

**STUDENT TEMPERAMENT ASSESSMENT AND ITS RELATIONSHIP WITH THE  
SELECTION OF ACCOUNTING AS A MAJOR**

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**ABSTRACT**

Personality tests have long been utilized to assist in the assessment of individuals. This study analyzes David Keirsey's temperament types and college students intending to major in accounting. The recruiting and retaining of students with qualities and characteristics desired by the accounting profession has historically presented a challenge for accounting departments in higher education (Corkren, Parks, & Morgan, 2013). Relationships were used to determine similarities between various traits of the respondents. Gender, having taken an accounting-related high school course, accounting-related work experience and level of college education were all compared with the expectations of Keirsey's temperament types. Students attending a small liberal arts teaching university (Concord University in Athens, West Virginia) and students attending a large research institution (Virginia Tech in Blacksburg, Virginia) were used for the study.

A quantitative research design was used to conduct this study. Descriptive statistics were utilized to determine frequencies, averages and variability. Chi-square ( $\chi^2$ ) analyzed the number of responses in different temperament categories to determine if actual results were significantly different in determining accounting as a major field of study. Students completed a survey consisting of demographic characteristics and the Keirsey Temperament Sorter (KTS II) questionnaire. Personality assessments are increasingly used as a management tool. The findings of this study can benefit employers, college recruiters, educators and students.

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**GENERAL AUDIENCE ABSTRACT**

Personality tests have long been utilized to assist in the assessment of individuals. This study analyzes David Keirsey's temperament types and college students intending to major in accounting. The recruiting and retaining of students with qualities and characteristics desired by the accounting profession has historically presented a challenge for accounting departments in higher education (Corkren, Parks, & Morgan, 2013). Relationships were used to determine similarities between various traits of the respondents. Gender, having taken an accounting-related high school course, accounting-related work experience and level of college education were all compared with the expectations of Keirsey's temperament types. Students attending a small liberal arts teaching university (Concord University in Athens, West Virginia) and students attending a large research institution (Virginia Tech in Blacksburg, Virginia) were used for the study.

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## **Dedication**

I dedicate this dissertation to my wonderful family. Most importantly my lovely wife, Monecia, who was constantly supportive and encouraging during this lengthy endeavor. I could not have accomplished this without her. My mother Anne Shelton Lee (aka Grandma Lee) for her support from the beginning of this venture many years ago. I also appreciate the support of my boys, Judson, Walker, Brad and Tommy (and his wife Lauren). Also, thanks to Amanda for her support and backing. Although they may be unaware, they motivated me and helped me keep focused. Finally, I appreciate the time and assistance of Bill and Cindy Helton (aka Grandad and Nana). My family is very important to me and I wish to share this accomplishment with them all.

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## **CHAPTER ONE**

### **INTRODUCTION**

In the past decade the accounting profession experienced major changes that have affected the quantity and quality of accounting graduates. Some of the factors influencing these changes include: (a) the recommendations of the Accounting Education Change Commission, (b) the implementation of the Sarbanes-Oxley Act of 2002, (c) the legal impact of major corporate corruption cases, (d) the 150 hour requirement for taking the Certified Public Accountant Examination, (e) the decline in qualified accounting professors, and (f) the adaptation to technological advances in the profession.

The impact of these changes is especially felt in the areas of training and preparation as accounting educators and professionals grapple with the increased demand for qualified accounting graduates (Kaenzig & Keller, 2011). The recruiting and retaining of students with qualities and characteristics desired by the accounting profession has historically presented a challenge for accounting departments in higher education (Corkren, Parks, & Morgan, 2013). As students gain increased knowledge of career opportunities and as recruiters more accurately assess those individuals who may be successful in pursuing careers in accounting, both learning experiences and professional recruitment needs will benefit. Several studies and reports have outlined the efforts to identify potential students earlier in their academic careers and to communicate to students the benefits and opportunities available in the field of accounting.

By determining the factors that may predict students' selection of accounting as a major field of study and by an evaluation of student personality types, recruitment and retention could be enhanced. Increased enrollments in accounting programs resulting from this knowledge should assist in alleviating the supply shortages of the profession. Introducing potential students

to the many fields within accounting has become a goal of many accounting organizations.

According to *The Pathways Report* (American Institute of Certified Public Accountants (AICPA), 2014), targeting students with the aptitude for success in an accounting program of study has always been difficult. Determining the similarities among temperaments and other specific characteristics of successful accounting graduates may help reveal the appropriateness of encouraging current students to pursue a career in accounting that matches their temperament and is more likely to lead to success and satisfaction in their employment.

### **Background of the Problem**

Despite recent increases in the supply of accounting graduates, there have been concerns for many years that accounting programs are not attracting and retaining sufficient numbers of students to meet the demands of the profession (Maudlin, Crain, & Mounce, 2000; Lawrence & Taylor, 2000). In the 2013–14 academic year, enrollment in accounting programs reached an all-time high -- with a three percent increase in bachelor's degree enrollments. Hiring also reached record levels, with a five percent increase in the number of employees since 2012 holding accounting bachelor's degrees. Universities and firms continue to be optimistic about the growth of the profession (*2015 Trends in the Supply of Accounting Graduates and the Demand for Public Accounting Recruits*, AICPA, 2015). However, the task of accounting program preparation is further complicated because today's employers are increasingly seeking students with a variety of skills. In 2010, the accounting profession issued *CPA Horizons 2025* which recommended an initiative to help forecast and shape the future of the profession. The resulting report describes the core competencies desired of accountants as skills and competence in communication, leadership, critical-thinking and problem-solving, integration, and collaboration (AICPA, 2010). Most accounting professionals no longer work in isolation, and they have the

same responsibility for generating revenue and profit as other individuals and departments within an organization. Greater use of information technology is required for accountants in completing their reports, and therefore creates the necessity that new graduates possess broad and extensive technical skills. Accountants must also successfully interact and collaborate with a wide range of other employees and clients, which supports the need for persuasive written and verbal presentation skills, as well as effective interpersonal capabilities.

After graduation, most accounting majors have the opportunity to choose from among several possible career paths. One option open to graduates is a career in private accounting or working for an individual firm, which provides many employment opportunities including: cost accounting, budgeting, information system design, internal auditing, tax preparation, and financial statement preparation. Another option is to become a Certified Management Accountant (CMA) which is awarded after an individual successfully completes the Certified Management Examination administered by the Institute of Management Accountants. Students may also pursue a career in fraud investigation. The Certified Fraud Examiner (CFE) designation is earned by successfully completing the Certified Fraud Examination administered by the Association of Certified Fraud Examiners.

Other options available to accounting graduates include pursuing careers in the area of governmental accounting, not-for-profit accounting, academia, internal auditing, or other areas in general business. Many accounting graduates find that their general accounting knowledge is invaluable in support of their careers in finance, management, or marketing.

In 1986, the landmark Bedford Report stated that the minimum objective of accounting education programs should be to prepare students to develop a wide range of professional accounting skills (Chu & Man, 2012, Deines & Valentine, 2007). Historically, educational

programs have focused on students becoming Certified Public Accountants, but CPA programs require students to complete more than the 120 credit hours typically necessary for a baccalaureate degree. As a result, CPAs must complete a total of 150 credit hours. CPAs generally perform in one of three functional areas of accounting for their clients: auditing, taxation, or consulting. At most public universities, there seems to be a bias in favor of public accounting. Three years following the issuance of the Bedford Report, the managing partners of the then Big Eight accounting firms supporting the report wrote in their ‘Perspectives’ paper that “passing the CPA exam should not be the goal of accounting education” (Deines & Valentine, p.31).

### **Statement of the Problem**

Accounting firms are facing significant staffing challenges resulting from a shortage of skilled candidates for job openings. A major obstacle to recruiting qualified accounting students is the scarcity of explicit and comprehensive information about student candidates possessing the characteristics and temperament types for potentially becoming successful accounting majors and ultimately professional accountants. The problem addressed in this study is identifying these characteristics and temperament types.

### **Research Questions**

**Question #1:** For students intending to major in accounting, are Keirsey’s temperament and personality types different across (1) gender, (2) completion of high school accounting courses, and (3) accounting-related work experience?

**Question #2:** Do Keirsey's temperament and personality types differ among students intending to major in accounting who have vs. have not successfully completed college-level accounting coursework (upper level students) and first- and second- year students?

**Question #3:** To what extent are there differences between the temperament types of students intending to major in accounting from a selected small liberal arts teaching institution (Concord University) and a large research institution (Virginia Tech)?

### **Significance of the Study**

The 2012 Pathways Commission report, issued by the American Accounting Association (AAA) and the American Institute of Certified Public Accountants (AICPA), “advocates for closer links between research and practice as well as between practice and education” (Singer and Wiesner, 2013, p.22). The results of a number of studies have indicated that psychometric instruments, such as the Keirsey Temperament Sorter (KTS-II), are useful to researchers interested in investigating the influence of an individual's personality traits in accounting practice and education (Wheeler, Jessup, and Martinez, 2002). Employers, college recruiters, educators and students can benefit from the findings in this study, which is using the KTS-II Temperament Sorter personality questionnaire to collect the necessary data.

Employers want to ensure that the personality traits of those they hire are compatible with the jobs the employees will be performing. If this match can be achieved, then it should result in improved productivity and a more compatible working environment.

In higher education a major goal of college recruiters is to attract and retain qualified students. When counselors can advise these students about the academic preparation and career paths that best match their personality traits and skill levels, this goal is more likely to be met (Weber, 2015). By administering the KTS-II instrument, college recruiters can more accurately identify students who may successfully complete accounting programs.

A deeper understanding of the role of personality types in academic subject fields and career path selection can have a positive impact on curriculum, instructional methodology,

faculty advising, and student retention. Accounting educators are increasingly expected not only to teach technical and functional abilities, but also to help students master personal and interpersonal skills appropriate to their careers in the workplace environment. "At [the] core of many of these issues are personality characteristics of accountants, accounting teachers, and accounting students" (Wheeler, 2001, p.126).

By including an assessment of personality traits, the curriculum and experiences within accounting preparation programs can be better aligned with industry needs and individual professional fulfillment. Through an understanding of their personality traits and comprehending the skills needed for accounting success, students will be better empowered to select compatible career paths with more confidence and assurance.

### **Theoretical Framework**

Personality psychology is a branch of psychology that studies personality and individual differences. Personality models range from the deductive methods of psychoanalytic, psychodynamic and factorial to the inductive methods of psychobiological, behavioral and cognitive. Personality theorists derive their conclusions from basic philosophical assumptions and research studies. However, there is wide disagreement about the foundational principles, and theorists disagree on whether we have control over our own behavior or if our behavior is beyond our control. There is also disagreement over whether our personalities are based on genetics or the environment and the extent to which we are active or passive participants in shaping our environment.

Personality usually implies "continuity or consistency in the individual" (Mischel, Shoda, and Smith, 2003, p.2). David Funder (2001, p.198) defines the study of personality psychology

as a means to “account for the individual’s characteristic patterns of thoughts, emotions, and behavior together with the psychological mechanics – hidden or not – behind those patterns.”

In his work on this subject, Keirsey (1998), describes the two facets in personality as temperament and character. Temperament is a configuration of inclinations, while character is a configuration of habits. Whereas character is a disposition, temperament is a predisposition. These concepts are based on psychiatrist C. G. Jung’s theory that human behavior is predictable and classifiable (Edgley, 1992). In 1921, Carl Jung published his book *Psychological Types*, which Isabel Briggs Myers and her mother, Katherine Cook Briggs, codified into a test for 16 personality types. Keirsey further organized those types into four temperaments that describe observable human behavior. Myers wrote mostly about mental processes, while Keirsey focused more on how people accomplish their goals (Edgley, 1992). Personality and temperament theory serves as the underlying theoretical framework for this study.

### **Overview of Research Design**

A quantitative research design was used to conduct this study. Descriptive statistics were utilized to determine frequencies, averages and variability. A descriptive study merely “describes a phenomenon” (McMillan, 2012, p. 176). One limitation of descriptive studies is that relationship conclusions are typically unjustified. Therefore, a correlation matrix shows how temperament classifications may help predict the selection of accounting as a major. Causal-comparative designs measure the difference between two or more groups of participants in the study. Causal-comparative designs are also referred to as *ex-post facto* designs. Kerlinger (1973) explained:

"Ex-post facto research is empirical inquiry in which the scientist does not have direct control of independent variables because their manifestations have already occurred or

because they are inherently not manipulable. Inferences about relations among variables made, without direct intervention, from concomitant variation of independent and dependent variables." (p.379)

An *ex-post facto* study describes the present situation "which is assumed to be in effect of some previously acting factors, and attempts a retrospective search to determine the assumed antecedent factors, which began operating at an earlier time" (Ary, Jacobs & Razavieh, 1990, p.357).

Chi-square analyzes the number of responses in different temperament categories to determine if actual results are significantly different in determining accounting as a major field of study at various levels of student progress. The chi-square is a "nonparametric statistical procedure because the data that are analyzed are nominal-level data, and assumptions of normal distribution and equal variances may not be met" (McMillan, p. 268).

### **Delimitations**

The student population for this study are students enrolled in accounting courses at the Concord University located in Athens, West Virginia and Virginia Polytechnic Institute and State University located in Blacksburg, Virginia. The sample was randomly selected from those students whose contact information was provided by the Departments of Accounting at these institutions.

Any generalizations of this study's results should only be applied to institutions of learning with characteristics similar to Concord University and Virginia Polytechnic Institute and State University.

## **Limitations**

The student populations for this study self-reported their descriptive information and their selection of options in the Keirsey Temperament Sorter (KTS) in an online format. Web-based surveys are faster, simpler and cheaper, but response rates may vary when compared to face-to-face administered surveys.

## **Definitions**

Accounting Education Change Commission (AECC) – appointed in August 1989 by the American Accounting Association to revisit the recommendations of the Bedford Committee.

American Accounting Association (AAA) – founded in 1916 as the American Association of University Instructors in Accounting, its present name was adopted in 1936. The Association is a voluntary organization of members interested in accounting education and research.

American Institute of Certified Public Accountants (AICPA) – the world's largest member association representing the accounting profession, with more than 418,000 members in 144 countries.

Association to Advance Collegiate Schools of Business (AACSB) – founded in 1916, the longest serving global association dedicated to advancing management and business education worldwide. AACSB accredits 740 of the world's best business schools across 50 countries and territories.

Association of Certified Fraud Examiners (ACFE) – member-based global association dedicated to providing anti-fraud education and training. Current membership in the association is nearly 75,000.

Bedford Commission – the American Accounting Association (AAA) Committee on the Future Structure, Content, and Scope of Accounting Education that was appointed in 1984 by AAA President Doyle Williams. The committee was named after its chairperson, Norton Bedford.

Bureau of Labor Statistics (BLS) -- a division of the U.S. Department of Labor whose primary purpose is to research, assemble and publish a wide range of statistical data on the labor force in America.

Characteristic -- a discriminate trait, quality, or property

National Center for Education Statistics (NCES) -- part of the United States Department of Education's Institute of Education Sciences (IES) that collects, analyzes, and publishes statistics on education

Personality -- characteristics that distinguishes an individual or group; the totality of an individual's behavioral and emotional characteristics

Temperament – a configuration of observable personality traits, such as habits of communication, patterns of action, and sets of characteristic attitudes, values, and talents (Keirsey, 2017)

Trait – A distinguishing quality of an individual

### **Summary**

Accounting educators are developing and using innovative approaches in the recruitment and retention of accounting majors. Private accounting firms and other businesses are also facing significant staffing challenges during a shortage of skilled job candidates. Extensive efforts have been made to identify potential students earlier in their academic careers and to communicate the benefits and opportunities available in the field of accounting. As students gain increased

knowledge of career opportunities and educators can more accurately assess those individuals who may be successful in pursuing a career in accounting, learning experiences and professional recruitment needs will be improved. Chapter 2 presents a review of the literature that further describes the needs of the accounting profession and the use of personality assessment tools to predict more reliably the probability of student success in the choice of a career path in accounting. Chapter 3 describes the methodology utilized to determine characteristics that influence the choice of accounting as a course of study and the extent to which there exists correlations among personalities of students, as determined by the Keirsey Temperament Sorter.

## **CHAPTER TWO**

### **REVIEW OF THE LITERATURE**

Chapter Two presents a review of the literature related to the factors influencing undergraduate students in their decision to choose to major in accounting. This review examines trends in the supply and demand for accounting graduates in the job market and selected issues to be considered in attracting students to accounting as a field of study and future career choice. In addition, a theoretical framework for the study was presented involving the use of personality and temperament assessments with an emphasis on the Keirsey Temperament Sorter and an exploration of the appropriateness of the use of personality and/or temperament instruments as likely indicators of academic and career success.

