majors, motivations did not appear to have any mediation effect. Instead, findings support earlier regression results indicating that competency has a direct effect on final grades. However, for non-accounting majors, as shown in Table 19 findings suggest that amotivation partially mediated the predictive effect of competency, which was confirmed with the Sobel Test. This finding suggests that non-accounting majors who feel more competent in their course, experience less amotivation, and achieve higher grade outcomes. Figure 11 depicts this relationship.

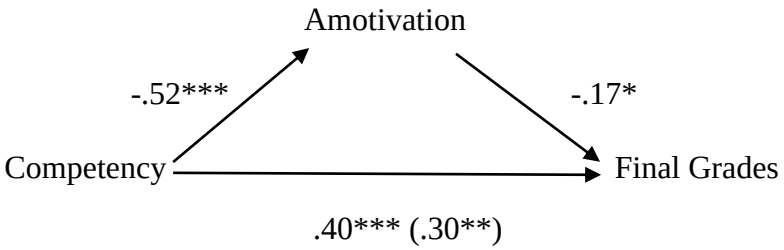


Figure 11. Mediated Relationship between Competency and Final Grades for Non-Accounting Majors.
[a]Statistical significance is ** p <.01, *** p <.001

Table 19. Tests of Mediational Relationships at Time 2: SDT, Motivation and Final Grades.

Motivation	n	Aut, Comp, Rel-P, Rel-I → mot	Aut, Comp, Rel-P, Rel-I →final grade	Aut, Comp, Rel-P, Rel-I mot → final grade	Sobel Test: Test Stat. Aut, Comp, Rel-P, Rel-I	Sobel Test: *p*-value Aut, Comp, Rel-P, Rel-I	Aut, Comp, Rel-P, Rel-I, → final grade: Predictive effect [a]	Final model R^2
Accounting								
Intrinsic	60	.68*** -.18 .02 .06	.21 .49*** -.13 .03	.30 .46** -.13 .04 -.14			ns direct ns ns	.38
External	60	.25 -.13 .12 -.11	.21 .49*** -.13 .03	.23 .48*** -.12 .02 -.09			ns direct ns ns	.38
Amotivation	59	-.29* -.43** .01 .06	.23 .48*** -.14 .05	.22 .46** -.14 .05 -.04			ns direct ns ns	.38
Non-Acctg								
Intrinsic	168	.42*** .28*** .08 -.02	-.03 .40*** .03 -.00	.02 .43*** .04 -.01 -.12			ns direct ns ns	.16
External	169	.18 -.07 .27** .08	-.03 .40*** .03 .00	-.03 .40*** .03 .00 -.00			ns direct ns ns	.15
Amotivation	169	.01 -.52*** -.08 -.04	-.03 .40*** .03 .00	-.02 .30** .02 -.01 -.17*	-.10 -2.81 -.16 .09	.92 .005** .87 .93	ns partial ns ns	.17

[a] Direct = psychological need (PN) predicts final grade with no mediation by motiation, complete = PN prediction of final grades completely mediated by motivation, partial = PN prediction of final grade partially mediated by motivation, indirect = PN prediction of final grade mediated by motivation with no initial direct effect, na = PN does not predict final grade.

Note. Standardized Beta (β) regression coefficients presented with exception of unstandardized coefficients in the Sobel test.

* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed).

Mediational Analysis Summary

In summary, six mediational relationships emerged within the CVT and SDT frameworks related to the outcomes of accounting likelihood and final grades. Within the CVT framework one mediational relationship was found for accounting majors, and two were found related to non-accounting majors:

1. Enjoyment partially mediated the relationship between value and accounting likelihood.
2. Anxiety partially mediated the relationship between PAC and final grades for both accounting and non-accounting majors.

Thus, non-accounting majors who valued the course, enjoyed it more, and thus, due to their increased enjoyment, were more likely to major in accounting. Also, non-accounting majors who experienced greater PAC, felt less anxiety, and received better final grades. Within the SDT framework, three mediational relationships emerged:

1. For accounting majors, amotivation completely mediated the relationships between both competency and autonomy with accounting likelihood. This finding was not supported by the Sobel Test (at $p < .10$), which may be due to the small sample size.
2. Intrinsic motivation partially mediated the relationship between autonomy and accounting likelihood for non-accounting majors.
3. Amotivation partially mediated the relationship between competency and final grades for non-accounting majors.

Thus, accounting majors who experienced less competency or autonomy, were likely to experience greater amotivation, which in turn led to a decreased likelihood to continue their major in accounting. For non-accounting majors, those who experienced greater autonomy, felt more intrinsically motivated, and therefore were more likely to major in accounting; and those who experienced greater competency, felt less amotivated, and thus earned higher final grades.

Question 4: How do business students' motivations and emotions change over the semester? Furthermore, how does the pattern (increasing or decreasing) of students' motivations and emotions relate to their likelihood to major in accounting and their academic performance?

The fourth research question was addressed through the use of descriptive statistics conducted at the variable level by determining the change in Time 1 and Time 2 average mean scores. To determine these mean differences, paired samples *t*-tests were utilized. Table 20 presents these results.

Table 20. Change Descriptive Statistics for Emotions, Control, Value, Psychological Needs, and Motivations.

Variable	Time 1 *M*(*SD*)	Time 2 *M*(*SD*)	*M* diff.	*t*
Enjoyment	4.70(0.97)	4.32(1.10)	-.38	-6.97***
Boredom	3.41(1.30)	3.96(1.40)	.56	7.74***
Anxiety	3.30(1.18)	3.29(1.20)	-.01	-0.19
PAC	6.05(0.64)	5.63(0.88)	-.42	-8.36***
Value	5.61(0.89)	5.17(1.08)	-.45	-8.18***
Autonomy	4.64(1.05	4.26(1.23)	-.39	-5.56***
Competence	5.48(0.89)	5.10(1.17)	-.37	-5.49***
Relate. Peers	4.40(1.10)	4.44(1.16)	.05	0.71
Relate. Instructor	4.97(1.02)	5.06(1.09)	.09	1.30
Intrinsic	4.84(1.12)	4.49(1.28)	-.35	-5.03***
External	5.76(0.99)	5.42(1.14)	-.35	-5.96***
Amotivation	1.94(0.97)	2.30(1.24)	.36	5.29***

Note. Degrees of freedom for *t*-tests were between 224 and 240.
* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed)

These results indicate that with the exception of anxiety, relatedness-peers, and relatedness-instructors, significant changes were noted in all variables. By the end of the

semester, participants felt less enjoyment and more bored in their class. Participants also perceived they had less academic control and valued their class less than they had at the beginning of the semester. Psychological need satisfaction also decreased over the semester as both autonomy and competency were reduced. Finally, participant motivations changed significantly over the semester. Both intrinsic and external motivations declined over the course of the semester, and amotivation increased. These findings include changes related to all participants. In order to further investigate these results, mixed ANOVA analysis was completed to better understand whether the changes in the variables over time were moderated by intended major: accounting or non-accounting.

Mixed ANOVA CVT Model

Moderation occurs when the effect of one independent variable (i.e. Time) on a dependent variable (i.e. Value) changes across the level of another independent variable (i.e. Accounting Major). To test for moderation, mixed factorial analysis of variance main and interaction effects were tested (Campbell & Stanley, 1963). Enjoyment, boredom, anxiety, PAC, and value were analyzed with separate 2 x 2 Mixed Factorial analyses of variance with intended major as the between-subjects factor (accounting vs. non-accounting) and Time as the repeated within-subjects factor (Time 1 vs. Time 2). Table 21 reports the findings for this analysis.

Table 21. CVT Framework 2 x 2 Participant Group (Acct vs Non-Acct) x Time (Time 1, Time 2) Mixed Factorial Analysis of Variance Main and Interaction Effects.

Dependent Variables and Effects Tested	*df*[a]	*M*s	*F*	*p*	η^2
Enjoyment					
Between-subjects					
Acct vs Non-acct	1	56.17	35.86	.000	.14
Error	229	1.57	-	-	-
Within-subjects					
Time	1	10.81	30.86	.000	.12
Time x Acct vs Non-acct	1	.48	1.38	.241	.01
Error	229	.35	-	-	-
Boredom					
Between-subjects					
Acct vs Non-acct	1	46.18	16.13	.000	.07
Error	230	2.86	-	-	-
Within-subjects					
Time	1	22.99	38.14	.000	.14
Time x Acct vs Non-acct	1	.81	1.34	.248	.01
Error	230	.60	-	-	-
Anxiety					
Between-subjects					
Acct vs Non-acct	1	35.19	15.92	.000	.07
Error	223	2.21	-	-	-
Within-subjects					
Time	1	.54	1.15	.284	.01
Time x Acct vs Non-acct	1	1.78	3.78	.053	.02
Error	223	.47	-	-	-
PAC					
Between-subjects					
Acct vs Non-acct	1	9.00	10.62	.001	.04
Error	229	.85	-	-	-
Within-subjects					
Time	1	13.48	45.45	.000	.17
Time x Acct vs Non-acct	1	.376	1.27	.261	.01
Error	229	.30	-	-	-
Value					
Between-subjects					
Acct vs Non-acct	1	106.85	92.33	.000	.28
Error	235	1.16	-	-	-
Within-subjects					
Time	1	11.31	33.17	.000	.12
Time x Acct vs Non-acct	1	3.39	9.95	.002	.04
Error	235	.34	-	-	-

Note. [a] Numerator *df* = 1 for all *F* tests.

