Relationship Between StrengthsFinder Signature Themes and Academic Majors in an Urban Midwestern University

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Abstract

Students often matriculate to higher education institutions without an understanding of what they want to major in or eventually select as a career. This can create difficulty in finding pathways to degree completion. Lack of focus can also create strain on students and staff as the students work to choose academic majors and careers. This exploratory descriptive study described the first-time full-time students at a large public research university in the Midwest during the fall of 2016 and fall of 2017 through the lens of the Clifton StrengthsFinder (CSF) assessment. Members of each of the two first-time full-time cohorts were required to complete the CSF. Archival data that contained signature themes and academic major or exploratory area for each cohort member were analyzed to determine differences between the signature strengths and domains of students with a chosen major and those classified as exploratory track. The top five themes for students with declared majors in all academic schools were Achiever, Restorative, Futuristic, Competition, and Learner. The top five themes for students categorized as exploratory track were Adaptive, Restorative, Achiever, Empathy, and Input. A unique combination of signature strengths themes was observed within individual academic schools and each exploratory track. Only the Restorative signature theme appeared in every top five strengths list for each academic school and exploratory track. When looking at academic schools and exploratory tracks from a domain perspective, the Influencing domain was the least represented in all academic schools and exploratory tracks except the School of Business. Matches in the rank orders of domains were observed between academic schools and exploratory tracks, but when examining the distribution of the signature strengths there were not any matches that showed an alignment between academic schools and exploratory tracks. Results from the current

study point to the need for additional research that would provide more insight into the relationship between the CSF and academic choices of students.

Dedication

To the many people who have supported me during a time in my life where anything that seemed to be settled then needed to change. Completing this doctorate program during the many ups and downs of the journey has been a challenge and I could not have done it without the support of an entire village worth of people. Specifically, I would like to thank my wife, Jennie, my daughters Gwenyth and Isabella, and my extended family both here and in heaven who have believed in me more than I generally believe in myself.

Acknowledgements

The development of a doctoral dissertation is not something that seems to happen in a straight line, and my mind often wanders; sometimes to places far far away and a long time ago:

> A Jedi must have the deepest commitment, the most serious mind.
>
> (to the invisible Ben, indicating Luke)
>
> This one a long time have I watched. All his life has he looked away... to the future, to the horizon. Never his mind on where he was. Hmm? What he was doing. Hmph. Adventure. Heh! Excitement. Heh! A Jedi craves not these things. (Kurtz & Kerschner, 1980, "Yoda calls Luke reckless")

Just replace Jedi above with Doctoral Student and you pretty much get the feeling of how this has all gone for me.

As members of this zig-zagging journey, I would like to thank Cohort 17, my advisor - Dr. Tes Mehring, and the rest of the faculty who were part of delivering this program. Without this esteemed group of individuals, this achievement would have seemed far more difficult, if not impossible to achieve.

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Chapter 1

Introduction

The Clifton StrengthsFinder (CSF) (Asplund, Lopez, Hodges, & Harter, 2007) is an assessment that has been taken by over 17 million individuals. The CSF was designed to help empower individuals by recognizing their strengths (Gallup, 2018a). Gallup (2018a) commented that this assessment has benefits for individuals, managers, organizations, and educators with data showing that those who ascribe to a strengths-based philosophy are more likely to be engaged and have a higher quality of life. The CSF also has had a role in helping individuals make more effective decisions. Freeman (2014) commented that a manager should work with team members on how and why they make decisions and that the CSF could be a part of understanding. An example provided by Freeman focused on suggestions for employment assignments:

> If someone needs lots of information before making a decision, ask them to do the research and present it to the group.
>
> If someone is good in the moment with on the spot decisions, give them the time sensitive ones.
>
> If someone else is good at bringing people together when decisions need to be made collectively, assign them to facilitate group decision making sessions. ("A Better Way to Make Decisions", para. 4)

By enabling people within their strengths, managers are empowering employees to be more successful in the tasks they are undertaking for an organization.

Galotti (1999) suggested higher education institutions should assist students in making decisions, particularly surrounding choosing a major. While many factors were identified by Galotti as impacting the academic decision-making process, his research

demonstrated that specifically helping students understand how to better see themselves by knowing their strengths is a key factor in assisting students to make decisions (Galotti et al., 2006). Finally, researchers have shown that making decisions about their academics had a very direct impact on student progression through an educational program (Germeijs, Luyckx, Notelaers, Goossens, & Verschueren, 2012).

As a forward to Louis's (2012) review of StrengthsFinder-related research, Shane Lopez identified rules to support strengths-related educational and professional development efforts:

> These rules are empirically derived and based on key findings of strengths researchers from around the world:
>
> - Knowing your strengths is not enough. Completing the StrengthsFinder is just a starting point.
> - Strengths development is aimed at a personally salient goal. Strengths come to life as they help you to answer life's "now what" questions.
> - Development takes tremendous effort. You must apply your strengths in daily life.
> - Strengths grow in the context of relationships, teams, and organizations. (p. 6)

In the forward, Lopez stressed that knowing about personal strengths is an integral starting point for an individual's journey through life. Lopez also indicated that development of strengths requires significant effort and application of the strengths identified. In the same way, it is important for higher education institutions to lay a foundation of strengths understanding in administration and student support services to more effectively assist and advise students in their academic pursuits (Louis, 2012).

Research focusing on the distribution of strengths themes of college and university students is very limited. The current study investigated the CSF strengths distributions for individual students matriculating as first-time freshmen to a large, public, research university in the Midwest (referred to in this study as 'The University') and their self-selected academic majors and exploratory tracks during the Fall 2016 and Fall 2017 semesters. By understanding how strengths may relate to choice of academic disciplines, staff and faculty who support students can better inform and advise them on potential academic opportunities.

Background

The CSF is an assessment that determines individual strengths within 34 specific strengths themes. This online assessment includes 177 item pairs. For each item pair, a respondent scores the item they more strongly associate with and by doing so the top five signature themes are identified. For example, Asplund, Agrawal, Hodges, Harter, and Lopez (2014) commented that the item-pairs list "a pair of potential self-descriptions such as 'I get to know people individually' versus 'I accept many types of people'" (p. 2). The signature themes in turn can be abstracted into one of four domains and an individual's leadership style can be assessed. The CSF is based on the foundational work of positive psychologist Donald Clifton that he completed as a member of the Gallup organization (Lowman, 2004). The primary foundation of Clifton's work has always been to answer the question, "What would happen if we studied what is right with people?" (Asplund et al., 2007, p. 6). As an instrument, the CSF has been updated through several revisions and undergone rigorous examination resulting in the StrengthsFinder 2.0 edition (Asplund et al., 2007).

The CSF has had extensive use in higher education in reviewing how teaching with a strengths-based methodology can better support retention programs (Hodges & Harter, 2005; Louis, 2012; Soria & Stubblefield, 2015). A review of research by Louis (2012) showed that research studies have been conducted in a number of areas including embedding the CSF within types of courses, attaching the CSF to settings outside the classroom, and using the CSF to assist with the student development process. However, Louis (2012) also reported that the CSF has had limited use in understanding a student population and its potential use in student decision-making.

Using the CSF for understanding a population is limited in practice across all industries. Researchers have correlated the CSF to other assessments, such as the Holland Codes (Carson, Evans, Gitin, & Eads, 2011), and studied demographic breakdowns in alternative fields, such as law enforcement (Bowlin, 2013). However, studies of the impact of the CSF as a tool for self-knowledge on the decision-making processes of college and university students are limited. A review of literature revealed no studies that examined the relationship between the top five signature themes and choice of academic major for an incoming class of freshmen at an institution similar to The University.

Statement of the Problem

Students often matriculate to higher education institutions without an understanding of what they want to major in or eventually select as a career and this creates difficulty in finding pathways to degree completion. This lack of definition can create strain on students and staff as the students work to choose academic majors and careers. A possible remedy to help streamline students' decisions about academic majors is to use personality assessments, such as the CSF. With an understanding of their

strengths, students could be more effectively advised by institutional staff and make better initial academic decisions. Personnel in higher education institutions do not truly understand how strengths are distributed in their student populations and academic majors or how students who have chosen majors differ from students who have not yet chosen majors. This lack of understanding may cause difficulty in guiding and advising students toward making choices related to their academic careers that are a good fit.

Purpose of the Study

The current research was an exploratory descriptive study that described the freshmen student population at The University through the lens of the CSF assessment. The first purpose of this study was to examine the signature theme distributions and domains for declared majors and their apportionment across selected schools: Architecture, Business, Education, Engineering, Journalism, Liberal Arts & Sciences, Music, Pharmacy, and Social Welfare. Majors within Liberal Arts & Sciences were further divided into academic disciplines of social sciences, physical sciences, humanities, and language. The second purpose was to examine signature theme distributions and domains across four exploratory tracks (engineering, math, technical, and physical sciences; fine arts, humanities, and design; health and life sciences; and social and behavioral sciences) for students who did not declare a major. The third purpose was to examine signature theme and domain differences between first-time full-time declared major and exploratory track students.

Significance of the Study

Understanding student strengths identified by the CSF may assist academic advisors and other staff at The University to better direct students to academic areas that may foster higher retention and graduation rates. This study extended the body of

literature related to strengths by connecting the CSF to an institutionally defined freshmen cohort in a way that has not occurred in prior studies. This study also provided a foundation for future research in either tracking the progress of members of the Fall 2016 and Fall 2017 cohorts through their academic careers or in comparing and contrasting members of future cohorts to these initial cohorts. In addition to The University faculty and staff, the Gallup organization as well as other institutions of higher education may have interest in the results of this study. The study is limited in scope to one institution and two student cohorts, but the study methodology could easily be expanded to other institutions to better understand student populations and help guide their academic choices.

Delimitations

Labaree (n.d.) defined delimitations as "those characteristics that limit the scope and define the conceptual boundaries of your research**"** ("Delimitations of the Study", para. 1). The scope of the current study was narrowed using the following delimitations:

1. Only data for first-time full-time freshmen who entered The University fall 2016 or fall 2017 were included in the data analysis. The 20th day of enrollment was used as the official reporting date.

2. CSF results were matched only to the major or academic interest code selected by students at the time of The University census for the 20th day fall 2016 and fall 2017 semesters.

3. Academic majors were grouped into the following schools: Architecture, Business, Education, Engineering, Journalism, Liberal Arts & Sciences, Music, Pharmacy, and Social Welfare. Majors within the Liberal Arts & Sciences were further

divided into academic disciplines of social sciences, physical sciences, humanities, and arts.

4. Students who had not selected a specific academic major were placed by The University in a category labelled 'exploratory track.' Exploratory track students were categorized in the following four academic areas: engineering, math, technical, and physical sciences; fine arts, humanities, and design; health and life sciences; and social and behavioral sciences.

Assumptions

Leedy and Ormrod (2019) stated that "Assumptions are so basic that, without them, the research problem itself could not exist" (p. 50). This study was conducted under the following assumptions:

1. The data available in the offices of First-Year Experience and of the University Registrar were accurate.
2. The self-reported data in the student records were accurately reported.
3. Students completed the CSF in a thoughtful manner.

Research Questions

This study addressed the relationship between the Clifton StrengthsFinder results and academic information (declared major or pre-major, exploratory tracks) for fall 2016 and fall 2017 cohorts of first-time full-time (FTFT) freshmen at The University. The research was guided by the following research questions:

RQ1. What are the distributions of signature themes within declared academic majors as grouped by the nine schools?

RQ2. What are the distributions of signature themes within the four exploratory tracks?

RQ3. What are the distributions of domains within declared academic majors as grouped by the nine schools?

RQ4. What are the distributions of domains within the four exploratory tracks?

RQ5. To what extent is there a difference in the distribution of signature themes and domains between students with declared majors and students in exploratory tracks?

Definition of Terms

The Baker University Graduate School of Education (2017) stated, "When the research involves words that are used in novel or discipline-specific ways, or when the research involves difficult words that are not commonly known, these terms are defined for the reader" (p. 9). This research included the following terms that required definition:

Domains. Domains are clusters of strengths themes that have thematic similarities. The domains include Executing, Influencing, Relationship Building, and Strategic Thinking. Gallup researchers used several methods, including factor analysis, hierarchical cluster analysis, and clinical reviews to fit each strength theme into a domain that was designed to allow for broader leadership conversations (Asplund et al., 2014). A list and description of the domains are included in Appendix A (Gallup, 2018b).

Exploratory Track. The University uses this term to refer to an assignment of interest when students are undecided on a major. The exploratory tracks include arts and humanities, medical and health sciences, natural sciences, math technology, and social behavioral sciences (Crawford-Parker, S., personal communication, April 19, 2016).

First-time, Full-time Cohort (FTFT). The University uses this term to refer to students who are in their initial college experience outside of high school and are pursuing education in a full-time manner as of the initial census date of their first semester at The University (Phillips, S., personal communication, April 14, 2015).

Signature Themes. On completion of the CSF, the top five strengths themes are identified and reported to the CSF assessment completer. These top five strengths are referred to as signature themes (Asplund et al., 2007).

Strengths Themes. Asplund et al. (2007) defined strengths themes as the entire selection of the possible 34 strengths that are part of the CSF. A list and description of the strengths are included in Appendix B.

Organization of the Study

The study includes five chapters. Chapter 1 provided an introduction, statement of the problem, significance of the study, delimitations, assumptions, research questions, and definition of terms. Chapter 2 includes a review of the literature related to the CSF, student major selection, and assessments used in identifying student disposition toward academic majors. Chapter 3 includes the research design, selection of participants, measurement, data collection procedures, data analysis, and limitations. The results of the data analysis are provided in Chapter 4. A summary of the study, findings related to the literature, and conclusions are provided in Chapter 5.

Chapter 2

Review of the Literature

Personnel at institutions of higher education are constantly working to better understand student populations in order to more effectively recruit, retain, and graduate students. Programs such as federal aid and the Obama administration's American Graduation Initiative link student outcomes including recruitment, retention, and graduation to funding, reputation, and rankings (Coley, Coley, & Lynch-Holmes, 2016). Coley et al. commented, "In the past few decades, we've seen a virtual cottage industry of retention initiatives spring up on our campuses – writing centers, remedial curricula, academic resource centers, outreach and engagement programs – the list is a varied and creative one" (p. 3).

One such list was developed by McAughtrie (2016) and included ten strategies for boosting student retention: (a) teach students habits for success, (b) develop small goals, (c) collect data and put it to good use, (d) develop intervention programs, (e) define student success, (f) combine the strength of all resources, (g) offer ample opportunities for success, (h) poll students, (i) focus on building community, and (j) increase resources for academic advising. The core principles delineated in this list were also found in research conducted by Kahu, Nelson, and Picton (2017). These researchers pursued a study looking at student interest and how it impacts student retention. They found that student interest was critical to student success and retention and commented that interest "enhances behavioral and cognitive engagement and leads to better learning and grades" (p. 1).

A component of student retention is the importance of decision-making in a student's academic career, particularly as it surrounds choosing a major (Galotti, 1999).

Galotti's research showed there are many components involved in the academic decision-making process such as caring about the subject matter, considering majors that students were good at, or what kinds of post-graduate opportunities might be available. Later research by Galotti et al. (2006) showed that academic decision-making was not based on the volume of data available, but instead due to "ways one responds affectively to the process or sees oneself as approaching it" (p. 9). Research has shown that not only is there a difference on future orientation, empathic intuition, reliance on others, and objective detachment between decided and undecided students in academic majors, but there is also a difference in the core ability of students to make decisions in general that can have an impact on student progression through academic programs (Germeijs et al., 2012).