#### **Choosing a College Major**

Attracting undergraduate students to the many career opportunities available in the field of accounting has long been one of the major missions of professional accounting organizations. In addition to the difficulty of conveying to potential students the opportunities available in the profession, the challenge of identifying students with the aptitude and personality to be successful in an accounting program of study continues to be a challenge for institutions of higher education.

High school students today understand the need for higher education. In October 2015, 69.2 percent of high school graduates enrolled in colleges or universities (Bureau of Labor Statistics (BLS), 2016). The National Center for Education Statistics estimated that 20.5 million students would be attending American colleges and universities in the fall of 2016 (National Center for Educational Statistics (NCES), 2016). All students must make choices among the academic fields of study as they navigate their way through college and choose a major that will

prepare them for entering the work force after they graduate. Eighty percent of undergraduate students enter college with undeclared majors (Ronan, 2005). Additionally, some estimates project that from 50 percent to 75 percent of students will change their major at least once (Peterson, 2006). The six-year graduation rate for first time, full time undergraduate students who entered a bachelor's degree program at a four-year degree granting institution in the fall of 2008 was 60 percent (NCES, 2016). More recently, the U. S. Department of Education (May, 2015) reported that only 59 percent of undergraduates completed their degree in six years, which suggests that there has been little or no change in the years for finishing a degree program.

The average student explores up to five majors, while using almost six criteria in evaluating their options (Sylaska, 2016). Studies differ widely in the factors most referenced by students during their decision-making process. According to Gallotti, Ciner, Altenbaumer, Geerts, Rupp, and Woulfe (2006), criteria considered by students include career opportunities, interest and “information sources”. A study by Beggs, Banham and Taylor (2008) conclude there are four categories of influencing factors: Sources of Information, Job Characteristics, Fit and Interest in Subject, and Characteristics of the Major/Degree. Information sources include parents, school counselors, friends, teachers, college catalogs and school experiences. Personalities are also relevant to major choice and different majors appeal to different personalities (Sylaska, 2016). Alternately, “some entering college students give very little thought to the notion of selecting a major upon entering college” (Galotti et al, 2006, p.632).

Of the 1,870,000 bachelor's degrees conferred in 2013-14, the greatest number (358,000) was conferred in the field of business (NCES, 2016). Total bachelor's degrees in accounting awarded in the 2013–14 academic year (54,423) remained steady after years of increases and an all-time high in 2011–12 (AICPA, 2015).

A study by Violette and Chene (2012) concludes the primary reason students chose accounting as their major was previous success in one or more accounting courses in high school. Considering that all business majors are required to complete an accounting principles course, that course would present an appropriate opportunity in which to focus on recruiting accounting majors (Mauldin, Crain and Mounce, 2000). According to the Accounting Education Change Commission (AECC), “the first course in accounting is an important building block for success in future academic work because it can shape student perceptions” (AECC, 1992, p. 249). Significant differences in perception exist between accounting and non-accounting majors students (Tickell, Lim and Balachandran, 2012; Tan and Laswad, 2006; Smith, 2005; Violette and Chene, 2012).

“The accounting profession must take an active force in accounting education” (Gibson and Schroeder, 1998, p. 20). It is the responsibility of accounting educators to manage the details of the education of future accounting professionals. It is the responsibility of educators and practitioners to set the tone and direction of accounting education to prepare graduates for the changing needs for employment in the profession (Gibson and Schroeder, 1998).

### **Supply of Accounting Graduates and Demand for Professionals**

A major obstacle in attaining an adequate supply of accounting graduates is the small pool of undergraduates expressing an interest in majoring in accounting. The problem accounting educators must overcome is the mistaken perceptions that many potential students have about accounting careers. There is a widely held belief among entering undergraduates that the accounting profession has limited career opportunities and does not provide sufficient variety in the type of work performed (Kahan, 2008; McCann, 2009; Rosenberg, 2005; Spinnelli, 2006). In contrast, the American Institute of Certified Public Accountants (AICPA) has attempted to

correct this mistaken impression with an information program designed to demonstrate that an accounting degree will help graduates succeed in practically every aspect of employment.

Another obstacle to recruiting accounting students is inadequate information about what accounting is and what accountants do (Francisco, Noland and Kelly, 2003), but improved outreach and communication may help overcome and correct many of these misperceptions. "Accounting and Finance Majors hold significantly more positive attitudes toward their first accounting course than other business majors" (Tickell, Lim and Balachandran, 2012, p. 501). Professors understand that employers urgently need more accounting staff and seek to make students aware of the available opportunities for those achieving the CPA (Francisco, Nolan, and Kelly, 2003; Marquis, 2006; Mauldin, Crain, and Mounce, 2000). The manner in which new sources of information is transmitted and received today is substantially technologically different from that in past years, which makes the task of reaching and informing students about career choices both more challenging and more imaginative (AICPA Annual Report 2015-16).

Public accounting firms are the primary employer for new graduates. "Few fields have stretched more to attract and accommodate new staff than accounting" (Stimpson, 2007, p.25). Past stereotypes of accountants and the profession itself are no longer accurate according to Pringle, DuBose, and Yankey (2010). However, among the reasons students choose an academic major are the impressions they have of the profession after they complete their degree. The dynamic attitudes of a new generation of students and employees in a changing, modern economy is also complicating the effort to provide a more accurate image of the profession. Elam and Mendez (2010) suggest that CPA firms are modifying their office environments in an effort to attract and retain the graduates of highly rated accounting programs. In a study in 2004,

W. Mark Wilder found that recruiters for general entry-level management positions prefer accounting majors over general business majors (Wilder, 2004).

High achieving accounting students are aware that their services are in great demand in the job market (Katz, 2007; Mitra, 2008; Stuart, 2006). Employers have not only increased CPA salaries, but now offer signing bonuses, flex-time work hours, greater diversity of work, and many benefits that they have never offered before (Gold, 2007; Grasz, 2008; Nelson, Vendrzyk, Quirin, and Kovar, 2008; Stuart, 2006). Top accounting students are often being recruited in their sophomore year and promised lucrative job offers well before they graduate (Gold, 2007; Homer, 2006).

The U.S. Department of Labor's Bureau of Labor Statistics (BLS) projects employment of accountants and auditors to grow by 11 percent from 2014 to 2024 which is more than the average for all other professions. As the economy grows and expands, more accountants will be needed to prepare and examine financial records. (<http://www.bls.gov/ooh/business-and-financial/accountants-and-auditors.htm> Retrieved 11/17/2016). Public and private employers must replace retiring baby boomers, and this job market trend is projected to continue in the foreseeable future. A BLS report projects that more than 3.9 million employees will leave the U.S. workforce between 2012-2022 than left the workforce in the previous decade (BLS, 2016).

The U.S. Census Bureau predicted that the number of college age students (18-24 year-olds) will peak in 2010 and then decrease through at least 2020 (Zucca and McFall, 2008). Although there are recent increases in enrollment, there still remains a shortage of graduates to meet the needs of the accounting profession. To meet this need, institutions of higher education and the accounting profession should continue to coordinate their efforts to encourage increased interest and enrollments in accounting preparation programs.

## **Recruiting Accounting Graduates**

Studies on the timing of student decisions to major in accounting are varied and offer differing conclusions. Smith (2005) reported that students make their career and educational decisions prior to their first college accounting course. AICPA research found that the first accounting course high school students take greatly influences their decision to pursue accounting as a major and career choice. The American Accounting Association's Pathway Commission (August 2014) also reported that a student's first accounting course makes the broadest impact on his or her perception of the field of accounting. However, Campbell, Cho, Lindsey and Tan (2013) concluded that Intermediate Accounting (usually junior status) was the determining factor in accounting success and reinforced the decision to pursue a career in accounting. While researchers differ about when accounting majors make their choices, there is general agreement on the critical need to recruit high achieving students for employment in a competitive global economy (Byrne, Willis, and Burke, 2012).

Wolk and Nikolai (1997) suggested that institutions of higher education should consider the personality type of students who may be recruited for accounting programs. They stress that not only should students be recruited, but the selection should be made from the cohort of students who have characteristics deemed favorable for future success in accounting programs. While many studies address personality types as one of the factors "predicting" the potential success of accounting students and professionals, the need for a diversified group of various types should be considered (Rushton, *et al.*, 2007; Swain and Olsen, 2011). Most research involving the "predispositions" (Lakhal, *et al.*, 2012, p. 90) of accountants has concentrated on either education or professional careers (Swain and Olsen, 2011).

It is important for individuals to be aware of their own personality type and its influence on their choice of a course of study and its future impact on their career path. Expectations of the accounting profession are constantly changing (Swain and Olsen, 2011), and there is a need for determining the best match between the personality types of students and a field of study, such as accounting, that would enhance their learning and their successful transition into the work force (Edgley, 1992).

### **Theoretical Framework for the Study**

Personality and Temperament theories are major areas of psychological thought. Perhaps the earliest known theory of personality is that of Hippocrates (400 B.C.). Hippocrates theorized human behavior was explained by four temperament types. The theory of temperaments is among a variety of systems that deal with human personality by dividing it into types.

The four major perspectives of personality are: Psychoanalytic, Humanistic, Trait, and Social Cognitive (Wortman, C., Loftus, E., and Weaver, C., 1998). The founder of the psychoanalytic approach to personality was Sigmund Freud. This study focuses on the psychoanalytic perspective of David Keirsey whose primary influence was Carl Jung (a colleague and follower of Freud).

### **Personality Theory**

Personality psychology is a branch of psychology that studies personality, individual differences, and behavior. John Watson defined personality as "the result of what we start with and what we have lived through. It is the 'reaction mass' as a whole" (Watson, 1919, p.420). In 1947 Erich Fromm described personality as "the totality of inherited and psychic qualities which are characteristic of one individual and which makes the individual unique" (Fromm, 1947, p.50).

From their earliest inception, theories of human nature have influenced social thought.

Raymond Williams observed that until the nineteenth century personality "denoted the quality of being a person and not a thing" (Williams, 1983, p. 232). During the nineteenth and early twentieth centuries, Ivan Pavlov and Sigmund Freud were key figures in behavioral sciences. Pavlov attributed behavior to the response to environmental stimuli (Rescorla, 1988). Freud's clinical experience led him to view sex as much more important in the dynamics of the personality than other needs (Stagner and Moffitt, 1956). In the twentieth century, psychologists expanded on these concepts of the basic motivations for human behavior. Abraham Maslow and Carl Rodgers believed that "self-actualization" was the motivation for all humans (Brown, 1972; Hoffman, 1988; Joseph, 2017; May, 1982), but Alfred Adler saw "superiority" as the primary motivation, as individuals constantly attempted to overcome feelings of inferiority to reach superiority (Dwornik, 2003). Personality researchers began to focus on individual differences in humans as being as important as those other qualities which they had in common.

Personality models range from among the deductive methods of psychoanalytic, psychodynamic and factorial to the inductive methods of psychobiological, behavioral and cognitive. Personality theorists base their conclusions on basic philosophical assumptions, but there is a wide disagreement among the foundational principles. Among the categories on which there are differing opinions are: (1) freedom versus determinism (2) genetics versus environment (3) active versus passive (4) uniqueness versus universality (5) optimistic versus pessimistic (Engler, 2013, p. 11).

## **Temperament Theory**

The trait approach is the "oldest and most enduring approach to individuality" (Mischel, Shoda, and Smith, 2003, p.43). Keirsey states that it is a very old concept that people are "highly

formed at birth, with fundamentally different temperaments or predispositions to act in certain ways" (1998, p.2). As early as about 400 B.C., the Greek physician Hippocrates "assigned persons to one of four types of temperament" (Mischel, *et al*, 2003, p.44). The Roman physician Galen (130-200 A.D.) "documented and further developed the theories of Hippocrates" (Chamorro-Premuzic, 2007, p. 16). Chamorro-Premuzic notes other writers who conceptualize personality in terms of types have included Immanuel Kant (1724-1804), William Sheldon (1899-1977), and Carl Jung (1875-1961). Carl Gustav Jung was a Swiss psychiatrist and early colleague of Sigmund Freud. He eventually parted from Freud "both personally and professionally and developed his own personality theory which was termed analytical psychology" (Byrne, 1974, p. 61). According to Magnavita (2002, p. 96), Jung is probably best known for his ideas about the collective unconscious and the concept of archetypes. The collective unconscious refers to the "inherited possibilities or psychological structures that are built into all people's brains, or ways we understand experiences" (Magnavita, 2002, p. 96). Jung developed the concept that psychological activity is based on "four spheres of functioning: thinking versus feeling and sensing versus intuiting" (Magnavita, 2002, p.96). Largely inspired by Jung's book, Isabel Myers and Kathryn Briggs devised a questionnaire for identifying what they believed to be different types of personality. The Myers-Briggs Type Indicator has been used as a "test and research tool since the early 1950's" (Keirsey, 1998, p.3). David Keirsey further developed personality assessment that was measured by his "Temperament Sorter" instrument. According to Keirsey (2017), the essential difference between the Myers-Briggs' types and his classification is what he describes as observed long-term behavior and "what people do," while Myers-Briggs describes what "people have in mind" (Keirsey, 2017, [http://www.keirsey.com/4temps /overview \\_temperaments.asp](http://www.keirsey.com/4temps /overview _temperaments.asp), Retrieved March 28, 2017).

## **Personality and Temperament Assessment**

“Personality Assessment involves the administration, scoring, and interpretation of empirically supported measures of personality traits in order to: Increase the accuracy of behavioral prediction in a variety of contexts and settings” (APA, 2017). The first personality tests were developed in the 1920s to assist with the process of personnel selection, particularly in the military. Personality can be measured through a number of methods, the most common of which are objective tests. Objective tests, such as self-report measures, rely on an individual's personal responses and are relatively free of rater bias. The Keirsey Temperament Sorter-II (KTS-II) is the most widely used personality instrument in the world (<http://www.keirsey.com/sorter/register.aspx> Retrieved March 29, 2017). It is a 70 question personality instrument that helps individuals discover their personality type.

## **Personality Assessment**

Accounting firms recruiting potential CPA employees need to make a judgment about the characteristics, traits, knowledge, technical skills, and abilities of prospective hires in order to make the best hiring decisions (Case, 1988; Kovar, Ott, and Fisher, 2003; Nourayi and Cherry, 1993; Zachry and Morris, 2006). Students, recent graduates and new hires may find that information gained from a personality assessment instrument can be helpful in more accurately verifying their aptitude and interest in a career field like accounting before they make a final commitment to pursue it (Eckle, 2008; Kreimer, 2006; McPherson, 1999; Mitchell, 1998; Noel, Michaels, and Levas, 2003; Wagner, 1999; Zachry and Morris, 2006). Personality assessments often help users gain better understanding of the learning and operating styles of their colleagues in the work place and enhance teamwork and cooperation in completing work tasks. (Clinebell and Stecher, 2003; Ostrow, 2002). Employers are increasingly acting to ensure that their new

hires are compatible not only with the job requirements but also with the personality types with whom they will be working.

In 1996, the Keirsey Temperament Sorter (KTS-II) appeared online, and more than forty million people have taken the Keirsey Temperament Sorter after its development. The instrument has since been used in more than 170 countries and translated into more than 20 different languages. It has been widely used by the U.S. government, including the military, by academic institutions, by over two-thirds of the Fortune 500 Corporations, by global consulting firms, by social enterprises, and by faith-based organizations (Keirsey, 2017, <http://www.keirsey.com/aboutkts2.aspx>, Retrieved March 28, 2017)

Personality assessments are increasingly popular as management tools. "Yet, many of them are no better than astrology at describing and predicting behavior" (Paul, 2005, p. F12). Personality testing is a 400 million dollar industry, and there are more than 2,500 personality tests on the market (Paul, 2005). Some critics believe that at best, the tests are unreliable, and at worst, discriminatory (Clayton, 2008; Hogan, 2005; Lawrence and Taylor, 2000; Newitz, 2000; Saemann and Crooker, 1999; Stimpson, 2007). Another ethical and reliability consideration of personality testing is that some test answers may be easily manipulated by test takers (Frieswick, 2004; Newitz, 2000; Paul, 2005; Stimpson, 2007). Tests should only be used as a diagnostic tool, and the decision to hire should never be based solely on any one test (Frieswick, 2004; Hogan, 2005; Paul, 2005; Stimpson, 2007). As more is known about job compatibility and personality traits, some organizations may go so far as to restructure jobs to attract a new generation of prospective employees (Erickson, 2008; Frieswick, 2004; Katz, 2007).