Intended major had a main effect on value, indicating that while accounting majors continued to value their accounting course over the semester, non-accounting majors did not, and the decreased course value was significant for this group. This main effect was qualified by a significant Major x Time interaction. Follow-up *t*-tests were

completed to probe this interaction utilizing the Bonferroni (Warner, 2013) adjusted level of significance of .025, the results of which are reported in Table 22.

Table 22. Follow-up Tests for Moderation – Paired Samples *t*-Tests.

Variable	Time 1 *M*(*SD*)	Time 2 *M*(*SD*)	*M* diff.	*t*	*df*[a]	*p*
Accounting						
Value	6.27(0.53)	6.11(0.70)	-0.16	-1.94	60	.057
Autonomy	5.23(0.93)	5.22(0.98)	-0.02	-0.14	62	.891
Competency	5.80(0.90)	5.78(0.99)	-0.03	-0.28	61	.780
Amotivation	1.60(0.75)	1.70(0.83)	0.11	1.58	59	.120
Non-accounting						
Value	5.38(0.87)	4.84(1.00)	-0.55	-8.25	175	.000
Autonomy	4.43(1.00)	3.91(1.12)	-0.52	-6.33	170	.000
Competency	5.36(0.87)	4.87(1.14)	-0.50	-5.92	174	.000
Amotivation	2.06(1.01)	2.51(1.29)	0.45	5.10	175	.000

Note. [a] Numerator *df* = 1 for all *F* tests.

These follow-up *t*-tests demonstrated that value decreased significantly in non-accounting majors, and decreased in accounting majors, though not significantly. This final *t*-test confirmed that non-accounting majors had significantly greater decrease in the value of their accounting course relative to accounting majors. Figure 12 illustrates this comparison.

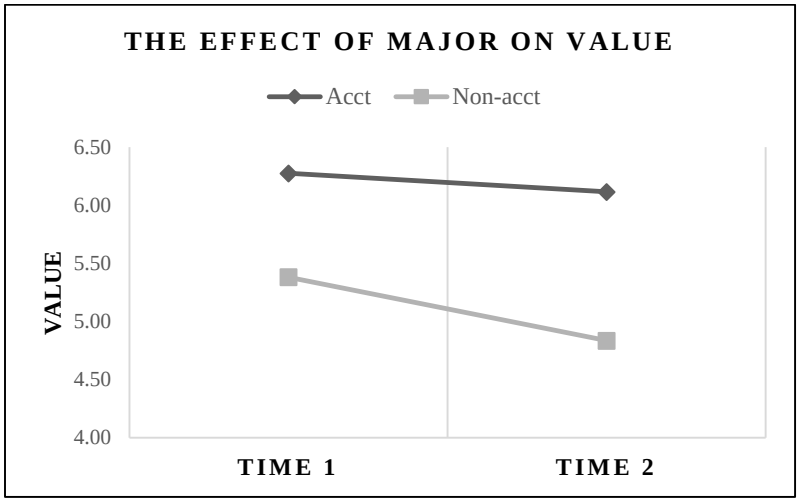


Figure 12. Intended Major (Accounting vs. Non-Accounting) x Time Interaction Effect on Value.

Mixed ANOVA SDT Model

To test for moderation, mixed factorial analysis of variance main and interaction effects was also completed on the SDT framework. Autonomy, competency, relatedness-peers, relatedness-instructors, intrinsic motivation, external motivation, and amotivation were analyzed with separate 2 x 2 Mixed Factorial analyses of variance with intended major as the between-subjects factor (accounting vs. non-accounting) and Time as the repeated within-subjects factor (Time 1 vs. Time 2). Table 23 reports the findings for this analysis. Intended major had a main effect on three variables: autonomy, competency, and amotivation.

Autonomy. Intended major had a main effect on autonomy, indicating that while accounting majors continued to experience autonomy over the semester, non-accounting majors did not, and the decreased autonomy experienced by non-accounting majors was significant. This main effect was qualified by a significant Major x Time interaction. Follow-up *t*-tests were completed to probe this interaction utilizing a Bonferroni adjusted significance level, the results of which are reported in Table 22. These follow-up *t*-tests demonstrated that autonomy decreased significantly in non-accounting majors, and remained unchanged in accounting majors, confirming the initial findings. Since the accounting courses are compulsory, it is understandable that non-accounting majors having to take an accounting course experienced less autonomy. Interestingly, accounting majors experienced autonomy throughout the semester, indicating that these students continued to feel their course experiences were of their own volition.

Table 23. SDT Framework 2 x 2 Participant Group (Acct vs Non-Acct) x Time (Time 1, Time 2) Mixed Factorial Analysis of Variance Main and Interaction Effects.

Dependent Variables and Effects Tested	*df*[a]	*M*s	*F*	*p*	η^2
Autonomy					
Between-subjects					
Acct vs Non-acct	1	101.03	62.68	.000	.21
Error	230	1.61	-	-	-
Within-subjects					
Time	1	6.57	12.21	.001	.05
Time x Acct vs Non-acct	1	5.80	10.79	.001	.05
Error	230	.54	-	-	-
Competency					
Between-subjects					
Acct vs Non-acct	1	41.24	28.45	.000	.11
Error	233	1.45	-	-	-
Within-subjects					
Time	1	6.19	11.71	.001	.05
Time x Acct vs Non-acct	1	5.00	9.40	.002	.04
Error	233	.53	-	-	-
Relatedness-Peers					
Between-subjects					
Acct vs Non-acct	1	7.97	4.01	.046	.02
Error	235	1.99	-	-	-
Within-subjects					
Time	1	.38	.69	.409	.00
Time x Acct vs Non-acct	1	.11	.19	.662	.00
Error	235	.55	-	-	-
Relatedness-Instructors					
Between-subjects					
Acct vs Non-acct	1	3.76	2.30	.131	.01
Error	233	1.64	-	-	-
Within-subjects					
Time	1	.62	1.07	.301	.01
Time x Acct vs Non-acct	1	.03	.05	.831	.00
Error	233	.57	-	-	-
Intrinsic Motivation					
Between-subjects					
Acct vs Non-acct	1	109.88	58.77	.000	.20
Error	237	1.87	-	-	-
Within-subjects					
Time	1	8.10	13.85	.000	.06
Time x Acct vs Non-acct	1	1.23	2.10	.149	.01
Error	237	.59	-	-	-
External Motivation					
Between-subjects					
Acct vs Non-acct	1	47.16	27.96	.000	.11
Error	237	1.69	-	-	-
Within-subjects					
Time	1	7.81	19.30	.000	.08
Time x Acct vs Non-acct	1	1.16	2.86	.092	.01
Error	237	.41	-	-	-
Amotivation					
Between-subjects					
Acct vs Non-acct	1	35.66	20.05	.000	.08
Error	234	1.78	-	-	-
Within-subjects					
Time	1	6.95	12.76	.000	.05
Time x Acct vs Non-acct	1	2.59	4.77	.030	.02
Error	234	.55	-	-	-

Note. [a] Numerator *df* = 1 for all *F* tests.

Competency. Intended major had a main effect on competency, indicating that while accounting majors continued to experience competency throughout the semester, non-accounting majors experienced a significant decrease in competency. This main effect was qualified by a significant Major x Time interaction. Follow-up *t*-tests were completed to probe this interaction, the results of which are reported in Table 22. These follow-up *t*-tests demonstrated that competency decreased significantly in non-accounting majors, and remained unchanged in accounting majors, confirming the initial findings. These findings are illustrated in Figure 13.

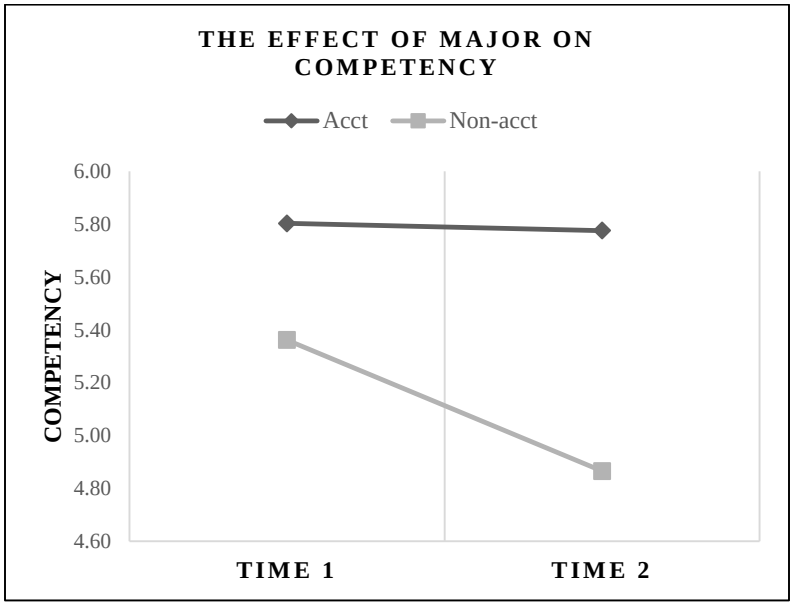


Figure 13. Intended Major (Accounting vs. Non-Accounting) x Time Interaction Effect on Competency.

Amotivation. Intended major had a main effect on amotivation, indicating that non-accounting majors experienced a significant increase in amotivation throughout the semester, while the accounting majors' increase in amotivation was not significant. This main effect was qualified by a significant Major x Time interaction. Follow-up *t*-tests

were completed to probe this interaction, the results of which are reported in Table 22. These follow-up *t*-tests demonstrated that amotivation increased significantly in non-accounting majors, and increased slightly in accounting majors, confirming the initial findings. These findings are illustrated in Figure 14.