A new data point, analysis of strengths, is emerging across U.S. institutions as a process that can be used to effectively support student retention efforts (Soria & Stubblefield, 2015). Lopez and Louis (2009) indicated that the CSF could be used as a tool by administrators to pervasively infuse an institution with a culture of positive psychology and a strengths-based educational approach among the student population. Anderson (2004) included specific elements that a definition of strengths-based education should include:

> a process of assessing, teaching, and designing experiential learning activities to help students identify their greatest talents, and to then develop and apply strengths based on those talents in the process of learning, intellectual development, and academic achievement to levels of personal excellence. (p. 1)

Lopez and Louis (2009) indicated that for a strengths-based educational approach to be effective, individuals in all layers of an organization from top to bottom need to utilize a

strengths approach in their work. Without that level of commitment in the faculty and staff, students will not have a positive example to emulate.

Developing new models of advising and support for students requires a critical effort and Zelazny (2017) indicated that advisors must keep up with current research to "create more effective ways to assist college students" (p. 11). Schreiner and Anderson (2005) wrote that a new, strengths-based methodology for advising can have a real impact on students and that while many institutions focus on organizational changes to advising to assist students there may be a need to look at a deeper, more philosophical change to the process. Anderson (2004), in particular, believed that by focusing on strengths, students can have more success in their academic lives. He stated, "Do not try to be someone else. Strive to be the person you really are --- fully and completely. This is your best avenue to achieving excellence. Excellence is an expression of identity and integrity" (p. 5). The importance of knowing a student's strengths and how they can be applied to an academic discipline was further researched by Burnett (2017). His research showed that when students know their strengths, they are more capable of making targeted and confident decisions that would be a best fit for them and their interests including which majors and personal activities would work best for their future.

In studies by Caldwell (2009), Schenck (2009), Carson et al. (2011), Wisner (2011), Reynolds (2012), Janke et al. (2015), and Krimmel (2017), the authors suggested there is potential for a more formal connection between the CSF and other assessments in higher education, which would ultimately impact student decision-making when selecting academic majors. Creating that interface may build a more effective and thorough advising model that could benefit both institutions and students. The remainder of this literature review delves deeper into defining the CSF and its use in higher education.

Correlation studies comparing the CSF to other measures inside and outside higher education will also be summarized.

Student Academic Decision-making

Galotti et al. (2006) surveyed students who were in the beginning stages of selecting a college major. Key variables in their process surrounded individual differences, cognitive measures of performances, and ratings related to the decision-making process. Findings suggested there were few significant relationships between the concepts of individual differences and cognitive measures of performance. However, there was a significant connection between individual differences and decision-making variables. Galotti et al. (2006) interpreted this to mean that there can be substantial differences in how students frame their decision-making process based on their individual differences but the nature and style of information gathering was similar across students.

Galotti (1999) surveyed students in their first and second year about academic major decision-making. She asked students to list the criteria and what other majors they considered as they made their decision and to provide a ranking of both the criteria for decision-making and alternative majors considered. Results of this study showed that students had a similar number of decision-making criteria from the first round of surveying to the second, but that the criteria changed substantially (about a 50% change in items). Students reported fewer alternative majors during their second year. Galotti (1999) indicated this correlated well with predictions of linear models of decision-making. Of particular interest, Galotti discussed students intentionally reducing and restricting the amount of data and criteria in order to be able to cope and process a significant decision. Effectively, students simplified and abstracted data into smaller,

digestible components and then unintentionally aligned them with some known decision-making patterns to make the best decision in selecting a major.

Germeijs et al. (2012) identified the decision-making profiles of Belgian high school students entering higher education. Citing a number of studies, Germeijs et al. adapted a career decision-making structure and applied it to a student population. This model divided students into three groups: chronically indecisive, developmentally indecisive, and the decided/ready to decide. The findings of this study demonstrated a substantial difference between decided versus undecided students. The authors also stated that "the type of indecision and decidedness are important as well" (p. 238) which indicates that there were also substantial differences within the populations of decided or undecided students that must be considered when staff are working with students.

Porter and Umbach (2006) used Holland's theory of careers to analyze academic major choice at a selective liberal arts college. These authors sought to answer three particular research questions: "1. What are the factors that predict student major choice? 2. Do race and gender affect the selection of college major? 3. Controlling for these factors, what role does personality play in college major choice?" (p. 430). Results were limited in their general applicability due to the institution type studied, but within the context of their study, Porter and Umbach (2006) found that both political views and the Holland personality scales were strong predictors of student major choice. Both gender and racial differences showed significance prior to controlling for personality. Finally, their analyses showed that factors such as academic preparation or family influence had no impact on student major choice.

A study at a large northeastern business school was conducted by Malgwi, Howe, and Burnaby (2005) using a quantitative survey developed by the authors to identify

factors that led to freshman student academic major selection. In addition, Malgwi et al. researched what positive or negative factors might lead to making a change of major. Interest in the subject area of the major was determined to be the most significant factor in academic major choice, regardless of gender. The second highest factor was divided along gender lines. Women were more likely to consider personal aptitude in the subject matter while men were concerned with potential career compensation resulting from declaring a specific major (Malgwi et al., 2005).

Beggs, Bantham, and Taylor (2008) sought to identify and rank factors students used in selecting their college academic major using a two-step approach. In the first step, a qualitative study was conducted that identified factors students would consider important in making decisions about a college major. Beggs et al. surveyed students asking them to rank decision-making factors. Beggs et al. found that students selected majors using the following concepts (in order of importance): (a) match with interests, (b) course/major attributes, (c) job characteristics, (d) financial considerations, (e) psycho/social benefits, and (f) information search. The authors commented that while it was very positive that students selected majors that matched their interests, there was a need for students to have the knowledge of themselves and the industry at a high level of maturity. They recommended there may be some value in students waiting to make a final decision on major until they have a better understanding of the complete picture of their own interests and the potential match to future careers.

The Clifton StrengthsFinder (CSF)

Lowman (2004) described the CSF assessment developed by positive psychologist, Donald Clifton as part of his work for the Gallup organization. The foundation of the assessment was structured around Clifton's work as a researcher and

continual interviews that considered "What would happen if we studied what is right with people?" (Asplund et al., 2007, p. 6). While the assessment has gone through several iterations, the version used in this study is referred to as StrengthsFinder 2.0 or the Clifton StrengthsFinder (CSF).

The StrengthsFinder 2.0 Technical Report (Asplund et al., 2007), described the assessment as having 177 item pairs that produce a test taker's top five signature themes out of a possible 34 strengths themes. Asplund et al. (2007) described the presentation of questions:

> Each item lists a pair of potential self-descriptors, such as 'I like to help people.' The descriptors are placed as if anchoring opposite poles of a continuum. From that pair, the respondent is asked to choose the statement that best describes him or her, and also the extent to which that chosen option is descriptive of him or her. The participant is given 20 seconds to respond to a given item before the system moves on to the next item (developmental research showed that the 20-second limit resulted in a negligible item noncompletion rate). (p. 3)

Internal consistency, test-retest reliability studies, and content and construct validity studies demonstrated that the CSF is consistent in delivering results and appropriately measures what it intends to measure (Asplund et al., 2007). The technical report developers were also concerned with establishing that the CSF had appropriate validity and reliability through extensive psychometric evaluation. A 2014 Technical Report by Asplund et al. (2014) updated the validity and reliability measures that had originally been reported in the 2007 Technical Report. Asplund et al. (2014) stated that the CSF is the foundation of strengths-based developmental work, is related to all industries, and is not limited to application in higher education.

StrengthsFinder in Higher Education Studies

Looking specifically at the CSF's application to higher education, an article titled "A Review of the Theory and Research Underlying the StrengthsQuest Program for Students" (Hodges & Harter, 2005) outlined the application of the CSF in higher education. The StrengthsQuest program combines the CSF assessment with potential activities and options for students to pursue to leverage strengths. At the time of the current study, the StrengthsQuest program had recently adopted a branding change and was retitled the CliftonStrengths for Students to correspond with the release of Gallup's new book in July 2017 (Gallup, 2017). Louis (2012), in the review of research for the Gallup (2017) book, updated the Hodges and Harter (2005) review as well as the Gallup technical report summarized by Asplund et al. (2014). The core concepts, themes, and assessment remained unchanged with the release of this new book, but provided a version of the CSF geared toward providing students and campus leaders with "resources, techniques, and inspiration to thrive in college and beyond" (Gallup, n.d., para. 2).

The core of CSF research to date in higher education has targeted the value of the StrengthsFinder in helping students better understand themselves, and through that reflection process, improve their retention, persistence, and graduation rates. As part of a review of research, Louis (2012) identified several studies that focused on strengths used in first-year seminar courses (Cave, 2003; Estévez, 2005; Stebleton, Soria, & Albecker, 2012; Tomasiewicz, 2011), strengths used within subject-specific academic courses (Cantwell, 2005; Pascarella, 2006), strengths used in settings outside the classroom (Swanson, 2006; Williamson, 2002), strengths within a leadership context (Brodersen, 2008; Lehnert, 2009; Tanious, 2012; Wisner 2008, 2011; Xaver, 2008), strengths in the student development process (Janowski, 2006; Pritchard, 2009; Robles, 2009, 2012), and

correlations of the CSF within postsecondary samples (Carson et al., 2011; Sutton, Phillips, Lehnert, Bartle, & Yokomizo, 2011). The final segment of Louis' research review, correlation studies, provided the most direct connection with the research of the current study (Schenck, 2009).

Schenck (2009) investigated the correlation scores on the outcomes of the CSF and the Meyers-Briggs Type Indicator (MBTI) and Strong Interest Inventory (SII). This study involved 164 graduate students across two academic areas (Counseling and Career Development, and Organizational Performance and Change). Schenck found that 100% of students with Communication and Woo as CSF signature themes were found to be extraverts on the MBTI. This correlation between the CSF and MBTI or SII was also found with several MBTI and SII categories that identified with signature themes with a 90-100% occurrence rate. Schenck (2009) indicated the connections between the signature themes and vocational interests were not as well defined and concluded that the reason behind this lack of connectivity may be that strengths have applicability across many vocations and would not necessarily be tied to one area. As described by Louis (2012), Schenck examined the correlation between the CSF and both gender and academic programs. For these areas there was substantial consistency in the signature themes but the entire study was limited to only the two academic programs (Counseling and Career Development, and Organizational Performance and Change) and did not include students across a wide variety of academic areas.

Janowksi (2006) provided theoretical constructs and a framework for how a focus on strengths could be beneficial for college and university students. She conducted a qualitative study that determined three factors impact student ability to use strengths:

continual social support, experiences of success, and reinforcement of personal strengths. Janowski (2006) mentioned in her research that:

> It may be important for strengths programming leaders to examine if these factors exist in their students' lives, and to lend resources to help to support their students, create opportunities for successes, and reinforce their personal strengths so that their students will in turn capitalize on their strengths. (p. 72)

Janowski believed it may be advantageous for administrators of universities to communicate how knowledge of personal strengths can be important to students.

In her dissertation on the *Strengths of Women*, Krimmel (2017) examined whether or not patterns existed in the distribution of CSF signature themes among students at a selective, women's liberal arts college. This study was completed in an effort to find opportunities to provide customized strengths-based curriculum specifically in relation to internship preparation. In this instance, the distribution did not correlate signature themes to any academic areas. Instead, the study investigated distributions of signature themes and then compared those distributions to the overall Gallup Organization produced distribution averages. Krimmel (2017) found that the distributions of signature themes varied dramatically from the larger population of individuals who have taken the CSF and that some of those differences in specific signature themes were significant and not due to chance.

Janke et al. (2015) studied the CSF results of students at five Midwestern pharmacy schools. The results of the study indicated there was consistency across the participating schools in the signature themes found in their student populations with Achiever, Harmony, Learner, Responsibility, and Empathy all appearing at high levels. This consistency from school to school led Janke et al. (2015) to believe there were

curricular and extra-curricular opportunities within pharmacy programs to more effectively prepare students for success in the field. Janke et al. (2015) also took the step of analyzing the domains of students who had completed the strengths, finding that students in pharmacy showed a ranking of Executing, Relationship Building, Strategic Thinking, and Influencing.

Carson et al. (2011) linked the results of the CSF to the Holland Vocational Personality Types among 1,747 undergraduate students pursuing legal coursework at an online university. In measuring vocational personality types using the Kuder Career System, it was found that all areas of vocational personality types could be related to one or more of the CSF themes. For each of the Holland codes of Realistic, Investigative, Artistic, Social, Enterprising, and Conventional (RIASEC) up to five signature themes correlated positively with the type while up to eight correlated negatively with the type (Carson et al., 2011).

Caldwell (2009) connected the CSF with Kolb's Learning Styles among Allied Health and Nursing students at the University of Memphis. In this study, Caldwell reviewed the most prevalent signature themes in the student population and found that at least one was a significant predictor for each of Kolb's Learning Styles. The Positivity theme connected to the Accommodating learning style; Positivity, Learner, and Developer to the Assimilating style; Achiever to the Converging style; and Empathy to the Diverging learning style (Caldwell, 2009).

Wisner (2011) completed a study that referenced several assessments to determine which could have an impact on the Student Leadership Practices Inventory (SPLI). The study involved 153 student leaders across five faith-based institutions. The assessments included the CSF, the PsyCap Questionnaire, and the Strengths Ownership Scale (SOS).

While the CSF was taken by all students, the individual strengths themes were not correlated with specific components of the SPLI. Instead, the study used the CSF as a component of the SOS to determine if owning one's strengths would have an impact on the SPLI. Wisner found that strengths ownership did not act as a predictor in SPLI scoring.

Reynolds (2012) studied the relationship between the CSF and the PsyCap Questionnaire in a different target audience: leaders in higher education at faith-based educational institutions. Sixty-two leaders were part of this study with 32 receiving a strengths-based treatment while the other 30 served as a control group and received no treatment. While the 32 leaders receiving the strengths-based treatment showed an increase in self-awareness, there was not a significant difference in leadership scores over time between the treatment and control groups. Effectively, while self-awareness was stronger, Reynolds felt that other avenues for leadership improvement, such as mentorship, experience, or face-to-face instruction would have a higher individual impact than using the CSF or PsyCap Questionnaire alone.

StrengthsFinder Correlation Studies in Other Industries

In a study of police officers in Central Florida, Bowlin (2013) found that the CSF could be used to predict officer performance. Officers in the study were found to have higher correlations between commendations and specific signature themes. This identification allowed the police administration to focus their efforts on recruiting and retaining candidates who were more pre-disposed to positive job outcomes. In particular, Bowlin (2013) found individuals with Achiever and Activator signature themes tended to show adequate to superior job performance, while individuals with other signature themes did not. Bowlin acknowledged that this research was foundational in nature and

should be further developed to enhance conversations surrounding predicting officer job performance.

Patterson (2011) studied the connection between the CSF and the effective use and distribution of labor by 14 chief executive officers (CEOs) of hospitals across two hospital systems. The most efficient CEOs and hospitals were able to see more patient movement with fewer numbers of staff in support of the process. Of the 34 available strengths themes, Patterson found that only two were correlated with efficient labor control in hospitals: Achiever and Learner. Patterson (2011) acknowledged that looking at labor control was a very tight focus, and that clearly, CEOs could have other institutional roles that would also have the potential for connections with the CSF.