Personality testing has been used for advancement and retention decisions in CPA firms, for selecting those employees most likely to succeed in the highly stressful work environment in public accounting, and for team-building interactions in the workplace (Davidson and Etherington, 1995; Schloemer, P. and Schloemer, M., 1997). Several research studies have found a fairly narrow range of personality types among accounting students (Booth and Hume, 1993; Geller, 2007; Lawrence and Taylor, 2000; Schloemer, P. and Schloemer, M., 1997). Indications are that changes and interactions in the public accounting environment may have resulted in accountants with more diverse personality types (Booth and Hume; Geller; Schloemer, P. and Schloemer, M., 1997). A study by Bealing, Baker and Russo (2006), administering a short form or the Keirsey Temperament Sorter, revealed a dominant personality type (ESTJ) in students pursuing an accounting degree. This relationship was based on six specific questions from the KTS-II and surveyed only students in an introductory accounting course. That short form should not be considered a substitute for the full 70 question personality profile.

The KTS-II has been widely used as an alternative to the Myers-Briggs Type Indicator (MBTI) according to Myers, McCaulley, Quenk, and Hammer (1998). Studies specifically sampling accounting students and accounting professionals are more limited. Results of a MBTI study by *The Accounting Editors' Journal* found that forty-two percent of all accounting students fall within two personality types with twenty-five percent testing as ESTJ and seventeen percent as INTJ (Thompson, 2016). These results reflect the general findings of Shackleton (1980) who reported that the "...ESTJ personality is the most common in the world of business and commerce, not just in accounting."

Other MBTI personality type studies related to accounting professionals found that they are predominately characterized as ESTJ and ISTJ (Jacoby, 1981; Keirsey, 1998; Otte, 1983; Schloemer, P. and Schloemer, M., 1997; and Wolk and Nikolai, 1997). Table 1 displays the compiled results of predominate classifications. Both the ESTJ and ISTJ personality types represent approximately ten percent of the population (Keirsey, 1998). With the evolution of accounting firms and the accounting profession itself, changes in the personality types can be expected to evolve. Accounting firms are increasingly offering complete financial services, in addition to tax, audit and consulting functions. Also, diversity and inclusion efforts by firms are creating a more varied workforce. Briggs, Copeland and Haynes (2007) suggest that accounting "in its present form may be a dying art," and there is growing need for a more compatible balance in personality traits and work force skills to meet the challenges of a global economy in the twenty-first century. With the increasing demands placed on the accounting profession, "it may be best to attract a greater variety of personality types so as to form effective problem-solving teams" (Lawrence and Taylor, 2000, p. 34).

The type descriptors of Isabel Myers and David Keirsey differ in several ways. Myers focuses on how people think and feel, while Keirsey focuses on observable behavior. Myers emphasizes extraversion versus introversion, and Keirsey's model utilizes concrete versus abstract. Finally, the MBTI groups personality types by "functional attitudes" and Keirsey groups them by temperament ([www.keirsey.com/difference.aspx](http://www.keirsey.com/difference.aspx). Retrieved 2/22/17).

**Table 1.** Compilation of predominate personality types of accounting professionals and accounting students.

<b>Personality Types of Accounting Professionals (MBTI)</b>			
<b>Researcher</b>	<b>ESTJ</b>	<b>ISTJ</b>	<b>Total*</b>
Jacoby (1981)	14%	20%	34%
Keirsey (1990)	15%	26%	41%
Otte (1983)	19%	27%	46%
Schloemer & Schloemer (1997)	16%	20%	36%
Wolk & Nikolai (1997)	22%	35%	57%

<b>Personality Types of Accounting Students (MBTI)</b>			
<b>Researcher</b>	<b>ESTJ</b>	<b>INTJ</b>	<b>Total*</b>
Thompson (2009)	25%	17%	42%

\*Represents percentage of top two personality types

### **Temperament Assessment**

According to Keirsey (1998), the two facets in a personality are temperament and character. Temperament is a configuration of inclinations, while character is a configuration of habits. Whereas character is a disposition, temperament is a predisposition. As he expressed it metaphorically, "our brain is a sort of computer which has temperament as its hardware and character for its software. The hardware is the physical base from which character emerges" (<http://www.keirsey.com/TemperamentsvsCharacter.aspx#> Retrieved 2/22/17). This concept is based on the theories of psychiatrist C. G. Jung that human behavior is predictable and classifiable (Edgley, 1992). In 1921, Carl Jung published his seminal work, *Psychological Types*, which Isabel Briggs Myers and her mother Katherine Cook Briggs, codified into a test for

16 personality types. Keirsey further organized those types into four temperaments that describe observable human behavior. Myers wrote mostly about mental processes, while Keirsey focused more on how people actually get things done (Edgley, 1992). There are distinctions between the technical terms used by Myers and Keirsey. The technical terms focus on how people think.

Keirsey further explains the “meaning” of the terms, or how people act. (Table 2)

The Keirsey Temperament Sorter is the most widely used personality instrument in the world (Keirsey, 2017, <http://www.keirsey.com/default.aspx>, Retrieved March 28, 2017). The instrument is a seventy-question test that helps individuals discover their personality type. Keirsey's four temperaments are referred to as "Artisans," "Guardians," "Rationals," and "Idealists," (Figure 1) and these four temperaments are further subdivided into sixteen "character types." (Table 3)

### **Summary**

As the major sectors of the economy adapt and evolve in meeting the challenges of operating within a twenty-first century environment of instantaneous communications, large capital flows across borders, and disruptive technological innovations, there is an urgent need to find and employ a highly skilled accounting staff. As a result, institutions of higher education have the opportunity to identify and advise those students whose personality traits and capabilities would be most suited for a successful career in the accounting profession. Both institutions of higher education and professional accounting organizations need to coordinate their efforts to identify and recruit more students who are likely to be successful accounting graduates and productive employees.

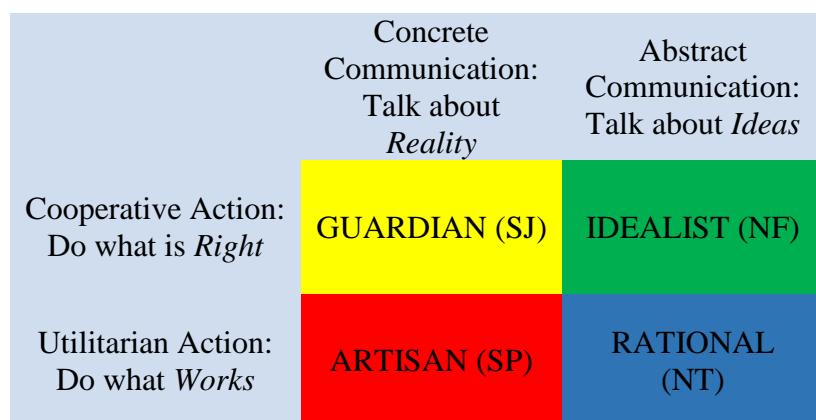
Despite criticism over the years, the use of personality assessment is a widely used tool to assist individuals in better understanding their own personality traits and the role of those

**Table 2. Technical terms of personality vs. Keirsey's meaning**

TECHNICAL TERMS Myers-Briggs & Keirsey (Originated from Jung)	MEANING Keirsey (How people act)		TECHNICAL TERMS Myers-Briggs & Keirsey (Originated from Jung)	MEANING Keirsey (How people act)
(E) Extroversion	Expressive	v s.	(I) Introversion	Attentive
(S) Sensing	Observant	v s.	(N) Intuiting	Introspective
(T) Thinking	Tough-Minded	v s.	(F) Feeling	Friendly
(J) Judging	Scheduled	v s.	(P) Perceiving	Probing

Keirsey (1998) *Please understand me II: Temperament, character, intelligence*

**Figure 1. Temperament Matrix**



Keirsey (1998) *Please understand me II: Temperament, character, intelligence*

**Table 3.** Four dichotomous pairs of preferences. The four preference scales measure a respondent's inclination for the following:

ARTISAN	GUARDIAN	RATIONAL	IDEALIST
Promoter (ESTP)	Supervisor (ESTJ)	Fieldmarshal (ENTJ)	Teacher (ENFJ)
Crafter (ISTP)	Inspector (ISTJ)	Mastermind (INTJ)	Counselor (INFJ)
Performer (ESFP)	Provider (ESFJ)	Inventor (ENTP)	Champion (ENFP)
Composer (ISFP)	Protector (ISFJ)	Architect (INTP)	Healer (INFP)

Keirsey (1998) *Please understand me II: Temperament, character, intelligence*

attributes to success in a field of study and in a career. Keirsey is concerned with what people do. He is interested in long-term behaviors and views an individual's "personality as a whole" ([http://www.keirsey.com/4temps/overview\\_temperaments.asp](http://www.keirsey.com/4temps/overview_temperaments.asp) Retrieved February 22, 2017). Assessment reports are used for individual, team, and organizational analyses. While the use of personality assessment tests provide more information to accounting educators and professionals, their use should be considered as just one other factor in determining whether a candidate is likely to succeed in a particular area of study or employment. It is the responsibility of the organization to determine the best personality type for the requirements of the position. It is the responsibility of candidates to determine whether their understanding of their own personality traits would likely result in future success and satisfaction in an accounting position.

Timing is a key element in determining the major field that is the best fit for an individual pursuing a college education. The sooner business departments can identify and inform those students with the personality traits and academic ability to succeed in completing an accounting degree, the earlier the students can complete degree requirements and be available for employment. Thus the positive results to be gained through personality assessment can be used by students, faculty, and employers to increase the effectiveness of accounting programs, to support the enhanced and focused learning by students on a compatible career path, to generate a competent highly skilled productive work force, and to promote the future well-being and progress of the American economy.

## **CHAPTER THREE**

### **METHODOLOGY**

This chapter describes the study design, sampling, instrument, data collection procedures, and data analysis. This chapter also describes the procedures used to answer the research questions, descriptive profiles of the respondents, and the data analysis for each research question.

#### **Statement of the Problem**

Accounting firms are facing significant staffing challenges resulting from a shortage of skilled candidates for job openings. A major obstacle to recruiting qualified accounting students is the scarcity of explicit and comprehensive information about student candidates possessing the characteristics and temperament types for potentially becoming successful accounting majors and ultimately professional accountants. The problem addressed in this study is identifying these characteristics and temperament types.

#### **Research Questions**

The research questions are:

**Question #1:** For students intending to major in accounting, are Keirsey's temperament and personality types different across (1) gender, (2) completion of high school accounting courses, and (3) accounting-related work experience?

**Question #2:** Do Keirsey's temperament and personality types differ among students intending to major in accounting who have vs. have not successfully completed college-level accounting coursework (upper level students) and first- and second- year students?

**Question #3:** To what extent are there differences between the temperament types of students intending to major in accounting from a selected small liberal arts teaching institution (Concord University) and a large research institution (Virginia Tech)?

### **Research Design**

In *ex post facto* research one or more preexisting conditions have caused subsequent differences (McMillian, J., 2012). Experimental research attempts to understand causal relationships through an intervention, whereas non-experimental research describes characteristics without direct or active intervention. Non-experimental research can be used to demonstrate the relationship between two variables. Research in the developmental sciences is based largely on samples of convenience rather than samples drawn at random from the population (Hultsch, D., *et al*, 2002).

In this study, non-experimental research and convenience sampling are used to collect and analyze data. The association between temperament types and accounting students' traits was evaluated. An online survey was administered to gather data from students taking accounting courses at Concord University in Athens, West Virginia and Virginia Tech in Blacksburg, Virginia.

Descriptive statistics were used to analyze inclinations of students pursuing accounting majors to determine if the character temperaments of these students agreed with Keirsey's model prediction for type fit within this academic field. Descriptive statistics are primarily tools to help understand the overall tendencies of data, the variation of the data and the position of one score in comparison to another (Clark and Creswell, 2010). John Tukey developed what he called “exploratory statistics, or exploratory data analysis” (Howell, 2013, p. 5). He demonstrated the

necessity for analyzing and examining data in detail before assessing more technically involved procedures.

The Chi-square ( $\chi^2$ ) determines the relationship between predictions and actual results in this study. The Chi-square ( $\chi^2$ ) or goodness-of-fit test is used to determine how closely observed frequencies and probabilities correlate with expected frequencies or probabilities. The term Chi-square refers to a statistical test that has “a resulting test statistic that is distributed” (Howell, 2013, p. 138). Frequencies are tabulated and presented in a contingency table. The test itself was developed by Karl Pearson (1900) and is often referred to as Pearson’s Chi-square. The expected frequencies are the frequencies one would expect if the null hypothesis or no variation between variables is true (Howell, 2013). With categorical variables, an observer cannot "use the mean or any similar statistic because the mean of a categorical variable is totally meaningless" (Field, 2013, p. 721). When categorical variables are measured, they are analyzed to determine the number of items that fall within each expected category.

### **Sample**

Study participants were selected from Concord University in Athens, West Virginia and Virginia Tech in Blacksburg, Virginia. Concord University is a small liberal arts school with an attendance of approximately 2,500 students. There are over 70 accounting undergraduate students and about 20 undergraduate accounting students graduating each year from Concord University. Virginia Tech is a large land grant research institution with overall enrollment in excess of 33,000. Virginia Tech graduates about 175 undergraduate accounting students each year, with a current enrollment of approximately 600 undergraduate accounting majors.

Nonprobability sampling was utilized in this study. Unlike probability sampling, nonprobability sampling does not involve random selection and probability. With nonprobability

sampling, subjects are selected because they are favorably geographically located and economically feasible. This strategy is more straightforward than probability sampling; however, it limits the conclusions that can be drawn from the results (Clark & Creswell, 2010). With probability theory the odds or probability that we have represented the population well can be determined. Nonprobability samples may or may not represent the population well. “Arguments in favor of nonprobability sampling typically are based on considerations of feasibility and economic constraints” (Pedhazur & Schmelkin, 1991, p. 321).

The most common and important formula for Chi-square ( $\chi^2$ ) is the comparison of observed and expected frequencies (Appendix 1). The sample size requirement for larger tables, is the rule that “all expected counts should be greater than 1 and no more than 20% of expected counts should be less than 5” (Field, 2013, p. 735).

The study population consists of approximately 670 students. The projected sample size is 112 based on the calculation of G\*Power (Appendix 2). G\*Power is a statistical power analysis tool developed by Franz Faul of Universitat Kiel, Germany. Statistical power is the probability of correctly rejecting the null hypothesis when it is false in a given sample (Type II error).

### **Instrument**

The survey instrument used in this study has two parts and was developed using Qualtrics© survey software. This software not only facilitated the development of the instrument, but also established a link to it. Part one of the instrument included six demographic and descriptive questions. Part two included the Keirsey’s Temperament Sorter (KTS-II), a 70-question survey developed by David Keirsey (Appendix 3).

## **Procedures**

During the first two weeks of August, messages were emailed to selected individuals inviting their participation in the survey (Appendix 4). A brief statement was provided explaining to the participants that their responses are to determine the factors that influenced them to pursue accounting and will be helpful in determining recommendations that may assist accounting firms in addressing significant staffing shortages of skilled candidates for job openings. The Qualtrics© program generates a link to the survey, which was included in the email message sent to the participants. Another statement in the email explained that participation in the survey was voluntary and that the survey was anonymous. A final statement assures participants that the survey is estimated to take less than 10 minutes to complete. The Qualtrics© survey does not require any special computer hardware or software. Once the participants click on the link provided in the email message, they are immediately directed to the survey page. After the participants complete and submit their surveys, a final "thank you" message is displayed. Data is collected in real-time and was exported into standard statistical analysis software packages. Qualtrics is unable to generate follow-up reminder messages when utilizing the anonymous participants' option.

## **Data Analysis**

Descriptive statistics were used to answer questions 1 and 2 by reporting the general characteristics (gender, education, accounting course hours completed, accounting work-related experience) of the student samples. Descriptive statistics include frequencies, percentages, means and standard deviations.

The results from the Keirsey Temperament Sorter (KTS-II) represent nominal (categorical) data. In nominal measurement the values represent an attribute uniquely and do not

suggest an ordering of data. Nonparametric tests do not require that the variables be normally distributed. The Chi-square test is “probably the best-known non-parametric statistic and requires only the ability to classify cases into a set of categories” (Newton & Rudestam, 1999, p. 181). Newton and Rudestam (1999) argue that when distributions are not normal and sample sizes are small, non-parametric tests may have an advantage in terms of “power as well as the control of Type I errors” (p. 86).

### **Validity and Reliability**

When scores from one instrument correlate highly with the scores of another measurement of the same traits, convergent evidence exists. “Convergent data are used as evidence of construct validity” (McMillan, 2012, p. 134). Validity is the extent to which an instrument measures what it purports to measure. The scores only have meaning if they measure what they are supposed to measure. Validity was established before the data to be analyzed was collected. A pilot test of the instrument and the procedures used in administering helped improve the credibility and usefulness of the research (McMillan, 2012).