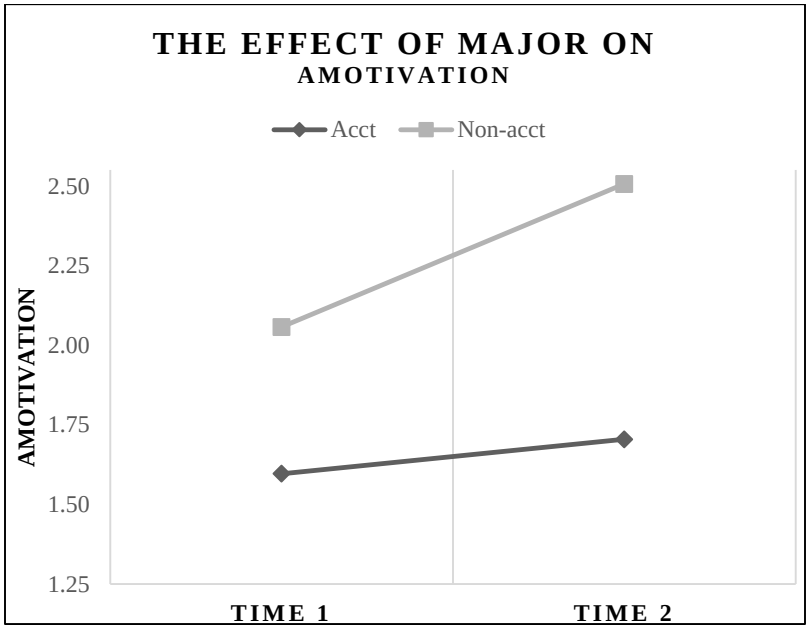


Figure 14. Intended Major (Accounting vs. Non-Accounting) x Time Interaction Effect on Amotivation.

In summary, moderation was established through mixed ANOVA analyses, and interaction effects were confirmed through follow-up *t*-test, for four study variables: value, autonomy, competency, and amotivation. Over the semester long course that both accounting and non-accounting intended majors participated in, significant differences between the two groups were established. Non-accounting majors felt the course was less valuable to them, their experiences in the course was not of their own volition (autonomy), they experienced a decrease in their competency over the course duration, and there was an increase in their amotivation. It should be noted, that due to the limited

number of participants, as well as the uneven group sizes, the power of the analyses completed and reported in this chapter may be low.

Summary

This chapter reported the results for each of the four research questions posited in this study. Analysis involved a number of statistical tests designed to explore and identify predictive relationships between the study variables and the outcomes of accounting major selection (likelihood to major in accounting) and academic achievement (final grades). The results indicated there are significant group differences. Support for CVT emerged for non-accounting majors as enjoyment partially mediated the effect of value on accounting likelihood, and anxiety partially mediated the effect of PAC on final grades. Support for SDT emerged for both groups. First for accounting majors, amotivation completely mediated the effect of competency and autonomy on likelihood to major in accounting. Second, amotivation partially mediated the effect of competency on final grades for non-accounting majors.

The results further suggested that group affiliation supported moderation findings. Compared to accounting majors, the non-accounting majors showed differences in value (decreased), autonomy (decreased), competency (decreased), and amotivation (increased) over the semester. These moderation findings were substantiated with follow-up analysis that confirmed the interaction effects. The next chapter expands on these findings by identifying additional interpretations, recommendations, and connections to the literature.

CHAPTER V

DISCUSSION

The purpose of this study was to investigate the relationships between business students' motivations and achievement emotions, and to test how these constructs uniquely and concurrently predict the selection of the accounting major and academic achievement in the accounting course. There is an established need from the accounting profession for accounting programs to attract and retain students to the accounting major. There has been limited empirical research grounded in theory within the accounting domain investigating this issue. In addition, currently no comprehensive framework has been applied to investigate student motivation, emotion, and cognition among accounting students. The current study sought to address both issues by utilizing two complimentary theoretical frameworks to ground this investigation. Pekrun's (2006) control-value theory of achievement emotions (CVT) and Ryan and Deci's (2000) self-determination theory (SDT) were selected due to their complimentary nature, and because they have not been utilized together in past research within the accounting domain (if at all). This study explicitly addresses the identification of predictive relationships between CVT and SDT variables and accounting major selection and academic achievement.

This chapter begins by providing a summary of the previous four chapters, which is followed by a discussion of each research question that was addressed in the current study. Interpretations of results, recommendations, and connections to prior research

were provided within each discussion topic. The conclusion to this dissertation is comprised of a discussion of the implications for accounting programs, identified study limitations, and proposed future research directions.

Dissertation Summary

Chapter I of this dissertation introduced the need to examine potential predictive relationships between students' motivations and emotions and with the selection of the accounting major and academic achievement in their accounting courses. It was asserted that while past research has identified potential, and sometimes inconsistent, influencing factors in the decision to major in accounting or not, seldom has this research been grounded in theory, and it did not provide any predictive knowledge generalizable to broader populations. It was also asserted that the two theoretical frameworks of CVT (achievement emotions) and SDT (motivation) were complimentary in nature, could be utilized to develop this knowledge, had never been used in the accounting domain, and seldom (if ever) outside of it.

A synthesis of relevant literature was presented in Chapter II. First, accounting education literature was reviewed and examined to establish (1) a need exists to attract and retain students to the accounting major and profession, (2) a lack of research into the study of business students' motivations and emotions experienced in the academic environment, and (3) the absence of research investigating predictive relationships between these constructs and accounting major selection and academic achievement. Second, motivation and emotion literature was reviewed and established the significance these constructs have on student learning, achievement, and well-being. This synthesis also acknowledged the current lack of a single, comprehensive framework from which to

study motivation, emotion, and cognition. Third, the CVT and SDT frameworks were explained and established as valid, complimentary foundations, which were uniquely utilized for the current study.

Chapter III described the methodology that was used for this study. Specifically, this study was used to investigate the relationships between business students' motivations and achievement emotions, and tested the predictability of these constructs with students' accounting major likelihood and accounting course achievement. This was a quantitative, longitudinal study design, which occurred in the compulsory Elements of Accounting I and II courses, with two data collection points over the course of the Spring, 2015, semester. These courses were selected because they are the introductory accounting courses from which potential accounting majors may be recruited. The survey instrument used in this study was composed of relevant, previously validated scales, which were adapted, as necessary. Completed analyses established the sample was representative, and the data was valid and reliable.

The results from the current study were discussed in Chapter IV. Data analysis comprised a series of statistical tests focused on group differences based on accounting or non-accounting major, including regression, mediation, changes between time periods, moderation, and interaction effects. In general, students identifying themselves as accounting majors showed more favorable results than their non-accounting major peers. Accounting majors experienced greater enjoyment, perceived academic control (PAC), value toward the course, autonomy, competency, intrinsic motivation and external motivation as compared to non-accounting majors.

Additionally, results suggest that the CVT and SDT frameworks are connected through both value and emotions, supporting the preliminary assertion that these frameworks are complimentary and strong foundations for studying this population. Also, results suggest that both frameworks identified predictive relationships with both likelihood to major in accounting and academic achievement. Based on group affiliation, results from this study indicated emotions mediated antecedent effects on both likelihood to major in accounting and final grades, and motivations mediated psychological needs effects on both outcome variables as well. Results also suggest that group affiliation moderated value, autonomy, competency and amotivation, which was confirmed with follow-up analyses. The findings from the current study enhance our understanding of business students' experiences in these compulsory accounting courses.

In this final chapter, unique and significant findings are presented within the context of each research question. In addition to these findings, interpretations, recommendations, and connections with prior research are also discussed. The chapter concludes by identifying significant implications, limitations, and suggestions for future research.

Research Questions

Question 1: What are the motivations and achievement emotions of business students in the introductory accounting courses?

Analysis of the entire sample for this study revealed some general observations. Regarding achievement emotions, approximately half of the participants experienced enjoyment during their course throughout the semester. Enjoyment has been identified as a positive activating emotion that can improve student interest, and strengthen both intrinsic and external motivation (Pekrun, 2006). However, by the end of the semester

just over 40% of the participants had experienced boredom during the course, which was the largest observed change. Not only has boredom been identified as a barrier to accounting major selection (Malthus & Fowler, 2009), but it has also been identified as a negative deactivating emotion that is harmful to both intrinsic and external motivation (Pekrun, 2006).

Observations related to the broader CVT framework revealed that a majority of participants experienced both emotion antecedents: perceived academic control and value. These observations suggest that a majority of students believed that through their effort and skills, they had control over their academic performance (Perry, 2003). Based on responses to the value survey questions, over 90% of participants valued the course because it was important they do well in it (attainment), and 71% valued the course for its usefulness to their future (utility).

With regard to motivations, almost 80% of the students were externally motivated. For the current study, external motivation was assessed with survey questions targeted to address course motivations: necessary to complete their degree, assist in attaining more prestigious job, to achieve "the good life", and to receive a better salary. This observation is consistent with the nature of the Elements of Accounting I and II courses, as they are required to be taken by almost all students in the business college. Observations related to the broader SDT framework revealed that competency was self-reported by almost three-quarters of the participants, indicating that through the course of the semester, these participants felt they were able to effectively interact in the classroom (White, 1959), and to extend their capabilities in the context of their course (Levesque et al., 2004).