Tomlinson (2012) examined the relationship between the CSF and scripture – in particular the listing of motivational gifts found in Romans 12:3-8 (New Revised Standard Version Catholic Edition). In Romans 12:3-8 there are only seven possible gifts which are referred to as strengths: perceiving, serving, teaching, encouraging, giving, ruling, and mercy. Tomlinson (2012) attempted to fold the 34 possible Clifton StrengthsFinder signature themes into the seven scripture strengths within a nursing organization. To achieve this, Tomlinson first attached each signature theme to one or two of the gifts as described in Romans. Then, the author looked at each individual's CSF top give signature themes results within the Romans clusters to determine whether or not substantial, if not complete, overlap between the two assessments existed. Individuals participating in the study were broken into two statistically significant clusters based on their responses to the Romans 12 motivational gifts. Tomlinson (2012) found a 66% and 60% match in the expected pairings for each of those clusters showing a connection between Romans motivational gifts and the CSF. He considered this

connection deep enough to argue for additional research in the area of connectivity between the CSF and Romans 12:3-8.

Summary

Researchers have reported the importance of academic major selection (Galotti, 1999; Galotti et al., 2006; Germeijs et al., 2012) and the use of strengths-based education in the retention and graduation of students in higher education (Anderson, 2004; Burnett, 2017; Lopez & Louis, 2009). There has been limited research in connecting these two concepts. The present study examined signature theme distributions and domains for first-time full-time declared majors and students who were assigned an exploratory track at a large public research university in the Midwest. Chapter 3 describes the research design, selection of participants, measurement, data collection procedures, data analysis, and limitations for this study.

Chapter 3

Methods

The current study described the strengths of the student population at The University through the lens of the CSF assessment. The first purpose of this study was to examine the signature theme distributions and domains for first-time full-time students with declared majors and their apportionment across nine selected schools and four academic clusters within the College of Arts and Sciences. The second purpose was to examine signature theme distributions and domains across five exploratory tracks (arts and humanities, medical and health sciences, natural sciences, math and technology, and social and behavioral sciences) for first-time full-time students who did not declare a major. The third purpose was to examine signature theme and domain differences between first-time full-time declared major and exploratory track students. The study included CSF assessment results from the incoming first-time full-time freshman class at a Midwestern research university in the fall terms of 2016 and 2017. This chapter includes a description of the research design, selection of participants, measurement, data collection procedures, data analysis, and limitations of this study.

Research Design

This study was designed as an exploratory quantitative descriptive study investigating the distribution of CSF signature strengths of students. Top signature themes for first-time full-time students at The University were identified for those who selected a major or pre-major and those who were assigned an exploratory track. Distributions of signature themes and domains were then identified for each academic school, each focus area within Liberal Arts & Sciences, and each exploratory track used at The University.

Selection of Participants

The population for this study included all students at The University who (a) were included in the Fall 2016 and Fall 2017 first-time full-time freshmen cohorts (as defined by the Office of Institutional Research and Planning) on the 20th day of enrollment, and (b) completed the CSF assessment. The sampling methodology used was purposive. The group selected for inclusion in this study was specifically chosen by its cohort status and these cohorts were the first required to participate in the CSF assessment.

Measurement

Archival data available within The University student information system and data warehouse were utilized. Data included the student's cohort and academic major or exploratory track from The University student record and the CSF five signature themes from the Office of First Year Experience. Student email addresses were collected from both datasets to link the data between the two university offices housing the data. Once the two data sets were merged, student email addresses were deleted and replaced with anonymous identification codes.

Student academic major is self-reported with some basic limitations. There are certain majors that students cannot self-select without meeting specified admission criteria to be in those majors. In these circumstances, a student can choose a 'pre-major' in Liberal Arts & Sciences that demonstrates a desire to pursue a specific academic major. For example, a student who ultimately wanted to be a business major would have selected pre-business as the self-reported option for an academic major. Pre-majors were grouped with the intended academic major for purpose of evaluation. Finally, some students did not select a major and were assigned an exploratory track designation based upon an academic interest response completed at the time of matriculation to The

University. Exploratory tracks identify areas of interest that an undecided student can self-select and include engineering, math, technical, and physical sciences; fine arts, humanities, and design; health and life sciences; and social and behavioral sciences (see Table 1).

Table 1

List of Academic Schools and Exploratory Tracks

Academic Schools	Exploratory Tracks
Liberal Arts & Sciences • Social sciences • Physical sciences • Arts • Humanities	Engineering, math, technical, and physical sciences Fine arts, humanities, and design Health and life sciences Social and behavioral sciences
Architecture	
Business	
Education	
Engineering	
Journalism	
Music	
Pharmacy	
Social Welfare	

The 20th day of enrollment was used as a consistent point for selecting data for those enrolled as first-time full-time students in the fall of 2016 and fall of 2017.

The CSF (Asplund et al., 2014) is an online assessment students are asked to complete prior to Orientation at The University. This online instrument was designed to identify five key signature themes that an individual possesses out of a possible 34 strengths themes (Asplund et al., 2014). Asplund et al. (2014) described this assessment as:

> an online assessment during which it presents each respondent with 177 stimuli. Each item lists a pair of potential self-descriptions such as 'I get to know people individually' versus 'I accept many types of people.' The descriptors appear on the screen as if anchoring opposite poles of a continuum. From that pair, the respondent is asked to choose the statement that best describes him or her and the extent to which that chosen option is descriptive of him or her. The participant gets 20 seconds to respond before the system moves on to the next item pair. The intent of the time limit is to elicit top-of-mind responses; developmental research shows that the 20-second limit resulted in a negligible item non-completion rate. (p. 2)

Responses to each question inform final results. All 34 strengths themes are ranked with the top five signature themes provided to the student. The signature themes presented to a student are representative of "a category of talents, which are defined as recurring and consistent patterns of thought, feeling, or behavior" (Asplund et al., 2014, p. 3). Students have their results further summarized into domains, which represent clusters of strengths that have thematic similarities. The domains include Executing, Influencing, Relationship Building, and Strategic Thinking (Gallup, 2018b).

A representation of the interface for submission of responses is shown in Figure 1. While ranking does exist, Gallup does not provide detailed scoring and without that information it is impossible to know that a number one versus number five strength had a similar weight across all students. For that reason, the current study looked at only the presence of the strength in a student's signature themes.

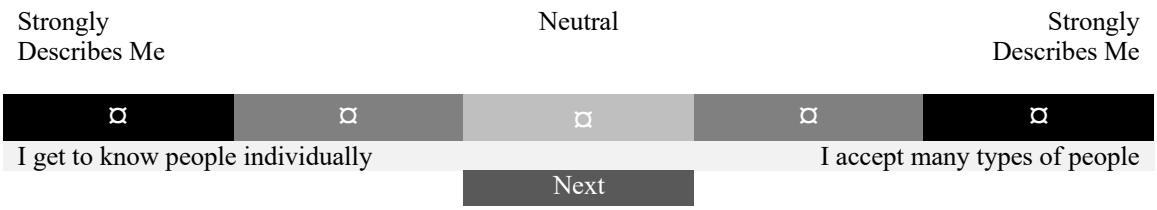

Figure 1. A representation of the interface for submitting responses to the CSF assessment. Adapted from *StrengthsFinder® 2.0 Technical Report: Development and Validation* by Asplund et al., 2014.

The updated CSF technical report (Asplund et al., 2014) described the rigor employed to establish reliability and validity for the CSF assessment. Reliability was tested both for internal consistency and test-retest reliability. Asplund et al. (2014) provided an estimate of internal consistency reliabilities table which documented estimates of internal consistency:

> Estimates come from three independent samples: a random sample of 46,902 respondents from 2008, a random sample of 250,000 respondents from 2012, and the 2,219 respondents from the test-retest study described in the following section. (Alphas shown are from the initial test.) [*sic*] Readers will note the strong similarity of the three sets of results. (p. 8)

Asplund et al. (2014) also described a test-retest study that was conducted by Gallup in 2008. This study consisted of:

> 2,219 members of the Gallup Panel, a nationally representative, probability-based panel of U.S. households that have agreed to participate in Gallup Panel surveys by phone, Web, or mail on any topic at any time. Respondents were recruited to complete the CSF assessment in February 2008. Those who completed the assessment received no feedback or output of any kind regarding their Signature Themes; nor were they informed that they were participating in a study of the CSF. Researchers did this to enable as pure an evaluation of the CSF's test-retest

> reliabilities as possible. After completing the assessment, respondents were randomly assigned to one of three retest periods: (1) one month (n = 538), (2) three months (n = 390), and (3) six months (n = 376) after their first assessment. (p. 10)

The results of the test-retest reliability were documented with acceptable reliability coefficients (Asplund et al., 2014).

Asplund et al. (2014) stated that the CSF appears to have strong validity. The authors first measured content validity and commented that "it is difficult to provide content validity evidence for personality-type assessments" (p. 12). However, they indicated that the CSF aligns well with other personality-type assessments such as the Big Five personality traits or CPI and that the content is backed by over 30 years of professional and research experience. Asplund et al. (2014) also referenced efforts to provide testing of content validity:

> Researchers decided to examine themes in pairs by performing a hierarchical cluster analysis using the items from two themes at a time and repeating this process for all theme pairs in which the items are independent. This provided a good representation of how well the statements of a given theme cluster together. This approach is similar to factor analysis, although it differs in the way variables are grouped. The between-groups linkage method measured with Pearson's correlation was employed because it uses information from all pairs of distances, not just the farthest or the nearest. The nearer to the origin the cluster combines, the stronger is the correlation between the statements. (p. 13)

Asplund et al. (2014) referenced a rule of thumb indicating the standard the CSF would meet to demonstrate appropriate construct validity: "If 70% of the experts classify an

item into its hypothesized category, the item should be considered matched to that category" (p. 15). Themes were evaluated via cluster analysis and compared to the 70% criterion. In the case of the CSF review by Asplund et al. (2014), the vast majority of signature themes scored much higher than the 70% mark.

Data Collection Procedures

Before conducting this study, permission was sought to conduct the study from the Institutional Review Board (IRB) at Baker University (Appendix C). Approval was granted by the Baker University IRB on May 15, 2018 (Appendix D). Once permission was granted from Baker University, additional IRB approval was sought from The University using the IRB information from Baker University (Appendix E). The University granted approval to conduct the study on June 5, 2018 (Appendix F).

Data related to the CSF were acquired through the Office of First Year Experience at The University. CSF data were provided in a comma-delimited spreadsheet via secure transmission. Academic and demographic student record information were acquired through the Office of the University Registrar and Office of Institutional Research and Planning at The University. These data were also provided in a comma-delimited spreadsheet via secure transmission. Both files were stored in a secure file repository that was cleared for the level of confidential information in the files. These files were then merged into one spreadsheet, using the student email address as a primary key. The data were then de-identified to remove any individualization that could have been tracked back to a student. This was accomplished through the assignment of a unique numerical key to each student after personally identified information was deleted. The final merged and de-identified dataset was used for data analysis.

Data Analysis

Microsoft Excel software was used to analyze the data to examine the distributions of StrengthsFinder signature themes. Individual student data were used to develop spreadsheets of results for each academic school and exploratory track. The following research questions were proposed and addressed:

RQ1. What are the distributions of signature themes within declared academic majors as grouped by the nine schools?

A descriptive analysis of each group was conducted that identified the number and percent of students with a signature theme within each of the schools. Microsoft Excel spreadsheets for each academic school were built that included the count of appearances of each signature theme and the percentage of students in each academic school for whom the strength was a the signature theme. This information was sorted to represent the top five signature themes at an academic school level.

RQ2. What are the distributions of signature themes within the four exploratory tracks?

A descriptive analysis of each group was conducted that identified the number and percent of students with a signature theme within each of the exploratory tracks. Microsoft Excel spreadsheets for each exploratory track were created that included the count of appearances of each signature theme and the percentage of students in each exploratory track for whom the strength was a the signature theme. This information was sorted to represent the top five signature themes at an exploratory track level.

RQ3. What are the distributions of domains within declared academic majors as grouped by the nine schools?

A descriptive analysis of each group was conducted that identified the number and percentage of signature themes that fit into CSF domains within each school. A Microsoft Excel formula was designed to count the number of signature themes that represented the specific domains for each academic school. The final ranking of domains was then provided for each academic school.

RQ4. What are the distributions of domains within the four exploratory tracks?

A descriptive analysis of each group was conducted that identified the number and percentage of signature themes that fit into domains within each exploratory track. A Microsoft Excel formula was designed to count the number of signature themes that represented the specific domains for each exploratory track. The final ranking of domains was then provided for each academic school.

RQ5. To what extent is there a difference in the distribution of signature themes and domains between students with declared majors and students in exploratory tracks?

The top five signature themes for academic schools and exploratory tracks were indexed and compared looking for direct matches or common themes that occurred across academic schools and exploratory tracks. Additional comparison reviewed the rank order of the domains using the percentage of signature strengths in each domain to understanding the domain distributions of the academic schools and exploratory tracks.

Limitations

Price and Murnan (2004) defined limitations as "constraints on generalizability, applications to practice, and/or utility of findings that are the result of the ways in which you initially chose to design the study and/or the method used to establish internal and external validity." (p. 66). The study had the following limitations:

1. While the CSF was ‘required’ for each cohort of admitted students, there was no penalty for not completing the assessment. There is a lack of knowledge about the signature themes for students who did not complete the CSF.

2. Student majors were those reported in The University’s 20th day census for each term and the data did not accommodate any changes made after that date.

Summary

This research examined the distribution and relationships between the CSF signature themes and academic major or exploratory track choices of members of the first-time full-time cohort of The University for Fall 2016 and Fall 2017. This chapter included a description of the research design, selection of participants, measurement, data collection procedures, data analysis, and limitations of this study. The results of the data analysis are presented in Chapter 4.

Chapter 4

Results

The purpose of this study was to describe the freshmen population at The University through the lens of the CSF assessment. This was completed by (1) examining the strengths themes distributions for declared majors and their apportionment across the selected schools, and (2) examining the strengths themes distributions across exploratory tracks. Chapter 4 presents information on the completion of the CSF at The University.

Total CSF Completions

The CSF was required of all first-time full-time freshman entering The University in Fall 2016 and Fall 2017. The official census data showed that 4130 students were in the Fall 2016 cohort and 4070 students were in the Fall 2017 cohort. Despite being required, neither cohort completed the CSF at a 100% rate. Fall 2016 included 2456 completers (59.5%) and Fall 2017 included 2485 completers (61.1%). There was no penalty to students for not completing the CSF assessment. Students representing all of the academic schools and exploratory tracks selected for inclusion in the current study completed the CSF. A summary of CSF completions by academic schools is summarized in Table 2. Exploratory Track completions are summarized in Table 3.

Table 2

CSF Completions for Academic Schools

Academic School	Fall 2016	Fall 2017
Liberal Arts & Sciences		
Social Sciences	209	215
Physical Sciences	456	546
Arts	69	60
Humanities	85	75
Architecture	121	121
Business	490	493
Education	179	177
Engineering	345	336
Journalism	79	98
Music	46	46
Pharmacy	76	63
Social Welfare	11	12

Table 3

CSF Completions for Exploratory Tracks

Exploratory Track	Fall 2016	Fall 2017
Engineering, math, technical, and physical sciences	47	59
Fine arts, humanities, and design	47	38
Health and life sciences	145	103
Social and behavioral sciences	54	43

CSF data were organized by academic majors and exploratory track categories. Each signature strength theme was counted in an unweighted fashion (meaning that a strength

showing in position number 1 versus position number 5 had the same value in the count for the distributions).

