APPLICATION OF THE PERMA MODEL OF WELL-BEING TO UNDERGRADUATE STUDENTS
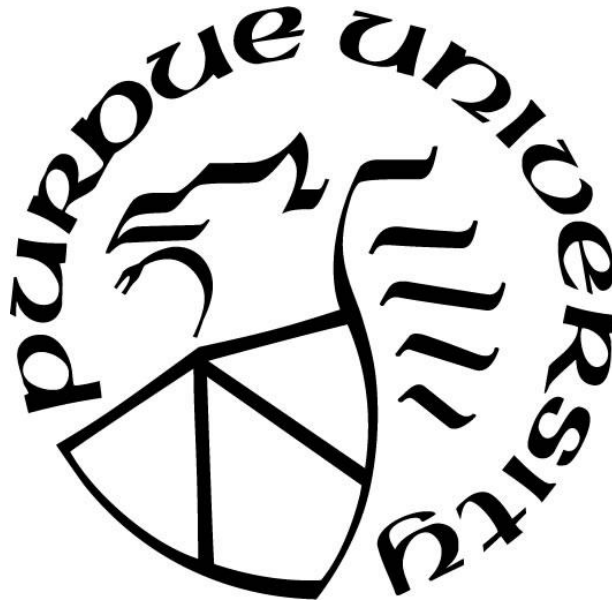
by

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Do not go where the path my lead, go instead where there is no path and leave a trail.

Ralph Waldo Emerson

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ABSTRACT

Seligman (2011) introduced well-being theory as a multidimensional model to increase and measure well-being. The PERMA model of well-being theory defines well-being in terms of five constructs: Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment. Together, these five constructs are the foundation of individual and community well-being. The end goal of well-being theory is flourishing, which is defined as optimal well-being, where one is in the upper range of all five PERMA elements. The purpose of this study was to test whether all five PERMA elements of well-being could be derived from items in the *2018 Purdue Student Experience at a Research University* (SERU) survey, thus providing support for the multidimensional model in context of undergraduate students at a research-intensive university. Using confirmatory factor analysis, all five PERMA constructs were supported with use of 32 items and demonstrated good model fit statistics. A second order PERMA well-being construct was built and demonstrated adequate model fit with RMSEA = 0.04. In the full PERMA model, all 32 items were significant at $p < .05$. In the full PERMA model, all five constructs were significant at $p < .001$. Accomplishment had the highest factor loading (0.76) and Meaning had the lowest factor loading (0.25). Results from this study provide initial support for use of well-being theory in context of undergraduate students.

CHAPTER ONE: STATEMENT OF THE PROBLEM

People desire optimal well-being, but barriers and lack of societal support prevent many individuals from realizing a satisfying, meaningful life. In undergraduate college student populations, common barriers to optimal well-being include anxiety, stress, and depression. According to a 2017 survey of directors at university and college counseling centers, the following three concerns were most prevalent among undergraduate students seen in campus counseling centers: anxiety (48.2%), stress (39.1%), and depression (34.5%; LeViness et al., 2018). Additionally, 25.5% of students seen in campus counseling centers were taking prescribed psychotropic medications (LeViness et al., 2018). Similar results were obtained in the *2017 National College Health Assessment*, a nationally recognized survey that includes data about health habits, behaviors, and perceptions of college students. This assessment revealed a wide variety of serious self-reported mental health concerns including hopelessness (51.7%), exhaustion not due to physical activity (83.4%), feeling overwhelmed (86.5%), loneliness (63.1%), considered suicide (12.1%), and have attempted suicide (1.9%). Summatively, these challenges demonstrate college student well-being is threatened, contributing to decreased academic success (American College Health Association, 2017). More research is needed to enhance understanding of barriers and facilitators of well-being in this population.

Significance of the Problem

Young adults represent an important societal group as they transition from late adolescence into adulthood. Unfortunately, many young adults suffer from poor mental health. In recent years, mental health diagnoses such as anxiety and depression have increased (Oswalt et al., 2020). *Mental illnesses* can be defined as a mental, behavioral, or emotional disorder

resulting in impacts ranging from no impairment to severe impairment of the individual; serious

mental illness is a mental, behavioral, or emotional disorder that causes serious impairment and

interferes with life events (NIMH, 2017). According to 2017 data, the National Institute of

Mental Health (NIMH) reported young adults between the ages of 18-25 years had the highest

prevalence of any mental illness (25.8%) as compared to adults between the ages of 26-49 years

(22.2%) and adults older than 50 years (13.8%) in the United States. Young adults between the

ages of 18-25 years also had the highest prevalence of serious mental illness (7.5%) compared to

adults between the ages of 26-49 years (5.6%) and adults older than 50 years (2.7%; NIMH,

2017). In a national dataset of college students ($N = 454,029$), diagnoses and treatment of several

mental health conditions increased significantly between 2009 and 2015 (Oswalt et al., 2020).

Health and *mental health* are commonly used terms, both in lay and professional realms.

It is important to define these terms, as they are used broadly and sometimes interchangeably.

The World Health Organization (1948) defined health in its constitution: "Health is a state of

complete physical, mental, and social well-being and not merely the absence of disease or

infirmity" (p. 1). Mental health is defined as effective functioning of daily living that includes

productivity (i.e., work or school), positive relationships, and adaptability to change and

adversity (American Psychiatric Association [APA], 2018). According to Seligman (2011),

positive mental health includes the presence of positive emotions and is not merely the absence

of mental illness; this idea is the foundation of positive psychology. Mental illness and mental

health are not mutually exclusive and may coexist concurrently in individuals (APA, 2018).

Well-being is often included under the larger umbrella of mental health and provides a

meaningful measure of societal interest about individual life satisfaction (Centers for Disease

Control and Prevention [CDC], 2018). *Healthy People 2020* defined well-being in terms of

physical, mental, and social elements. Physical well-being refers to vitality and energy; mental well-being includes life satisfaction, emotional balance, meaning and purpose, self-efficacy and optimism; and social well-being includes supportive relationships with family and friends (Office of Disease Prevention and Health Promotion, n.d.).

Well-being may be examined broadly or in specific domains. When measured at the national and global levels, it is possible to compare well-being among aggregate groups over time. Such well-being trends may reveal influential barriers and facilitators of well-being and inform policy, programming, and funding at local, state, and national levels. A national well-being survey, *Country Well-Being Rankings* (Gallup, 2014), placed the United States low in well-being compared to other developed countries based on measurements of five components of well-being: purpose, social, financial, community, and physical. More recently, the *2020 World Happiness Report*, which used Gallup World Poll data from 153 countries, placed several Nordic countries at the top of these rankings. Well-being in this survey was assessed in terms of life evaluation and six contributing factors: gross domestic product (GDP), life expectancy, generosity, social support, freedom, and corruption. By these measures, the United States dropped to number 18 in the world (Helliwell et al., 2020).

A national well-being measure, the *Gallup Well-Being Index*, also assessed well-being in five similar elements: career, social, financial, community, and physical. Results from 2018 placed Indiana at 41 out of 50 states in the United States in terms of total well-being scores (Witters, 2019). Results from these and other well-being surveys are needed to assess well-being of individuals, communities, and nations.