While these observations reveal the general motivations and emotions that were experienced by the participants, group difference analysis based on major affiliation (accounting versus non-accounting), yielded interesting findings. In particular, throughout the semester accounting majors experienced greater levels of *both* intrinsic and external motivation. In addition, these majors experienced greater levels of enjoyment, value, and autonomy. Although it seems contradictory that accounting majors could experience greater levels of both motivations, it has been noted in prior research that enjoyment fosters both motivation types (Pekrun, 2006), as does value (Eccles & Wigfield, 2002). Ryan and Deci (2000) asserted that extrinsic motivation–external regulation (for this study referred to as external motivation) was the least autonomous type of motivation and not likely to be integrated into an individual's value system, thus would not lead to intrinsic motivation. However, the results from the current study imply that accounting majors may have internalized the external motivations, perhaps due to the internalization of their subjective values. These results support the connectivity between the two frameworks.

Question 2: How do business students' motivations and emotions relate to each other?

The bivariate correlations observed in this study provided support for both the CVT and SDT frameworks within the accounting education domain. Within the CVT framework, across both time intervals, most of the expected correlations between emotions and antecedents were present. Some interesting results emerged at Time 2. First, for accounting majors, boredom was negatively correlated with PAC, and no correlation emerged between boredom and value; but for non-accounting majors, boredom was negatively correlated with value, and no correlation emerged between

boredom and PAC. This indicates that for the accounting majors, as long as they value what they are doing, boredom is not an interfering factor, but as their perception of control diminishes, boredom increases. However, for non-accounting majors, decreased value is correlated with increased boredom, but their perception of control was not influenced by boredom. Additionally, for the non-accounting majors boredom was negatively correlated with likelihood to major in accounting. However, boredom was not correlated with final grades for either group. These findings contradict previous research indicating boredom tends to predict academic performance (Pekrun et al., 2009; Ruthig et al., 2008).

Second, for both groups anxiety was negatively correlated, and PAC was positively correlated with final grades. Later results expand on this finding and will be discussed in more detail. Also, value was positively correlated with likelihood to major in accounting. Third, enjoyment was positively correlated with likelihood to major in accounting exclusively for the non-accounting majors.

Regarding the SDT framework, the strongest support emerged for non-accounting majors. Across both time intervals, the psychological needs of autonomy, competency, relatedness-peers, and relatedness-instructors retained significant positive correlations with intrinsic motivation, and significant negative correlations with amotivation. It was also found that both likelihood to major in accounting and academic achievement (final grades) were positively correlated with autonomy and competency, and negatively correlated with amotivation.

Additional support was found for the correlation of motivations and emotions with both accounting and non-accounting majors. Enjoyment was positively correlated

with intrinsic motivation and negatively correlated with amotivation; boredom and anxiety were positively correlated with amotivation; PAC was positively correlated with intrinsic motivation and negatively correlated with amotivation; and value was positively correlated with intrinsic motivation and negatively correlated with amotivation. These findings provide additional support that the two frameworks fit well together.

Question 3: How do business students' motivations and emotions influence their accounting major selection and academic performance?

The multiple regression analyses completed in this study provided support for both the CVT and SDT frameworks. Limited support emerged for the CVT framework being effective at predicting the likelihood to major in accounting. It is likely this limited support was due to multicollinearity occurring between the variables (antecedents and emotions), however, prior research has argued for the conceptual independence of these variables. Results indicated that for accounting majors the value variable emerged as the strongest predictor of accounting major selection. For the non-accounting majors, value and enjoyment emerged as predictor variables for accounting major selection, providing better support for CVT. Notably, the CVT framework was effective at predicting final grades for both accounting and non-accounting majors. Under the more liberal significance level of .10, PAC and anxiety emerged as predictor variables of the final grade outcome for both groups. These findings suggested that anxiety could be mediating the effect of PAC, which was explored in further analyses.

The SDT framework was effective for both accounting and non-accounting majors with regard to predicting likelihood to major in accounting. For both groups, autonomy was a significant variable, along with amotivation (significant for accounting majors), and intrinsic motivation (significant for non-accounting majors). Regarding the

outcome of final grades, the SDT framework was most effective for the non-accounting majors, specifically that competency and amotivation were significant predictors of this outcome.

Mediational analysis was conducted to further explore the relationships between emotions and emotion antecedents, and the relationships between motivation and psychological needs. Three important results emerged from this study. First, the CVT framework indicated a partial mediational relationship between value, enjoyment, and likelihood to major in accounting among non-accounting majors ($R^2 = .26$). For these majors, the more they valued the accounting class, the greater the level of enjoyment they experienced in the class, thus resulting in a greater likelihood to major in accounting. This is significant as it indicates that if instructors are able to identify students who highly value the class, and they are experiencing enjoyment in the coursework, that these students could be successfully recruited to the accounting major.

Supplementing this result, the SDT framework indicated a partial mediational relationship between autonomy, intrinsic motivation, and likelihood to major in accounting among non-accounting majors ($R^2 = .19$). Thus students with greater autonomy, experience greater intrinsic motivation, and thus, are more likely to major in accounting. This finding supplements the previous result in that perceptions of value, and feelings of enjoyment, foster intrinsic motivation, and enhance personal well-being, thus satisfying the need for autonomy. Therefore, these non-accounting majors are more willing to consider and are more likely to switch to the accounting major. These findings support Pekrun's (2006) assertions about emotions mediating values, Eccles and

Wigfield's (2002) assertions that values satisfy personal needs, and Ryan and Deci's (2000) assertion that intrinsic motivation fosters psychological need satisfaction.

Second, for accounting majors the SDT framework also indicated a complete mediational relationship between both autonomy and competency, amotivation, and the likelihood to major in accounting ($R^2 = .33$). This result suggests that as autonomy and competency needs are satisfied in the class, students experience decreased amotivation, and are thus more likely to retain their choice of the accounting major. Thus, Deci and Ryan's (2008a) assertion that when individuals' needs for autonomy and competency are met, they are unlikely to be amotivated.

Third, the CVT framework indicated a strong partial mediational relationship between PAC and anxiety on accounting majors' final grades ($R^2 = .31$). For these majors, the greater their PAC, the less anxiety they experienced in the class, thus resulting in better final grades. A similar mediation resulted with non-accounting majors, but with weaker explanatory ability ($R^2 = .15$). Therefore, these results support Pekrun's (2006) assertion that PAC negatively predicts negative emotions, and provides evidence of a mediating relationship.

Overall, these results provide additional evidence that the CVT and SDT frameworks are complementary. Also, the results corroborated the findings of previous studies' assertions that emotions act as mediators on emotion antecedents. Finally, the results provide additional support that motivations also act as mediators on psychological needs.

Question 4: How do business students' motivations and emotions change over the semester? Furthermore, how does the pattern (increasing or decreasing) of students' motivations and emotions relate to their likelihood to major in accounting and their academic performance?

Change score analysis revealed that in general, across all students who participated in both the Time 1 and Time 2 surveys (241), student responses worsened over the course of the semester. The results related to the CVT framework indicate an overall decrease in enjoyment, PAC, and value in their class. Anxiety was the single variable that remained unchanged. The results related to the SDT framework indicate an overall decrease in autonomy, competence, intrinsic and external motivation, along with an increase in amotivation. While not significant, the relatedness- peer and relatedness-instructor variables both showed increases.

These results are disheartening due to the negative implications. They indicate that overall, students' motivations, psychological need satisfaction, emotions and their antecedents deteriorated over the semester. Motivations (Ryan & Deci, 2000) and emotions (Meyer & Turner, 2006) are critically important to general well-being and academic performance. Furthermore, PAC (Perry et al., 2001; Stupnisky et al., 2008; Stupnisky et al., 2012) and value (Eccles, 2005; Robbins et al., 2004, Wigfield & Eccles, 2000) have been identified as variables that influence academic performance. Further, due to these negative responses it is implied that recruiting students to the accounting program may be more difficult than previously thought.

Mixed ANOVA moderation tests coupled with follow-up *t*-tests to probe for interaction effects, revealed some interesting findings. Of particular interest for the CVT framework are the results related to value. The results indicate that intended major had a main effect on value, and follow-up tests indicated that value decreased significantly with the non-accounting majors. This implies that students who have selected majors other than accounting perceive the course has less value at the end of the semester than at the

beginning. The non-accounting majors are important for recruiting purposes, as they are typically the larger pool of students.

As earlier results indicated, when these students perceived the course had high value, they felt more enjoyment, and were more likely to major in accounting. This suggests that perhaps students are internalizing the course as having intrinsic value (Eccles, 2005) *or* utility value (Eccles & Wigfield, 2002). As utility value is perceived as an external motivator, this could suggest that if it is internalized and held as a core value by the student, it may foster intrinsic motivation. These results associated with value support previous accounting research that identified external factors including both employment opportunities and earnings potential (Felton et al., 1994; Heiat et al., 2007; Hermanson et al., 1995; Mauldin et al., 2002; Paolillo & Estes, 1982; Tan & Laswad, 2006, 2009), as influencers on students' decision to major in accounting.

For the SDT framework, a consistent and clear interaction effect emerged for autonomy and competency, where the non-accounting majors declined significantly while accounting majors did not. Ryan and Deci (2000) asserted that autonomy and competency are psychological need components essential to self-motivation. Thus, as results indicated non-accounting majors experienced a significant increase in amotivation over the semester long course, this is consistent with Ryan and Deci's assertion. These findings again support value as a link between the CVT and SDT frameworks. Deci and Ryan (2008a) further asserted that amotivated individuals lack a perception of value in the outcome for which they are engaged. Thus, non-accounting majors who do not value their final grade outcome, experience greater amotivation.