Reliability is the overall consistency of a measure. A measure is said to have a high reliability if it produces consistent results under similar conditions. “It is important to remember that a test is not reliable or unreliable. Reliability is a property of the scores on a test for a particular population” (Capraro, p. 590). Currently, there are no published reliability statistics for the KTS-II (Keirsey, 2017). However, over 40 million people from 140 countries in 18 different languages have taken the KTS-II (Keirsey, 2017, <http://www.keirsey.com/default.aspx>, Retrieved March 28, 2017).

Reliability of the KTS-II was assessed with a test of internal consistency. Internal consistency tests require only a single administration of the survey. A determination was made

concerning the consistency of results across items within the test to assess the degree to which all items measuring the same construct are similar. Average inter-item correlation and the Kuder-Richardson formula (KR-20) are measures of reliability for measures with dichotomous choices. All selections within the KTS-II are dichotomous.

### **Pilot Study**

A pilot study was conducted to test the data gathering process. Participants were provided the instrument to assess the appropriateness of the wording and understandability of the questions. The process of accessing the survey and the time requirements for completion of the instrument was reviewed and evaluated. The participants in the pilot study were students enrolled in selected courses at Virginia Tech and Concord University. Requests for student participation was made with course instructors.

The results of the survey was compiled and entered into the Excel and IBM SPSS Statistical Software packages to determine descriptive statistics, reliability, and Chi-square tests. Modifications to the instrument were made as needed.

### **Summary**

This chapter detailed the study design, sampling, instrument, data collection procedures, and data analysis. Descriptions of the procedures used to answer the research questions, descriptive profiles of the respondents, and data analysis for each research question are also included. Chapter 4 analyzes the findings of the research. Chapter 5 discusses and present the recommendations drawn from the findings.

## **CHAPTER FOUR**

### **RESULTS**

Accounting firms are facing significant staffing challenges resulting from a shortage of skilled candidates for job openings. A major obstacle to recruiting qualified accounting students is the scarcity of explicit and comprehensive information about student candidates possessing the characteristics and temperament types for potentially becoming successful accounting majors and ultimately professional accountants.

The 2012 Pathways Commission report, issued by the American Accounting Association (AAA) and the American Institute of Certified Public Accountants (AICPA), “advocates for closer links between research and practice as well as between practice and education” (Singer and Wiesner, 2013, p.22). The results of a number of studies have indicated that psychometric instruments, such as the Keirsey Temperament Sorter (KTS-II), are useful to researchers interested in investigating the influence of an individual's personality traits in accounting practice and education (Wheeler, Jessup, and Martinez, 2002). Employers, college recruiters, educators and students may benefit from the findings in this current study, which used the KTS-II Temperament Sorter personality questionnaire to collect the necessary data.

The purpose of this study was to examine the temperament and personality types of students intending to major in accounting. This analysis was based on Keirsey's determination of temperament and character of individuals. A quantitative study was utilized to answer the research questions in this study. This chapter provides the results of the data analysis and findings of the following research questions.

**Question #1:** For students intending to major in accounting, are Keirsey's temperament and personality types different across (1) gender, (2) completion of high school accounting courses, and (3) accounting-related work experience?

**Question #2:** Do Keirsey's temperament and personality types differ among students who have vs. have not successfully completed accounting coursework (upper level students) and first and second year students?

**Question #3:** To what extent are there relationships between the temperament types of students intending to major in accounting from a selected small liberal arts teaching institution (Concord University) and a large research institution (Virginia Tech)?

### **Pilot Study Implications**

A pilot study was conducted during fall semester 2017 with a sample of one thousand and twenty-four students enrolled in six sections of principles of accounting and intermediate accounting courses at Concord University in Athens, West Virginia and Virginia Tech in Blacksburg, Virginia. Extra academic credit was given to students to encourage participation. Initially 779 students completed the KTS-II questionnaire and demographics survey instrument, of which 235 were students planning to major in accounting. This generated a 76% return rate, with a usable response rate of 30%. When closely examining the return rate, it was found that the participation rate of students enrolled in principles courses was much higher than students taking intermediate courses. To encourage greater participation, all students who completed the survey instrument were offered the opportunity to receive a gift card. Moreover, additional courses were added to increase junior and senior student participation for the actual study.

The wording or understandability of questions included on the demographic survey instrument did not present a problem. The time for completion of the questionnaire and

demographic survey instrument averaged 10 minutes and 18 seconds. No changes were implemented to the survey instrument for the study.

### **Participation in the Study**

Study participants were from selected courses at Concord University in Athens, West Virginia and Virginia Tech in Blacksburg, Virginia. Instructors from the courses listed in Table 4 approved the contacting of their students to participate in the study.

**Table 4. Schools and Courses Utilized in Sample**

<b>Course Name</b>	<b>School</b>
Principles of Accounting I	Concord University
Principles of Accounting	Virginia Tech
Intermediate Financial Accounting I	Virginia Tech
Intermediate Financial Accounting II	Virginia Tech
Intermediate Accounting II	Concord University
Auditing	Concord University
Federal and State Taxation	Concord University
Cost Planning and Control	Virginia Tech

During the first week of the Spring Semester 2018, the KTS-II questionnaire and demographics survey instrument were made available online to students enrolled in the courses included in the study at the two universities. Access to the questionnaire and survey instrument remained open for three weeks. Initially, students were e-mailed a message requesting their participation in the study (Appendix 3). A brief statement explained the purpose of the study, the voluntary participation of students, and the information concerning extra credit offered by

instructors, as well the chance opportunity to be selected to receive an Amazon gift card for their participation.

Seven gift cards were available: \$100 card (1), \$50 cards (2), and \$25 cards (4).

Participants who were interested in entering the Amazon gift card drawings were directed through a link to a separate online site at the conclusion of the KTS-II questionnaire. This maintained anonymity, and the researcher was unable to access any of the participants' completed questionnaires. This process was also used for students who were interested in receiving the extra credit incentive. Of the 466 surveys completed, 423 students registered for the drawing and/or extra credit.

### **Completion of the KTS-II Questionnaire and Demographics Survey Instrument**

The email message sent to students provided a link to a Qualtrics© Program that included the KTS-II questionnaire and the demographics survey instrument. The Qualtrics© program was used to collect the data, which was then downloaded into an excel spreadsheet. From the excel spreadsheet; data was manually entered into KTS-II answer sheets to determine the Keirsey personality type for each participant (Refer to Appendix 4). As the personality types were determined, they were entered into an excel spreadsheet in order to conduct chi-square tests of independence, chi-square goodness of fit results, and the frequency analyses. The time for respondents completing both instruments in the actual study averaged 10 minutes and 36 seconds.

Eight hundred and seventy-four students who were currently enrolled in the eight courses listed in Table 4 were asked to participate in the demographic survey and questionnaire. Four hundred and eighty-four students accessed the Qualtrics© link to complete the KTS-II questionnaire and survey, representing a 55% response rate. The usable responses of students

intending to major in accounting represented a 24% return rate. Of the 484 students who accessed the questionnaire and survey, 18 did not complete the questionnaire. A total of 466 completed surveys were submitted, of which 212 (46%) were from students majoring in accounting or intending to major in accounting. The remaining 254 (54%) completed surveys were from students who were not intending to major in accounting, and therefore, they were not analyzed.

### **Demographic Data**

Selected demographic data relating to the characteristics of the 212 students intending to major in accounting and participating in this study (Table 5):

**Table 5. Characteristics of Sample of Students Intending to Major in Accounting**

Male	<b>118</b>	<b>56%</b>
Female	<b>94</b>	<b>44%</b>
Attended Virginia Tech	<b>193</b>	<b>91%</b>
Attended Concord University	<b>19</b>	<b>9%</b>
Completed Accounting-Related Course(s) in High School	<b>62</b>	<b>29%</b>
No Accounting-Related Course(s) in High School	<b>150</b>	<b>71%</b>
Have Accounting-Related Work Experience	<b>50</b>	<b>24%</b>
No Accounting-Related Work Experience	<b>162</b>	<b>76%</b>
First and Second Year Students ( $\leq$ 12 Accounting Credit Hours)	<b>152</b>	<b>72%</b>
Upper Level Students ( $>$ 12 Accounting Credit Hours)	<b>60</b>	<b>28%</b>

## Results of the KTS-II Questionnaire Data

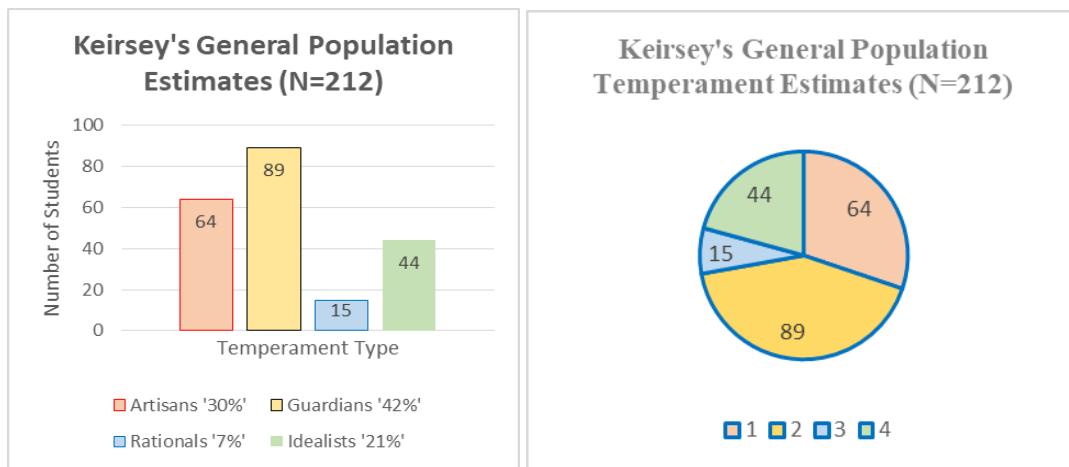
Keirsey's approximations of the percentages for the sixteen personality types for the general population are shown below (Figure 2). Comparing Keirsey's estimates with the 212 respondents in this study revealed a larger percentage of Guardians (74%) when compared to Keirsey's expectation of 42% (Table 6). Figure 3 shows the breakdown of the students' primary groups.

**Table 6. Actual Percentages of Temperament Types and Keirsey's Estimations**

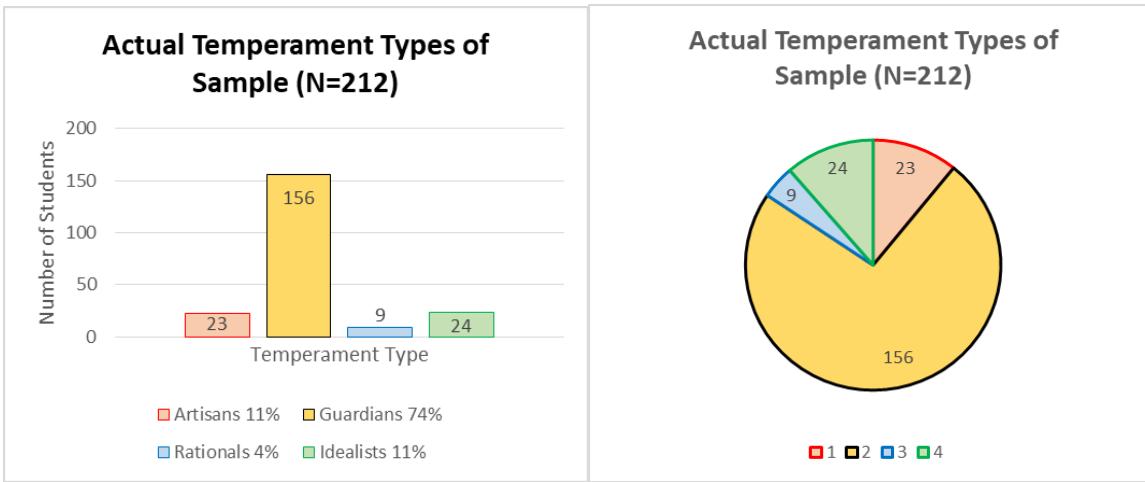
<b>Participants Temperament Types</b>	<b>N=212</b>
Artisans	N=23 11%
Guardians	N=156 74%
Rationals	N=9 4%
Idealists	N=24 11%

<b>Estimate of Keirsey's Temperament Types</b>	<b>N=212</b>
Artisans	N=64 30%
Guardians	N=89 42%
Rationals	N=15 7%
Idealists	N=44 21%



**Figure 2. Distribution of Temperament Types of the General Population**  
(Keirsey (1998) *Please understand me II: Temperament, character, intelligence*)



**Figure 3. Distribution of Temperament Types of the students intending to major in accounting.**

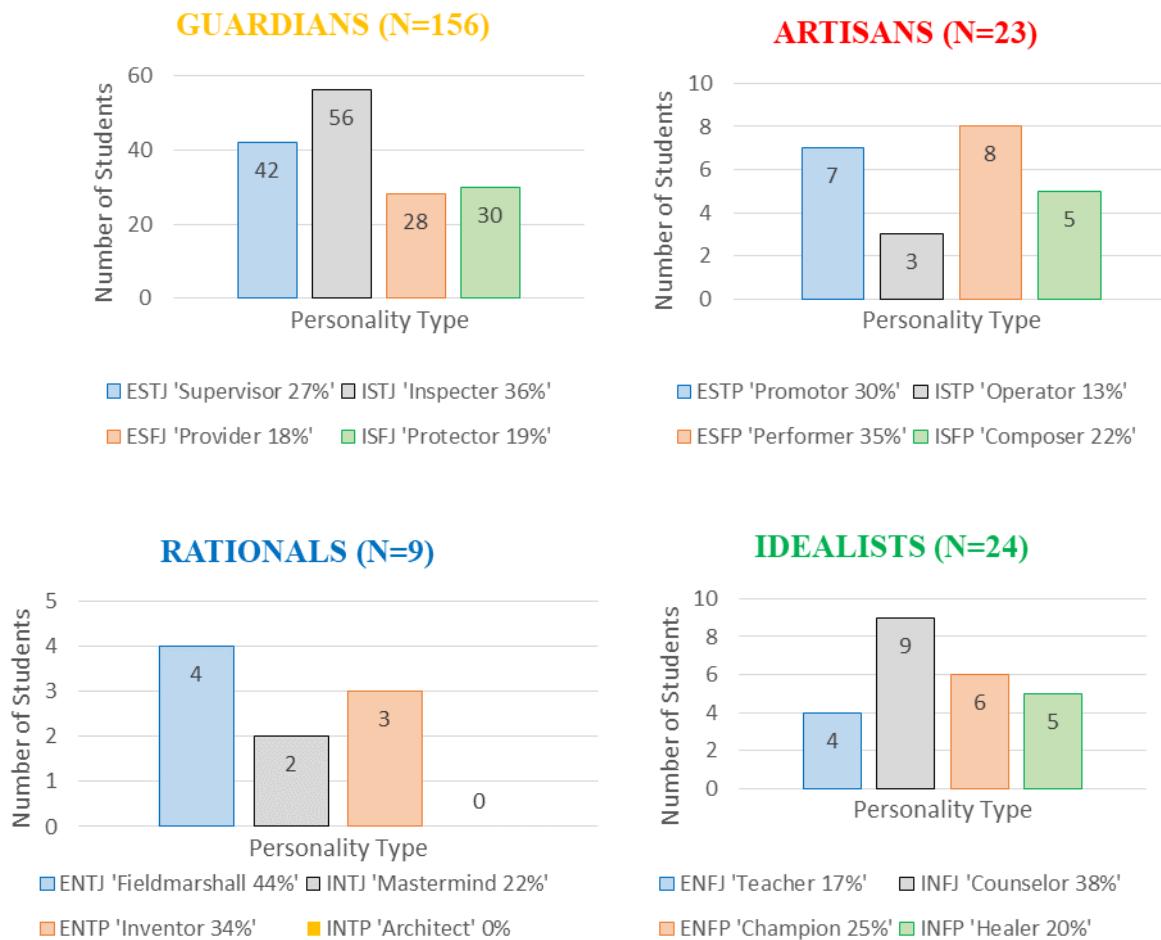
“While Dr. Keirsey describes the four temperaments comprehensively in *Please Understand Me II*, he also recognizes that there’s a significant pattern of differences within each temperament, (Montgomery, S., People Patterns, 2011, p. 167)”. Table 3 depicts the four temperaments (Artisans, Guardians, Rationalists and Idealists) and further details of the four distinct types within each broad category, revealing the sixteen possible personality types.