It is clear well-being should be assessed regularly across university and college campuses so ways to enhance college student well-being may be illuminated. Use of secondary data may provide insight into well-being of undergraduate students at a large public research university. Using data from the *2018 Purdue Student Experience in the Research University* (SERU) survey (see Appendix D for the entire survey), latent variable modeling techniques allowed for testing of a multidimensional model based on Seligman's (2011) well-being theory. The SERU survey is administered at research intensive universities to understand student experiences, inform policymaking, and improve academic programs (University of California Berkeley [UC Berkley], 2020b). Although data were collected to assess student experiences at Purdue University, this study will determine whether the PERMA model of well-being can be supported in the sample. The PERMA model of well-being is a multidimensional model based on well-being theory (Seligman, 2011). Fundamental testing of the PERMA model is needed to validate use in the sample, as I am unaware of its use in the context of undergraduate students at a large research-intensive university.

Moving forward, the results of this study have broad implications as increased well-being is associated with many benefits. Positive outcomes of well-being are noted among individuals and communities in health, career, social, and economic domains (CDC, 2018). Increased well-being is associated with higher self-perceived health, positive health behaviors, increased fitness levels, better immune function, decreased recovery time, and increased longevity. Higher levels of well-being are associated with academic success, increased work productivity, community involvement, prosocial behaviors, and better relationships (Lyubomirsky et al., 2005).

As evidenced by associations between well-being and health, the potential to improve health of young adults is relevant. Well-being is also pertinent in an economic sense; individuals

with better health reduce healthcare costs (CDC, 2018). Social implications of well-being include positive relationships; thus, individuals with high levels of personal well-being may increase well-being of others, and foster a culture of well-being in work, academic, and community environments. By increasing individual well-being, society would benefit in multiple domains from individual flourishing (Seligman, 2011). Understanding dimensions of well-being in undergraduate college students may help foster interventions to support well-being and academic success in undergraduate students.

Purpose of the Study

The purpose of this research was to determine if a multidimensional model of well-being can be measured from items contained in the 2018 Purdue SERU survey. The structure of well-being theory was tested to assess if PERMA constructs can be supported, which would validate the application of this theory in the context of undergraduate college students at a large research-intensive university in Midwestern United States. Previous studies have validated well-being theory or a portion of well-being theory in the context of adolescent male students between ages 13-18, school employees, college students, and adults (Coffey et al., 2016; Kern et al., 2014, 2015). In the context of college students, the full PERMA model of well-being has not yet been tested. Results of this study are an essential first step in exploration of well-being in this population and may inform policy, research, and practice to support undergraduate student well-being. The PERMA model of well-being could be used to develop courses and raise awareness for individual and community well-being on campus. Well-being items could be incorporated into annual course registration, and thus assess well-being across the college experience. Campus health and counseling providers could use the PERMA model to assess positive mental health in

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addition to physical and psychological assessments. The PERMA model could be useful in patient/client education by empowering students to increase their personal well-being.

Definitions and Assumptions Based on Existing Knowledge

Well-being can be defined in many ways. In general terms, well-being may refer to a condition of happiness, health, or prosperity ("Well-Being," n.d.). Although individual definitions vary, there is agreement that well-being is a multidimensional term and subjective to individual experience (CDC, 2018; Diener, 1984; Organisation for Economic Co-Operation and Development [OECD], 2013). In social science research, Diener (1984) asserted well-being is subjective and refers to how and why individuals experience life in positive ways, including cognitive judgements and affective reactions. Subjective well-being is composed of positive affect, negative affect, and life satisfaction (Diener, 1984). Similarly, the OECD (2013) defined subjective well-being as containing three parts: (a) affect (i.e., positive and negative feelings and emotions), (b) life satisfaction (i.e., evaluation and cognition), and (c) eudaimonia (i.e., meaning and purpose). From these definitions, various tools and surveys have been developed to measure well-being.

For this study, well-being was measured according to well-being theory (Seligman, 2011). In Seligman's (2011) well-being theory, well-being is defined as a combination of cognitive happiness (i.e., satisfaction), hedonic happiness (i.e., feeling), and eudaimonia (i.e., meaning). Well-being is predicted by five elements: (a) Positive Emotion, (b) Engagement, (c) Relationships, (d) Meaning, and (e) Accomplishment. These five elements are represented by the acronym PERMA. Each element contributes to well-being, can be pursued for its own sake, and is independently defined and measured. The combination of PERMA elements promotes flourishing, which is optimal functioning of individuals, groups, communities, nations, and

society at large (Seligman, 2011). Well-being may be increased by increasing PERMA elements. With any study, assumptions and limitations are present and should be acknowledged.

Assumptions

The following assumptions were identified prior to the beginning of the research study.

1. People desire well-being.

2. PERMA elements are discrete, can be pursued independently, and are measurable.

3. Participants provided accurate honest responses to survey questions.

Limitations

The following limitations were identified prior to the beginning of the research study.

1. Secondary data used for this study were collected for a different purpose.

2. All data were self-reported and are subject to bias.

3. Research findings may be not be generalizable to other populations as this sample included undergraduate students at a large research-intensive university in Midwestern United States.

4. Study participants were incentivized for completing the survey; some received gift cards via random drawings, which may have resulted in response bias.

5. Survey fatigue was possible due to length of the survey.

Aims, Research Questions, or Hypotheses

The study was guided by two aims and hypotheses, which are listed next.

Aim 1

The first aim of the study was to determine if PERMA constructs of well-being can be measured as distinct dimensions using items from the 2018 Purdue SERU survey. This would support the application of well-being theory in context of undergraduate students at a large public research-intensive university.

Hypothesis 1

All five PERMA constructs of well-being will be supported using items in the 2018 Purdue SERU survey.

Aim 2

The second aim of the study was to determine if a multidimensional well-being measure can be constructed for all five PERMA constructs using items in the 2018 Purdue SERU survey.

Hypothesis 2

A second order well-being construct can be built using all five PERMA constructs from the 2018 Purdue SERU survey data.

Overview of Theoretical Framework

The study was guided by Seligman's (2011) well-being theory. Well-being theory was constructed in 2011 by psychologist Martin Seligman and represents a revision of his authentic happiness theory (Seligman, 2002). Authentic happiness theory defined individual happiness in

terms of three elements: Positive Emotion, Engagement, and Meaning. Both theories (i.e., authentic happiness theory and well-being theory) are rooted in positive psychology; however, well-being theory seeks to understand goals of individuals in connection to the larger context of communities and society. The goal of well-being theory is *flourishing*, which is defined as optimal well-being of individuals and society at large (Seligman, 2011).

Well-being theory is a result of the positive psychology movement. Positive psychology seeks to improve human conditions by focusing on individual strengths, which can be used to build and increase well-being. Positive psychology is in direct contrast to traditional psychology, which often focuses on weakness, illness, or disease. Well-being theory is composed of five pillars and each pillar represents an objective measurable element. The five elements are (a) Positive Emotion, (b) Engagement, (c) Relationships, (d) Meaning, and (e) Accomplishment. Each of these elements is supported by signature strengths. Signature strengths are individual character traits that can be used to increase well-being. In positive psychology 24 strengths are identified and include traits such as kindness, humor, courage, social intelligence, and integrity, among others (Seligman, 2011; Seligman et al., 2005). Positive Emotion includes subjective reports of happiness, hope, joy, and satisfaction. Engagement is an element that represents flow; Engagement refers to focus, interest, or absorption in an activity. Time may stop during focused engagement; the activity often requires skill and may provide feelings of happiness or satisfaction after the activity has ended. Relationships include closeness and connection with family, friends, or colleagues. These relationships are important throughout a person's lifespan and contribute to well-being in many ways. Meaning is belief or membership in something larger than oneself. Meaning may be derived from religion, spirituality, or advocacy. The final element, Accomplishment, refers to pursuits that occur throughout life for the sake of "winning."