Research Question 1: CSF Signature Themes by Academic Schools

Signature themes were counted per academic school. In each of these distributions, the total number of appearances of a signature theme was identified and the percentage of the population that had the signature strengths theme was identified. Tables 4 through 16 present data in ranked order from most to least frequent. The following top five signature themes emerged when all disciplines in the academic schools were combined:

1. Achiever (*n* = 1,412)
2. Restorative (*n* = 1,300)
3. Futuristic (*n* = 1,042)
4. Competition (*n* = 1,010)
5. Learner (*n* = 964)

The following five signature themes were least selected by students when the academic schools were combined:

1. Self-Assurance (*n* = 164)
2. Maximizer (*n* = 248)
3. Connectedness (*n* = 250)
4. Arranger (*n* = 268)
5. Activator (*n* = 316)

Table 4 displays the signature themes for students in Liberal Arts & Sciences – Social Sciences. These are listed in order of most to least frequent and show that the top 6 signature themes for this academic school were Input, Restorative, Empathy,

Adaptability, Futuristic, and Intellection (more than 5 listed due to equivalent values of *n*). The least frequent signature themes for students in Liberal Arts & Sciences – Social Sciences were Self-Assurance, Maximizer, Arranger, Command, and Focus. Asplund et al. (2014) summarized characteristics associated with each of the most frequently identified signature themes:

> **Input:** People especially talented in the Input theme have a craving to know more. Often they like to collect and archive all kinds of information.
>
> **Restorative:** People especially talented in the Restorative theme are adept at dealing with problems. They are good at figuring out what is wrong and resolving it.
>
> **Empathy:** People especially talented in the Empathy theme can sense the feelings of other people by imagining themselves in others' lives or others' situations.
>
> **Adaptability:** People especially talented in the Adaptability theme prefer to "go with the flow." [*sic*] They tend to be "now" [*sic*] people who take things as they come and discover the future one day at a time.
>
> **Futuristic:** People especially talented in the Futuristic theme are inspired by the future and what could be. They inspire others with their visions of the future.
>
> **Intellection:** People especially talented in the Intellection theme are characterized by their intellectual activity. They are introspective and appreciate intellectual discussions. (pp. 29-31)

A sample student characterized by these signature themes would be considered to be in the domains of Strategic Thinking (3), Relationship Building (2), and Executing (1).

Table 4

Signature Themes for Students in Liberal Arts & Sciences – Social Sciences (n = 424)

Strength	*n*	*%*
Input	144	33.96
Restorative	135	31.84
Empathy	109	25.71
Adaptability	102	24.06
Futuristic	83	19.58
Intellection	83	19.58
Achiever	79	18.63
Developer	78	18.40
Positivity	78	18.40
Relator	78	18.40
Learner	76	17.92
Strategic	75	17.69
Competition	72	16.98
Individualization	72	16.98
Context	71	16.75
Communication	70	16.51
Harmony	69	16.27
Woo	64	15.09
Consistency	58	13.68
Includer	57	13.44
Deliberative	55	12.97
Responsibility	55	12.97
Ideation	46	10.85
Analytical	44	10.38
Discipline	42	9.91
Connectedness	39	9.20
Belief	33	7.78
Activator	31	7.31
Significance	30	7.08
Focus	28	6.60
Command	24	5.66
Arranger	19	4.48
Maximizer	13	3.07
Self-Assurance	8	1.89

Table 5 displays the signature themes for students in Liberal Arts & Sciences – Physical Sciences. These are listed in order of most to least frequent and show that the top 5 signature themes for this academic school were Achiever, Restorative, Learner, Input, and Futuristic. The least frequent signature themes for students in Liberal Arts & Sciences – Physical Sciences were Self-Assurance, Maximizer, Activator, Arranger, and Command. Asplund et al. (2014) summarized characteristics associated with the most frequently identified signature themes:

> **Achiever:** People especially talented in the Achiever theme have a great deal of stamina and work hard. They take great satisfaction from being busy and productive.
>
> **Restorative:** People especially talented in the Restorative theme are adept at dealing with problems. They are good at figuring out what is wrong and resolving it.
>
> **Learner:** People especially talented in the Learner theme have a great desire to learn and want to continuously improve. In particular, the process of learning, rather than the outcome, excites them.
>
> **Input:** People especially talented in the Input theme have a craving to know more. Often they like to collect and archive all kinds of information.
>
> **Futuristic:** People especially talented in the Futuristic theme are inspired by the future and what could be. They inspire others with their visions of the future. (pp. 29-31)

A sample student characterized by these signature themes would be considered to be in the domains of Strategic Thinking (3) and Executing (2).

Table 5

Signature Themes for Students in Liberal Arts & Sciences – Physical Sciences (n = 999)

Strength	*n*	*%*
Achiever	391	39.14
Restorative	329	32.93
Learner	317	31.73
Input	264	26.43
Futuristic	237	23.72
Relator	198	19.82
Includer	193	19.32
Positivity	180	18.02
Harmony	174	17.42
Empathy	165	16.52
Competition	163	16.32
Responsibility	163	16.32
Intellection	157	15.72
Adaptability	155	15.52
Individualization	148	14.81
Developer	147	14.71
Consistency	139	13.91
Deliberative	137	13.71
Analytical	132	13.21
Strategic	126	12.61
Discipline	125	12.51
Woo	125	12.51
Focus	123	12.31
Communication	122	12.21
Belief	99	9.91
Significance	73	7.31
Ideation	67	6.71
Context	64	6.41
Connectedness	61	6.11
Command	56	5.61
Arranger	53	5.31
Activator	47	4.70
Maximizer	37	3.70
Self-Assurance	28	2.80

Table 6 displays the signature themes for students in Liberal Arts & Sciences – Arts. These are listed in order of most to least frequent and show that the top 5 signature themes for this academic school were Adaptability, Empathy, Strategic, Futuristic, and Restorative. The least frequent signature themes for students in Liberal Arts & Sciences – Arts were Self-Assurance, Command, Analytical, Responsibility, Discipline, Consistency, and Arranger (more than 5 listed due to equivalent values of *n*). Asplund et al. (2014) summarized characteristics associated with the most frequently identified signature themes:

> **Adaptability:** People especially talented in the Adaptability theme prefer to "go with the flow." [*sic*] They tend to be "now" [*sic*] people who take things as they come and discover the future one day at a time.
>
> **Empathy:** People especially talented in the Empathy theme can sense the feelings of other people by imagining themselves in others' lives or others' situations.
>
> **Strategic:** People especially talented in the Strategic theme create alternative ways to proceed. Faced with any given scenario, they can quickly spot the relevant patterns and issues.
>
> **Futuristic:** People especially talented in the Futuristic theme are inspired by the future and what could be. They inspire others with their visions of the future.
>
> **Restorative:** People especially talented in the Restorative theme are adept at dealing with problems. They are good at figuring out what is wrong and resolving it. (pp. 29-31)

A sample student characterized by these signature themes would be considered to be in the domains of Relationship Building (2), Strategic Thinking (2), and Executing (1).

Table 6

Signature Themes for Students in Liberal Arts & Sciences – Arts (n = 129)

Strength	*n*	*%*
Adaptability	50	38.76
Empathy	42	32.56
Strategic	40	31.01
Futuristic	38	29.46
Restorative	36	27.91
Input	34	26.36
Intellection	31	24.03
Communication	29	22.48
Individualization	28	21.71
Ideation	26	20.16
Developer	24	18.60
Achiever	23	17.83
Positivity	20	15.50
Learner	18	13.95
Relator	18	13.95
Deliberative	17	13.18
Woo	16	12.40
Competition	15	11.63
Includer	14	10.85
Belief	13	10.08
Connectedness	13	10.08
Maximizer	12	9.30
Activator	10	7.75
Harmony	10	7.75
Context	9	6.98
Focus	9	6.98
Significance	9	6.98
Arranger	7	5.43
Consistency	7	5.43
Discipline	7	5.43
Responsibility	7	5.43
Analytical	5	3.88
Command	5	3.88
Self-Assurance	3	2.33

Table 7 displays the signature themes for students in Liberal Arts & Sciences – Humanities. These are listed in order of most to least frequent and show that the top 6 signature themes for this academic school were Input, Adaptability, Restorative, Achiever, Empathy, and Intellection (more than 5 listed due to equivalent values of *n*). The least frequent signature themes for students in Liberal Arts & Sciences – Humanities were Self-Assurance, Command, Arranger, Analytical, and Activator. Asplund et al. (2014) summarized characteristics associated with the most frequently identified signature themes:

> **Input:** People especially talented in the Input theme have a craving to know more. Often they like to collect and archive all kinds of information.
>
> **Adaptability:** People especially talented in the Adaptability theme prefer to "go with the flow." [*sic*] They tend to be "now" [*sic*] people who take things as they come and discover the future one day at a time.
>
> **Restorative:** People especially talented in the Restorative theme are adept at dealing with problems. They are good at figuring out what is wrong and resolving it.
>
> **Achiever:** People especially talented in the Achiever theme have a great deal of stamina and work hard. They take great satisfaction from being busy and productive.
>
> **Empathy:** People especially talented in the Empathy theme can sense the feelings of other people by imagining themselves in others' lives or others' situations.
>
> **Intellection:** People especially talented in the Intellection theme are characterized by their intellectual activity. They are introspective and appreciate intellectual discussions. (pp. 29-31)

A sample student characterized by these signature themes would be considered to be in the domains of Executing (2), Relationship Building (2), and Strategic Thinking (2).

Table 7

Signature Themes for Students in Liberal Arts & Sciences – Humanities (n = 144)

Strength	*n*	*%*
Input	56	38.89
Adaptability	43	29.86
Restorative	40	27.78
Achiever	36	25.00
Empathy	36	25.00
Intellection	36	25.00
Futuristic	33	22.92
Learner	33	22.92
Individualization	30	20.83
Context	29	20.14
Strategic	28	19.44
Deliberative	23	15.97
Relator	23	15.97
Communication	22	15.28
Developer	21	14.58
Ideation	20	13.89
Harmony	19	13.19
Positivity	19	13.19
Includer	17	11.81
Competition	16	11.11
Responsibility	15	10.42
Woo	14	9.72
Belief	13	9.03
Connectedness	13	9.03
Consistency	13	9.03
Discipline	12	8.33
Maximizer	11	7.64
Significance	10	6.94
Focus	9	6.25
Activator	7	4.86
Analytical	7	4.86
Arranger	7	4.86
Command	6	4.17
Self-Assurance	3	2.08

Table 8 displays the signature themes for students in Architecture. These are listed in order of most to least frequent and show that the top 5 signature themes for this academic school were Futuristic, Strategic, Adaptability, Restorative, and Achiever. The least frequent signature themes for students in Architecture were Self-Assurance, Belief, Arranger, Command, and Connectedness. Asplund et al. (2014) summarized characteristics associated with the most frequently identified signature themes:

> **Futuristic:** People especially talented in the Futuristic theme are inspired by the future and what could be. They inspire others with their visions of the future.
>
> **Strategic:** People especially talented in the Strategic theme create alternative ways to proceed. Faced with any given scenario, they can quickly spot the relevant patterns and issues.
>
> **Adaptability:** People especially talented in the Adaptability theme prefer to "go with the flow." [*sic*] They tend to be "now" [*sic*] people who take things as they come and discover the future one day at a time.
>
> **Restorative:** People especially talented in the Restorative theme are adept at dealing with problems. They are good at figuring out what is wrong and resolving it.
>
> **Achiever:** People especially talented in the Achiever theme have a great deal of stamina and work hard. They take great satisfaction from being busy and productive. (pp. 29-31)

A sample student characterized by these signature themes would be considered to be in the domains of Executing (2), Strategic Thinking (2), and Relationship Building (1).

Table 8

Signature Themes for Students in Architecture (n = 242)

Strength	*n*	*%*
Futuristic	83	34.30
Strategic	69	28.51
Adaptability	65	26.86
Restorative	61	25.21
Achiever	60	24.79
Input	56	23.14
Empathy	55	22.73
Positivity	48	19.83
Relator	48	19.83
Ideation	46	19.01
Learner	46	19.01
Competition	41	16.94
Developer	41	16.94
Responsibility	41	16.94
Includer	40	16.53
Communication	36	14.88
Intellection	33	13.64
Woo	32	13.22
Deliberative	31	12.81
Individualization	29	11.98
Analytical	24	9.92
Context	23	9.50
Focus	23	9.50
Maximizer	23	9.50
Activator	22	9.09
Discipline	22	9.09
Harmony	21	8.68
Consistency	17	7.02
Significance	15	6.20
Connectedness	14	5.79
Command	13	5.37
Arranger	12	4.96
Belief	11	4.55
Self-Assurance	9	3.72

Table 9 displays the signature themes for students in Business. These are listed in order of most to least frequent and show that the top 5 signature themes for this academic school were Competition, Achiever, Futuristic, Restorative, and Woo. The least frequent signature themes for students in Business were Connectedness, Intellection, Self-Assurance, Maximizer, and Belief. Asplund et al. (2014) summarized characteristics associated with the most frequently identified signature themes:

> **Competition:** People especially talented in the Competition theme measure their progress against the performance of others. They strive to win first place and revel in contests.
>
> **Achiever:** People especially talented in the Achiever theme have a great deal of stamina and work hard. They take great satisfaction from being busy and productive.
>
> **Futuristic:** People especially talented in the Futuristic theme are inspired by the future and what could be. They inspire others with their visions of the future.
>
> **Restorative:** People especially talented in the Restorative theme are adept at dealing with problems. They are good at figuring out what is wrong and resolving it.
>
> **Woo:** People especially talented in the Woo theme love the challenge of meeting new people and winning them over. They derive satisfaction from breaking the ice and making a connection. (pp. 29-31)

A sample student characterized by these signature themes would be considered to be in the domains of Influencing (2), Executing (2), and Strategic Thinking (1).

Table 9

Signature Themes for Students in Business (n = 983)

Strength	*n*	*%*
Competition	399	40.59
Achiever	310	31.54
Futuristic	249	25.33
Restorative	248	25.23
Woo	222	22.58
Positivity	215	21.87
Adaptability	214	21.77
Communication	197	20.04
Harmony	196	19.94
Strategic	190	19.33
Includer	175	17.80
Relator	169	17.19
Consistency	145	14.75
Empathy	137	13.94
Analytical	127	12.92
Individualization	127	12.92
Significance	125	12.72
Responsibility	124	12.61
Deliberative	121	12.31
Activator	115	11.70
Context	106	10.78
Command	102	10.38
Focus	101	10.27
Ideation	95	9.66
Input	95	9.66
Developer	94	9.56
Discipline	92	9.36
Learner	92	9.36
Arranger	70	7.12
Belief	66	6.71
Maximizer	63	6.41
Self-Assurance	56	5.70
Intellection	55	5.60
Connectedness	23	2.34

Table 10 displays the signature themes for students in Education. These are listed in order of most to least frequent and show that the top 5 signature themes for this academic school were Restorative, Achiever, Positivity, Adaptability, and Includer. The least frequent signature themes for students in Education were Self-Assurance, Command, Focus, Connectedness, Ideation, and Analytical (more than 5 listed due to equivalent values of *n*). Asplund et al. (2014) summarized characteristics associated with the most frequently identified signature themes:

> **Restorative:** People especially talented in the Restorative theme are adept at dealing with problems. They are good at figuring out what is wrong and resolving it.
>
> **Achiever:** People especially talented in the Achiever theme have a great deal of stamina and work hard. They take great satisfaction from being busy and productive.
>
> **Positivity:** People especially talented in the Positivity theme have an enthusiasm that is contagious. They are upbeat and can get others excited about what they are going to do.
>
> **Adaptability:** People especially talented in the Adaptability theme prefer to "go with the flow." [*sic*] They tend to be "now" [*sic*] people who take things as they come and discover the future one day at a time.
>
> **Includer:** People especially talented in the Includer theme are accepting of others. They show awareness of those who feel left out, and make an effort to include them. (pp. 29-31)

A sample student characterized by these signature themes would be considered to be in the domains of Relationship Building (3) and Executing (2).