Implications

The findings noted throughout this chapter have implications for both CVT and SDT theorists, providing support for their continued use for motivation and emotion research, particularly within the accounting domain. The CVT framework was most effective with predicting academic performance (final grades) with both accounting and non-accounting majors. Support for anxiety as a mediating emotion on PAC also emerged, which adds to the current body of emotion literature. Surprisingly, although boredom was experienced by students, it did not emerge as a significant influencing variable on either likelihood to major in accounting or final grades.

Perhaps most important, was the recurring emergence of the significance of value within this population. Value was the single variable that showed the greatest influence on likelihood to major in accounting, it was mediated by enjoyment (non-accounting majors), and also provided a connection with variables in the SDT framework. These findings support Eccles' (2005) value assertions, and creates a new perspective for understanding business majors. The results from this study indicate that value is important to these majors, and is perhaps internalized regardless of whether it is attainment, intrinsic, utility, or cost values.

Particularly interesting for the SDT framework, were the results supporting the importance of psychological need satisfaction. Both autonomy and competency emerged as variables important to predicting the likelihood to major in accounting and final grades, respectively. Additionally, results unique to this study emerged suggesting that intrinsic motivation and amotivation are mediating variables. These findings support Ryan and Deci's (2000) assertion of the multidimensionality of motivation and its

reflection of basic need satisfaction. Furthermore, interaction effects suggest that non-accounting majors' psychological needs were significantly less supported during the semester and thus, they experienced greater amotivation.

Combined, these results have implications for accounting educators. The results from this study suggest that both CVT and SDT are tenable frameworks from which to further investigate student experiences and their implications on major selection and academic performance. To begin, identifying what business students' values are with regard to the accounting course could provide insight into educators' abilities to reinforce and influence the perception of course value. To this end, linking the coursework with real world application and relevance, could foster the value students perceive the material and the course have on their future. It also seems relevant, especially for the non-accounting majors, to create classroom experiences that allow students to enjoy the work they are doing, which encourages faculty to be creative in their pedagogy.

In addition, educators should look for ways to provide autonomy, competency, and relatedness supportive environments. Allowing students some flexibility in assignment selection, input into course structure, or other creative avenues that allow students' to feel what they are doing is authentic and of their own volition, could foster autonomy. Providing regular opportunities for skill development, feedback and review of materials, avoiding pure lecture, combined with limited assistance and guidance to improve skills, may foster competency. Allowing students to work together, and as the instructor, taking the time to get to know the students in the class, may foster relatedness with both peers and the instructor. Developing environments that enhance psychological

need satisfaction, could yield positive outcomes for both accounting program recruitment and academic achievement.

Finally, identifying the ways in which students are motivated could provide insight into educators' abilities to enhance students' motivations through their classroom pedagogy. It is important that educators be aware of the pitfalls of amotivation. When accounting majors become amotivated, they will disengage and the results are detrimental to both their major selection as well as their academic performance. However, when students experience autonomy and competency, they are less likely to even become amotivated, and faculty are unlikely to see the negative side effects of amotivation. It is hoped that the current study serves as a trigger for further application of the CVT and SDT frameworks within the accounting domain.

Limitations and Future Research

The contributions of the current study must be interpreted with awareness of the study's limitations. Chapter 1 identified the main limitations including: participant demographics, a self-reporting survey instrument, and a longitudinal design limited to a single semester. As analyses were completed, however, an additional limitation was identified involving the diverse group of course instructors. It was noted in Chapter 3 that some of the course instructors provided incentives for participation including participation points varying from 2 points to 15 points, while others provided nothing. While these incentives were in compliance with Institutional Review Board study approval, they may have influenced student participation differentially between the course instructors.

Additionally, this study was limited due to the unknown characteristics of each course instructor and how these characteristics may enhance or impede the learning environment. This study did not address classroom pedagogy or instructor qualities which may have influenced students' experiences. Future research could incorporate identification of instructor attributes and teaching methods which foster supportive environments and student motivation, in an effort to identify best practices in relation to accounting program recruitment and academic performance. Also, specific classroom interventions designed to foster motivation could be explored along with their efficacy on accounting program recruitment and academic performance.

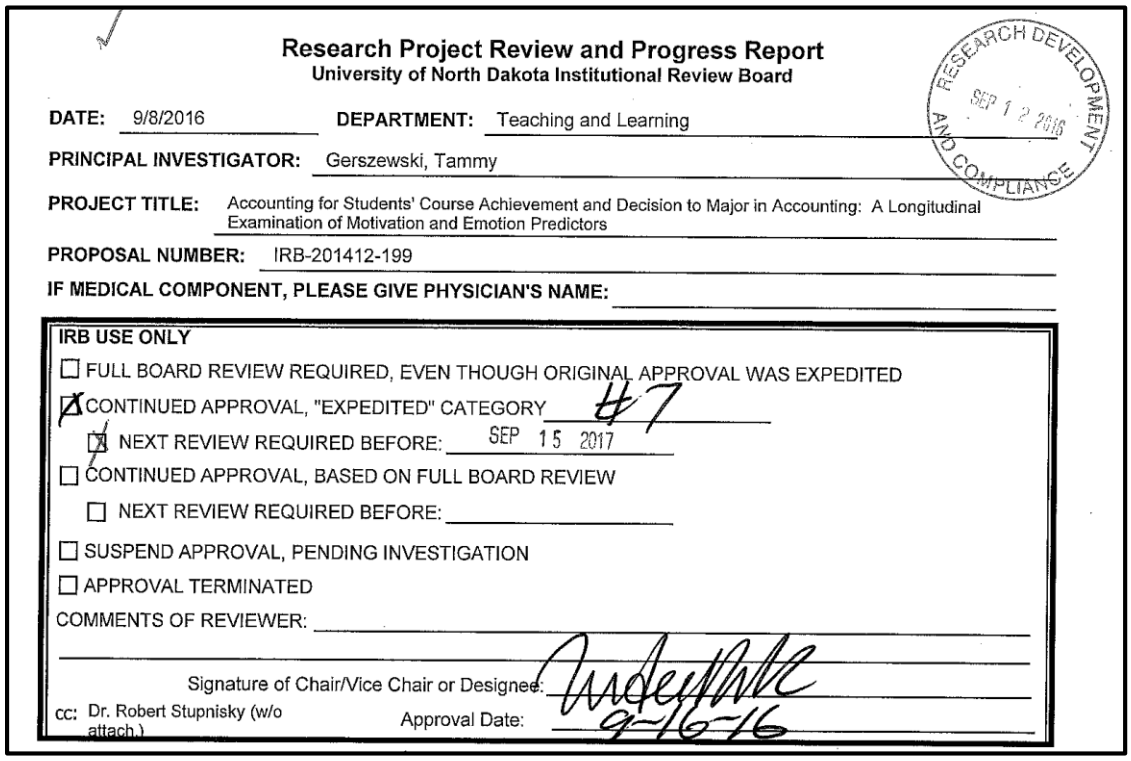
The findings reported in this quantitative, longitudinal study provided valuable insight into the applicability of CVT and SDT within the accounting domain. Further investigation of major selection and academic achievement grounded in these frameworks and investigated in other academic settings would expand our understanding of business students. Based on the current study results, developing a deeper understanding of how value may be uniquely important to business majors may also yield new insights into how value is internalized within this population. Furthermore, exploring how value influences psychological need satisfaction and motivation could yield additional insight into the development of a comprehensive framework from which to study motivation, emotion and cognition.

APPENDICES

Appendix A
Institutional Review Board Approval

Table 24. Summary of IRB Submissions.

IRB Submission	Date of Approval	Purpose / Outcome
Initial IRB Submission (Longitudinal Study)	12/31/14	Initiate Study
Annual Project Review and Progress Report (1st)	10/21/15	Continued approval granted
Annual Project Review and Progress Report (2nd)	09/08/16	Continued approval granted



Research Project Review and Progress Report
University of North Dakota Institutional Review Board

RESEARCH DEVELOPMENT AND COMPLIANCE SEP 12 2016

DATE: 9/8/2016 **DEPARTMENT:** Teaching and Learning

PRINCIPAL INVESTIGATOR: Gerszewski, Tammy

PROJECT TITLE: Accounting for Students' Course Achievement and Decision to Major in Accounting: A Longitudinal Examination of Motivation and Emotion Predictors

PROPOSAL NUMBER: IRB-201412-199

IF MEDICAL COMPONENT, PLEASE GIVE PHYSICIAN'S NAME:

IRB USE ONLY

☐ FULL BOARD REVIEW REQUIRED, EVEN THOUGH ORIGINAL APPROVAL WAS EXPEDITED

☑ CONTINUED APPROVAL, "EXPEDITED" CATEGORY #7

☑ NEXT REVIEW REQUIRED BEFORE: SEP 15 2017

☐ CONTINUED APPROVAL, BASED ON FULL BOARD REVIEW

☐ NEXT REVIEW REQUIRED BEFORE:

☐ SUSPEND APPROVAL, PENDING INVESTIGATION

☐ APPROVAL TERMINATED

COMMENTS OF REVIEWER:

Signature of Chair/Vice Chair or Designee:

cc: Dr. Robert Stupnisky (w/o attach.) Approval Date: 9-16-16

Figure 15. Documentation of IRB Approval.

Appendix B
Survey Codebook

The proposed methodology for this study involves adopting a longitudinal survey design with two data collection points within one University setting, sampling students within the College of Business in the compulsory Elements of Accounting I and II courses. The two intervals of data collection include time points during the Spring, 2015 semester. The first interval occurring 2 weeks into the course, and the second interval occurring in the 14th week of the course. Participants who fail to complete both surveys will not automatically be excluded from the analysis.

DEFINITIONS

Motivation: Variable definitions are derived from Ryan and Deci's (2000) self-determination theory of motivation.