Accomplishment often requires perseverance and resilience. Some examples of Accomplishment may include academics, athletics, or career achievements (Seligman, 2011).

Summary

This chapter served as an introduction and overview of the research study. Brief descriptions of the problem, significance, and study purpose were introduced. Definitions, assumptions, and limitations were acknowledged and listed. Aims and hypotheses of the study were identified. An overview of the theoretical framework—well-being theory—was provided. In the following chapters, a review of relevant literature, design and methods, results, and discussion can be found. Additional tables and figures are included in the appendices.

CHAPTER TWO: REVIEW OF THE LITERATURE

Theoretical Framework

To examine well-being of college students, well-being theory (Seligman, 2011) was selected as a theoretical framework. Well-being theory provides a multidimensional assessment of well-being, enhancing insight into multiple domains that create overall satisfaction and meaning in life. Well-being theory was introduced in 2011 by psychologist Martin Seligman, PhD who is often referred to as the father of positive psychology. In 1998, as current president of the American Psychological Association, Seligman introduced positive psychology as a key initiative and professional field of study (Seligman & Csikszentmihalyi, 2000). Well-being theory represents a revision of Seligman's (2002) authentic happiness theory. Both theories are rooted in positive psychology; however, well-being theory seeks to understand and explain individual goals in the larger context of communities and society at large. The goal of well-being theory (Seligman, 2011) is flourishing, which is defined as optimal well-being of individuals and society. This chapter provides an overview of well-being theory, relevant literature, and a synthesis that provides a critique of findings to support this research.

Seligman (2011) proposed well-being is composed of five pillars, with each pillar representing an objective measurable element. The five elements—also known as PERMA—are: (a) Positive Emotion, (b) Engagement, (c) Relationships, (d) Meaning, and (e) Accomplishment. In the PERMA model of well-being, Positive Emotion is feelings that are desirable (e.g., happiness, joy, hope, optimism, satisfaction). Engagement is a subjective element representing flow; in periods of engagement, thoughts and feelings may be absent but provide pleasure retrospectively. Time may stop during engagement as there is focused commitment to a task. Relationships (i.e., positive) can be present in our personal and or professional lives. Most

positive events in life occur in the context of other people, and close connections to others contribute to well-being throughout one's lifespan. Meaning represents belief and membership in something larger than oneself. Meaning may be fulfilled through organized religion, spirituality, or advocacy for a group or cause. Accomplishment represents pursuits that may occur for the sole reason of winning in multiple realms of life (e.g., athletic, academic, career). To achieve Accomplishment, determination, resiliency, and hard work are often required. Well-being theory assumes each PERMA element contributes to well-being, can be pursued for its own sake, and is independently defined and measured. The desired outcome of well-being theory is flourishing, which Seligman (2011) defined as demonstrating high levels of all five PERMA constructs (see Table A.1 in Appendix A for a list and definitions of the PERMA elements).

The PERMA elements are supported by 24 character strengths including kindness, humor, courage, social intelligence, and integrity (Seligman, 2011; Seligman et al., 2005). These strengths are called signature strengths and are based on the positive psychology belief that all individuals are gifted with unique strengths (see Table A.2 in Appendix A for a list of strengths and definitions). Positive psychology promotes use of signature strengths to improve individual well-being. This contrasts with traditional psychology, which focuses on psychological weaknesses, problems, or disorders. Well-being theory provides a multidimensional approach to well-being, as the five pillars provide insight into relevant life components; the combination of these pillars gives a broad overview of an individual's life. This model accounts for many factors that influence well-being, and unique differences of every individual (Seligman, 2011). Well-being theory assumes optimal well-being is beneficial to individuals, communities, and collectively to society.

Background and Synthesis of Review of Literature: Constructs of the PERMA Model

The following sections discuss PERMA of college students in the literature. Particular attention is placed on how these elements related to well-being in the population of college students.

Positive Emotion

An assumption of well-being theory is feelings (e.g., happiness, life satisfaction) or Positive Emotion contributes to well-being. Emotions are generally defined as assessment of meaning following an individual's experience (Fredrickson, 2001). Emotions are typically short-lived responses and include conscious and/or unconscious appraisal. Emotions may trigger subsequent experiences, facial expressions, cognitive processes, and physiological changes (Fredrickson, 2001). Examples of Positive Emotion includes pleasure, rapture, ecstasy, warmth, comfort (Seligman, 2011), joy, interest, contentment, pride, and love (Fredrickson, 1998). Similar to Positive Emotion, the terms positive affect and psychological capital also appear in the literature and are sometimes used interchangeably with the term Positive Emotion. Affect refers to overall moods, states, or ability to experience emotions (Diener, 1984), while psychological capital is defined as a combination of self-efficacy, hope, optimism, and resilience (You, 2016).

The literature on Positive Emotion in college students demonstrated benefits of Positive Emotion and included a variety of desirable emotional (Chang et al., 2019), behavioral (Lesani et al., 2016; Patrick et al., 2016), and academic outcomes (Barker et al., 2016; Gallagher et al., 2017). Associations between emotional outcomes, hope, and life satisfaction (Chang et al., 2019) have been documented. Behavioral outcomes such as diet was found to be associated with Positive Emotion (Lesani et al., 2016). Academic outcomes included grade point average (GPA; Barker et al., 2016; Gallagher et al., 2017), retention (Gallagher et al., 2017), and 4-year

graduation (Gallagher et al., 2017). Grade point average was associated with positive affect (Barker et al., 2016) and hope (Gallagher et al., 2017). Hope was associated with retention and 4-year graduation (Gallagher et al., 2017).

In a study of Canadian undergraduate students, positive affect was found to correlate positively with GPA (Barker et al., 2016). Happy students demonstrated improved GPAs over time, with the highest GPAs noted at the end of college (Barker et al., 2016). A study by Chang et al. (2019) reported positive affect was positively correlated with hope and life satisfaction in a sample of Chinese college students. Positive Emotion was examined along with grit and commitment to purpose, showing a positive association between these variables among Canadian and American college students (Hill et al., 2016). Positive affect and commitment to purpose were predictive of grit. Psychological capital was noted to have a significant positive association with learning empowerment (You, 2016). Learning empowerment mediated the relationship between psychological capital and Engagement in a sample of undergraduate college students in South Korea (You, 2016).

In a longitudinal study by Gallagher et al. (2017), hope, self-efficacy, and engagement were predictive of semesters enrolled and cumulative GPA during 4 years of college. Hope was the strongest predictor of academic achievement of the three study variables and was associated with longer college enrollment and higher GPA. Higher levels of hope were associated with second semester enrollment and graduation in 4 years.