Table 10

Signature Themes for Students in Education (n = 356)

Strength	*n*	*%*
Restorative	104	29.21
Achiever	98	27.53
Positivity	96	26.97
Adaptability	94	26.40
Includer	92	25.84
Empathy	89	25.00
Relator	86	24.16
Developer	83	23.31
Harmony	82	23.03
Woo	71	19.94
Consistency	67	18.82
Learner	65	18.26
Communication	60	16.85
Competition	58	16.29
Responsibility	58	16.29
Input	54	15.17
Futuristic	53	14.89
Discipline	44	12.36
Strategic	44	12.36
Individualization	43	12.08
Arranger	41	11.52
Deliberative	35	9.83
Belief	33	9.27
Context	31	8.71
Maximizer	28	7.87
Activator	26	7.30
Intellection	24	6.74
Significance	21	5.90
Analytical	20	5.62
Ideation	20	5.62
Connectedness	19	5.34
Focus	19	5.34
Command	12	3.37
Self-Assurance	10	2.81

Table 11 displays the signature themes for students in Engineering. These are listed in order of most to least frequent and show that the top 5 signature themes for this academic school were Achiever, Learner, Restorative, Analytical, and Competition. The least frequent signature themes in Engineering were Maximizer, Connectedness, Activator, Discipline, and Self-Assurance. Asplund et al. (2014) summarized characteristics associated with the most frequently identified signature themes:

> **Achiever:** People especially talented in the Achiever theme have a great deal of stamina and work hard. They take great satisfaction from being busy and productive.
>
> **Learner:** People especially talented in the Learner theme have a great desire to learn and want to continuously improve. In particular, the process of learning, rather than the outcome, excites them.
>
> **Restorative:** People especially talented in the Restorative theme are adept at dealing with problems. They are good at figuring out what is wrong and resolving it.
>
> **Analytical:** People especially talented in the Analytical theme search for reasons and causes. They have the ability to think about all the factors that might affect a situation.
>
> **Competition:** People especially talented in the Competition theme measure their progress against the performance of others. They strive to win first place and revel in contests. (pp. 29-31)

A sample student characterized by these signature themes would be considered to be in the domains of Executing (2), Strategic Thinking (2), and Influencing (1).

Table 11

Signature Themes for Students in Engineering (n = 681)

Strength	*n*	*%*
Achiever	274	40.23
Learner	225	33.04
Restorative	215	31.57
Analytical	193	28.34
Competition	184	27.02
Futuristic	170	24.96
Strategic	156	22.91
Input	144	21.15
Relator	138	20.26
Deliberative	127	18.65
Ideation	116	17.03
Adaptability	111	16.30
Intellection	111	16.30
Responsibility	99	14.54
Includer	92	13.51
Individualization	87	12.78
Harmony	78	11.45
Positivity	72	10.57
Empathy	69	10.13
Focus	68	9.99
Context	66	9.69
Command	65	9.54
Communication	63	9.25
Consistency	60	8.81
Developer	54	7.93
Significance	54	7.93
Woo	49	7.20
Belief	46	6.75
Arranger	42	6.17
Self-Assurance	40	5.87
Discipline	39	5.73
Activator	35	5.14
Connectedness	33	4.85
Maximizer	30	4.41

Table 12 displays the signature themes for students in Journalism. These are listed in order of most to least frequent and show that the top 5 signature themes for this academic school were Positivity, Woo, Futuristic, Adaptability, and Restorative. The least frequent signature themes in Journalism were Self-Assurance, Arranger, Analytical, Command, and Belief. Asplund et al. (2014) summarized characteristics associated with the most frequently identified signature themes:

> **Positivity:** People especially talented in the Positivity theme have an enthusiasm that is contagious. They are upbeat and can get others excited about what they are going to do.
>
> **Woo:** People especially talented in the Woo theme love the challenge of meeting new people and winning them over. They derive satisfaction from breaking the ice and making a connection.
>
> **Futuristic:** People especially talented in the Futuristic theme are inspired by the future and what could be. They inspire others with their visions of the future.
>
> **Adaptability:** People especially talented in the Adaptability theme prefer to "go with the flow." [*sic*] They tend to be "now" [*sic*] people who take things as they come and discover the future one day at a time.
>
> **Restorative:** People especially talented in the Restorative theme are adept at dealing with problems. They are good at figuring out what is wrong and resolving it. (pp. 29-31)

A sample student characterized by these signature themes would be considered to be in the domains of Relationship Building (2), Executing (1), Influencing (1), and Strategic Thinking (1).

Table 12

Signature Themes for Students in Journalism (n = 177)

Strength	*n*	*%*
Positivity	56	31.64%
Woo	55	31.07%
Futuristic	53	29.94%
Adaptability	51	28.81%
Restorative	48	27.12%
Achiever	47	26.55%
Communication	47	26.55%
Strategic	47	26.55%
Includer	41	23.16%
Empathy	40	22.60%
Input	37	20.90%
Responsibility	31	17.51%
Developer	26	14.69%
Relator	26	14.69%
Competition	25	14.12%
Individualization	25	14.12%
Learner	22	12.43%
Discipline	20	11.30%
Harmony	18	10.17%
Intellection	18	10.17%
Activator	17	9.60%
Consistency	16	9.04%
Deliberative	16	9.04%
Ideation	16	9.04%
Context	13	7.34%
Focus	12	6.78%
Connectedness	11	6.21%
Maximizer	10	5.65%
Significance	9	5.08%
Belief	8	4.52%
Command	8	4.52%
Analytical	6	3.39%
Arranger	6	3.39%
Self-Assurance	4	2.26%

Table 13 displays the signature themes for students in Music. These are listed in order of most to least frequent and show that the top 6 signature themes for this academic school were Restorative, Empathy, Developer, Adaptability, Achiever, and Input (more than 5 listed due to equivalent values of *n*). The least frequent signature themes in Music were Self-Assurance, Command, Arranger, Discipline, Focus, and Arranger (more than 5 listed due to equivalent values of *n*). Asplund et al. (2014) summarized characteristics associated with the most frequently identified signature themes:

> **Restorative:** People especially talented in the Restorative theme are adept at dealing with problems. They are good at figuring out what is wrong and resolving it.
>
> **Empathy:** People especially talented in the Empathy theme can sense the feelings of other people by imagining themselves in others' lives or others' situations.
>
> **Developer:** People especially talented in the Developer theme recognize and cultivate the potential in others. They spot the signs of each small improvement and derive satisfaction from these improvements.
>
> **Adaptability:** People especially talented in the Adaptability theme prefer to "go with the flow." [*sic*] They tend to be "now" [*sic*] people who take things as they come and discover the future one day at a time.
>
> **Achiever:** People especially talented in the Achiever theme have a great deal of stamina and work hard. They take great satisfaction from being busy and productive.
>
> **Input:** People especially talented in the Input theme have a craving to know more. Often they like to collect and archive all kinds of information. (pp. 29-31)

A sample student characterized by these signature themes would be considered to be in the domains of Relationship Building (3), Executing (2), and Strategic Thinking (1).

Table 13

Signature Themes for Students in Music (n = 92)

Strength	*n*	%
Restorative	32	34.78
Empathy	30	32.61
Developer	28	30.43
Adaptability	26	28.26
Achiever	24	26.09
Input	24	26.09
Includer	23	25.00
Learner	21	22.83
Harmony	18	19.57
Communication	17	18.48
Positivity	17	18.48
Individualization	16	17.39
Connectedness	15	16.30
Intellection	15	16.30
Futuristic	14	15.22
Strategic	14	15.22
Responsibility	13	14.13
Woo	12	13.04
Ideation	11	11.96
Competition	10	10.87
Context	10	10.87
Relator	10	10.87
Deliberative	9	9.78
Belief	8	8.70
Consistency	8	8.70
Maximizer	7	7.61
Significance	7	7.61
Analytical	6	6.52
Activator	4	4.35
Focus	4	4.35
Discipline	3	3.26
Arranger	2	2.17
Command	1	1.09
Self-Assurance	1	1.09

Table 14 displays the signature themes for students in Pharmacy. These are listed in order of most to least frequent and show that the top 5 signature themes for this academic school were Achiever, Restorative, Learner, Harmony, and Responsibility. The least frequent signature themes in Pharmacy were Self-Assurance, Command, Activator, Connectedness, Ideation, and Arranger (more than 5 listed due to equivalent values of *n*). Asplund et al. (2014) summarized characteristics associated with the most frequently identified signature themes:

> **Achiever:** People especially talented in the Achiever theme have a great deal of stamina and work hard. They take great satisfaction from being busy and productive.
>
> **Restorative:** People especially talented in the Restorative theme are adept at dealing with problems. They are good at figuring out what is wrong and resolving it.
>
> **Learner:** People especially talented in the Learner theme have a great desire to learn and want to continuously improve. In particular, the process of learning, rather than the outcome, excites them.
>
> **Harmony:** People especially talented in the Harmony theme look for consensus. They don't enjoy conflict; rather, they seek areas of agreement.
>
> **Responsibility:** People especially talented in the Responsibility theme take psychological ownership of what they say they will do. They are committed to stable values such as honesty and loyalty. (pp. 29-31)

A sample student characterized by these signature themes would be considered to be in the domains of Executing (3), Relationship Building (1), and Strategic Thinking (1).

Table 14

Signature Themes for Students Pharmacy (n = 139)

Strength	*n*	*%*
Achiever	69	49.64
Restorative	46	33.09
Learner	45	32.37
Harmony	41	29.50
Responsibility	39	28.06
Consistency	31	22.30
Relator	29	20.86
Futuristic	28	20.14
Competition	26	18.71
Discipline	26	18.71
Intellection	25	17.99
Input	24	17.27
Adaptability	23	16.55
Empathy	22	15.83
Includer	21	15.11
Focus	19	13.67
Deliberative	18	12.95
Positivity	18	12.95
Developer	17	12.23
Analytical	15	10.79
Woo	15	10.79
Context	14	10.07
Strategic	14	10.07
Belief	12	8.63
Individualization	12	8.63
Maximizer	11	7.91
Communication	7	5.04
Significance	7	5.04
Arranger	6	4.32
Ideation	6	4.32
Connectedness	3	2.16
Activator	2	1.44
Command	2	1.44
Self-Assurance	2	1.44

Table 15 displays the signature themes for students in Social Welfare. These are listed in order of most to least frequent and show that the top 8 signature themes for this academic school were Developer, Belief, Empathy, Input, Connectedness, Includer, Relator, and Restorative (more than 5 listed due to equivalent values of *n*). The least frequent signature themes in Social Welfare were Activator, Command, Focus, Self-Assurance, and Significance. Asplund et al. (2014) summarized characteristics associated with the most frequently identified signature themes:

> **Developer:** People especially talented in the Developer theme recognize and cultivate the potential in others. They spot the signs of each small improvement and derive satisfaction from these improvements.
>
> **Belief:** People especially talented in the Belief theme have certain core values that are unchanging. Out of these values emerges a defined purpose for their life.
>
> **Empathy:** People especially talented in the Empathy theme can sense the feelings of other people by imagining themselves in others' lives or others' situations.
>
> **Input:** People especially talented in the Input theme have a craving to know more. Often they like to collect and archive all kinds of information.
>
> **Connectedness:** People especially talented in the Connectedness theme have faith in the links between all things. They believe there are few coincidences and that almost every event has a reason.
>
> **Includer:** People especially talented in the Includer theme are accepting of others. They show awareness of those who feel left out, and make an effort to include them.

Relator: People who are especially talented in the Relator theme enjoy close relationships with others. They find deep satisfaction in working hard with friends to achieve a goal.

Restorative: People especially talented in the Restorative theme are adept at dealing with problems. They are good at figuring out what is wrong and resolving it. (pp. 29-31)

A sample student characterized by these signature themes would be considered to be in the domains of Relationship Building (4), Executing (2), and Strategic Thinking (1).

Table 15

Signature Themes for Students in Social Welfare (n = 23)

Strength	*n*	*%*
Developer	12	52.17
Belief	8	34.78
Empathy	8	34.78
Input	8	34.78
Connectedness	6	26.09
Includer	6	26.09
Relator	6	26.09
Restorative	6	26.09
Adaptability	5	21.74
Consistency	5	21.74
Responsibility	5	21.74
Intellection	4	17.39
Learner	4	17.39
Positivity	4	17.39
Arranger	3	13.04
Context	3	13.04
Deliberative	3	13.04
Harmony	3	13.04
Maximizer	3	13.04
Woo	3	13.04
Ideation	2	8.70
Achiever	1	4.35
Analytical	1	4.35
Communication	1	4.35
Competition	1	4.35
Discipline	1	4.35
Futuristic	1	4.35
Individualization	1	4.35
Strategic	1	4.35
Activator	0	0.00
Command	0	0.00
Focus	0	0.00
Self-Assurance	0	0.00
Significance	0	0.00

Research Question 2: CSF Signature Themes by Exploratory Tracks

The analysis of signature themes for exploratory tracks were detailed using the same methodology applied to academic school data. Tables 16 through 19 summarize the signature themes along with the percentages of the students in the exploratory track that presented the signature strength theme as part of the CSF. When all exploratory tracks were combined the following top 5 signature themes emerged:

1. Adaptability (*n* = 176)
2. Restorative (*n* = 175)
3. Achiever (*n* = 142)
4. Empathy (*n* = 135)
5. Input (*n* = 132)

The 5 least represented signature themes when all exploratory tracks were combined included:

1. Self-Assurance (*n* = 12)
2. Focus (*n* = 24)
3. Command (*n* = 27)
4. Significance (*n* = 32)
5. Belief (*n* = 33)

Table 16 displays the signature themes for students in the Engineering, Math, Technical, and Physical Sciences exploratory track. These are listed in order of most to least frequent and show that the top 5 signature themes for this exploratory track were Adaptability, Restorative, Achiever, Empathy, and Learner. The least frequent signature themes in this track were Self-Assurance, Activator, Discipline, Significance, and Belief.

Asplund et al. (2014) summarized characteristics associated with the most frequently identified signature themes:

> **Adaptability:** People especially talented in the Adaptability theme prefer to "go with the flow." [*sic*] They tend to be "now" [*sic*] people who take things as they come and discover the future one day at a time.
>
> **Restorative:** People especially talented in the Restorative theme are adept at dealing with problems. They are good at figuring out what is wrong and resolving it.
>
> **Achiever:** People especially talented in the Achiever theme have a great deal of stamina and work hard. They take great satisfaction from being busy and productive.
>
> **Empathy:** People especially talented in the Empathy theme can sense the feelings of other people by imagining themselves in others' lives or others' situations.
>
> **Learner:** People especially talented in the Learner theme have a great desire to learn and want to continuously improve. In particular, the process of learning, rather than the outcome, excites them. (pp. 29-31)

A sample student characterized by these signature themes would be considered to be in the domains of Executing (2), Relationship Building (2), and Strategic Thinking (1).