Basic Need	**Definition**
Autonomy	the quality of being self-governing
Competence	individuals' perceptions that they have the capacity to complete required tasks
Relatedness	feeling connected with others

Types of Motivation	**Occurs…**
Amotivation	…when an individual either chooses not to perform a behavior or does so without intent
External regulation	…when an individual performs a behavior to attain a separable outcome
Introjected regulation	…when behaviors are performed to avoid internally-imposed feelings of guilt or anxiety
Identified regulation	…when behaviors are performed because the action is deemed congruent with the individual's goals
Integrated regulation	…when behaviors are performed because the actions involved in the activity have been fully assimilated to the individual's values and needs
Intrinsic Motivation	…when an individual performs a behavior for the inherent satisfaction it provides

Emotions: Variable definitions are derived from Pekrun's (2006) control-value theory of emotions.

The items in this questionnaire ask about students' experiences and emotions regarding the accounting class they are taking (domain specific state emotions).

Appraisal Antecedents	**Definition**
Control	perceived causal influence over achievement
Value	perceived importance of achievement and/or the class

Emotion	**Occurs …**
Positive Activating	
Enjoyment	….with excitement at challenging tasks and more relaxed states when performing pleasant routine activities
Negative Activating	
Anxiety	…when one is focused on anticipated failure
Negative Deactivating	
Boredom	…when an activity holds no sufficient challenge or there is little incentive value in performing the activity

VARIABLE NAMING

The majority of variables in the data upon which this codebook is based were named according to several conventions, assuming data collection occurs in the Spring 2015 semester:

1. Scale names are abbreviations for the construct they refer to:
   For example:
   Autonomy items and scales begin with the prefix "**autonS____**", and followed by S or T representing the subscales for satisfaction or thwarting.

2. Interval of measurement is indicated after the abbreviation by the single digit interval (i.e., 1 or 2).

   For example:
   Autonomy **s**atisfaction scale measured in the 2015 Spring Semester Interval **1** is designated: **autonS1_**

   Note. In codebook this was designated as **YR**, actual numbers in dataset.

3. For individual items, the first numeral following the underscore refers to the item number within the scale:

   For example:
   AutonS1_4 refers to the **Auton**omy **s**atisfaction scale, measured in the 2015 Spring Semester Interval **1** using item number **4**

QUESTIONNAIRE

Data Collection Points:

Survey #	Data Collection Point
1	Spring 2015 Week 2 (Jan 19 – 23)
2	Spring 2015 Week 14 (actual collection was week 16 [excluding Spring Break it was week 15] due to testing conflicts with course instructors – Apr 27 through May 1).

Note. All survey items will be presented on every survey. Students who previously completed one of the study surveys may be given the option to skip certain demographic sections on subsequent data collection points.

Time 1:
Data was collected the week of January 19 through January 23, 2015. The following data was collected in the classroom during class time:

Tammy Acct 201 1/22/15
Tammy Acct 200 1/22/15
Tammy Acct 200 1/22/15
Laurence Acct 200 1/21/15
Roberto Acct 201 1/20/15
Roberto Acct 200 1/20/15
Dee Ann Acct 201 1/22/15
Dee Ann Acct 201 1/22/15

Data was collected the week of January 19 through January 23, 2015. The following data was collected outside of the classroom, as the instructors reversed their consent to allow the researcher to come into their class and use class time. Instead, GH Room 225 was reserved by the researcher on Wednesday, January 21 from 12 – 3 pm, and Friday January 23 from 12 – 3 pm. Course instructors made announcements in class and via blackboard and/or e-mail to inform students they could take the survey in Room 225 during those times. The following is a list of instructors whose students attended one of these sessions:

Donna Acct 201
Robert Acct 200
Matthew Acct 200

Time 2:
Data was collected the week of April 27 through May 1, 2015. The following data was collected in the classroom during class time:

Tammy Acct 201 4/28/15
Tammy Acct 200 4/28/15
Tammy Acct 200 4/28/15
Roberto Acct 201 4/28/15
Roberto Acct 200 4/28/15
Dee Ann Acct 201 4/28/15
Dee Ann Acct 201 4/28/15

Data was collected the week of April 27 through May 1, 2015. The following data was collected outside of the classroom, as the instructors reversed their consent to allow the researcher to come into their class and use class time. Instead, GH Room 225 was reserved by the researcher on Monday, April 27, and Wednesday, April 29 from 12 – 3 pm. Course instructors made announcements in class and via blackboard and/or e-mail to inform students they could take the survey in Room 225 during those times. The following is a list of instructors whose students attended one of these sessions:

Donna Acct 201
Robert Acct 200
Laurence Acct 200
Matthew Acct 200

Demographics:

Name	Item
name	Please print your name:
ID	Please record your Student ID number:
age	How old are you (years)?
gender	Please indicate your gender: ___ (1) Female ___ (2) Male
ethnicity	Are you… (please select one): ___ (1) African American ___ (2) American Indian ___ (3) Mexican American/Chicano/Latino ___ (4) Asian American/Asian ___ (5) White/Caucasian ___ (6) Multiracial ___ (7) Other
gradeanticipated	Please indicate the grade you anticipate receiving in this course: ___ (1) A ___ (2) B ___ (3) C ___ (4) D ___ (5) F
GPA	Please indicate your current GPA: ___ (1) 3.5 to 4.00 ___ (2) 3.0 to 3.49 ___ (3) 2.5 to 2.99 ___ (4) 2.0 to 2.49 ___ (5) 1.5 to 1.99 ___ (5) Below 1.5
status	Please indicate your current student status: ___ (1) Freshman ___ (2) Sophomore ___ (3) Junior ___ (5) Senior ___ (6) Other
declaredmajor	Have you declared a major? ___ (1) Yes ___ (2) No
major	Please indicate you intended major by ranking your 1st and 2nd choice (if appropriate): ___ (1) Management ___ (2) Entrepreneurship ___ (3) Marketing ___ (4) Accounting ___ (5) Economics ___ (6) Political Science ___ (7) Finance ___ (8) Business Administration ___ (8) Information Systems ___ (8) Other
acctgmajor	Please indicate the likelihood that you will major in accounting: ___ (1) Not at all likely ___ (2) Unlikely ___ (3) Somewhat unlikely ___ (4) Somewhat likely ___ (5) Likely ___ (5) Very likely
perceivedsuccess	How successful do you expect to be in this class? ___ (1) Very unsuccessful ___ (2) Unsuccessful ___ (3) Somewhat unsuccessful ___ (1) Somewhat successful ___ (1) Successful ___ (5) Very successful
gradesuccess	What grade do you need to attain in order to feel successful in this class? ___ (1) A ___ (2) B ___ (3) C ___ (4) D

Part 1: Class Related Emotions, Perceptions of Control and Values in the Elements of Accounting I or II course

This part of the survey refers to thoughts and experiences you may have when attending this class. Read each item carefully and **RESPOND USING THE SCALE PROVIDED by circling the number that indicates your level of agreement or disagreement with that item.**

Regarding this Accounting Class… 1 = Strongly disagree, 4 = neutral, 7 = Strongly agree

Class Related Emotions:

	Q	Name	Item
			Enjoyment
1	1	emoenjoyAYR_1	I enjoy being in class.
2	6	emoenjoyCYR_6	I look forward to learning a lot in this class.
3	12	emoenjoyMYR_12	My enjoyment of this class makes me want to participate.
4	18	emoenjoyPYR_18	I enjoy participating so much that I get energized.

	Q	Name	Item
			Anxiety
1	3	emoanxietyAYR_3	Thinking about this class makes me feel uneasy.
2	11	emoanxietyCYR_11	I worry that the demands of this class might be too great.
3	17	emoanxietyMYR_16	I get scared that I might say something wrong in class, so I'd rather not say anything.
4	22	emoanxietyPYR_22	I get tense in this class.

	Q	Name	Item
			Boredom
1	8	emoboredAYR_8	I get bored in this class.
2	14	emoboredCYR_14	I get so bored in this class that my mind begins to wander.
3	20	emoboredMYR_20	Because the time drags, I frequently look at the time.
4	24	emoboredPYR_24	I have trouble staying alert because I am so bored.

Adapted from:

Pekrun, R., Goetz, T., & Perry, R. P. (2005). Achievement Emotions Questionnaire (AEQ). *User's manual*. Munich, Germany: Department of Psychology, University of Munich.

Regarding this Accounting Class …1 = Strongly disagree, 4 = neutral, 7 = Strongly agree

Perceived Academic Control:

	Q	Name	Item	
1	21	controlYR_21	I have a great deal of control over my academic performance in this course.	
2	9	controlYR_9	The more effort I put into this course, the better I do.	
3	7	controlYR_7	No matter what I do, I can't seem to do well in this course.	**R**
4	15	controlYR_15	I see myself as largely responsible for my performance in this course.	
5	13	controlYR_13	How well I do in this course if often due to luck.	**R**
6	19	controlYR_19	There is little I can do about my performance in this course.	**R**
7	16	controlYR_16	When I do poorly in a course, it's usually because I haven't given it my best effort.	
8	2	controlYR_2	My grades are basically determined by things beyond my control and there is little I can do to change that.	**R**

Adapted from:

Perry, R. P., Hladkyg, S., Pekrun, R. H., & Pelletier, S. T. (2001). Academic control and action control in the achievement of college students: A longitudinal field study. *Journal of Educational Psychology*, *96*(4), 776-789.