**Table 3. Four dichotomous pairs of preferences. The four preference scales measure a respondent's inclination for the following:**

ARTISAN	GUARDIAN	RATIONAL	IDEALIST
Promoter (ESTP)	Supervisor (ESTJ)	Fieldmarshal (ENTJ)	Teacher (ENFJ)
Crafter (ISTP)	Inspector (ISTJ)	Mastermind (INTJ)	Counselor (INFJ)
Performer (ESFP)	Provider (ESFJ)	Inventor (ENTP)	Champion (ENFP)
Composer (ISFP)	Protector (ISFJ)	Architect (INTP)	Healer (INFP)

Keirsey (1998) *Please understand me II: Temperament, character, intelligence*

Results of the total representation of the students in this study show that 74% of them have a Guardian temperament (Table 6). Of those participants who have a Guardian temperament, they are further divided into the following personality types: 27% Supervisor (ESTJ), 36% Inspector (ISTJ), 18% Provider (ESFJ) and 19% Protector (ISFJ) (Figure 4).



**Figure 4.** The four temperament types further divided into sixteen personality types for the respondents.

### Chi-Square ( $\chi^2$ ) Formula

$$\chi^2 = \sum \left( \frac{O-E}{E} \right)^2$$

O = the frequencies observed

E = the frequencies expected

$\Sigma$  = the ‘sum of’

**Figure 5.** Reporting the results of the chi-square test of independence ( $\chi^2$ )

The critical values (C.V.) of chi-square ( $\chi^2$ ) at the error probabilities ( $\alpha$ ) of .05 and .0001 are displayed in Appendix 1. This test of independence (Figure 5) examined the relationship between Keirsey's personality type expectations and the personality types of Virginia Tech and Concord University students and found that the relationship between these two variables was significant,  $\chi^2 (15, N = 212), 111.435, p < .0001$  (Table 7). The distribution among the sample students' 16 personality types is not as expected for the general population as estimated by Keirsey.

**Table 7. Test for Independence: Actual and Expected Personality Types of Concord University and Virginia Tech Students compared to Keirsey's General Population Estimates (N=212)**

Artisans		Guardians		Rationals		Idealists	
<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected</u>
7 (ESTP)	19.08 (ESTP)	42 (ESTJ)	23.32 (ESTJ)	4 (ENTJ)	4.24 (ENTJ)	4 (ENFJ)	4.24 (ENFJ)
3 (ISTP)	8.48 (ISTP)	56 (ISTJ)	23.32 (ISTJ)	2 (INTJ)	2.12 (INTJ)	9 (INFJ)	16.96 (ISTP)
8 (ESFP)	19.08 (ESFP)	28 (ESFJ)	21.20 (ESFJ)	3 (ENTP)	4.24 ENTP	6 (ENFP)	6.36 (ENFP)
5 (ISFP)	19.08 (ISFP)	30 (ISFJ)	21.20 (ISFJ)	0 (INTP)	4.24 (INTP)	5 (INFP)	16.96 (INFP)

**Chi-Square Formula:**  $\chi^2 = \sum (\frac{O-E}{E})^2$ , O = the frequencies observed, E = the frequencies expected.  $\Sigma$  = the 'sum of'

Note 1. Normalized weights were recalculated based on the new subsample and were used in this analysis

Note 2.  $\chi^2(15, N=212) = 111.435, p < 0.0001$

Note 3. C.V. 44.263, p-value 7.50163E-20

### Data Analyzed by Research Questions

**Question #1:** For students intending to major in accounting, are Keirsey's temperament and personality types different across (1) gender, (2) completion of high school accounting courses, and (3) accounting-related work experience?

## Gender:

As with the overall distributions, Supervisor (ESTJ) and Inspector (ISTJ) dominate the personality types for both genders. For male survey respondents intending to major in accounting, the Guardian temperament is represented as 22% Supervisor (ESTJ) and 25% Inspector (ISTJ) for a total of 47% for two personality types. Overall male representation for the Guardian temperament is 73%.

For female survey respondents intending to major in accounting, the Guardian temperament is represented as 17% Supervisor (ESTJ) and 24% Inspector (ISTJ) for a total of 41%. The total female representation of the Guardian temperament is very similar to the male gender at 74% (Table 8).

**Table 8. Actual Personality Types of Male and Female Respondents (N=212)**

Artisans		Guardians		Rationals		Idealists	
<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
4 (ESTP)	3 (ESTP)	<b>26 (ESTJ)</b>	<b>17 (ESTJ)</b>	2 (ENFJ)	2 (ENTJ)	1 (ENFJ)	3 (ENFJ)
2 (ISTP)	1 (ISTP)	<b>30 (ISTJ)</b>	<b>24 (ISTJ)</b>	1 (INTJ)	1 (INTJ)	8 (INFJ)	1 (ISTP)
6 (ESFP)	2 (ESFP)	<b>18 (ESFJ)</b>	<b>10 (ESFJ)</b>	2 (ENTP)	1 ENTP	2 (ENFP)	4 (ENFP)
2 (ISFP)	3 (ISFP)	<b>12 (ISFJ)</b>	<b>19 (ISFJ)</b>	0 (INTP)	0 (INTP)	2 (INFP)	3 (INFP)
14	9	<b>86</b>	<b>70</b>	5	4	13	11
12%	10%	<b>73%</b>	<b>74%</b>	4%	4%	11%	12%

The test of independence (Figure 5) examined the relationship between actual personality type for males vs. females at Virginia Tech and Concord University. The relationship between

these two variables was not significant,  $\chi^2 (15, N = 94) = 8.5199$ ,  $p > .05$  (Table 9). There was no difference between personality types of male and females in the study.

**Table 9. Test for Independence: Actual Personality Types of Female vs. Male Students (N=94)**

Artisans		Guardians		Rationals		Idealists	
<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>
3 (ESTP)	3.19 (ESTP)	26 (ESTJ)	20.71 (ESTJ)	2 (ENTJ)	1.59 (ENTJ)	1 (ENFJ)	0.80 (ENFJ)
1 (ISTP)	1.59 (ISTP)	30 (ISTJ)	23.89 (ISTJ)	1 (INTJ)	0.80 (INTJ)	8 (INFJ)	6.37 (INFJ)
2 (ESFP)	4.78 (ESFP)	18 (ESFJ)	14.34 (ESFJ)	2 (ENTP)	1.59 ENTP	2 (ENFP)	1.59 (ENFP)
3 (ISFP)	1.59 (ISFP)	12 (ISFJ)	9.56 (ISFJ)	0 (INTP)	0.00 (INTP)	2 (INFP)	1.59 (INFP)

**Chi-Square Formula:**  $\chi^2 = \sum \left( \frac{O-E}{E} \right)^2$ , O = the frequencies observed, E = the frequencies expected.  $\Sigma$  = the ‘sum of’

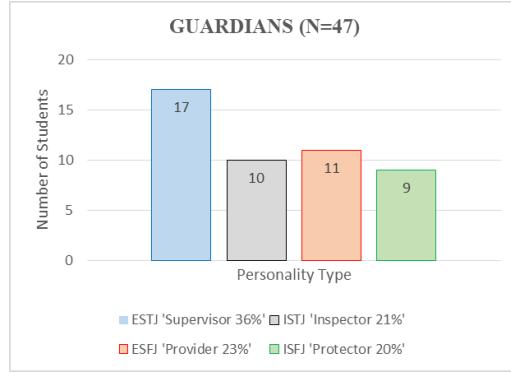
Note 1. Normalized weights were recalculated based on the new subsample and were used in this analysis

Note 2.  $\chi^2(15, N=94) = 8.519851$ ,  $p>0.05$

Note 3. C.V. 24.99, p-value 0.4827

### Completion of High School Course:

Sixty-two (29%) of the 212 accounting students had completed a high school accounting related course. Forty-seven of the 62 students (76%) were Guardians. Respondents who had completed a high school accounting-related course had predominately the Guardian temperament, a division of this temperament into 36% Supervisor (ESTJ) and 21% Inspector (ISTJ) (Figure 6).



**Figure 6. Personality Types within the Guardian Temperament for Students Completing Accounting Related High School Courses**

The test of independence (Figure 5) compared the differences in personality types among respondents who had completed an accounting-related high school course with those students who had not completed an accounting-related high school course. The relationship between these two variables was not significant,  $\chi^2 (15, N = 62) = 12.8925, p > .05$  (Table 10). There were no differences between actual personality types of respondents who had completed accounting-related high school courses and expected personality types of students who intended to major in accounting.

**Table 10. Test for Independence: Students who had Completed a High School Accounting-related Course and Intended to Major in Accounting (N=62)**

Artisans		Guardians		Rationals		Idealists	
<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected</u>
2 (ESTP)	2.05 (ESTP)	17 (ESTJ)	12.58 (ESTJ)	1 (ENTJ)	1.17 (ENTJ)	0 (ENFJ)	1.17 (ENFJ)
0 (ISTP)	0.88 (ISTP)	10 (ISTJ)	15.79 (ISTJ)	1 (INTJ)	0.58 (INTJ)	2 (INFJ)	2.63 (ISTP)
1 (ESFP)	2.34 (ESFP)	11 (ESFJ)	8.19 (ESFJ)	1 (ENTP)	0.88 ENTP	1 (ENFP)	1.75 (ENFP)
4 (ISFP)	1.46 (ISFP)	9 (ISFJ)	9.07 (ISFJ)	0 (INTP)	0.00 (INTP)	2 (INFP)	1.46 (INFP)

**Chi-Square Formula:**  $\chi^2 = \sum (\frac{O-E}{E})^2$ , O = the frequencies observed, E = the frequencies expected.  $\Sigma$  = the 'sum of'

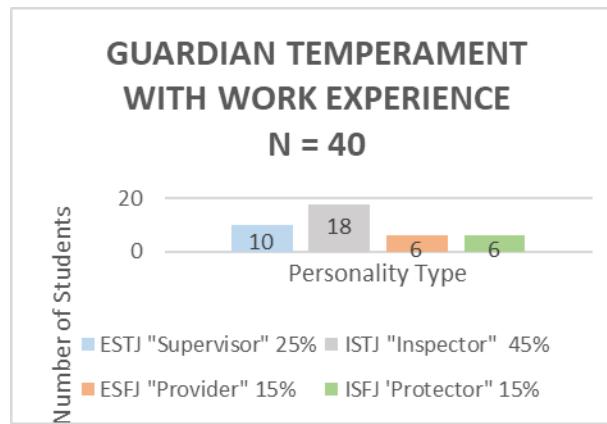
Note 1. Normalized weights were recalculated based on the new subsample and were used in this analysis

Note 2.  $\chi^2(15, N=62) = 12.8925, p>0.05$

Note 3. C.V. 24.99, p-value 0.1675

### **Accounting-related work experience:**

Fifty (24%) students had accounting-related work experience and demonstrated the Guardian temperament which was found in 40 (80%) of those 50 students. Those 40 students were further sub-divided into 25% Supervisor (ESTJ) and 45% Inspector (ISTJ) (Figure 7).



**Figure 7. Personality Types within the Guardian Temperament for Students with Accounting Related Work Experience**

The test of independence (Figure 5) examined the relationship among respondents who had accounting-related work experience and the expected personality types of respondents who intended to major in accounting. The relationship between these two variables was not significant,  $\chi^2 (15, N = 50) = 13.763, p > .05$  (Table 11). There were no differences between actual personality types of respondents with accounting-related high work experience and expected personality types of students who intended to major in accounting.

**Table 11. Test for Independence: Actual Responses of Students who had Accounting-related Work Experience and Expectations of Student Intending to Major in Accounting (N=40)**

Artisans		Guardians		Rationals		Idealists	
<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected</u>
0 (ESTP)	1.65 (ESTP)	10 (ESTJ)	10.14 (ESTJ)	0 (ENTJ)	0.94 (ENTJ)	3 (ENFJ)	0.94 (ENFJ)
0 (ISTP)	0.71 (ISTP)	18 (ISTJ)	12.74 (ISTJ)	0 (INTJ)	0.47 (INTJ)	1 (INFJ)	2.12 (INFJ)
1 (ESFP)	1.89 (ESFP)	6 (ESFJ)	6.60 (ESFJ)	0 (ENTP)	0.71 ENTP	1 (ENFP)	1.42 (ENFP)
3 (ISFP)	4.50 (ISFP)	6 (ISFJ)	7.31 (ISFJ)	0 (INTP)	0.00 (INTP)	1 (INFP)	0.45 (INFP)

**Chi-Square Formula:**  $\chi^2 = \sum \left( \frac{O-E}{E} \right)^2$ , O = the frequencies observed, E = the frequencies expected.  $\Sigma$  = the ‘sum of’

Note 1. Normalized weights were recalculated based on the new subsample and were used in this analysis

Note 2.  $\chi^2(15, N=50) = 13.763$ ,  $p>0.05$

Note 3. C.V. 24.99, p-value .131021

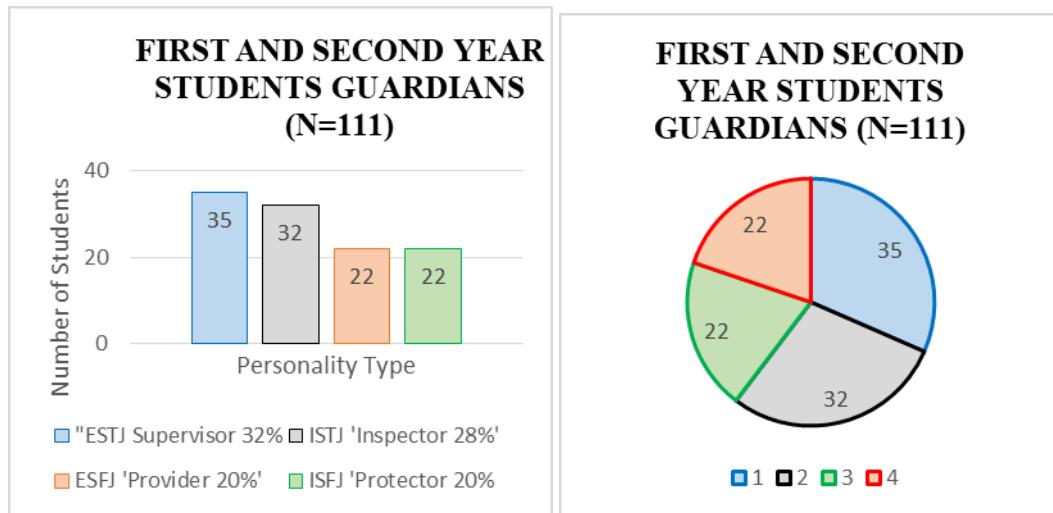
**Question #2:** Do Keirsey's temperament and personality types differ among students who have vs. have not successfully completed accounting coursework (upper level students) and first and second year students?

Of the 212 respondents intending to major in accounting, 152 were first and second year students and 60 were upper level students. First and second year students are self-reported as having 12 or fewer credit hours in courses related to accounting while upper level respondents indicated that they had enrolled in greater than 12 credit hours of accounting-related courses. Both first and second year students and upper level students are predominately Guardians (73% and 75%). (Figures 8 and Figure 9) However, within the Guardian temperament there are differences in personality types of the two groups. (Table 12). Upper level students in this sample are 54% Inspectors (ISTJ) and 15% are Supervisor (ESTJ). First and second year students are 28% Inspectors (ISTJ) and 32% Supervisor (ESTJ). Therefore, Inspectors (ISTJ)

are the dominant personality type for upper level students (54%). The primary personality type of first and second year students is Supervisor (ESTJ) (32%).