Positive Emotion has also been implicated in relation to lifestyle behaviors including diet (Lesani et al., 2016) and substance use (Patrick et al., 2016). In a study of Iranian medical students, happiness was positively associated with breakfast consumption, number of daily meals, and fruit and vegetable intake (Lesani et al., 2016). Highest happiness scores were found

among students who performed the following on a daily basis: ate breakfast, consumed greater than eight servings of fruit and vegetables, ate three meals, and consumed one to two snacks (Lesani et al., 2016). The relationship between positive affect and substance use (i.e., alcohol and marijuana) among college and noncollege young adults were also examined (Patrick et al., 2016). In the group of young adults attending college, no significant associations were observed between substance use and positive affect. Among noncollege young adults, positive associations were found between positive affect, binge drinking, and number of alcoholic beverages consumed. A negative association was noted between positive affect and marijuana use in young adults not attending college (Patrick et al., 2016). Results from these studies suggest Positive Emotion may be beneficial in some emotional, behavioral, and academic outcomes among college students.

Engagement

Engagement, the second construct of the PERMA model, is defined as commitment to a task or activity (Seligman, 2011). Types of engagement are identified in the context of undergraduate education (Kim & Lundberg, 2016; Maguire et al., 2017; Wilson et al., 2015) along with methods to measure engagement (Lin & Huang, 2018; Xie et al., 2019). Types of student engagement outside the collegiate environment (Boatman & Long, 2016; Glass et al., 2017) and differences in engagement in special populations were also discussed (Harris et al., 2018; Korah et al., 2019).

Student-faculty interactions have been found to be positively related to student engagement (Gallup & Purdue University, 2015; Kim & Lundberg, 2016). These benefits extend beyond college, as the odds of career engagement and well-being increased in graduates who reported having a college mentor (Gallup & Purdue University, 2015). This relationship is

complex; Kim and Lundberg (2016) found the relationship between faculty interaction and class engagement was mediated by students' academic self-challenge and sense of belonging. Class engagement was found to promote cognitive skill development (Kim & Lundberg, 2016). Maguire et al. (2017) also examined student engagement and found emotional intelligence predicted cognitive and affective student engagement, which suggests promotion of emotional intelligence could increase engagement and academic performance of college students. Wilson et al. (2015) also identified belonging as important to student engagement. Looking specifically at undergraduate students in science, technology, engineering, and math (STEM) majors, a consistent association was noted between class belonging and positive emotional engagement in a study of student populations at five diverse universities in the United States. The study also highlighted the importance of self-efficacy in the promotion of student engagement, with positive correlations to both behavioral and emotional engagement (Wilson et al., 2015). These studies suggested student engagement is dependent on many factors such as emotional intelligence (Maguire et al., 2017), belonging (Kim & Lundberg, 2016; Wilson et al., 2015), self-efficacy (Wilson et al., 2015), and student-faculty interactions (Kim & Lundberg, 2016).

Student engagement is associated with positive academic outcomes (Gallagher et al., 2017). A study by Lin and Huang (2018) with Taiwanese college students focused on the development of a course engagement scale; this scale which was found to be reliable and valid. They identified five factors related to course engagement: (a) skills engagement, (b) emotional engagement, (c) performance engagement, (d) interaction engagement, and (e) attitude engagement (Lin & Huang, 2018).

Engagement has been examined in subsets of college students to better understand differences between subgroups and populations. In a sample of 79,094 community college

students in the United States, significant differences were noted in all five benchmark scores of the Community College Survey of Student Engagement among students who had taken an honors class (Korah et al., 2019). Higher scores were noted in active and collaborative learning, student effort, academic challenge, student-faculty interaction, and learner support among students who had taken honors classes. Taken together, higher scores in all five benchmarks suggest increased academic engagement, connection with peers and faculty, and utilization of academic and support programs (Korah et al., 2019). In a similar fashion, engagement of biracial and monoracial undergraduate college students was assessed using longitudinal data from the National Survey of Student Engagement (Harris et al., 2018). For this study, five domains of Engagement were examined: collaborative learning, discussions with diverse others, student-faculty interaction, quality of interactions, and environmental support. Biracial students from various racial/ethnic backgrounds reported equal or greater Engagement in discussions with others of diverse backgrounds in comparison to monoracial study participants. Lower engagement scores in student-faculty interaction, quality of interaction, and environmental support were reported in the majority of biracial undergraduate students (Harris et al., 2018). These studies indicated need for further research on Engagement and undergraduate students, particularly in relation to those with diverse racial/ethnic backgrounds. Additionally, enrollment in honors courses appeared to increase community college student engagement; further research should determine if these results extend to undergraduate students attending 4-year colleges and universities.

Engagement of college students has also been studied outside of academic environments. Researchers have examined Engagement of college students in extracurricular activities (Boatman & Long, 2016; Glass et al., 2017) and community service activities (Boatman & Long,

2016). Among a sample of minority students with high intellectual ability and financial need who were awarded a college scholarship award, the impact of financial aid on academic and community engagement was studied. These students were more likely to engage in extracurricular activities and community service than similar peers (Boatman & Long, 2016). Engagement in co-curricular activities was assessed in first generation and non-first-generation international college students (Glass et al., 2017). In both groups, higher Engagement in co-curricular activities and a higher sense of community was found among students who interacted with instructors outside of class (Glass et al., 2017). These studies indicated the impact factors such as financial aid, immigration/residency status, and instructor interaction may have on extracurricular and community service engagement of college students.

Relationships

Relationships is an important concept in the population of college students. According to Erikson's (1968) psychosocial stages of development, college students are trying to develop a secure sense of self, close relationships, and intimate love. The college environment may allow for various interactions, which may foster social connections. Relationships during this developmental stage may be with family (Yuan et al., 2016), kin (Brooks & Allen, 2016), peers (Juang et al., 2016; Thiele et al., 2018; Turkpour & Mehdinezhad, 2016), university faculty or staff (Tovar, 2015), or romantic partners (Pedersen & Pithey, 2018; Waterman et al., 2017). The important role of Relationships was noted by Diener and Seligman (2002), who found very happy college undergraduates were more extroverted, more agreeable, less anxious, and had stronger relationships (i.e., social and romantic). The happiest group of undergraduate college students in this study reported positive feelings most of the time, with only occasional negative feelings. No significant differences were noted between the happiest and less happy students in

terms of exercise, religious participation, or self-reported positive life events (Diener &

Seligman, 2002).

Studies concerning the impact of family relationships have been explored in college

student populations. Relationships with parents (Yuan et al., 2016) and kin (Brooks & Allen,

2016) may help support academic success in college students. Yuan et al. (2016) explored

parent–child relationships, academic achievement, and self-efficacy in European American and

Asian American undergraduate students. Results of this study found significant relationships

between all three study variables, with self-efficacy identified as a mediator. Ethnicity was noted

to moderate relationships as a significant association was detected between the quality of the

parent–child relationship and self-efficacy of Asian American students, but not among European

American students. These authors indicated family support may increase self-efficacy, which in

turn improves academic performance of Asian American college students (Yuan et al., 2016). An

additional type of support described for college students was fictive kin relationships (Brooks &

Allen, 2016). In a study of African American college students, kin relationships—defined as

close relationships with others not of biological relation—provided support and increased

academic persistence (Brooks & Allen, 2016). These studies highlight beneficial academic

outcomes relative to supportive family relationships including increased self-efficacy, academic

performance, and academic persistence.