Table 16

Signature Themes for Students in the Engineering, Math, Technical, and Physical Sciences Exploratory Track (n = 106)

Strength	*n*	*%*
Adaptability	39	36.79
Restorative	31	29.25
Achiever	30	28.30
Empathy	28	26.42
Learner	26	24.53
Relator	25	23.58
Competition	23	21.70
Input	23	21.70
Developer	21	19.81
Positivity	20	18.87
Harmony	19	17.92
Context	17	16.04
Futuristic	17	16.04
Includer	17	16.04
Intellection	17	16.04
Strategic	17	16.04
Responsibility	16	15.09
Deliberative	15	14.15
Ideation	14	13.21
Woo	13	12.26
Communication	10	9.43
Consistency	10	9.43
Individualization	10	9.43
Maximizer	10	9.43
Connectedness	9	8.49
Analytical	8	7.55
Arranger	8	7.55
Focus	8	7.55
Command	7	6.60
Belief	6	5.66
Significance	6	5.66
Discipline	4	3.77
Activator	3	2.83
Self-Assurance	3	2.83

Table 17 displays the signature themes for students in the Fine Art, Humanities, and Design exploratory track. These are listed in order of most to least frequent and show that the top 5 signature themes for this exploratory track were Adaptability, Empathy, Input, Positivity, and Restorative. The least frequent signature themes in this track were Self-Assurance, Focus, Significance, Analytical, Command, Connectedness, consistency, Discipline, and Maximizer (more than 5 listed due to equivalent values of *n*). Asplund et al. (2014) summarized characteristics associated with the most frequently identified signature themes:

> **Adaptability:** People especially talented in the Adaptability theme prefer to "go with the flow." [*sic*] They tend to be "now" [*sic*] people who take things as they come and discover the future one day at a time.
>
> **Empathy:** People especially talented in the Empathy theme can sense the feelings of other people by imagining themselves in others' lives or others' situations.
>
> **Input:** People especially talented in the Input theme have a craving to know more. Often they like to collect and archive all kinds of information.
>
> **Positivity:** People especially talented in the Positivity theme have an enthusiasm that is contagious. They are upbeat and can get others excited about what they are going to do.
>
> **Restorative:** People especially talented in the Restorative theme are adept at dealing with problems. They are good at figuring out what is wrong and resolving it. (pp. 29-31)

A sample student characterized by these signature themes would be considered to be in the domains of Relationship Building (3), Executing (1), and Strategic Thinking (1).

Table 17

Signature Themes for Students in the Fine Art, Humanities, and Design Exploratory Track (n = 85)

Strength	*n*	*%*
Adaptability	36	42.35
Empathy	25	29.41
Input	25	29.41
Positivity	22	25.88
Restorative	22	25.88
Intellection	20	23.53
Context	19	22.35
Individualization	18	21.18
Futuristic	17	20.00
Woo	17	20.00
Ideation	16	18.82
Developer	14	16.47
Strategic	14	16.47
Achiever	13	15.29
Competition	12	14.12
Harmony	12	14.12
Includer	12	14.12
Activator	11	12.94
Communication	11	12.94
Learner	10	11.76
Arranger	9	10.59
Responsibility	9	10.59
Belief	8	9.41
Relator	8	9.41
Deliberative	7	8.24
Command	6	7.06
Connectedness	6	7.06
Consistency	6	7.06
Discipline	6	7.06
Maximizer	6	7.06
Analytical	4	4.71
Significance	2	2.35
Focus	1	1.18
Self-Assurance	1	1.18

Table 18 displays the signature themes for students in the Health and Life Sciences exploratory track. These are listed in order of most to least frequent and show that the top 5 signature themes for this exploratory track were Restorative, Achiever, Harmony, Input, and Adaptability. The least frequent signature themes were Self-Assurance, Command, Focus, Connectedness, and Activator (more than 5 listed due to equivalent values of *n*). Asplund et al. (2014) summarized characteristics associated with the most frequently identified signature themes:

> **Restorative:** People especially talented in the Restorative theme are adept at dealing with problems. They are good at figuring out what is wrong and resolving it.
>
> **Achiever:** People especially talented in the Achiever theme have a great deal of stamina and work hard. They take great satisfaction from being busy and productive.
>
> **Harmony:** People especially talented in the Harmony theme look for consensus. They don't enjoy conflict; rather, they seek areas of agreement.
>
> **Input:** People especially talented in the Input theme have a craving to know more. Often they like to collect and archive all kinds of information.
>
> **Adaptability:** People especially talented in the Adaptability theme prefer to "go with the flow." [*sic*] They tend to be "now" [*sic*] people who take things as they come and discover the future one day at a time. (pp. 29-31)

A sample student characterized by these signature themes would be considered to be in the domains of Executing (2), Relationship Building (2), and Strategic Thinking (1).

Table 18

Signature Themes for Students in the Health and Life Sciences Exploratory Track (n = 248)

Strength	*n*	*%*
Restorative	82	33.06
Achiever	79	31.85
Harmony	67	27.02
Input	63	25.40
Adaptability	62	25.00
Learner	55	22.18
Includer	52	20.97
Relator	52	20.97
Empathy	47	18.95
Competition	45	18.15
Futuristic	45	18.15
Positivity	44	17.74
Intellection	43	17.34
Responsibility	43	17.34
Developer	42	16.94
Woo	40	16.13
Consistency	38	15.32
Deliberative	38	15.32
Strategic	35	14.11
Individualization	32	12.90
Communication	26	10.48
Discipline	26	10.48
Analytical	25	10.08
Ideation	22	8.87
Significance	20	8.06
Context	18	7.26
Arranger	16	6.45
Belief	16	6.45
Maximizer	15	6.05
Activator	13	5.24
Connectedness	12	4.84
Focus	12	4.84
Command	8	3.23
Self-Assurance	7	2.82

Table 19 displays the signature themes for students in the Social and Behavioral Sciences exploratory track. These are listed in order of most to least frequent and show that the top 5 signature themes for this exploratory track were Restorative, Adaptability, Empathy, Developer, and Positivity. The least frequent signature themes in this track were Self-Assurance, Focus, Belief, Significance, Arranger, and Context (more than 5 listed due to equivalent values of *n*). Asplund et al. (2014) summarized characteristics associated with the most frequently identified signature themes:

> **Restorative:** People especially talented in the Restorative theme are adept at dealing with problems. They are good at figuring out what is wrong and resolving it.
>
> **Adaptability:** People especially talented in the Adaptability theme prefer to "go with the flow." [*sic*] They tend to be "now" [*sic*] people who take things as they come and discover the future one day at a time.
>
> **Empathy:** People especially talented in the Empathy theme can sense the feelings of other people by imagining themselves in others' lives or others' situations.
>
> **Developer:** People especially talented in the Developer theme recognize and cultivate the potential in others. They spot the signs of each small improvement and derive satisfaction from these improvements.
>
> **Positivity:** People especially talented in the Positivity theme have an enthusiasm that is contagious. They are upbeat and can get others excited about what they are going to do. (pp. 29-31)

A sample student characterized by these signature themes would be considered to be in the domains of Relationship Building (4) and Executing (1).

Table 19

Signature Themes for Students in the Social and Behavioral Sciences Exploratory Track (n = 97)

Strength	*n*	*%*
Restorative	40	41.24
Adaptability	39	40.21
Empathy	35	36.08
Developer	26	26.80
Positivity	23	23.71
Includer	22	22.68
Input	21	21.65
Strategic	21	21.65
Achiever	20	20.62
Harmony	18	18.56
Woo	17	17.53
Communication	15	15.46
Individualization	15	15.46
Futuristic	14	14.43
Intellection	14	14.43
Ideation	13	13.40
Activator	12	12.37
Consistency	12	12.37
Relator	12	12.37
Analytical	11	11.34
Competition	11	11.34
Deliberative	10	10.31
Learner	9	9.28
Connectedness	8	8.25
Discipline	7	7.22
Responsibility	7	7.22
Command	6	6.19
Maximizer	6	6.19
Arranger	5	5.15
Context	5	5.15
Significance	4	4.12
Belief	3	3.09
Focus	3	3.09
Self-Assurance	1	1.03

Research Question 3: CSF Domains for Academic Schools

The Gallup domains from the CSF were used to group the signature themes into four categories: Executing, Influencing, Relationship Building, and Strategic Thinking (Asplund et al., 2014). Tables 20 through 31 show how the signature themes fit into domains for the academic schools. Gallup (2018b) summarized characteristics associated with each of the domains:

> **Executing:** These themes answer the question "How do you make things happen?" They may help you turn ideas into reality. When teams need to implement a solution, they look to people with Executing themes who will work tirelessly to accomplish the goal.
>
> **Influencing:** These themes answer the question "How do you influence others?" They may help you take charge, speak up and make sure others are heard. When teams need to sell their ideas inside and outside the organization, they turn to people with Influencing themes to convince others.
>
> **Relationship Building:** These themes answer the question "How do you build and nurture strong relationships?" They may help you hold a team together. When teams need to be greater than the sum of their parts, they turn to people with Relationship Building themes to strengthen their bonds.
>
> **Strategic Thinking:** These themes answer the question "How do you absorb, think about and analyze information and situations?" They may help you make better decisions and create better outcomes. When teams need to focus on what could be, they turn to people with Strategic Thinking themes to stretch the team's thinking for the future. (Gallup, 2018b, "CliftonStrengths Themes")

Table 20 displays the distribution of signature themes by domain for Liberal Arts & Sciences – Social Sciences. In Liberal Arts & Sciences – Social Sciences, the signature themes ranked with Relationship Building in the first position followed by Strategic Thinking, Executing, and Influencing.

Table 20

CSF Domains for Liberal Arts & Sciences – Social Sciences

Domain	Signature Themes	% of Themes	Rank
Executing	504	23.77	3
Influencing	312	14.72	4
Relationship Building	682	32.17	1
Strategic Thinking	622	29.33	2

Table 21 displays the distribution of signature themes by domain for Liberal Arts & Sciences – Physical Sciences. In Liberal Arts & Sciences – Physical Sciences, the signature themes ranked with Executing in the first position followed by Relationship Building, Strategic Thinking, and Influencing.

Table 21

CSF Domains for Liberal Arts & Sciences – Physical Sciences

Domain	Signature Themes	% of Themes	Rank
Executing	1559	31.21	1
Influencing	651	13.03	4
Relationship Building	1421	28.45	2
Strategic Thinking	1364	27.31	3

Table 22 displays the distribution of signature themes by domain for Liberal Arts & Sciences – Arts. In Liberal Arts & Sciences – Arts, the signature themes ranked with

Relationship Building in the first position followed by Strategic Thinking, Executing, and Influencing.

Table 22

CSF Domains for Liberal Arts & Sciences – Arts

Domain	Signature Themes	% of Themes	Rank
Executing	126	19.53	3
Influencing	99	15.35	4
Relationship Building	219	33.95	1
Strategic Thinking	201	31.16	2

Table 23 displays the distribution of signature themes by domain for Liberal Arts & Sciences – Humanities. In Liberal Arts & Sciences – Humanities, the signature themes ranked with Strategic Thinking in the first position followed by Relationship Building, Executing, and Influencing.

Table 23

CSF Domains for Liberal Arts & Sciences – Humanities

Domain	Signature Themes	% of Themes	Rank
Executing	168	23.33	3
Influencing	89	12.36	4
Relationship Building	221	30.69	2
Strategic Thinking	242	33.61	1

Table 24 displays the distribution of signature themes by domain for Architecture. In Architecture, the signature themes ranked with Strategic Thinking in the first position followed by Relationship Building, Executing, and Influencing.

Table 24

CSF Domains for Architecture

Domain	Signature Themes	% of Themes	Rank
Executing	278	22.98	3
Influencing	191	15.79	4
Relationship Building	361	29.83	2
Strategic Thinking	380	31.40	1

Table 25 displays the distribution of signature themes by domain for Business. In Business, the signature themes ranked with Relationship Building in the first position followed by Influencing, Executing, and Strategic Thinking. Business is the only academic school or exploratory track to not have Influencing in the fourth position.

Table 25

CSF Domains for Business

Domain	Signature Themes	% of Themes	Rank
Executing	1277	25.98	3
Influencing	1279	26.02	2
Relationship Building	1350	27.47	1
Strategic Thinking	1009	20.53	4

Table 26 displays the distribution of signature themes by domain for Education. In Education, the signature themes ranked with Relationship Building in the first position followed by Executing, Strategic Thinking, and Influencing.

Table 26

CSF Domains for Education

Domain	Signature Themes	% of Themes	Rank
Executing	499	28.03	2
Influencing	286	16.07	4
Relationship Building	684	38.43	1
Strategic Thinking	311	17.47	3

Table 27 displays the distribution of signature themes by domain for Engineering. In Engineering, the signature themes ranked with Strategic Thinking in the first position followed by Executing, Relationship Building, and Influencing.

Table 27

CSF Domains for Engineering

Domain	Signature Themes	% of Themes	Rank
Executing	970	28.49	2
Influencing	520	15.27	4
Relationship Building	734	21.56	3
Strategic Thinking	1181	34.68	1

Table 28 displays the distribution of signature themes by domain for Journalism. In Journalism, the signature themes ranked with Relationship Building in the first position followed by Strategic Thinking, Executing, and Influencing. Journalism was the only area where the top five signature themes fell within each of the four domains.

Table 28

CSF Domains for Journalism

Domain	Signature Themes	% of Themes	Rank
Executing	204	23.05	3
Influencing	175	19.77	4
Relationship Building	294	33.22	1
Strategic Thinking	212	23.95	2

Table 29 displays the distribution of signature themes by domain for Music. In Music, the signature themes ranked with Relationship Building in the first position followed by Strategic Thinking, Executing, and Influencing.

Table 29

CSF Domains for Music

Domain	Signature Themes	% of Themes	Rank
Executing	103	22.39	3
Influencing	59	12.83	4
Relationship Building	183	39.78	1
Strategic Thinking	115	25.00	2

Table 30 represents the distribution of signature themes by domain for Pharmacy. In Pharmacy, the signature themes ranked with Executing in the first position followed by Relationship Building, Strategic Thinking, and Influencing.

Table 30

CSF Domains for Pharmacy

Domain	Signature Themes	% of Themes	Rank
Executing	266	38.27	1
Influencing	72	10.36	4
Relationship Building	186	26.76	2
Strategic Thinking	171	24.60	3

Table 31 displays the distribution of signature themes by domain for Social Welfare. In Social Welfare, the signature themes ranked with Relationship Building in the first position followed by Executing, Strategic Thinking, and Influencing.

Table 31

CSF Domains for Social Welfare

Domain	Signature Themes	% of Themes	Rank
Executing	32	27.83	2
Influencing	8	6.96	4
Relationship Building	51	44.35	1
Strategic Thinking	24	20.87	3

Research Question 4: CSF Domains for Exploratory Tracks

The Gallup domains from the CSF were used to group the signature themes into four categories: Executing, Influencing, Relationship Building, and Strategic Thinking (Asplund et al., 2014). Tables 32 through 35 show how the signature themes fit into domains for the exploratory tracks.

Table 32 displays the distribution of signature themes by domain for the Engineering, Math, Technical, and Physical Sciences exploratory track. In this

exploratory track, the signature themes ranked with Relationship Building in the first position followed by Strategic Thinking, Executing, and Influencing.

Table 32

CSF Domains for Engineering, Math, Technical, and Physical Sciences Exploratory Track

Domain	Signature Themes	% of Themes	Rank
Executing	128	24.15	3
Influencing	75	14.15	4
Relationship Building	188	35.47	1
Strategic Thinking	139	26.23	2

Table 33 displays the distribution of signature themes by domain for the Fine Art, Humanities, and Design exploratory track. In this exploratory track, the signature themes ranked with Relationship Building in the first position followed by Strategic Thinking, Executing, and Influencing.

Table 33

CSF Domains for Fine Art, Humanities, and Design Exploratory Track

Domain	Signature Themes	% of Themes	Rank
Executing	81	19.06	3
Influencing	66	15.53	4
Relationship Building	153	36.00	1
Strategic Thinking	125	29.41	2

Table 34 displays the distribution of signature themes by domain for the Health and Life Sciences exploratory track. In this exploratory track, the signature themes

ranked with Relationship Building in the first position followed by Executing, Strategic Thinking, and Influencing.