Regarding this Accounting Class …1 = Strongly disagree, 4 = neutral, 7 = Strongly agree

Values:

	Q	Name	Item
1	4	valueintrinsicYR_4	In general, I find the tasks required by this course very interesting.
2	5	valueattainYR_5	It is important to me that I do well in this course.
3	10	valueutilityYR_10	Completing this course is very useful for what I want to do in the future.
4	23	valuecostYR_23	The time and effort required to do very well in this course are worth the cost.

Part 2: Basic Need Satisfaction in the Elements of Accounting I or II course:

The following statements concern your thoughts and feelings regarding your overall experience this class. Read each item carefully and **RESPOND USING THE SCALE PROVIDED by circling the number that indicates your level of agreement or disagreement with that item.**

Regarding this Accounting Class….1 = Strongly disagree, 4 = neutral, 7 = Strongly agree

	Q	Name	Item
			Autonomy Satisfaction
1	7	autonSYR_7	I feel that my decisions in this class reflect what I really want.
2	13	autonSYR_13	My choices in this class express who I really am.
3	23	autonSYR_23	I feel I have been doing what really interests me in this class.
			Autonomy Thwarting
1	4	autonTYR_4	Most of the things I do in this class feel like "I have to."
2	10	autonTYR_10	In this course, I feel forced to do many things I wouldn't choose to do.
3	18	autonTYR_18	My daily activities in this class feel like a chain of obligations.
			Competence Satisfaction
1	9	comptSYR_9	When I am attending this class, I feel capable at what I do.
2	1	comptSYR_1	In this class I feel competent to achieve my goals.
3	21	comptSYR_21	I feel I can successfully complete difficult tasks in this class.
			Competence Thwarting
1	6	comptTYR_6	In this class I have serious doubts about whether I can do things well.
2	11	comptTYR_11	I feel disappointed with my performance in this class
3	17	comptTYR_17	When I am attending this class, I feel insecure about my abilities.
			Relatedness Satisfaction - Peers
1	12	relatePSYR_12	In this class I feel connected with the students who care for me and for whom I care.
2	16	relatePSYR_16	I feel close and connected with other students who are important to me in this class.
3	24	relatePSYR_24	I experience a warm feeling with the students I spend time with in this class.
			Relatedness Thwarting - Peers
1	3	relatePTYR_3	When I am attending class, I feel excluded from the other students who I want to associate with.
2	8	relatePTYR_8	I feel that students who are important to me in this class are cold and distant towards me.
3	20	relatePTYR_20	I have the impression that students I spend time with in this class dislike me.
			Relatedness Satisfaction - Instructor
1	2	relateISYR_2	In this class I feel connected with the instructor.
2	22	relateISYR_22	I feel the instructor for this class cares about me.
3	15	relateISYR_15	I experience a warm feeling with the instructor I spend time with in this class.
			Relatedness Thwarting - Instructor
1	14	relateITYR_14	When I am attending class, I feel the instructor excludes me.
2	5	relateITYR_5	I feel that the instructor in this class is cold and distant towards me.
3	19	relateITYR_19	I have the impression the instructor for this class dislikes me.

Adapted from:

Van den Broeck, A., Vansteenkiste, M., De Witte, H., Soenens, B., & lens, W. (2010). Capturing autonomy, competence, and relatedness at work: Construction and initial validation of the work-related basic need satisfaction scale. Journal of Occupational & Organization Psychology, 83(4), 981-1002. Doi: 10.1348-095317909X481382

Part 3: Motivation in the Elements of Accounting I or II course:
Understanding that this class may be a required course for you...**USING THE SCALE BELOW**, indicate to what extent each of the following items presently corresponds to **the reasons <u>why</u> you attend this class.**

Why do you attend this class? 1 = Strongly disagree, 4 = neutral, 7 = Strongly agree

	Q	Name	Item
			Intrinsic motivation - to know
1	2	intrinsicYR_2	Because I experience pleasure and satisfaction while learning new things in this class.
2	7	intrinsicYR_7	For the pleasure I experience when I discover new things I have never seen before.
3	12	intrinsicYR_12	For the pleasure of broadening my knowledge about subjects which appeal to me.
4	20	intrinsicYR_20	Because my studies allow me to continue to learn about many things that interest me.
			Extrinsic motivation - identified
1	3	identYR_3	Because I think this class will help me better prepare for the career I have chosen.
2	8	identYR_8	Because eventually this course will enable me to enter the job market in a field that I like.
3	13	identYR_13	Because this course will help me make a better choice regarding my career orientation.
4	17	identYR_17	Because I believe this course will improve my competence as a worker.
			Extrinsic motivation - introjected
1	5	introjYR_5	To prove to myself that I am capable of completing this class
2	10	introjYR_10	Because of the fact that when I succeed in this class I will feel important.
3	15	introjYR_15	To show myself that I am an intelligent person.
4	19	introjYR_19	Because I want to show myself that I can succeed in this class
			Extrinsic motivation - external regulation
1	1	externalYR_1	Because without this class I cannot complete my chosen degree.
2	6	externalYR_6	In order to obtain a more prestigious job later on.
3	11	externalYR_11	Because I want to have "the good life" later on.
4	16	externalYR_16	In order to have a better salary later on.
			Amotivation
1	4	amotYR_4	Honestly, I don't know; I really feel that I am wasting my time in this class
2	9	amotYR_9	I once had good reasons for being in this course; however, now I wonder whether I should continue.
3	14	amotYR_14	I can't see why I am in this course and frankly, I couldn't care less.
4	18	amotYR_18	I don't know; I can't understand what I am doing in this course.

Adapted from:

Vallerand, R. J., Pelletier, L. G., Blais, M. R., Brière, N. M., Senécal, C. B., & Vallières, E. F. (1992). The academic motivation scale: A measure of intrinsic, extrinsic, and amotivation in education. *Educational and Psychological Measurement, 52*, 1003-1017. doi:10.1177/0013164492052004025

Appendix C
Approved Informed Consent Form

INFORMED CONSENT

TITLE:	*SDT & CVT of Motivation and Emotion: Course Specific Survey*
PROJECT DIRECTOR:	*Tammy Gerszewski, MAcc, Doctoral Student*
STUDENT ADVISOR:	*Dr. Robert Stupnisky*
PHONE #	*701-777-6310*
DEPARTMENT:	*Teaching and Learning*

A person who is to participate in the research must give his or her informed consent to such participation. This consent must be based on an understanding of the nature and risks of the research. This document provides information that is important for this understanding. Research projects include only subjects who choose to take part. Please take your time in making your decision as to whether to participate. If you have questions at any time, please ask.

This research study is being conducted by Tammy Gerszewski, an instructor at the University of North Dakota in the Accounting Department and a Ph.D. student in the Teaching and Learning Doctoral Program at the University of North Dakota. Additionally, Dr. Robert Stupnisky, a faculty member at the University of North Dakota in the Educational Foundations and Research Department, and one graduate assistant will participate in data collection and analysis. The purpose of this study is to explore how you think and feel about various aspects of your experience as a student in Elements of Accounting I (Acct 200) or Elements of Accounting II (Acct 201). The results of this study are expected to contribute to the understanding of student motivations, course achievement, and accounting major selection.

As a student in the Elements of Accounting I or Elements of Accounting II course at the University of North Dakota, you are invited to participate in the Survey portion of this study. Approximately 400 students will take part in the Survey portion of the study. Your participation in the study will last approximately 10 to 20 minutes and will include responding to survey questions regarding your experiences in your current Elements of Accounting course.

Your participation is voluntary. You may choose not to participate or you may discontinue your participation at any time without penalty or loss of benefits to which you are otherwise entitled. Your decision whether or not to participate will not affect your current or future relations with your instructor/professor or the University of North Dakota.

You may benefit personally from being in this study by reflecting on your experiences as a student. A summary of the study results will also be made available to participants so that you may learn about the experiences of others. Ultimately, we hope that the knowledge gained through your participation will assist administrators and faculty in providing an educational environment which enhances your success.

Approval Date: DEC 29 2014
Expiration Date: DEC 28 2015
University of North Dakota IRB

Figure 16. Documentation of Informed Consent Approval (Page 1).

Some participants may feel somewhat uncomfortable or embarrassed discussing their experiences in the classroom. Should you become upset at any point in the study, you may stop at any time or choose not to answer a question. If you would like to talk to someone about your feelings about the study, you may contact UND's Counseling Center at 777-2127.

Initially, your name and student ID number will be used to match your responses, total points earned, and final grade in this accounting course. Your course instructor/professor will not have access to your responses. Once the final course grade and your total points earned in the class are received, your name and student ID number will be deleted from the data. Your personal identifying information will not be used in data analysis or the final report. The data will be stored at the locked location in a password protected computer on the UND campus for three years, after which time it will be destroyed. Only the researchers and people who audit IRB procedures will have access to the data. If you have any questions, please call Tammy Gerszewski at (701) 777-6310.

If you have questions regarding your rights as a research subject, or if you have any concerns or complaints about the research, you may contact the University of North Dakota Institutional Review Board at (701) 777-4279. Please call this number if you cannot reach research staff, or you wish to talk with someone else.

ALL OF MY QUESTIONS HAVE BEEN ANSWERED AND I AM ENCOURAGED TO ASK ANY QUESTIONS THAT I MAY HAVE CONCERNING THIS STUDY IN THE FUTURE.

Entering your name, student ID number, and date below; and circling "yes" to "Consent" and permission to retain identifying information until your final grade is received, indicates that this research study has been explained to you, that your questions have been answered, and that you agree to take part in this study.