New relationships often form during college years as a result of new experiences,

meeting new people, having shared career interests with others (Thiele et al., 2018).

Relationships with peers (Thiele et al., 2018; Turkpour & Mehdinezhad, 2016) and university

staff (Tovar, 2015) have been found to impact student life in multiple ways. Using social

network analysis, Thiele et al. (2018) found peers support each other and become more similar

over time, but do not influence career choices. Among students who had experienced racial and/or ethnic discrimination by peers, peer support reduced somatic complaints, which suggests peer support may be helpful in reducing negative effects of discrimination (Juang et al., 2016). Turkpour and Mehdinezhad (2016) found socialization with peers is important throughout college and may predict adaptation to college. A study of college students in Iran explored relationships between social and academic support and adaptation to college (i.e., scientific, social, personal, and dependence). Positive correlations were found between socialization and social adaptation, emotional support and social adaptation, and socialization and total adaptation (Turkpour & Mehdinezhad, 2016). Additionally, relationships with staff in university programs and support services may influence student success (Tovar, 2015). Tovar (2015) found relationships with university counselors and support programs were effective in increasing student intent to persist and academic success in Latino students. Thus, relationships with peers and university staff may impact college student life by improving adaptation, providing support, reducing discrimination effects, and promoting persistence and academic success.

Romantic relationships, common in college student populations, may influence individual behaviors (Pedersen & Pithey, 2018; Waterman et al., 2017). Waterman et al. (2017) examined dating relationships of college students in relation to campus activity participation, loneliness, positive affect, and alcohol consumption. In this study, long distance dating relationships were noted to have positive and negative consequences. Individuals in long distance dating relationships were less involved in campus activities than students who identified as single. Self-reported loneliness levels were higher in all students (i.e., single or committed) when they were not on campus, which suggests location may be a significant factor in daily emotional affect of college students. However, Waterman et al. (2017) did not find loneliness and positive affect to

be associated with relationship status. Pedersen and Pithey (2018) also examined romantic

relationships and alcohol consumption behaviors, and they found being in a romantic

relationship reduced drunkenness in both male and female students. Reductions in negative

consequences (e.g., being hungover, missing class, getting behind in class assignments, doing

something later regretted, memory loss of location and/or activity, unplanned sex, injury) were

also noted in female students who were in a committed relationship (Pedersen & Pithey, 2018).

Reductions in frequency of drinking or binge drinking, however, were not found in romantically

committed students (Pedersen & Pithey, 2018). Further research is needed to better understand

the mixed results of Relationships with regard to alcohol consumption behaviors in college

students.

Meaning

Meaning, the fourth construct of the PERMA model was discussed in relationship to

multiple intrapersonal concepts. Positive concepts such as gratefulness (Liao & Weng, 2018),

optimism (Yu & Chang, 2019), positive affect (Datu, 2016), subjective well-being (Bailey &

Phillips, 2016; Liao & Weng, 2018; Wilt et al., 2016), self-concept (Shin et al., 2016), academic

performance (Bailey & Phillips, 2016), work (Allan et al., 2017) and posttraumatic growth (Grad

& Zeligman, 2017) were studied. As well, negative concepts such as depression (Cömert et al.,

2016; Park & Jeong, 2016; Yu et al., 2017), loneliness (Zeligman et al., 2019), and emotional

exhaustion (Garrosa et al., 2017) were explored. Neutral concepts such as religion/spirituality

(Abu-Hilal et al., 2017; Krok, 2015) and mindfulness (Bloch et al., 2017) were also reported in

the literature.

In a study of American undergraduate students, Fredrickson's (2004) broaden-and-build

theory was tested in exploring gratefulness and subjective well-being (Liao & Weng, 2018). Liao

and Weng (2018) found gratefulness to be associated with greater subjective well-being and increased social connectedness and meaning in life over a 3-month period in undergraduate college students. Yu and Chang (2019) explored the relationship between optimism and meaning in life. Meaning in life was found to be a significant source of variance in optimism of Asian American and European American college students. This study also found parents' well-being was significant as an interaction term in the search for Meaning in Asian American students, whereas the interaction of parents' well-being with presence of Meaning was significant in European American students (Yu & Chang, 2019). Similarly, Datu (2016) explored positive affect and meaning of life in college students. Maximization, or the tendency to seek the best option, was found to be a positive moderator in the relationship between positive affect and the presence of meaning in life for Filipino college students (Datu, 2016). Overall, these studies indicated meaning in life may be related to several positive concepts including gratefulness, subjective well-being, optimism, and positive affect. Further research is necessary as many of these studies involve specific populations and results may not be generalizable to other populations.

Negative intrapersonal concepts have also been studied in relation to Meaning in literature. Yu et al. (2017) found depressive symptoms in male and female undergraduate students were predicted by meaning in life. This prediction was stronger in female undergraduate students, which suggests gender differences (Yu et al., 2017). A study by Zeligman et al. (2019) found loneliness in students who have experienced past trauma was predicted by meaning presence (i.e., having meaning) and meaning search (i.e., searching for meaning); loneliness and meaning search were more prevalent in college students with a history of trauma (Zeligman et al., 2019). Garrosa et al. (2017) also looked at meaning of life in college students in the context

of curiosity, engagement, and emotional exhaustion. Although curiosity promotes engagement, emotional exhaustion may occur when curiosity is combined with search for meaning in undergraduate students (Garrosa et al., 2017). These studies show Meaning is also related to various negative concepts such as depression, loneliness, and emotional exhaustion in college students. Thus, Meaning may be an important concept of interest in promoting the mental and emotional health and well-being of college students.

Religion, spirituality, and mindfulness have relationships to Meaning in college students. Among a sample of Oman college students, a strong relationship was detected between religion and meaning in life (Abu-Hilal et al., 2017). These results are not unexpected as the Muslim religion is a foundation of life in this culture. In a similar study involving religion/spirituality, Krok (2015) noted religion/spirituality had both direct and indirect effects on coping in a sample of Polish, late adolescents. Meaning (i.e., global and situational) were partial moderators and increased coping was noted in individuals with higher levels of religion/spirituality (Krok, 2015). Bloch et al. (2017) examined mindfulness in a longitudinal study that used meditation. A semester-long meditation course resulted in increased mindfulness and meaning of participants, and produced positive associations between presence of meaning in life and elements of mindfulness (Bloch et al., 2017). The authors suggested mindfulness and meditation can be useful to examine meaning in life.

Meaning was also explored in several subsets of college student populations. In college students who had experienced previous trauma, the presence of Meaning was the strongest predictor of posttraumatic growth (Grad & Zeligman, 2017). Social interest, another variable of interest in this study, was positively related to presence of meaning for this population (Grad & Zeligman, 2017). Since 67%–84% of college students are believed to have experienced at least

one traumatic life event, these findings may have practical implications for many students (Read et al., 2011; Smyth et al., 2008). Meaning of life was also explored in graduating college seniors around the end of their final college semester (Wilt et al., 2016). The impact of college graduation was examined via a qualitative approach, which revealed increased meaning in life occurred when students were spending time with others (i.e., family or friends) and reflecting on graduation (Wilt et al., 2016). Wilt et al. (2016) suggested spending time with family and friends may increase meaning in life and highlights the importance of Relationships in college students. Results from studies by Grad and Zeligman (2017) and Wilt et al. showed Meaning may benefit Relationships and posttraumatic growth during college years.