Table 34

CSF Domains for Health and Life Sciences Exploratory Track

Domain	Signature Themes	% of Themes	Rank
Executing	350	28.23	2
Influencing	174	14.03	4
Relationship Building	410	33.06	1
Strategic Thinking	306	24.68	3

Table 35 displays the distribution of signature themes by domain for the Behavioral and Social Sciences exploratory track. In this exploratory track, the signature themes ranked with Relationship Building in the first position followed by Strategic Thinking, Executing, and Influencing.

Table 35

CSF Domains for Social and Behavioral Sciences Exploratory Track

Domain	Signature Themes	% of Themes	Rank
Executing	107	22.06	3
Influencing	72	14.85	4
Relationship Building	198	40.82	1
Strategic Thinking	108	22.27	2

Research Question 5: Comparison of Academic Schools and Exploratory Tracks

An descriptive comparison of signature themes between academic schools and exploratory tracks did not provide any direct matches. Restorative was included in the top 5 signature themes of all academic schools. Other signature themes that emerged in a

majority of schools included Achiever (8 out of 12) and Adaptability (7 out of 12). Futuristic (6 out of 12), Input (5 out of 12), and Empathy (5 out of 12). Restorative and Adaptability both appeared as a top 5 signature themes in all of the exploratory tracks. Empathy appeared in three out of four top five exploratory track lists while Achiever, Positivity, and Input were in the top five lists in two out of the four exploratory track disciplines.

An additional comparison was conducted at the domain level for the academic schools and exploratory tracks. The top ranked domain in the majority of schools (7 out of 10) and all of the exploratory tracks (4 out of 4) was Relationship Building. Strategic thinking was the top selection in three schools with Executing as the top domain in two. Influencing was regularly in the fourth position with one exception, the academic School of Business included Influencing as its second highest domain listed. When comparing domains between academic schools and exploratory tracks, the rank order was in some cases a match. For example, the domains in Liberal Arts & Sciences – Social Sciences academic school and the Social and Behavioral Sciences exploratory track had the same rank order of domains: Relationship Building, Strategic Thinking, Executing, and Influencing. However, when looking at the percentage of strengths in that rank order, there were substantial differences in the percent of signature themes representing each domain in the rankings. Relationship Building was the domain that the majority of signature themes in Liberal Arts & Sciences – Social Sciences fell within (32.17%). In the Social and Behavioral Sciences exploratory track Realtionship Building comprised 40.2% of the signature themes. The percentage difference between Relationship Building for this academic major and exploratory track was 8.65%. Strategic Thinking signature themes were ranked second in Liberal Arts & Sciences – Social Sciences (22.27%). In

the Social and Behavioral Sciences exploratory track Strategic Thinking comprised 29.33% of the signature themes. The percentage difference between for Strategic Thinking for this academic major and exploratory track was 7.06%. Executing signature themes were ranked third in Liberal Arts & Sciences – Social Sciences (22.06%). In the Social and Behavioral Sciences exploratory track Strategic Thinking comprised 23.07% of the signature themes. The percentage difference for Strategic Thinking for this academic major and exploratory track was 1.71%. Influencing signature themes were ranked fourth in Liberal Arts & Sciences – Social Sciences (14.88%). In the Social and Behavioral Sciences exploratory track Strategic Thinking comprised 14.72% of the signature themes. The percentage difference for Strategic Thinking for this academic major and exploratory track was 0.16%. Other academic schools and exploratory tracks that had a matching domain rank order showed similar or larger percentage differences and highlighted that while domains could be similar, the actual distribution of signature themes between the academic schools and exploratory tracks varied. This analysis showed a lack of alignment between any academic schools and exploratory tracks when viewing data at a domain level.

Summary

Chapter 4 included the results of the descriptive analysis for the five research questions that were part of this study. Restorative was a signature theme for all academic schools and exploratory tracks and the Influencing domain was in the last position for almost all academic majors and exploratory tracks within The University. Chapter 5 presents a summary of the study, interpretation of results, major findings, findings related to the literature presented in Chapter 2, implications for action, recommendations for future research, and conclusions.

Chapter 5

Interpretation and Recommendations

This study consisted of five chapters. Provided in Chapter 1 was an introduction and statement of the problem, purpose, significance of this study, delimitations, assumptions, and research questions for the current study. Chapter 2 included a review of the literature related to the CSF and academic decision-making. Chapter 3 included the research design, selection of participants, data collection procedures, and limitations of the study. The results of the data analysis conducted to address the research questions were presented in Chapter 4. Chapter 5 provides a summary of the results, findings related to the literature, and conclusions of this study including implications for action and recommendations for future research.

Study Summary

Understanding student strengths identified by the CSF may assist with more effective academic program advising and lead to higher retention and graduation rates. This study extended the body of literature related to the CSF by connecting the assessment to an institutionally defined freshmen cohort in a way that has not occurred in prior studies. This study also provided a foundation for future research in either tracking the progress of members of the Fall 2016 and Fall 2017 cohorts through their academic careers or in comparing and contrasting CSF strengths in members of future cohorts to data obtained for these initial cohorts. The study is limited in scope to one institution and two student cohorts and findings should not be generalized to other institutions that may differ in campus missions and demographics.

Overview of the problem. Students understanding their abilities and capacity is a key aspect of their decision-making ability. Additionally, staff understanding students

and their aspirations can be a key component in successful mentoring and advising. Unfortunately, students often enter higher education without a clear definition of themselves or what they want to achieve. Without that understanding they can find themselves slowed in their progression toward degree completion or in a position where they do not complete the degree at all.

A variety of assessments, including the CSF, can be used to help students and staff complete a picture of where students stand in their academic career and provide pathways for meeting educational goals. With the CSF in particular, knowing students' strengths could guide institutional staff to more effectively counsel students in academic decision making. The CSF is an assessment that has been used in academic settings to identify individual student strengths in signature themes and domains. The CSF is an assessment that has been used in academic settings to identify individual student strengths in signature themes and domains. There has been minimal research focusing on how the CSF connects to academic majors and interests.

Purpose statement and research questions. The current study described the freshman student population at The University through the lens of the CSF assessment. The first purpose of this study was to examine the signature theme distributions and domains for declared majors and their apportionment across selected schools: Architecture, Business, Education, Engineering, Journalism, Liberal Arts & Sciences, Music, Pharmacy, and Social Welfare. Majors within Liberal Arts & Sciences were further divided into academic disciplines of social sciences, physical sciences, humanities, and language. The second purpose was to examine signature theme distributions and domains across four exploratory tracks (engineering, math, technical, and physical sciences; fine arts, humanities, and design; health and life sciences; and

social and behavioral sciences) for students who did not declare a major. The third purpose was to examine signature theme and domain differences between first-time full-time declared major and exploratory track students. This study was guided by five research questions that addressed the purposes of the research.

Review of the methodology. This study was designed as an exploratory quantitative descriptive study investigating the distribution of signature strengths of first-time full-time students entering The University in Fall 2016 and Fall 2017. Top signature themes and domains were identified for each academic school, each focus area within Liberal Arts & Sciences, and each exploratory track at The University.

Major findings. The current study identified frequently occurring signature themes for students within academic majors at The University. Restorative appeared as a top five signature theme in all schools and Achiever and Adaptability appeared as signature themes in the majority of the academic schools. When viewed from a domain level, Relationship Building was the top ranked domain in 11 out of the 12 academic schools. Signature themes that were part of the Executing and Strategic Thinking domains were evenly represented across the academic schools. The Influencing domain ranked last in all academic schools except for the School of Business, where it was in the second position.

Exploratory tracks showed a more homogenous pattern of signature strengths. Restorative and Adaptability appeared as a signature strength within all tracks. Empathy was included in three out of four exploratory tracks with Achiever, Positivity, and Input appearing in two out of four exploratory tracks. Students in the exploratory tracks had similar CSF signature themes and domains regardless of the exploratory track. All students assigned to an exploratory track had not yet decided on an academic major at the

time the CSF was completed. When viewed from a domain level, Relationship Building was consistently the top-ranking domain in the exploratory tracks. Executing and Strategic Thinking occupied the second or third position in all of the exploratory tracks. Signature themes that were part of the Influencing domain were the least represented.

The current study compared academic schools and exploratory tracks examining similarities in signature themes and domains. Restorative was the only signature theme identified in the top five across all academic schools and exploratory tracks. There were no other consistently shared signature themes. Students across nearly all schools and exploratory tracks showed very low ranking in the Influencing domain and the representative signature themes which include Activator, Command, Communication, Competition, Maximizer, Self-Assurance, Significance, and Woo. There were no perfect matches between the academic schools and exploratory tracks in terms of either signature themes or domains.

Findings Related to the Literature

This study was foundational in that it was the first investigation of a student population through the lens of the CSF at a large, public, research university in the Midwest. Janowski (2006) described the importance of strengths being a key focus that could benefit students and university administrators. In higher education, a number of studies have focused on the relationships between the CSF and other assessments. Fewer studies have described a student population through the lens of the CSF.

Schenck (2009) examined the relationships between the CSF and the Meyers-Briggs Type Indicator (MBTI) and Strong Interest Inventory (SII). Findings in that study connected specific signature themes with aspects of the MBTI and SII. For example, Communication and Woo were consistently related to the extrovert category in the

MBTI. As part of the analysis, Schenck (2009) identified the distribution of signature themes for the 164 graduate students in career counseling that were part of the study. While the Schenck study included graduate students, the current study focused on first-time full-time undergraduate students. The top five signature themes in the Schenck study were Input, Relator, Empathy, Connectedness, and Strategic. In the current study, the percentage of appearance in the top five signature themes was more evenly distributed. For example, Strategic appeared in just 4.8% of the signature themes of students in the Schenck (2009) study and was still listed in the top five, whereas the lowest percentage top five of any academic school or exploratory track in the current study appeared in 19.58% of the signature themes of students. Similar to the current study, Schenck (2009) reported the Relationship Building domain was the top represented domain and Influencing was the least represented.

Carson et al. (2011) studied 1747 undergraduates in legal education at an online university and compared the CSF to the Holland Vocational Personality Types. The researchers found both positive and negative correlations between the CSF signature themes and aspects of the Holland Vocational Personality Types. The current study did not look at any correlations, but resuts from the Carson et al. study and the current study could be compared at a descriptive level. Carson et al. (2011) identified the top five signature strengths as Responsibility, Achiever, Learner, Relator, and Belief. The Executing domain was ranked as the top domain. Executing was identified as the highest ranked domain for two academic schools in the current study: Liberal Arts & Sciences – Physical Sciences and Pharmacy.

Caldwell (2009) examined 202 students attending a private specialized institution and compared the CSF to Kolb's Learning Styles (KLSI). These students were in allied

health and nursing majors. Results of the Caldwell study concluded there was at least one signature strength that predicted each KLSI. Caldwell (2009) indicated the top five signature strengths for students were Responsibility, Relator, Achiever, Belief and Learner. This list of signature themes in Caldwell's study did not align with any of the academic majors or exploratory tracks in the current study. The Executing domain was the most prevalent domain represented by strengths reported in the Caldwell study. In the current study, Executing was the top domain in only two academic schools: Liberal Arts & Sciences – Physical Sciences and Pharmacy. Caldwell (2009) found the least represented signature themes were Context, Command, Competition, Ideation, and Maximizer. The Influencing domain was the least represented in the Caldwell study. These results compare favorably with results in the current study. Influencing was the least represented domain in every academic school or exploratory track with the exception of Business.

Krimmel (2017) examined patterns in the distribution of signature strengths among students at a selective, women's liberal arts college. While the institution type in Krimmel's study was unlike The University, Krimmel described a similar desire to use the CSF as a mechanism to better understand a student population:

> Understanding whether differences exists across samples and testing whether those results are significant can provide educators with an important lens when thinking about how to engage with and teach students. (p. 126)

Krimmel (2017) did not approach the concept of studying students by any particular academic area but instead reviewed all students in the institution and their CSF results as a single group and then compared that group to a larger Gallup provided dataset. Krimmel reported the top five signature themes were Input, Empathy, Learner,

Restorative, and Intellection. Results of the current study identified two academic majors with 4 out of 5 signature themes similar to results from the Krimmel study: the College of Liberal Arts & Sciences – Social Sciences (Input, Restorative, Empathy, Intellection) and the College of Liberal Arts & Sciences – Humanities (Input, Restorative, Empathy, and Intellection). Krimmel found the Influencing domain was the least identified set of CSF signature themes. Results of the current study were similar.

Janke et al. (2015) examined the signature strengths distributions of a particular academic discipline, Pharmacy, across five Midwestern schools of pharmacy. Janke et al. (2015) found consistency across the pharmacy programs in identified signature themes with Achiever, Harmony, Learner, Responsibility, and Empathy all appearing regularly in the top five signature themes at participating institutions. Additionally, Janke et al. (2015) viewed the domains of students and ranked them as follows: Executing, Relationship Building, Strategic Thinking, and Influencing. Results of the current study aligned with the Janke et al. results. In the current study, four out of the top five signature themes were similar to the signature strength theme rankings in the Janke et al. study. The differences included Restorative displacing Empathy in the top five signature themes and some variance in rank order of the other signature themes. The Janke et al. and current study results identified identical ranking of the domains.

Conclusions

The primary purpose of this research was to describe the first-time full-time freshmen student populations in the Fall 2016 and Fall 2017 cohorts at The University through the lens of the CSF. This was achieved through ascertaining the top five signature themes and rank ordered domains for students who were assigned to an exploratory track or identified an academic major in a discipline within one of 10

academic schools and 4 exploratory tracks. Results in the current study indicated academic schools and the exploratory tracks had a differentiated profile of CSF signature themes and domains.

Implications for action. This exploratory study does not lend itself to substantial suggestions for action at this time. While the data does show some alignment between academic schools and specific combinations of signature strengths, the current study was descriptive in nature and does not highlight any specific correlations. Further research to gain an increased understanding of first-year student population signature strengths and domains should be conducted. In addition, the relationship of signature strengths to choice of academic major also merits additional study.

Recommendations for future research. As an exploratory study, the results of the current research provide a number of opportunities for expansion and growth to better determine how the CSF can be a component of understanding college and university student populations as well as how strengths facilitate decision-making. Opportunities for additional research include:

1. Investigate the relationship between variables including gender, age, ethnicity, and first-generation status on signature themes and domains in addition to academic majors selected by students.
2. Conduct longitudinal research studies. Students in the current study were identified at the beginning of their academic career. There would be merit in having students who participated in the current study complete the CSF again at the end of the undergraduate academic career to determine what, if any, changes may have occurred in the signature themes by academic schools.

3. Conduct similar studies in other institutions of varying types: institutions with the same profile as The University (public research institution), public non-research institutions, private institutions, community colleges, and technical colleges.

Concluding remarks. The CSF has been found to be a useful tool at an individual level to understand higher education student signature strengths and domains (Louis, 2012). The current study examined CSF distributions of signature themes and domain distributions for two cohorts of first-time full-time students who identified an acadmic major and those who were assigned an exploratory track at the time of matriculation to a large public research university in the Midwest. This study was descriptive in nature and provided a foundation for future research.

Developing this foundational understanding of the CSF and academic majors was an important step in being able to use the CSF as a tool in helping students understand how their signature strengths might be related to a particular academic discipline. The descriptive view in this study outlined academic majors and exploratory tracks that each had a unique set of signature strengths within their student populations. If this alignment of signature strengths with academic disciplines were to hold true in other institutions or with additional cohorts, advisors could more effectively assist students in assessing their fit into a major and career choice. With additional research, the CSF has the potential to expand understanding of student populations in a new way. Knowledge of student CSF results could help faculty and academic advisors guide students toward degrees and careers that would promote leveraging of strengths.