**Table 12. Actual Personality Types of First and Second Year Students (1 &2) and Upper Level Students (Upper) (N=212)**

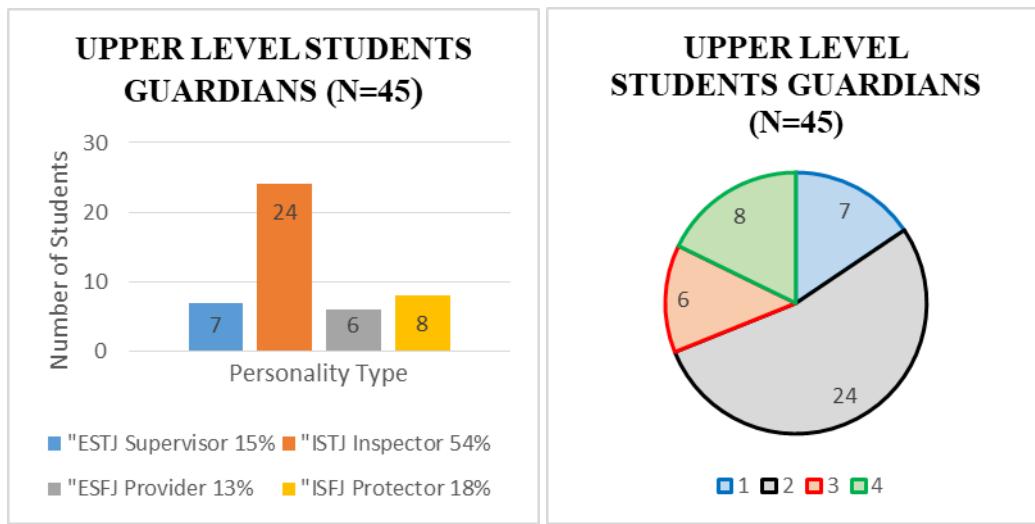
Artisans		Guardians		Rationals		Idealists	
<u>1 &amp; 2</u>	<u>Upper</u>						
6 (ESTP)	1 (ESTP)	35 (ESTJ)	7 (ESTJ)	4 (ENTJ)	0 (ENTJ)	2 (ENFJ)	2 (ENFJ)
2 (ISTP)	1 (ISTP)	32 (ISTJ)	24 (ISTJ)	1 (INTJ)	1 (INTJ)	6 (INFJ)	3 (INFJ)
6 (ESFP)	2 (ESFP)	22 (ESFJ)	6 (ESFJ)	2 (ENTP)	1 ENTP)	5 (ENFP)	1 (ENFP)
4 (ISFP)	1 (ISFP)	22 (ISFJ)	8 (ISFJ)	0 (INTP)	0 (INTP)	3 (INFP)	2 (INFP)



**Figure 8. Personality Types within the Guardian Temperament for First and Second Year Students**

The test of independence (Figure 5) examined the relationship between Keirsey's personality type expectations and the personality types of first and second year students at Virginia Tech and Concord University. The relationship between these two variables was

significant,  $\chi^2 (15, N = 152) = 72.540$ ,  $p < .0001$  (Table 13). The distribution among the sample students' personality types was not as expected for the general population.



**Figure 9. Personality Types within the Guardian Temperament for Upper Level Students**

**Table 13. Test for Independence: Actual Personality Types of First and Second Year Students vs. Keirsey's Estimation of General Population Personalities (N=152)**

Artisans		Guardians		Rationals		Idealists	
<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected</u>
6 (ESTP)	13.68 (ESTP)	35 (ESTJ)	16.72 (ESTJ)	4 (ENTJ)	3.04 (ENTJ)	2 (ENFJ)	3.04 (ENFJ)
2 (ISTP)	6.08 (ISTP)	32 (ISTJ)	16.72 (ISTJ)	1 (INTJ)	1.52 (INTJ)	6 (INFJ)	12.16 (ISTP)
6 (ESFP)	13.68 (ESFP)	22 (ESFJ)	15.20 (ESFJ)	2 (ENTP)	3.04 ENTP	5 (ENFP)	4.56 (ENFP)
4 (ISFP)	13.68 (ISFP)	22 (ISFJ)	15.20 (ISFJ)	0 (INTP)	3.04 (INTP)	3 (INFP)	12.16 (INFP)

**Chi-Square Formula:**  $\chi^2 = \sum (\frac{O-E}{E})^2$ , O = the frequencies observed, E = the frequencies expected.  $\Sigma$  = the 'sum of'

Note 1. Normalized weights were recalculated based on the new subsample and were used in this analysis

Note 2.  $\chi^2(15, N=152) = 72.540$ ,  $p < 0.0001$

Note 3. C.V. 44.263, p-value 4.82639E-12

The test of independence (Figure 5) examined the relationship between Keirsey's personality type expectations and the personality types of upper level students at Virginia Tech

and Concord University. The relationship between these two variables was significant,  $\chi^2 (15, N = 60) = 62.5886$ ,  $p < .0001$  (Table 14). The distribution among the sample students' personality types was not as expected for the general population.

**Table 14. Test for Independence: Actual Personality Types of Upper Level Students and Keirsey's Estimation of General Population Personalities (N=60)**

Artisans		Guardians		Rationals		Idealists	
<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected</u>
1 (ESTP)	5.40 (ESTP)	7 (ESTJ)	6.60 (ESTJ)	0 (ENTJ)	1.20 (ENTJ)	2 (ENFJ)	1.20 (ENFJ)
1 (ISTP)	2.40 (ISTP)	24 (ISTJ)	6.60 (ISTJ)	1 (INTJ)	0.80 (INTJ)	3 (INFJ)	4.80 (ISTP)
2 (ESFP)	5.40 (ESFP)	6 (ESFJ)	6.00 (ESFJ)	1 (ENTP)	1.20 ENTP)	1(ENFP)	1.80 (ENFP)
1 (ISFP)	5.40 (ISFP)	8 (ISFJ)	6.00 (ESFJ)	0 (INTP)	1.20 (INTP)	2 (INFP)	4.80 (INFP)

**Chi-Square Formula:**  $\chi^2 = \sum (\frac{O-E}{E})^2$ , O = the frequencies observed, E = the frequencies expected.  $\Sigma$  = the 'sum of'

Note 1. Normalized weights were recalculated based on the new subsample and were used in this analysis

Note 2.  $\chi^2(15, N=60) = 62.588$ ,  $p < 0.0001$

Note 3. C.V. 44.263, p-value 4.2386E-10

The test of independence (Figure 5) examined the relationship between the actual personality types of first and second year students and the actual personality types of upper level students at Virginia Tech and Concord University. The relationship between these two variables was significant,  $\chi^2 (15, N = 60) = 21.2348$ ,  $p < .05$  (Table 15). The responses of first and second year students and upper level students are independent.

**Table 15. Test for Independence: Actual Responses of Upper Level Students vs. the Actual Responses of First and Second Year Students (N=60)**

<b>Artisans</b>		<b>Guardians</b>		<b>Rationals</b>		<b>Idealists</b>	
<b>Upper</b>	<b>1 &amp; 2</b>	<b>Upper</b>	<b>1 &amp; 2</b>	<b>Upper</b>	<b>1 &amp; 2</b>	<b>Upper</b>	<b>1 &amp; 2</b>
1 (ESTP)	2.34 (ESTP)	7 (ESTJ)	13.80 (ESTJ)	0 (ENTJ)	1.56 (ENTJ)	2 (ENFJ)	0.78 (ENFJ)
1 (ISTP)	0.78 (ISTP)	24 (ISTJ)	12.60 (ISTJ)	1 (INTJ)	0.42 (INTJ)	3 (INFJ)	2.34 (ISTP)
2 (ESFP)	2.34 (ESFP)	6 (ESFJ)	8.70 (ESFJ)	1 (ENTP)	0.78 ENTP)	1(ENFP)	1.98 (ENFP)
1 (ISFP)	1.56 (ISFP)	8 (ISFJ)	8.70 (ESFJ)	0 (INTP)	0.06 (INTP)	2 (INFP)	1.20 (INFP)

**Chi-Square Formula:**  $\chi^2 = \sum \frac{(O-E)^2}{E}$ , O = the frequencies observed, E = the frequencies expected.  $\Sigma$  = the ‘sum of’

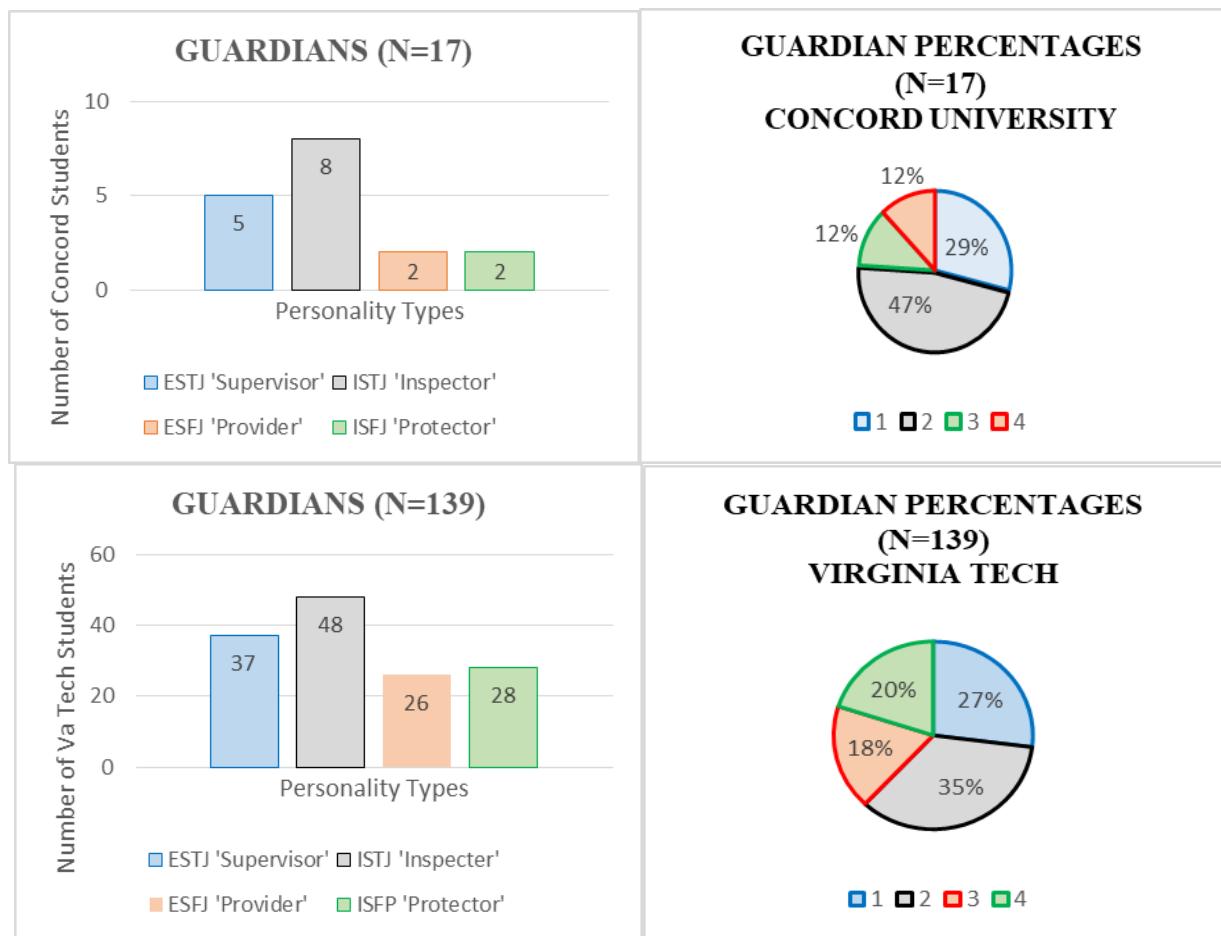
Note 1. Normalized weights were recalculated based on the new subsample and were used in this analysis

Note 2.  $\chi^2(15, N=60) = 21.2348$ ,  $p<0.05$

Note 3. C.V. 24.99, p-value 0.011648

**Question #3:** To what extent are there relationships between the temperament types of students intending to major in accounting from a selected small liberal arts teaching institution (Concord University) and a large research institution (Virginia Tech)?

Respondents at Concord University and Virginia Tech are predominantly Guardians. (Figure 10) Concord students in this sample are 89% Guardians with two principal personality types of 29% Supervisors (ESTJ) and 47% Inspectors (ISTJ). Virginia Tech students in this sample are 72% Guardians with the two principal personality types of 27% Supervisors (ESTJ) and 35% Inspectors (ISTJ) (Figure 10). However, the low response rate of Concord University students (19 students) presents difficulty in evaluating the similarity of personality types between the two schools.



**Figure 10. Actual Number of Guardian Personalities of Concord and Virginia Tech Students**

The test of independence (Figure 5) examined the relationship between actual Concord student responses and Keirsey's personality type expectations. The relationship between these two variables was significant,  $\chi^2 (15, N = 19) = 57.9769, p < .0001$  (Table 16). The personality types of Concord students intending to major in accounting exceed Keirsey's estimation of the personality types of the general population.

**Table 16. Test for Independence: Actual Personality Types of Concord University Students and Keirsey Personality Type Expectations and (N=19)**

Artisans		Guardians		Rationals		Idealists	
<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected</u>
1 (ESTP)	0.99 (ESTP)	5 (ESTJ)	1.21 (ESTJ)	0 (ENTJ)	0.22 (ENTJ)	0 (ENFJ)	0.22 (ENFJ)
0 (ISTP)	0.44 (ISTP)	8 (ISTJ)	1.21 (ISTJ)	0 (INTJ)	0.11 (INTJ)	0 (INFJ)	0.88 (INFJ)
0 (ESFP)	0.99 (ESFP)	2 (ESFJ)	1.10 (ESFJ)	0 (ENTP)	0.22 ENTP)	1 (ENFP)	0.33 (ENFP)
0 (ISFP)	0.99 (ISFP)	2 (ISFJ)	1.10 (ISFJ)	0 (INTP)	0.22 (INTP)	0 (INFP)	0.88 (INFP)

**Chi-Square Formula:**  $\chi^2 = \sum \left( \frac{O-E}{E} \right)^2$ , O = the frequencies observed, E = the frequencies expected.  $\Sigma$  = the ‘sum of’

Note 1. Normalized weights were recalculated based on the new subsample and were used in this analysis

Note 2.  $\chi^2(15, N=19) = 57.9769, p < 0.0001$

Note 3. C.V. 44.263, p-value 3.28367E-09

The test of independence (Figure 5) examined the relationship between actual Virginia Tech student responses and Keirsey’s personality type expectations. The relationship between these two variables was significant,  $\chi^2 (15, N = 193) = 89.827, p < .0001$ . (Table 17). The personality types of Virginia Tech students intending to major in accounting also exceed Keirsey’s estimation of the personality types of the general population.

**Table 17. Test for Independence: Actual Personality Types of Virginia Tech Students and Keirsey Personality Type Expectations and (N=193)**

Artisans		Guardians		Rationals		Idealists	
<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected</u>
6 (ESTP)	17.37 (ESTP)	37 (ESTJ)	21.23 (ESTJ)	4 (ENTJ)	3.86 (ENTJ)	4 (ENFJ)	3.86 (ENFJ)
3 (ISTP)	7.72 (ISTP)	48 (ISTJ)	21.23 (ISTJ)	2 (INTJ)	1.93 (INTJ)	9 (INFJ)	15.44 (INFJ)
8 (ESFP)	17.37 (ESFP)	26 (ESFJ)	19.30 (ESFJ)	3 (ENTP)	3.86 ENTP)	5 (ENFP)	5.79 (ENFP)
5 (ISFP)	17.37 (ISFP)	28 (ISFJ)	19.30 (ISFJ)	0 (INTP)	3.86 (INTP)	5 (INFP)	15.44 (INFP)

**Chi-Square Formula:**  $\chi^2 = \sum \left( \frac{O-E}{E} \right)^2$ , O = the frequencies observed, E = the frequencies expected.  $\Sigma$  = the ‘sum of’

Note 1. Normalized weights were recalculated based on the new subsample and were used in this analysis

Note 2.  $\chi^2(15, N=193) = 89.827, p < 0.0001$

Note 3. C.V. 44.263, p-value 1.76348E-15

The test of independence (Figure 5) examined the relationship between personality types of Virginia Tech students and the actual personality types of Concord University students. The relationship between these two variables was not significant,  $\chi^2$  (15, N = 19) = 8.133. p.05 (Table 18). Responses of Concord students vs. Virginia Tech students show no correlation.

**Table 18. Test for Independence: Actual Personality Types of Concord University Students and Actual Personality Types of Virginia Tech Students (N=19)**

Artisans		Guardians		Rationals		Idealists	
<u>Concord</u>	<u>Va Tech</u>						
1 (ESTP)	0.59 (ESTP)	5 (ESTJ)	3.65 (ESTJ)	0 (ENTJ)	0.38 (ENTJ)	0 (ENFJ)	0.38 (ENFJ)
0 (ISTP)	0.30 (ISTP)	8 (ISTJ)	4.73 (ISTJ)	0 (INTJ)	0.19 (INTJ)	0 (INFJ)	0.89 (INFJ)
0 (ESFP)	0.78 (ESFP)	2 (ESFJ)	2.57 (ESFJ)	0 (ENTP)	0.30 ENTP)	1 (ENFP)	0.49 (ENFP)
0 (ISFP)	0.49 (ISFP)	2 (ISFJ)	2.76 (ISFJ)	0 (INTP)	0.02 (INTP)	0 (INFP)	0.49 (INFP)

**Chi-Square Formula:**  $\chi^2 = \sum (\frac{O-E}{E})^2$ , O = the frequencies observed, E = the frequencies expected.  $\Sigma$  = the ‘sum of’

Note 1. Normalized weights were recalculated based on the new subsample and were used in this analysis

Note 2.  $\chi^2(15, N=19) = 8.1333$ , p>0.05

Note 3. C.V. 24.99, p-value 0.52077

## Summary

The general population distribution of temperament types, as defined by Keirsey (Guardian, Artisan, Idealist, and Rational) was compared to the temperament type of the students intending to major in accounting in this study at two institutions of higher education. Keirsey estimated that the Guardian temperament type would comprise 42% of the general population. In this study of accounting students at Virginia Tech and Concord University, student scores on the Keirsey Temperament Sorter II indicated the preponderance of a Guardian temperament of 74%, which far exceeded the Keirsey projection of 42% in the general population. The percentage of accounting students is similar to findings of previous research done with the

Myers-Briggs Type Indicator (MBTI). However, most of the research with the MBTI is related to accounting professionals, rather than accounting students.