Participant's name (Please print): _____

Participants' Signature: _____

Participants' Student ID #: _____

Date: _____

Consent Given (please circle one): Yes No

Do you give permission to retain your name and student ID number until final course grades and total points earned in the class are available, at which time, your identifying information will be destroyed? (please circle one)

Yes No

Approval Date: DEC 29 2014
Expiration Date: DEC 28 2015
University of North Dakota IRB

Figure 17. Documentation of Informed Consent Approval (Page 2).

Appendix D
Approved Survey Instrument

SDT and CVT of Motivation and Emotion: Course Specific Survey

Purpose: The purpose of this study is to explore how you think and feel about various aspects of your experience as a student in Elements of Accounting I (Acct 200) or Elements of Accounting II (Acct 201).

1. Please print your name:

_____

2. Please record your Student ID number:

_____

3. How old are you (years)? _____

4. Please indicate your gender:
Female ____ Male ____

5. Are you...(please select one):

_____ White/Caucasian
_____ American Indian
_____ Mexican American/Chicano/Latino
_____ Asian American/Asian
_____ African American
_____ Multiracial
_____ Other

6. Please indicate the grade you anticipate receiving in this course:

A ____
B ____
C ____
D ____
F ____

7. Please indicate your current GPA:

3.5 to 4.00 ____
3.0 to 3.49 ____
2.5 to 2.99 ____
2.0 to 2.49 ____
1.5 to 1.99 ____
Below 1.50 ____

8. Please indicate your current student status:

_____ Freshman
_____ Sophomore
_____ Junior
_____ Senior
_____ Other

9. Have you declared a major?

_____ Yes _____ No

10. Please indicate your declared major by placing a 1 in the blank next to it, or if your major is not declared, place a 1 by the major you are most likely to choose. If you intend to have a double major, place a 2 next to the second major:

Management ____
Entrepreneurship ____
Marketing ____
Accounting: BAcc, MFA ____
Economics ____
Political Science ____
Finance: Investments ____
Public Administration ____
Information Systems ____
Other ____

10. Please indicate the likelihood that you will major in accounting:

Not at all Likely	Unlikely	Somewhat Unlikely	Somewhat Likely	Likely	Very Likely
1	2	3	4	5	6

11. How successful do you expect to be in this class?

Very Unsuccessful	Unsuccessful	Somewhat Unsuccessful	Somewhat Successful	Successful	Very Successful
1	2	3	4	5	6

12. What grade do you need to attain in order to feel successful in this class?

A ____
B ____
C ____
D ____

Figure 18. Approved Survey Instrument (Page 1).

Part 1: Class-Related Emotions, Perceptions of Control and Values

This part of the survey refers to thoughts and experiences you may have when attending this class. Read each item carefully and **RESPOND USING THE SCALE PROVIDED by circling the number that indicates your level of agreement or disagreement with that item.**

Regarding this Accounting Class ...

		Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
1.	I enjoy being in class.	1	2	3	4	5	6	7
2.	My grades are basically determined by things beyond my control and there is little I can do to change that.	1	2	3	4	5	6	7
3.	Thinking about this class makes me feel uneasy.	1	2	3	4	5	6	7
4.	In general, I find the tasks required by this course very interesting.	1	2	3	4	5	6	7
5.	It is important to me that I do well in this course.	1	2	3	4	5	6	7
6.	I look forward to learning a lot in this class.	1	2	3	4	5	6	7
7.	No matter what I do, I can't seem to do well in this course.	1	2	3	4	5	6	7
8.	I get bored in this class.	1	2	3	4	5	6	7
9.	The more effort I put into this course, the better I do.	1	2	3	4	5	6	7
10.	Completing this course is very useful for what I want to do in the future.	1	2	3	4	5	6	7
11.	I worry that the demands of this class might be too great.	1	2	3	4	5	6	7
12.	My enjoyment of this class makes me want to participate.	1	2	3	4	5	6	7
13.	How well I do in this course if often due to luck.	1	2	3	4	5	6	7
14.	I get so bored in this class that my mind begins to wander.	1	2	3	4	5	6	7
15.	I see myself as largely responsible for my performance in this course.	1	2	3	4	5	6	7
16.	When I do poorly in a course, it's usually because I haven't given it my best effort.	1	2	3	4	5	6	7
17.	I get scared that I might say something wrong in class, so I'd rather not say anything.	1	2	3	4	5	6	7
18.	I enjoy participating so much that I get energized.	1	2	3	4	5	6	7
19.	There is little I can do about my performance in this course.	1	2	3	4	5	6	7
20.	Because the time drags, I frequently look at the time.	1	2	3	4	5	6	7
21.	I have a great deal of control over my academic performance in this course.	1	2	3	4	5	6	7
22.	I get tense in this class.	1	2	3	4	5	6	7
23.	The time and effort required to do very well in this course are worth the cost.	1	2	3	4	5	6	7
24.	I have trouble staying alert because I am so bored.	1	2	3	4	5	6	7

Figure 19. Approved Survey Instrument (Page 2).

Part 2: Need Satisfaction

The following statements concern your thoughts and feelings regarding your overall experience in this class. Read each item carefully and **RESPOND USING THE SCALE PROVIDED by circling the number that indicates your level of agreement or disagreement with that item.**

Regarding this Accounting Class....

		Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
1.	In this class I feel competent to achieve my goals.	1	2	3	4	5	6	7
2.	I feel connected with the instructor of this class.	1	2	3	4	5	6	7
3.	When I am attending class, I feel excluded from the other students who I want to associate with.	1	2	3	4	5	6	7
4.	Most of the things I do in this class feel like "I have to."	1	2	3	4	5	6	7
5.	I feel that the instructor in this class is cold and distant towards me.	1	2	3	4	5	6	7
6.	In this class I have serious doubts about whether I can do things well.	1	2	3	4	5	6	7
7.	I feel that my decisions in this class reflect what I really want.	1	2	3	4	5	6	7
8.	I feel that students who are important to me in this class are cold and distant towards me.	1	2	3	4	5	6	7
9.	When I am attending this class, I feel capable at what I do.	1	2	3	4	5	6	7
10.	In this course, I feel forced to do many things I wouldn't choose to do.	1	2	3	4	5	6	7
11.	I feel disappointed with my performance in this class	1	2	3	4	5	6	7
12.	In this class I feel connected with the students who care for me and for whom I care.	1	2	3	4	5	6	7
13.	My choices in this class express who I really am.	1	2	3	4	5	6	7
14.	When I am attending class, I feel the instructor excludes me.	1	2	3	4	5	6	7
15.	I experience a warm feeling with the instructor I spend time with in this class.	1	2	3	4	5	6	7
16.	I feel close and connected with other students who are important to me in this class.	1	2	3	4	5	6	7
17.	When I am attending this class, I feel insecure about my abilities.	1	2	3	4	5	6	7
18.	My daily activities in this class feel like a chain of obligations.	1	2	3	4	5	6	7
19.	I have the impression the instructor for this class dislikes me.	1	2	3	4	5	6	7
20.	I have the impression that students I spend time with in this class dislike me.	1	2	3	4	5	6	7
21.	I feel I can successfully complete difficult tasks in this class.	1	2	3	4	5	6	7
22.	I feel the instructor for this class cares about me.	1	2	3	4	5	6	7
23.	I feel I have been doing what really interests me in this class.	1	2	3	4	5	6	7
24.	I experience a warm feeling with the students I spend time with in this class.	1	2	3	4	5	6	7

Figure 20. Approved Survey Instrument (Page 3).

Part 3: Motivation

Understanding that this class may be a required course for you… **USING THE SCALE BELOW**, indicate to what extent each of the following items presently corresponds to **the reasons <u>why</u> you attend this class.**

Why do you attend this class?

		Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
1.	Because without this class I cannot complete my chosen degree.	1	2	3	4	5	6	7
2.	Because I experience pleasure and satisfaction while learning new things in this class.	1	2	3	4	5	6	7
3.	Because I think this class will help me better prepare for the career I have chosen.	1	2	3	4	5	6	7
4.	Honestly, I don't know; I really feel that I am wasting my time in this class.	1	2	3	4	5	6	7
5.	To prove to myself that I am capable of completing this class.	1	2	3	4	5	6	7
6.	In order to obtain a more prestigious job later on.	1	2	3	4	5	6	7
7.	For the pleasure I experience when I discover new things I have never seen before.	1	2	3	4	5	6	7
8.	Because eventually this course will enable me to enter the job market in a field that I like.	1	2	3	4	5	6	7
9.	I once had good reasons for being in this course; however, now I wonder whether I should continue.	1	2	3	4	5	6	7
10.	Because of the fact that when I succeed in this class I will feel important.	1	2	3	4	5	6	7
11.	Because I want to have "the good life" later on.	1	2	3	4	5	6	7
12.	For the pleasure of broadening my knowledge about subjects which appeal to me.	1	2	3	4	5	6	7
13.	Because this course will help me make a better choice regarding my career orientation.	1	2	3	4	5	6	7
14.	I can't see why I am in this course and frankly, I couldn't care less.	1	2	3	4	5	6	7
15.	To show myself that I am an intelligent person.	1	2	3	4	5	6	7
16.	In order to have a better salary later on.	1	2	3	4	5	6	7
17.	Because I believe this course will improve my competence as a worker.	1	2	3	4	5	6	7
18.	I don't know; I can't understand what I am doing in this course.	1	2	3	4	5	6	7
19.	Because I want to show myself that I can succeed in this class.	1	2	3	4	5	6	7
20.	Because my studies allow me to continue to learn about many things that interest me.	1	2	3	4	5	6	7

Thank you for taking the time to thoughtfully complete this survey.

Figure 21. Approved Survey Instrument (Page 4).

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