Finally, Meaning was explored in relationship to academic performance and career goals. Shin et al. (2016) explored Meaning during the first semester for college freshmen. Self-concept clarity was found to predict meaning in life for first semester undergraduate students at a large midwestern university in the United States. Over 8 weeks, both self-concept clarity and meaning in life increased, which suggested changes in both self-concept clarity and meaning in life occur very early in the college experience. Bailey and Phillips (2016) looked at relationships between motivation, well-being, academic performance, and meaning in life of freshmen college students. Results indicated intrinsic motivation was associated with increased subjective well-being, meaning in life, and academic performance (as measured by semester GPA of freshmen undergraduate psychology majors in Australia; Bailey & Phillips, 2016). Looking to postcollege employment plans, Allan et al. (2017) surveyed undergraduate college students and college counselors to better understand meaningful work. Their study found undergraduate college students desire meaningful work and want academic advisors to assist them in finding

meaningful majors and future work (Allan et al., 2017). These studies found Meaning to be important across the college experience.

Accomplishment

The fifth construct in the PERMA model, Accomplishment, is also discussed in in the literature in relation to college students. Types of Accomplishment are identified in the context of academia and may include performance measures such as GPA (i.e., general, cumulative, course), retention, and graduation (Slanger et al., 2015). Also found in this body of literature were identification of facilitators (Bazelais et al., 2016; Bitew, 2016; Campbell, 2016; Huskin, 2016; Johnson, 2015; Leland, 2015; Liu et al., 2015; Wolters & Hussain 2015) and barriers (Bitew, 2016; Samaha & Hawi, 2016) to student accomplishments. Interventions and suggestions offered to increase student success are present in the literature (Slanger et al., 2015; Xu et al., 2017).

Recent statistics estimate only 60% of first time, undergraduate students graduate in 6 years or less (National Center for Education Statistics, 2019). As a result, many prediction models have been conducted and tested, looking to improve these figures (National Center for Education Statistics, 2019). Most prediction models include high school achievement (i.e., GPA and aptitude test scores). In most models, academic success is defined as having an acceptable GPA, either self-reported or obtained from the university registrar. Other studies have included retention and graduation as successful outcomes (Bazelais et al., 2016; Slanger et al., 2015; Wolters & Hussain, 2015, Xu et al., 2017). Slanger et al. (2015) found academic difficulty and dropout proneness predicted cumulative GPA across 10 cohort groups through 8 semesters of study. Predicted academic difficulty, dropout proneness, and educational stress were predictive of retention and earned credits (Slanger et al., 2015). Another approach to improve student

success is through the use of machine learning. Machine learning is a broad category that may include techniques such as decision trees, artificial neural networks, and algorithms to solve complex problems (Xu et al., 2017). Xu et al. (2017) suggested machine learning algorithms may be useful for course selection and interventions to increase student success.

Bazelais et al. (2016) examined the effect of grit, defined as persevering and continual hard work toward long term goals, by using the grit scale survey on overall GPA of freshman physics students in Canada. In this study, grit was not significant; however, prior academic performance was a significant predictor of academic achievement (Bazelais et al., 2016). In a similar study of grit, Wolters and Hussain (2015) found some aspects of grit were predictive of self-regulated learning, which were associated with better academic outcomes. Perseverance of effort—one aspect of grit identified in the grit short scale—was associated with all indicators of self-regulated learning. These results suggest self-regulated learning is a mediator between perseverance of effort and academic achievement.

Identification of facilitators and barriers to student accomplishment were also described in the literature. Facilitators included the positive role of teachers (Bitew, 2016), writing across the curriculum (Huskin, 2016), study abroad programs (Campbell, 2016), and honors programs (Johnson, 2015). Motivational instruction (Liu et al., 2015) and mindfulness (Leland, 2015) have been useful to increase positive academic outcomes. Challenges to academic accomplishments included content difficulty, uneasiness with teaching method, schoolwork amount, limited social interactions, and English language skills in a qualitative study involving Latino college students (Bitew, 2016). Another potential barrier to academic performance is smartphone addiction risk (Samaha & Hawi, 2016). Samaha and Hawi (2016) found smartphone addiction risk explained 3.9% of variation in GPA in a study that examined smartphone addiction risk, academic

performance, satisfaction with life, and perceived stress of college students. These sources provide valuable insight into facilitators (e.g., teachers, programs, mindfulness) and barriers (e.g., content difficulty, language skills, smartphone addiction risk) to Accomplishment, which may contribute to well-being.

Summary

This chapter reviewed and discussed literature relevant to well-being using the PERMA model of well-being theory (Seligman, 2011) in the context of college students. An overview of well-being theory and PERMA constructs preceded the literature review to aid in understanding the theoretical framework of this study. As demonstrated through review of the literature, much is known about individual PERMA constructs in college student populations. However, the concept of well-being in this population remains underdeveloped, despite growing interest in well-being and quality of life studies. Additionally, although well-being theory has been used and generally supported in previous studies, I am unaware of any studies that have been conducted at a large research-intensive university. Further research is needed to understand the multidimensional aspects of well-being in undergraduate college students.

The literature review provided definitions, measurements, related factors, barriers, facilitators, and outcomes of Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment of college students. The combined effect is a richer understanding of these five concepts, which are proposed dimensions of well-being theory. Additionally, connections between PERMA dimensions were present in the literature. One such example was the association between Positive Emotion and Relationships as noted by Diener and Seligman (2002), who found very happy college students had stronger Relationships. Engagement and Accomplishment also seem to be related concepts, as Gallagher et al. (2017) found Engagement

predicted semesters enrolled and cumulative GPA during 4 years of college. Associations between other PERMA concepts were also present and identified. These findings support associations between PERMA concepts. Understanding how PERMA concepts interact in context of well-being theory may provide insight into college student well-being and promote development of interventions to increase well-being.

CHAPTER 3: DESIGN AND METHODS

Study Design and Methodology

This study used a nonexperimental design to test well-being theory (Seligman, 2011) in the context of undergraduate college students at a large public research university in Midwestern United States. This study used previously collected data to identify and test constructs of Seligman's well-being theory; a literature review was used to guide selection of items from the 2018 Purdue SERU survey to build the following latent variables: Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment.

Sample

The data used in this study were collected at Purdue University in West Lafayette, Indiana. Purdue University is a large public, land grant university composed of approximately 43,000 students with roughly 33,000 undergraduates and 10,000 graduate students at the main campus during the time of data collection. Of these students, approximately 52% were Indiana residents, 34% were out-of-state students, and 14% were international students (Purdue University Undergraduate Admissions, 2018). Data were collected for the purpose of understanding student experiences at a research-intensive university using the 2018 SERU survey and collected by the Office of Institutional Research, Assessment, and Effectiveness.