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Appendices

Appendix A – List and Description of Domains

This full listing and set of brief descriptions of the four domains are a quote of Gallup (2018b).

Executing

These themes answer the question "How do you make things happen?" They may help you turn ideas into reality.

When teams need to implement a solution, they look to people with Executing themes who will work tirelessly to accomplish the goal.

Includes strengths themes of: Achiever, Arranger, Belief, Consistency, Deliberative, Discipline, Focus, Responsibility, Restorative.

Influencing

These themes answer the question “How do you influence others?” They may help you take charge, speak up and make sure others are heard.

When teams need to sell their ideas inside and outside the organization, they turn to people with Influencing themes to convince others.

Includes strengths themes of: Activator, Command, Communication, Competition, Maximizer, Self-Assurance, Significance, Woo

Relationship Building

These themes answer the question “How do you build and nurture strong relationships?” They may help you hold a team together.

When teams need to be greater than the sum of their parts, they turn to people with Relationship Building themes to strengthen their bonds.

Includes strengths themes of: Adaptability, Connectedness, Developer, Empathy, Harmony, Includer, Individualization, Positivity, Relator

Strategic Thinking

These themes answer the question “How do you absorb, think about and analyze information and situations?” They may help you make better decisions and create better outcomes.

When teams need to focus on what could be, they turn to people with Strategic Thinking themes to stretch the team’s thinking for the future.

Includes strengths themes of: Analytical, Context, Futuristic, Ideation, Input, Intellection, Learner, Strategic

Appendix B - List and Description of Strengths Themes

This full listing and set of brief descriptions of the thirty-four strengths themes are a quote of Asplund et al. (2014, pp. 29-31)**.**

---

1. **Achiever** - People especially talented in the Achiever theme have a great deal of stamina and work hard. They take great satisfaction from being busy and productive.
2. **Activator** - People especially talented in the Activator theme can make things happen by turning thoughts into action. They are often impatient.
3. **Adaptability** - People especially talented in the Adaptability theme prefer to "go with the flow." [*sic*] They tend to be "now" [*sic*] people who take things as they come and discover the future one day at a time.
4. **Analytical** - People especially talented in the Analytical theme search for reasons and causes. They have the ability to think about all the factors that might affect a situation.
5. **Arranger** - People especially talented in the Arranger theme can organize, but they also have a flexibility that complements this ability. They like to figure out how all of the pieces and resources can be arranged for maximum productivity.
6. **Belief** - People especially talented in the Belief theme have certain core values that are unchanging. Out of these values emerges a defined purpose for their life.
7. **Command** - People especially talented in the Command theme have presence. They can take control of a situation and make decisions.
8. **Communication** - People especially talented in the Communication theme generally find it easy to put their thoughts into words. They are good conversationalists and presenters.

9. **Competition** - People especially talented in the Competition theme measure their progress against the performance of others. They strive to win first place and revel in contests.
10. **Connectedness** - People especially talented in the Connectedness theme have faith in the links between all things. They believe there are few coincidences and that almost every event has a reason.
11. **Consistency** - People especially talented in the Consistency theme are keenly aware of the need to treat people the same. They try to treat everyone in the world with consistency by setting up clear rules and adhering to them.
12. **Context** - People especially talented in the Context theme enjoy thinking about the past. They understand the present by researching its history.
13. **Deliberative** - People especially talented in the Deliberative theme are best described by the serious care they take in making decisions or choices. They anticipate the obstacles.
14. **Developer** - People especially talented in the Developer theme recognize and cultivate the potential in others. They spot the signs of each small improvement and derive satisfaction from these improvements.
15. **Discipline** - People especially talented in the Discipline theme enjoy routine and structure. Their world is best described by the order they create.
16. **Empathy** - People especially talented in the Empathy theme can sense the feelings of other people by imagining themselves in others' lives or others' situations.

17. **Focus** - People especially talented in the Focus theme can take a direction, follow through, and make the corrections necessary to stay on track. They prioritize, then act.
18. **Futuristic** - People especially talented in the Futuristic theme are inspired by the future and what could be. They inspire others with their visions of the future.
19. **Harmony** - People especially talented in the Harmony theme look for consensus. They don't enjoy conflict; rather, they seek areas of agreement.
20. **Ideation** - People especially talented in the Ideation theme are fascinated by ideas. They are able to find connections between seemingly disparate phenomena.
21. **Includer** - People especially talented in the Includer theme are accepting of others. They show awareness of those who feel left out, and make an effort to include them.
22. **Individualization** - People especially talented in the Individualization theme are intrigued with the unique qualities of each person. They have a gift for figuring out how people who are different can work together productively.
23. **Input** - People especially talented in the Input theme have a craving to know more. Often they like to collect and archive all kinds of information.
24. **Intellection** - People especially talented in the Intellection theme are characterized by their intellectual activity. They are introspective and appreciate intellectual discussions.
25. **Learner** - People especially talented in the Learner theme have a great desire to learn and want to continuously improve. In particular, the process of learning, rather than the outcome, excites them.

26. **Maximizer** - People especially talented in the Maximizer theme focus on strengths as a way to stimulate personal and group excellence. They seek to transform something especially talented into something superb.
27. **Positivity** - People especially talented in the Positivity theme have an enthusiasm that is contagious. They are upbeat and can get others excited about what they are going to do.
28. **Relator** - People who are especially talented in the Relator theme enjoy close relationships with others. They find deep satisfaction in working hard with friends to achieve a goal.
29. **Responsibility** - People especially talented in the Responsibility theme take psychological ownership of what they say they will do. They are committed to stable values such as honesty and loyalty.
30. **Restorative** - People especially talented in the Restorative theme are adept at dealing with problems. They are good at figuring out what is wrong and resolving it.
31. **Self-assurance** - People especially talented in the Self-Assurance theme feel confident in their ability to manage their own lives. They possess an inner compass that gives them confidence that their decisions are right.
32. **Significance** - People especially talented in the Significance theme want to be very important in the eyes of others. They are independent and want to be recognized.
33. **Strategic** - People especially talented in the Strategic theme create alternative ways to proceed. Faced with any given scenario, they can quickly spot the relevant patterns and issues.

34. Woo - People especially talented in the Woo theme love the challenge of meeting new people and winning them over. They derive satisfaction from breaking the ice and making a connection.

Appendix C – IRB Request for Baker University

BAKER UNIVERSITY

IRB Request

Date May 14, 2018

IRB Protocol Number _____ (IRB use only)

I. Research Investigator(s) (students must list faculty sponsor)

Department(s) GSOE

	Name		
1.	Brian McDow	Brian Daniel McDow (Auth) Digitally signed by Brian Daniel McDow (Auth) Date: 2018.05.14 15:37:55 -05'00'	Principal Investigator
2.	Tes Mehring	Tes Mehring Digitally signed by Tes Mehring Date: 2018.05.15 10:52:51 -05'00'	☑ Check if faculty sponsor
3.	Peg Waterman	Margaret Waterman Digitally signed by Margaret Waterman Date: 2018.05.15 10:10:49 -05'00'	☐ Check if faculty sponsor
4.		Peg Waterman Digitally signed by Peg Waterman Date: 2018.05.15 10:55:20 -05'00'	☐ Check if faculty sponsor

Principal investigator contact information

Phone 785-760-4926

Email briandmcdow@stu.bakeru.edu

Address 2928 Whitmore Drive

Lawrence, KS 66046

Note: When submitting your finalized, signed form to the IRB, please ensure that you cc all investigators and faculty sponsors using their official Baker University (or respective organization's) email addresses.

Faculty sponsor contact information

Phone 1236

Email tes.mehring@bakeru.edu

Expected Category of Review: ☑ Exempt ☐ Expedited ☐ Full ☐ Renewal

II. Protocol Title

Relationship Between StrengthsFinder Signature Themes and Academic Choices in a Higher Education Setting

III. Summary:

The following questions must be answered. Be specific about exactly what participants will experience and about the protections that have been included to safeguard participants from harm.

A. In a sentence or two, please describe the background and purpose of the research.

This research will study archival data for entering freshmen at the [redacted] through the lens of the Clifton StrengthsFinder (CSF) assessment. The first purpose of this study was to examine the strengths themes distributions for declared majors and their apportionment across selected schools. The second purpose was to examine strengths themes distributions across four exploratory tracks for students who did not declare a major. The third purpose was to examine signature theme differences between first-time full-time declared major and exploratory track students

B. Briefly describe each condition, manipulation, or archival data set to be included within the study.

Archival data collected from the [redacted] in the student record will include: student academic major/plan and email address
Archived themes and email address from the Clifton StrengthsFinder will be obtained from the Office of First-Year Experieence at the [redacted]
Files will be merged on email address, and then the email address will be deleted and each record will have an assigned identification number known only to the researcher in order to preserve anonymity.

IV. Protocol Details

A. What measures or observations will be taken in the study? If any questionnaire or other instruments are used, provide a brief description and attach a copy.

Only archival data obtained from the University of Kansas student record and the Clifton StrengthsFinder themes will be be analyzed in this study.

B. Will the subjects encounter the risk of psychological, social, physical, or legal risk? If so, please describe the nature of the risk and any measures designed to mitigate that risk.

No 0 only archival data will be used.

C. Will any stress to subjects be involved? If so, please describe.

No - only archival data will be used.

D. Will the subjects be deceived or misled in any way? If so, include an outline or script of the debriefing.

No - only archival data will be used.

E. Will there be a request for information which subjects might consider to be personal or sensitive? If so, please include a description.

No - only archival data will be used.

F. Will the subjects be presented with materials which might be considered to be offensive, threatening, or degrading? If so, please describe.

No - only archival data will be used.

G. Approximately how much time will be demanded of each subject?

None - only archival data will be used.

H. Who will be the subjects in this study? How will they be solicited or contacted? Provide an outline or script of the information which will be provided to subjects prior to their volunteering to participate. Include a copy of any written solicitation as well as an outline of any oral solicitation.

Archival data for first-time full-time students at the [redacted] who were part of the Fall 2016 or Fall 2017 cohort who also completed the Clifton StrengthsFinder will be used in this study.

I. What steps will be taken to insure that each subject's participation is voluntary? What if any inducements will be offered to the subjects for their participation?

N/A - only archival data will be used.

J. How will you insure that the subjects give their consent prior to participating? Will a written consent form be used? If so, include the form. If not, explain why not.

N/A - only archival data will be used.

K. Will any aspect of the data be made a part of any permanent record that can be identified with the subject? If so, please explain the necessity.

No. All personally identifiable information will be removed from archived data once it is retrieved and a code known only to the researcher will be applied to each data set to preserve anonymity.

L. Will the fact that a subject did or did not participate in a specific experiment or study be made part of any permanent record available to a supervisor, teacher, or employer? If so, explain.

No - only archival data will be used.

M. What steps will be taken to insure the confidentiality of the data? Where will it be stored? How long will it be stored? What will be done with the data after the study is completed?

Archived Clifton StrengthsFinder data and student record data will be linked and then any identifying information would be removed and replaced with an anonymous code known only to the researcher. The remaining file without personally identifying information will be kept on an encrypted drive for five years after successful defense of the dissertation.

N. If there are any risks involved in the study, are there any offsetting benefits that might accrue to either the subjects or society?

No - only archived data will be used.

O. Will any data from files or archival data be used? If so, please describe.

Yes. Archived student record information (majors) and Clifton StrengthsFinder results from the [redacted] data will be used in this study. In addition to the Baker University IRB process, [redacted] IRB process will also be followed to ensure that appropriate protocols are met within the institution where archival data will be collected.

Appendix D – IRB Approval for Baker University

BAKER UNIVERSITY
Own Confidence

Baker University Institutional Review Board

May 15th, 2018

Dear Brian McDow and Tes Mehring,

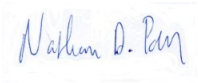
The Baker University IRB has reviewed your project application and approved this project under Exempt Status Review. As described, the project complies with all the requirements and policies established by the University for protection of human subjects in research. Unless renewed, approval lapses one year after approval date.

Please be aware of the following:

1. Any significant change in the research protocol as described should be reviewed by this Committee prior to altering the project.
2. Notify the IRB about any new investigators not named in original application.
3. When signed consent documents are required, the primary investigator must retain the signed consent documents of the research activity.
4. If this is a funded project, keep a copy of this approval letter with your proposal/grant file.
5. If the results of the research are used to prepare papers for publication or oral presentation at professional conferences, manuscripts or abstracts are requested for IRB as part of the project record.

Please inform this Committee or myself when this project is terminated or completed. As noted above, you must also provide IRB with an annual status report and receive approval for maintaining your status. If you have any questions, please contact me at npoell@bakeru.edu or 785.594.4582.

Sincerely,



Nathan Poell, MA
Chair, Baker University IRB

Baker University IRB Committee
Scott Crenshaw
Erin Morris, PhD
Jamin Perry, PhD
Susan Rogers, PhD

Appendix E – IRB Request for The University

[redacted]

Date: Tuesday, June 5, 2018 8:52:27 PM Print Close

View: SF: Basic Site Information

Basic Information

1. * **Title of site:**
   Site for Relationship Between StrengthsFinder Signature Themes and Academic Choices in a Higher Education Setting

2. * **Short title:**
   Site for Relationship between CSF and Academic Choices

3. * **Brief description:**
   Site for Relationship between CSF and Academic Choices

4. * **Principal investigator:**
   Brian McDow

5. * **Does the investigator have a financial interest related to this research?**
   ○ Yes ● **No**

6. * **Which IRB should oversee this study?**
   [redacted]

View: SF: Funding Sources (not integrated with Grants)

Funding Sources

1. Identify each organization supplying funding for the study:

Funding Source	Sponsor's Funding ID	Grants Office ID	Attachments

There are no items to display

View: SF: Study Team Members Hide External Team (OOB 8.1.1)

Study Team Members

1. **Identify each additional person involved in the design, conduct, or reporting of the research:**

Name Roles Financial Interest Involved in Consent E-mail Phone

There are no items to display

View: SF: Research Locations

Research Locations

1. **Identify other research locations where the investigator will conduct or oversee the research:**

Location	Contact	Phone	Email
There are no items to display			

[redacted]

View: SF: Local Site Documents

Local Site Documents

1. **Consent forms:** (include an HHS-approved sample consent document, if applicable)

Document	Category	Date Modified	Document History
There are no items to display			

2. **Recruitment materials:** (add all material to be seen or heard by subjects, including ads)

Document	Category	Date Modified	Document History
There are no items to display			

3. **Other attachments:**

	Document	Category	Date Modified	Document History
View	Supervisor/Registrar support letter(1)	Letters of Support	6/5/2018	History

Suggested attachments:

- Completed checklist of meeting Department of Energy requirements, if applicable
- Other site-related documents not attached on previous forms

[redacted]

Appendix F – IRB Approval for The University

[redacted]

Hello, Brian McDow

My Inbox Home IRB COI

IRB > Submissions > Relationship between CSF and Academic Choices > Site for Relationship between CSF and Academic Choices

<< Return to Workspace < Prev 1 / 6 Next >

Activity Details (sIRB Decision Recorded) Record the decision made by the sIRB

Author:	[redacted]
Logged For (IRB Submission):	Site for Relationship between CSF and Academic Choices
Activity Date:	6/5/2018 2:22 PM

Form:

1. * **Determination:**
   Approved
2. **Dates:**

   Approval date:
   6/5/2018

   Effective date:

3. **Comments:**
4. **Supporting documents:**
   Name
   There are no items to display
5. * **Do you need to finalize documents or send a letter?**
   ○ Yes ● No
6. * **Are you ready to record the sIRB's decision?**
   ● Yes ○ No

Documents:

Snapshot: 1.0

<< Return to Workspace