Further analysis of the Guardian temperament provides additional insight into the actions of Guardians. The inclinations of the four personality types of Guardians are Supervisor, Inspector, Provider and Protector. Differences between the personality types highlight the comparisons reflected in the research questions. Demographic data do not show a significant difference among Guardian types. The cohort of first and second year students and the cohort of upper level students differed in personality types with upper level students reflecting more similarities with accounting professionals. (Table 1) Also, the low response rate from Concord University hinders comparisons with Virginia Tech. However, even with the limited data, there seems to be little difference between the personality types within the Guardian temperament of accounting students studied at these two institutions.

Although the other temperaments are found among students intending to major in accounting, the Guardian temperament was the principal personality type. Artisans and Idealists constitute just 11% each and Rationalists account for only 4%. Therefore, the focus of this research is on the Guardian temperament and its four personality types of Supervisor, Inspector, Provider and Protector.

## **CHAPTER FIVE**

### **CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS**

Chapter 5 presents an overview of the study, conclusions based on the results, a discussion of the findings, and recommendations for practice and recommendations for future research.

#### **Overview of Study**

The purpose of this study was to examine the temperaments and personality types of students intending to major in accounting by using a psychometric instrument, the Keirsey Temperament Sorter. A comparison was made using the general population distribution of temperament types, as defined by Keirsey (Guardian, Artisan, Idealist, and Rational) with the temperament types of accounting students at two institutions of higher education.

#### **Statement of the Problem**

Accounting firms are facing significant staffing challenges resulting from a shortage of skilled candidates for job openings. A major obstacle to recruiting qualified accounting students is the scarcity of explicit and comprehensive information about student candidates possessing the characteristics and temperament types for potentially becoming successful accounting majors and ultimately professional accountants. The problem addressed in this study is identifying these characteristics and temperament types, which may help students better define their educational goals and assist faculty in advising students about the match of their temperament traits with those who are successful in the accounting profession.

#### **Methodology**

A quantitative research design was used to conduct this study and descriptive statistics were employed to determine frequencies, averages and variability. Causal-comparative designs

measured the difference between two or more groups of participants involved in the research. Causal-comparative designs are also known as *ex-post facto* designs. Chi-square was used to analyze the number of responses in different temperament categories to determine if actual results were significantly different from those of the general population as proposed by Keirsey.

Non-experimental research and convenience sampling were used to collect and analyze data. The association between temperament types and accounting students' traits was evaluated. An online survey was administered to gather demographic data from students taking accounting courses at Concord University and Virginia Tech.

### **Research Questions**

**Question #1:** For students intending to major in accounting, are Keirsey's temperament and personality types different across (1) gender, (2) completion of high school accounting courses, and (3) accounting-related work experience?

**Question #2:** Do Keirsey's temperament and personality types differ among students intending to major in accounting who have vs. have not successfully completed college-level accounting coursework (upper level students) and first- and second- year students?

**Question #3:** To what extent are there differences between the temperament types of students intending to major in accounting from a selected small liberal arts teaching institution (Concord University) and a large research institution (Virginia Tech)?

### **Key Findings**

1. In the general population Keirsey expects 42% of individuals to be represented by the Guardian temperament. Respondents in this study represented a total of 74% Guardian.
2. Guardian temperament type of 156 respondents is sub-divided into 42 (27%)

- Supervisor (ESTJ), 56 (36%) Inspector (ISTJ), 28 (18%) Provider (ESFJ) and 30 (19%) Promotor (ISFJ).
3. There is no significant difference between the Guardian temperament types of males (73% of respondents) and females (74% of respondents).
  4. Sixty-two (29%) of the 212 respondents had completed an accounting-related high school course. Forty-seven of the 62 students (76%) were Guardians.
  5. Temperament type appears to be a better indicator than the completion of an accounting-related high school course in the selection of accounting as a major.
  6. Fifty (24%) of the 212 students had accounting-related work experience. Guardian temperament was found in 40 (80%) of those fifty students.
  7. Temperament type appears to be a better indicator of the desire to major in accounting than the completion of accounting-related work experience.
  8. Of the 212 respondents intending to major in accounting, 152 were first- and second-year students and 60 were upper level students.
  9. Upper level students in this sample are 54% Inspectors (ISTJ) and 15% are Supervisors (ESTJ).
  10. First- and second- year students are 28% Inspectors (ISTJ) and 32% Supervisors (ESTJ).
  11. Concord students in this sample are 89% Guardians with two principal personality types of 29% Supervisor (ESTJ) and 47% Inspector (ISTJ).
  12. Virginia Tech students in this sample are 72% Guardians with the two principal personality types of 27% Supervisor (ESTJ) and 35% Inspector (ISTJ).

13. The low response rate of Concord University students (19 students) presents difficulty in evaluating the similarity of personality types between the two schools.

## **Conclusions**

Based on the results of the study the following conclusions are presented.

### **Conclusion 1 (Temperament)**

It can be concluded that the temperament of students intending to major in accounting is generally unique as compared with the general population. Specifically, accounting students are most likely to be of the Guardian temperament.

Of the four major temperament types developed by Keirsey (Guardian, Artisan, Idealist, and Rational), in this study the Guardian temperament is most often identified with a career in accounting and business. Guardians are characterized by an attention to detail and are referred to as "the cornerstone temperament" (Montgomery, 2011, p.174). Guardians "talk about reality" and "do what is right". It is therefore logical to conclude that Guardians are typically in positions of business management, finance, auditing and accounting. Although referring to Myers Briggs results, the general findings of Shackleton (1980) reported that the "...ESTJ personality is the most common in the world of business and commerce, not just in accounting." According to Keirsey, about 42% of the general population are of the Guardian Temperament. In this study the Guardian temperament represented 74% of the respondents. Predominantly represented are the Supervisor (ESTJ) 27% and Inspector (ISTJ) 36% personality types within the Guardian temperament type. Of the 212 students in this study intending to major in accounting 156 are Guardians, 24 are Idealists, 23 are Artisans and 9 are Rationals. The Chi-Square Test of Independence determined a strong significance level at  $p < 0.0001$  that temperament types of accounting majors and the temperament types of the general population are not similar.

## **Conclusion 2 (Gender)**

It is concluded that gender does not contribute to the selection of accounting as a major. Temperament types that characterize accounting students has a greater relevance than gender.

Selected demographics of participants in this study did not reveal any significant differences in Keirsey's temperament types. The p-value of the Chi Square Test of Independence was 0.4827. The relationship between male and female respondents was not significant. Male respondents comprised 74% Guardian temperament, similarly females are comprised of 73% Guardian temperament. Further, the combination of Supervisor (ESTJ) and Inspector (ISTJ) represent 47% of males and 41% of females. The number of male respondents (56%) was greater than female respondents (44%) in this study.

## **Conclusion 3 (Accounting-related high school course)**

Taking an accounting-related course(s) in high school did not necessarily influence an individual in their selection of an accounting major in college.

Sixty-two (29%) of the 212 participants in this study had completed a high school accounting-related course. A study by Violette and Chene (2012) concludes the primary reason students chose accounting as their major was previous success in one or more accounting courses in high school. Research conducted by the AICPA found that the first accounting course high school students take greatly influences their decision to pursue accounting as a college major and a later career choice. However, in this study 71% of participants indicating a desire to major in accounting had not taken a high school accounting-related course. The relationship between those students who had completed an accounting-related high school course and the expected number of respondents was not significant, with a p-value 0.1675. Seventy-six percent of the 62 students who had completed an accounting-related course in high school were Guardians. The Guardian temperament was represented by 74% of students intending to major in accounting.

Temperament type appears to be a better indicator of the desire to major in accounting than the completion of accounting-related courses in high school.

#### **Conclusion 4 (Accounting-related work experience)**

Previous accounting-related work experience does not significantly affect the decision of students to select accounting as a major.

Similar to the completion of an accounting-related high school course, previous accounting-related work experience is considered an indicator in the selection of accounting as a major (AICPA, 2014). Fifty (24%) of the 212 participants in this study had accounting-related work experience, of which 40 (80%) demonstrated the Guardian temperament. In this study, 162 (76%) participants out of 212 respondents did not have any accounting-related work experience. Guardians were represented by 80% of students who had accounting-related work experience compared to the 74% of respondents indicating a desire to major in accounting. Although work experience will assist in determining a student's inclination toward a particular accounting job position, it is concluded there is a high likelihood that temperament testing will more reliably determine whether or not a person will select accounting as a major in college. Accounting-related work experience does not increase the likelihood that students will demonstrate Guardian temperaments. Chi-Square Test of Independence had a p-value of 0.13102.

#### **Conclusion 5 (First- and Second- year students vs. Upper level students)**

Students who have shown success in their accounting curriculum are likely Inspectors (ISTJ). First- and second- year students are equally likely to be Supervisors (ESTJ) or Inspectors (ISTJ).

Of the 212 respondents intending to major in accounting, 152 were first- and second-year students and 60 were upper level students. First- and second- year students are self-reported as having 12 or fewer credit hours in courses related to accounting while upper level respondents indicated that they had enrolled in greater than 12 credit hours of accounting-related courses. In

this study the attainment of upper level student status (greater than 12 credit hours) is deemed to be successful completion of the accounting coursework. Both first- and second- year students and upper level students are predominately Guardians (73% and 75%). Significant differences exist between the two groups of students in their personality types within the Guardian temperament. Upper level students in this sample are represented by 54% Inspectors (ISTJ) and 15% Supervisors (ESTJ). First- and second- year students are represented by 28% Inspectors (ISTJ) and 32% Supervisors (ESTJ). Inspector characteristics include dependability, reliability, patience, practical, down to earth, and devout followers of rules and laws. Supervisors are dependable, trustworthy, loyal, community-minded, and respectful of authority. Supervisors observe and direct others to perform as they should, and Inspectors tend to perform their duties behind the scenes rarely interacting with others.

The composition of upper level respondents tends to shift to Inspector (ISTJ) personality type from Supervisor (ESTJ) personality type. This shift may be attributed to attrition and maturation of students. Also, specific accounting education and experiences and the effect of other coursework may contribute to the shift . Inspectors (ISTJ) are detail oriented and are more likely to work independently and think critically. Supervisors (ESTJ) are inclined to prefer scheduling, timetables and working with others (Montgomery, 2011). According to Keirsey (1998), Supervisors (ESTJ) are expressive and Inspectors (ISTJ) are attentive. The Chi-Square Test of Independence determined no significance at  $p < 0.05$  that temperament types among first- and second- year accounting majors and the temperament types of upper-level accounting majors.

## **Conclusion 6 (A small liberal arts teaching institution vs a large research institution)**

Guardian is the dominant temperament type at both a small liberal arts teaching institution (Concord University) and a large research institution (Virginia Tech) and Supervisor (ESTJ) and Inspector (ISTJ) are the two dominant personality types of respondents.

Respondents at Concord University and Virginia Tech are predominantly Guardians (Figure 9). Concord students in this sample are 89% Guardians with two principal personality types of 29% Supervisors (ESTJ) and 47% Inspectors (ISTJ). Virginia Tech students in this sample are 72% Guardians with the two principal personality types of 27% Supervisor (ESTJ) and 35% Inspectors (ISTJ). The tests of independence for the relationships between the Concord University students and Keirsey's expectations and the Virginia Tech students and Keirsey's expectations were significant at p-value <0.0001. The relationship between personality types of Virginia Tech students and the actual personality types of Concord University students was not significant. The low response rate from Concord University hinders comparisons with Virginia Tech. Only 19 Concord University students who intended to major in accounting responded to the survey. Therefore, any conclusions about the relationships between Concord University and Virginia Tech are problematic. However, it does show that there are similarities in the composition of students intending to major in accounting.

## **Discussion**

Personality assessments are increasingly used as a management tool. The findings of this study can benefit employers, college recruiters, educators and students. However, education and career decisions should not be based on a single test. Diagnostic tests should supplement other methods and techniques to achieve the best results. Students considering to major in accounting can benefit from understanding their temperament type and comparing it to others with the same temperament who have experienced success in that career field. Temperament should be viewed

as a general direction and not as a fixed mandate that must be followed by all with that particular trait. Knowledge of temperament is just one informed means by which students may match their temperament type to a college major and a career path.

Certified Public Accounting firms continue to be the primary employer of recent accounting graduates. Employers are seeking employees who will successfully perform and contribute to the achievement of organizational goals and strategies. For business recruiting firms, professional interviewing techniques would be enhanced with more knowledge of a potential employee's personality type and temperament traits. Needs assessment will vary from firm to firm; therefore, assessing particular personality traits may be a way to match an applicant with a firm's culture and specific job expectations.

Accounting firms provide three main service areas for the public: auditing, tax accounting, and management advisory services. These different areas may require a variety of personality types. Accountants must have many skills, including excellent communication skills. Within accounting firms, employees must interact with people of all different levels. The ability to view the big picture is a requirement of employees who are conducting auditing services and management advisory services. However, certain aspects of accounting services may involve detail-oriented work. Increasingly, computer knowledge and skills are desired of employees. Knowledge of accounting specific software, databases and spreadsheets are integral to success. The identification of a person's principal personality type could be helpful when considering a specific area of accounting to go into.

An employer may be seeking increased diversity by hiring temperament types other than that of Guardian. However, most studies have shown that the primary temperament trait for accounting is Guardian, with predominant personality types being Supervisor (ESTJ) and

Inspector (ISTJ). Artisans, Rationalists and Idealists may also contribute to a firm's success, but traditionally, Guardians are dominant. Personality assessment may prove to be a helpful tool depending upon the needs of the firm. It is the responsibility of the organization to determine the best personality type for the requirements of the position. It is the responsibility of accounting educators and departments to establish the content and direction of accounting education in preparing graduates for the changing needs of employment in the profession (Gibson and Schroeder, 1998).

College recruiters are seeking the enrollment of students who will be successful in a particular major and perform well in their field upon graduation, and the Keirsey Temperament Sorter is a psychometric instrument that can be useful in determining the traits for successfully completing an accounting program. In addition to their aptitude, students may have an improved opportunity for success by understanding their personality type and comparing it to those who have been successful in the accounting field of study. Many students change their major multiple times and require more than four years to earn their degrees. Effective advising and recruitment can help students to focus sooner on an appropriate major, which could enable them to graduate on time. Information from this study may facilitate the marketing of the target audience that would consist of those students with both the aptitude and personality type to succeed in accounting. It also may be helpful to college advisors as they guide students who are having difficulty with their courses because their temperament and personality type may not be compatible with their current field of study. Presumably, with increased coursework, students develop a different perspective and approach accounting principles and the profession holistically. Retention and attrition is another issue that can be addressed by effective advising

to encourage a better match between a course of study and a career path that relates to a student's temperament traits and personality type.

The better understanding educators have of their students, the more effectively and efficiently they can develop their teaching strategies. With the use of the results of personality assessment, accounting students' achievement may be improved by matching their learning styles and temperament traits with the requirements of their field of study. Ideally, educators could design their course material and strategies to complement the personality types of their students. In addition to the methodology utilized, course descriptions should include the skills necessary to prepare for each ensuing prerequisite in a student's program.

A better understanding of self, gained through analyzing results from the Keirsey Temperament Sorter, may assist students in improving their choices of course content. Completing an accounting-related course in high school or having accounting-related work experience can help establish a student's compatibility and temperament with an accounting career. By exploring courses and careers, students should be more prepared to make better-informed decisions. With knowledge of their personality assessment results, work-related values, attitudes, character, interests and aptitudes, students can better understand their own strengths and limitations. Knowledge of self can assist them in decision making, in determining a college major, and in choosing a compatible career path. There will be other factors for them to consider, but the more information gathered, the more likely they are to make an effective and satisfying choice of a field of study like accounting.

Predictions of increased demand for accounting graduates is expected to continue to be a need for the foreseeable future, and to meet that need, institutions of higher education and the accounting profession should collaborate in coordinating their efforts to encourage increased

interest and enrollments in accounting preparation programs. The use of the Keirsey Temperament Sorter psychometric instrument can be an important tool in meeting the projected demand for skilled and successful employees in the field of accounting.