A census sampling method was used to administer the Purdue SERU survey online. All currently registered undergraduate students at the West Lafayette campus were invited by email to complete the Purdue SERU survey in Spring 2018. Two additional emails were sent with follow-up reminders to participate in the SERU survey; the first reminder was sent halfway into the data collection period and the final reminder was sent approximately 1 week before the

survey closed. The SERU survey was open for 8 weeks with a launch date of March 1, 2018; students could start and return to finish the remainder of the survey at their convenience in this timeframe. Participants were able to skip any survey items they did not wish to answer. Students were incentivized to complete the SERU survey via random drawings for Amazon gift cards. A total of $3,000 in Amazon gift cards were given away in increments of $25, $50, and $100 to randomly selected survey participants.

A total of 5,008 students participated in this survey. Self-reported demographic data indicated the following sample characteristics: 57% identified as female and 43% identified as male; 90% identified as native (4,507) and 10% identified as international (501); and 12% were considered freshmen, 24% were considered sophomores, 24% were considered juniors, and 40% were considered seniors. Mean age was 20.44 years old (see Table 3.1 for the sample distribution by college).

Measures

The idea for SERU was conceptualized by Richard Flacks and John Aubrey Douglass in 1999 at the University of California Berkley (UC Berkley) to measure student engagement. The initial goals of the SERU survey were to understand students, identify strengths and weaknesses of the university, support/guide policy changes, and allow comparisons with similar institutions. In 2001, SERU was used at all eight University of California campuses under the name *University of California Undergraduate Experience Survey* (UCUES). The survey continues to be called UCUES at University of California campuses, but is referred to as SERU at other universities. In 2008, the survey was approved for use at other large research universities. The SERU was guided by a conceptual framework that identifies input, environment, and outputs.

Table 3.1 The 2018 Purdue SERU participants by College

College	Frequency	%
Engineering	1444	28.83
Health & Human Science	802	16.01
Science	619	12.36
Polytechnic Institute	495	9.88
Agriculture	489	9.76
Liberal Arts	383	7.65
School of Management	369	7.37
Exploratory Studies	136	2.72
Pharmacy	133	2.66
Education	92	1.84
Veterinary Technology	31	0.62
Construction Engineering Management	15	0.30

Inputs include student background information and input items seek to capture relevant background information of students prior to starting college. The environment refers to university experiences students may encounter during their time at the university. Outputs refer to learning outcomes and satisfaction. Output items capture end results of student experiences at a research university (UC Berkley, 2020a). Additionally, SERU examines the reciprocal relationship between students and the environment. It is believed student experiences are shaped by university practices and procedures; students also contribute and shape the social environment of their respective universities.

The SERU consists of approximately 300 items; the number varies by year of administration and institution. Most items are nominal or ordinal questions with 6–8 response choices. The SERU is composed of a core set of questions used by each university. Each university may also elect to add additional university-specific items. Such additional items may change from year to year, representing timely categories of interest. The SERU also contains a section specifically for international students; it is recognized experiences of international students may differ from experiences of native undergraduate students. The SERU may additionally include qualitative items, although the majority of items are quantitative in nature (UC Berkley, 2020b). The core content of SERU is periodically reviewed by a collaborative research team.

The SERU has been found to be reliable, remaining relatively stable over time with four independent factor analyses revealing nine factors: (a) satisfaction with educational experience, (b) current skills self-assessment, (c) engagement with studies, (d) gains in self-assessment of skills, (e) scholarship development, (f) campus climate for diversity, (g) academic disengagement, (h) quantitative professions, and (i) time (Chatman, 2007, 2009, 2011). Reliability of these factors ranged from 0.53–0.92 (Chatman, 2011).

Ethics Approval at Purdue University

Purdue 2018 SERU data were collected by the Office of Institutional Research, Assessment, and Effectiveness. Institutional Review Board (IRB) approval was obtained prior to administration of the SERU survey by the Office of Institutional Research, Assessment, and Effectiveness (see Appendix B); this approval covers research use of data for those approved by the Office of Institutional, Assessment and Effectiveness (see Appendix C). The data were de-

identified prior to being shared with me. This research study was deemed exempt from further IRB approval on March 13, 2020.

Purdue SERU

The 2018 Purdue SERU survey included seven modules (see Table 3.2 for names and descriptions). The Academic Engagement and Time Use module provides insight into how students spend their time in academic, extracurricular, and work settings. The Educational Experience and Campus Climate module assesses overarching educational experiences and feelings of diversity and inclusion. The Major module examines evaluation of the participant's major and college. The Co-Curricular Experience and Self-Assessed Learning module allows the participant to reflect on skills and personal growth. The Satisfaction and Belonging module assesses feelings of satisfaction and belonging in their major and in Purdue University. The last two modules, Postgraduation Plans and Financial Concerns and Demographic Items, collect information concerning career aspirations, finances, and demographics (i.e., age, sex, and major). Together, these modules aim to collect data, which describe multiple dimensions of student experiences at Purdue University.

In total, the Purdue SERU contained 213 questions, which included one free-response question: "What is the most meaningful learning experience you have had at Purdue University?" However, not all participants received all 213 questions. Study participants were randomly assigned to one of five groups. All groups completed modules on Major, Satisfaction and Belonging, and Demographic Details. Only one group (Group 5) was assigned all seven modules (see Table 3.3 for all 2018 Purdue SERU group assignments and sample sizes).

Table 3.2 The 2018 Purdue SERU modules

Module	Description	Number of Questions
Academic Engagement & Time Use	Various academic engagement items, time use behaviors in work, school, and social activities.	34
Educational Experience & Campus Climate	Educational items looking at courses, research, and collaboration with faculty.	41
Questions about the Major	Experience and satisfaction with your major.	45
Co-Curricular Experience & Self-Assessed Learning	Academic and personal growth items over college career.	43
Satisfaction & Belonging	Overall satisfaction with campus experiences/education.	7
Plans & Aspirations, Financial Concerns & Behaviors	Postgraduation plans and financial concerns.	25
Demographics & Descriptors	Demographic items.	18
		Total: 213

Note. Some questions contain multiple parts

Table 3.3 The 2018 Purdue SERU group assignments

Group (N)	Academic Engagement & Time Use	Educational Experience & Campus Climate	Questions about the Major	Co-Curricular Experience & Self-Assessed Learning	Satisfaction & Belonging	Plans & Aspirations, Financial Concerns & Behaviors	Demographics & Descriptions
1 ($N = 1008$)	Yes	No	Yes	No	Yes	No	Yes
2 ($N = 1040$)	No	Yes	Yes	No	Yes	No	Yes
3 ($N = 964$)	No	No	Yes	Yes	Yes	No	Yes
4 ($N = 1042$)	No	No	Yes	No	Yes	Yes	Yes
5 ($N = 954$)	Yes	Yes	Yes	Yes	Yes	Yes	Yes

O

Data Analysis

Latent variable modeling was used to empirically test the PERMA model of well-being theory in the context of undergraduate college students using the 2018 Purdue SERU dataset. Using Seligman's definitions of PERMA and a review of the literature, relevant PERMA items of well-being in the SERU survey were identified and selected to represent the latent variables of Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment. Confirmatory factor analysis (CFA) was used to test the PERMA model using selected items from the dataset (Jöreskog, 1969). The following model fit statistics were used to determine model fit and guide any modifications: chi-square goodness of fit test, comparative fit index (CFI), Tucker-Lewis index (TLI), and root mean square error of approximation (RMSEA). Following creation of the five latent PERMA variables by CFA, a second order well-being model was constructed and tested. For this study, ordinal level data were treated as continuous, since measured variable responses for the items contained a minimum of four response categories, which is considered acceptable (Bentler & Chou, 1987; Hancock & Mueller, 2006).