For this study, Virginia Tech and Concord University were used for comparative purposes. However, there are many combinations of institutions and individuals that can be compared to determine their relationships. In this particular survey, only students desiring to major in accounting were selected from the total number of respondents. Guardian is the predominant temperament for all business majors. Further analysis may show that other business majors possess similar personality types of the Guardian temperament. Guardian temperament consists of four personality types: Supervisor (ESTJ), Inspector (ISTJ), Provider (ESFJ), and Protector (ISFJ). Accounting majors are mainly Supervisors and Inspectors. It is unknown what personality type other business majors may possess. Other possible majors for comparative purposes include: Finance, Marketing, Management, Business Information Technology, Insurance, Business Law, Hospitality and Tourism Management. Presumably not all areas of business instruction will have the same high percentages of Supervisor (ESTJ) and Inspector (ISTJ) as do accounting majors. Results of the total representation of the students in this study show that 74% have a Guardian temperament. Of those participants who have a Guardian temperament, they are further divided into the following personality types: 27% Supervisor (ESTJ), 36% Inspector (ISTJ), 18% Provider (ESFJ) and 19% Protector (ISFJ) (Figure 4).

In this study, it was problematic comparing Virginia Tech with Concord University due to Concord University's size and response rate. Ninety-one percent of the survey respondents were Virginia Tech students. Reminders and incentives to complete the survey appeared to be more effective for Virginia Tech students. Participants were selected by accounting course

listings. As a small liberal arts institution, Concord University respondents may have been enrolled in more than one accounting course. Respondents were only permitted to complete one survey. Therefore, some response numbers may be understated due to enrollment in multiple courses.

Further, accounting educators and employers may strive to recruit individuals who will assist in creating a more diverse and inclusive environment. This could lead to attempting to select a variety of temperaments and personality types assuming that the chosen individuals have the aptitude to be successful. Research into the composition of professionals' personality types may reveal the need to seek more diversity and inclusion in the workplace. Studies may also show the progress made by firms to attain the desired broad workforce.

### **Recommendations for Practice**

Based on the findings of this study, the following recommendations for practice are presented.

1. Encourage prospective accounting students to complete the Keirsey Temperament Sorter (KTS II) prior to enrollment in an institution of higher education.
2. Students should use temperament and personality testing as one of several indicators to assist in their understanding of self and potential successes.
3. High school advisors and college recruiters should use temperament and personality testing as one of several indicators when encouraging students in their decision making process.
4. Diversity among temperament types should be considered when matching college graduates with their career choice.

5. Encourage students to take accounting-related courses in high school to use as one of several indicators when considering accounting as a major in college.
6. Encourage students to obtain accounting-related work experience to use as one of several indicators when considering accounting as a major in college.
7. Collaboration between institutions of higher education and employers should be used to enhance the accounting curriculum. Temperament types should be one of several influencing factors when collaboratively developing curriculum.

### **Recommendations for Further Research**

Based on the results of this study, the following recommendations for further research are presented.

1. Students of disciplines other than accounting should be studied to determine their temperaments to assist them in deciding what major to take in college.
2. Duplicate this study with various other types of institutions to determine any differences in demographics or temperament types.
3. Similar research should be conducted with recent hires of CPA firms.
4. Conduct a longitudinal study to analyze problems with retention in both education and employment.
5. Duplicate this study to determine if course grades are correlated with personality type.
6. Further research should be performed to determine the most effective teaching methods for various personality types.

### **Thoughts**

As an accountant, former business owner and former accounting educator, knowledge of this study's findings would have been helpful. I did not have any accounting-related work experience and did not take an accounting-related high school course prior to majoring in accounting at Virginia Tech. I chose to major in accounting with little advising. Based on the KTS-II test, I am a Rational Mastermind (INTJ) and may have been directed into a different area of study. This supports the fact that temperament and personality assessment should not be the sole source in decision-making.

After graduation I was a small business owner responsible for all aspects of administration, including hiring and firing employees. Assessing the temperament and personality type of prospective employees would have contributed to retention of employees.

Following a number of years of being a small business owner I was employed in a corporation which did utilize personality testing of prospective hires. The results of the assessment were not shared with employees, limiting the growth and benefit to individuals. Findings should be shared with employees with explanations on how to accurately analyze conclusions.

The greatest use of this study's findings would be realized during my 28 years as an accounting instructor. Understanding the temperaments of students would have facilitated tailoring course material and methods of instruction. Also, knowledge of a student's personality would assist in advising concerning employment.

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## Appendix 1.

### Chi-Square ( $\chi^2$ ) Formula

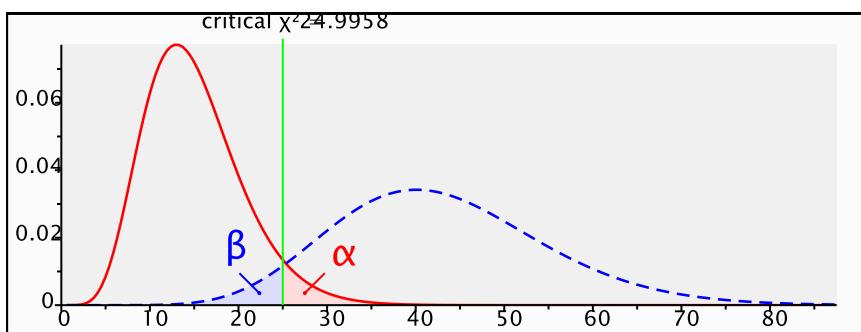
$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

*O = the frequencies observed*

*E = the frequencies expected*

$\sum$  = the 'sum of'

## **Appendix 2.**



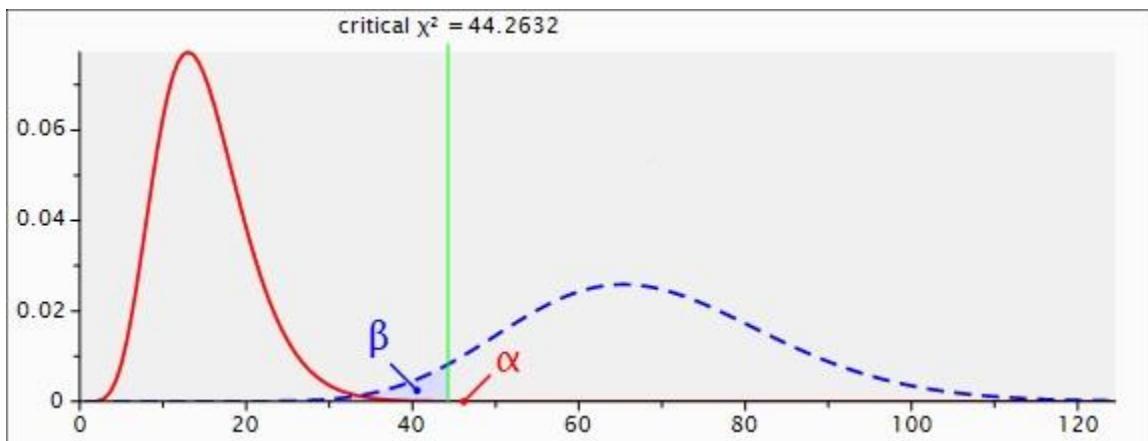
Effect Size = 0.5

$\alpha$  error probability = 0.05

Power ( $1 - \beta$  error probability) = 0.95

Degrees of freedom = 15

**Sample Size 112**



Effect Size = 0.5

$\alpha$  error probability = 0.0001

Power ( $1 - \beta$  error probability) = 0.95

Degrees of freedom = 15

**Sample Size 113**

**Appendix 3.**

**Thank you for agreeing to take this survey.**

**The questions are multiple-choice type selections and the survey should be completed in less than 10 minutes.**

**Participation is voluntary. If you choose not to participate or if you choose to withdraw from the study, you may do so at any time. All responses will remain confidential.**

What is your gender?

- Male (1)
- Female (2)

Which university are you currently attending?

- Concord University (1)
- Virginia Tech (2)

Are you planning to major in an accounting related field?

- Yes (1)
- No (2)

Did you take at least one accounting course in high school?

- Yes (1)
- No (2)

How many accounting credit hours have you completed at the college or university level?

- < 10 hours (1)
- 10 to 16 hours (2)
- 16 to 25 hours (3)
- > 25 hours (4)

Do you have any work-related accounting experience?

- Yes (1)
- No (2)

## **Keirsey Temperament Sorter II (KTS-II) ®**

**The Keirsey Temperament Sorter is copyrighted by David Keirsey from the book *Please Understand Me* and *Please Understand Me II* Copyrighted © 1978**

**There are no right or wrong answers. Please enter the best choice according to your preferences.**

When the phone rings do you

- hurry to get there first (1)
- hope someone else will answer (2)

Are you more

- observant than introspective (1)
- introspective than observant (2)

Is it worse to

- have your head in the clouds (1)
- be in a rut (2)

With people are you usually more

- firm than gentle (1)
- gentle than firm (2)

Are you more comfortable making

- critical judgments (1)
- value judgments (2)

Is clutter in your workspace something you

- take time to straighten up (1)
- tolerate pretty well (2)

Is it your way to

- make up your mind quickly (1)
- pick and choose at some length (2)

Waiting in line, do you often

- chat with others (1)
- stick to business (2)

Are you more

- sensible than ideational (1)
- ideational than sensible (2)

Are you more interested in

- what is actual (1)
- what is possible (2)

In making up your mind are you more likely to go by

- data (1)
- desires (2)

In sizing up others do you tend to be

- objective and impersonal (1)
- friendly and personal (2)

Do you prefer contracts to be

- signed, sealed, and delivered (1)
- settled on a handshake (2)

Are you more satisfied having

- a finished product (1)
- work in progress (2)

At a party, do you

- interact with many, even strangers (1)
- interact with a few friends (2)

Do you tend to be more

- factual than speculative (1)
- speculative than factual (2)

Do you like writers who

- say what they mean (1)
- use metaphors and symbolism (2)

What appeals to you more

- consistency of thought (1)
- harmonious relationships (2)

If you must disappoint someone are you usually

- frank and straightforward (1)
- warm and considerate (2)

On the job do you want your activities

- scheduled (1)
- unscheduled (2)

Do you more often prefer

- final, unalterable statements (1)
- tentative, preliminary statements (2)

Does interacting with strangers

- energize you (1)
- tax your reserves (2)

Facts

- speak for themselves (1)
- illustrate principles (2)

Do you find visionaries and theorists

- somewhat annoying (1)
- rather fascinating (2)

In a heated discussion, do you

- stick to your guns (1)
- look for common ground (2)

Is it better to be

- just (1)
- merciful (2)

At work, is it more natural for you to

- point out mistakes (1)
- try to please others (2)

Are you more comfortable

- after a decision (1)
- before a decision (2)

Do you tend to

- say right out what is on your mind (1)
- keep your ears open (2)

Common sense is

- usually reliable (1)
- frequently questionable (2)

Children often do not

- make themselves useful enough (1)
- exercise their fantasy enough (2)

When in charge of others do you tend to be

- firm and unbending (1)
- forgiving and lenient (2)

Are you more often

- a cool-headed person (1)
- a warm-hearted person (2)

Are you prone to

- nailing things down (1)
- exploring the possibilities (2)

In most situations are you more

- deliberate than spontaneous (1)
- spontaneous than deliberate (2)

Do you think of yourself as

- an outgoing person (1)
- a private person (2)

Are you more frequently

- a practical sort of person (1)
- a fanciful sort of person (2)

Do you speak more in

- particulars than generalities (1)
- generalities than particulars (2)

What is more of a compliment

- "There's a logical person" (1)
- "There's a sentimental person" (2)

Which rules more

- your thoughts (1)
- your feelings (2)

When finishing a job, do you like to

- tie up all the loose ends (1)
- move on to something else (2)

Do you prefer to work

- to deadlines (1)
- just whenever (2)

Are you the kind of person who

- is rather talkative (1)
- doesn't miss much (2)

Are you inclined to take what is said

- more literally (1)
- more figuratively (2)

Do you more often see

- what's in front of you (1)
- what can only be imagined (2)

Is it worse to be

- a softy (1)
- hard-nosed (2)

In trying circumstances are you sometimes

- too unsympathetic (1)
- too sympathetic (2)

Do you tend to choose

- rather carefully (1)
- somewhat impulsively (2)

Are you inclined to be more

- hurried than leisurely (1)
- leisurely than hurried (2)

At work do you tend to

- be sociable with your colleagues (1)
- keep more to yourself (2)

Are you more likely to trust

- your experiences (1)
- your conceptions (2)

Are you more inclined to feel

- down to earth (1)
- somewhat removed (2)

Do you think of yourself as a

- tough-minded person (1)
- tender-hearted person (2)

Do you value in yourself more than you are

- reasonable (1)
- devoted (2)

Do you usually want things

- settled and decided (1)
- just penciled in (2)

Would you say you are more

- serious and determined (1)
- easy going (2)

Do you consider yourself

- a good conversationalist (1)
- a good listener (2)

Do you prize yourself in

- a strong hold on reality (1)
- a vivid imagination (2)

Are you drawn more to

- fundamentals (1)
- overtones (2)

Which seems to be the greatest fault

- to be too compassionate (1)
- to be too dispassionate (2)

Are you swayed more by

- convincing evidence (1)
- a touching appeal (2)

Do you feel better about

- coming to closure (1)
- keeping your options open (2)

Is it preferable mostly to

- make sure things are arranged (1)
- just let things happen naturally (2)

Are you inclined to be

- easy to approach (1)
- somewhat reserved (2)

In stories do you prefer

- action and adventure (1)
- fantasy and heroism (2)

Is it easier for you to

- put others to good use (1)
- identify with others (2)

Which do you wish more for yourself

- strength of will (1)
- strength of emotion (2)

Do you see yourself as basically

- thick-skinned (1)
- thin-skinned (2)

Do you tend to notice

- disorderliness (1)
- opportunities for change (2)

Are you more

- routinized than whimsical (1)
- whimsical than routinized (2)

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

All responses will remain confidential. If you have any questions, you may contact me (Tel. 540-230-4440; email: thshelt2@vt.edu); or faculty advisor, Dr. Bill Price (Tel. 540-231-7390; email: wprice@vt.edu).

**I appreciate your cooperation and your time commitment.**

*Tom Shelton*

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## **Appendix 4.**



Prospective Research Study Participant:

Hello, my name is Tom Shelton, and as a doctoral student at Virginia Tech, I am conducting a research project titled “Student Temperament Assessment and Its Relationship with the Selection of Accounting as a Major”. This research project is being conducted as partial fulfillment of the requirements of my doctor of philosophy degree in Career and Technical Education.

Your assistance in this study will help exhibit the temperament types of students who are most likely to choose accounting as a major course of study and succeed in completing accounting coursework. The results of the study may help alleviate the shortage of qualified candidates for openings in accounting and may assist students and faculty advisors in making more knowledgeable decisions about choosing accounting as a field of study and a career.

Participants are requested to complete an online survey through Qualtrics®. The survey consists of 6 demographic questions and 70 questions from the Keirsey Temperament Sorter®. The questions are multiple-choice type selections and participants should be able to finish in fewer than 10 minutes. The research study has been approved by the Virginia Tech Institutional Review Board.

Be assured that participation is voluntary. If you choose not to participate or if you choose to withdraw from the study, you may do so at any time. All responses will remain confidential. If you have any questions, you may contact me (Tel. 540-230-4440; email: [thshelt2@vt.edu](mailto:thshelt2@vt.edu)); or faculty advisor, Dr. Bill Price (Tel. 540-231-7390; email: [wprice@vt.edu](mailto:wprice@vt.edu)).

For questions about your human subject rights, email the Virginia Tech IRB Chair, Dr. David Moore, [moored@vt.edu](mailto:moored@vt.edu)

Thank you for your cooperation and your time commitment.

*Tom*

Access the survey: [https://virginiatech.qualtrics.com/jfe/form/SV\\_41shsV06e6MgsNn](https://virginiatech.qualtrics.com/jfe/form/SV_41shsV06e6MgsNn)

**Upon Completion of this survey you will be entered to win one of seven**

**Amazon Gift Cards \$100 (1), \$50 (2), \$25 (4)**

## Appendix 5.

RECORD # _____																					
STUDY SURVEY SPRING 2018																					
PREVIOUS Y N		UNIVERSITY VT CU		HS COURSE Y N		WORK Y N															
GENDER M F		MAJOR IN ACCT Y N		HOURS A B																	
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64			65			66			67			68			69			70			
	E	I					S	N						T	F					J	P