A total of 39 initial items were selected for review. The initial number of items selected for each latent variable was as follows: Positive Emotion (8), Engagement (8), Relationships (10), Meaning (5), and Accomplishment (8). Upon secondary review of the literature, seven items were removed. Construction of the five latent variables began with a total of 32 items. See Tables A.22–A.26 in Appendix A for a list of the 32 items as they appeared in the 2018 Purdue SERU survey.

Positive Emotion

Eight items were used to assess positive emotion of participants (see Table A.3 in Appendix A for descriptive statistics). All items were assessed with the question: "Please select

45

your level of agreement or disagreement with the following statements." Value was assessed

with the statement: "I feel valued as an individual at this campus." Belonging was assessed by

the statement: "I feel that I belong at Purdue University." Desire to reenroll was assessed by the

statement: "Knowing what I know now, I would still choose to enroll at Purdue University."

Feeling welcomed was assessed by the statement: "Purdue University is a welcoming campus."

Sense of safety/security was assessed by the statement: "Purdue University is a safe and secure

campus." Classroom climate was assessed with the statement: "Overall, I feel comfortable with

the climate for diversity and inclusion in my classes." Major climate was assessed with the

statement: "Overall, I feel comfortable with the campus climate for diversity and inclusion in my

major." General campus climate was assessed with the statement: "Overall, I feel comfortable

with the climate for diversity and inclusiveness at Purdue University." All items were rated on a

6-point scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). Higher values on this

latent variable indicate increased levels of positive emotion. Cronbach's alpha for these eight

items was 0.90, indicating these are measuring the same latent variables (see Figure 3.1 for the

Positive Emotion CFA model).
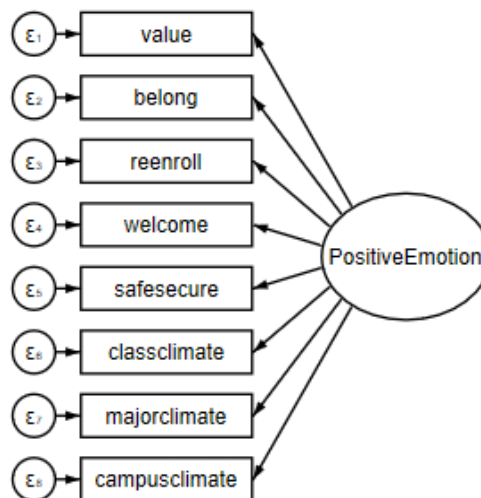
Figure 3.1 Positive Emotion CFA model.

Engagement

Six items were used to assess Engagement of participants (see Table A.4 in Appendix A for descriptive statistics). The first two items (i.e., hard work and faculty engagement) were assessed with the question: "During this academic year, how often have you done each of the following?" Hard work was assessed with the question: "During this academic year, how often have you found your courses so interesting that you did more work than was required?" Faculty engagement was assessed with the question: "During this academic year, how often have you communicated with the instructor outside of class about issues and concepts derived from a course?" Four items (i.e., activity engagement, studying, class project, and help classmate) were assessed with the question: "How frequently have you engaged in these activities so far this academic year?" Activity engagement outside of class was assessed by the question: "How frequently have you worked with a faculty member on an activity other than coursework (e.g., student organization, campus committee, cultural activity)?" Studying was assessed by the question: "How frequently have you studied with a group of classmates outside of class?" Participation in class projects was assessed with the question: "How frequently have you worked on class projects with classmates outside of class?" Helping classmates was assessed with the question: "How frequently have you helped a classmate better understand the course material when studying together?" Hard work, engagement with faculty, studying, group project, and helping classmates were rated on a 6-point scale ranging from 1 (*never*) to 6 (*very often*). Activity engagement outside of class was rated on a 4-point scale ranging from 1 (*never*) to 4 (*three or more times*). Higher values on this latent variable indicate increased levels of

Engagement. Cronbach's alpha for these six items was 0.73 (see Figure 3.2 for the Engagement CFA model).
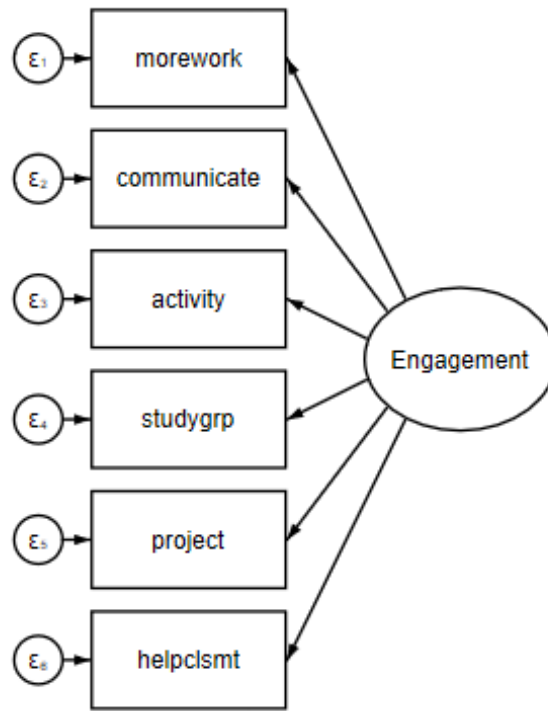
Figure 3.2 Engagement CFA model.

Relationships

Eight items were used to assess Relationships of participants (see Table A.5 in Appendix A for descriptive statistics). Relationships with professors were evaluated using two questions: "How many professors do you know well enough to ask for a letter of recommendation?" and "During this academic year, how often have you had a class in which the professor knew or learned your name?" The first question was rated on a 5-point scale ranging from 0 (*0*) to 4 (*4 or more*). The second question was rated on a 6-point scale ranging from 1 (*never*) to 6 (*very often*). The next four items (i.e., faculty academic advising, school academic advising, departmental staff advising, faculty instruction) were assessed by the question: "How satisfied or dissatisfied are you with each of the following aspects of your educational experience?" The answers were

rated using a 6-point scale from 1 (*very dissatisfied*) to 6 (*very satisfied*). Faculty academic advising was assessed by the question: "How satisfied or dissatisfied are you with academic advising by faculty?" School academic advising was assessed by the question: "How satisfied or dissatisfied are you with academic advising by school or college staff?" Departmental staff advising was assessed by the question: "How satisfied or dissatisfied are you with academic advising by departmental staff?" Faculty instruction was assessed by the question: "How satisfied or dissatisfied are you with the quality of faculty instruction?" The remaining two items (i.e., friends and family) were assessed with the question: "How many hours do you spend in a typical week (7 days) on the following activities?" Friends was assessed with the question: "How many hours do you spend in a typical week (7 days) socializing with friends?" Family was assessed with the question: "How many hours do you spend in a typical week (7 days) spending time with family?" Times spent with friends and family were measured on an 8-point scale ranging from 1 (*0 hours*) to 8 (*30 hours or more*). Higher values on this latent variable indicate increased levels of positive relationships. Cronbach's alpha for these eight items was 0.74 (see Figure 3.3 for the Relationship CFA model).
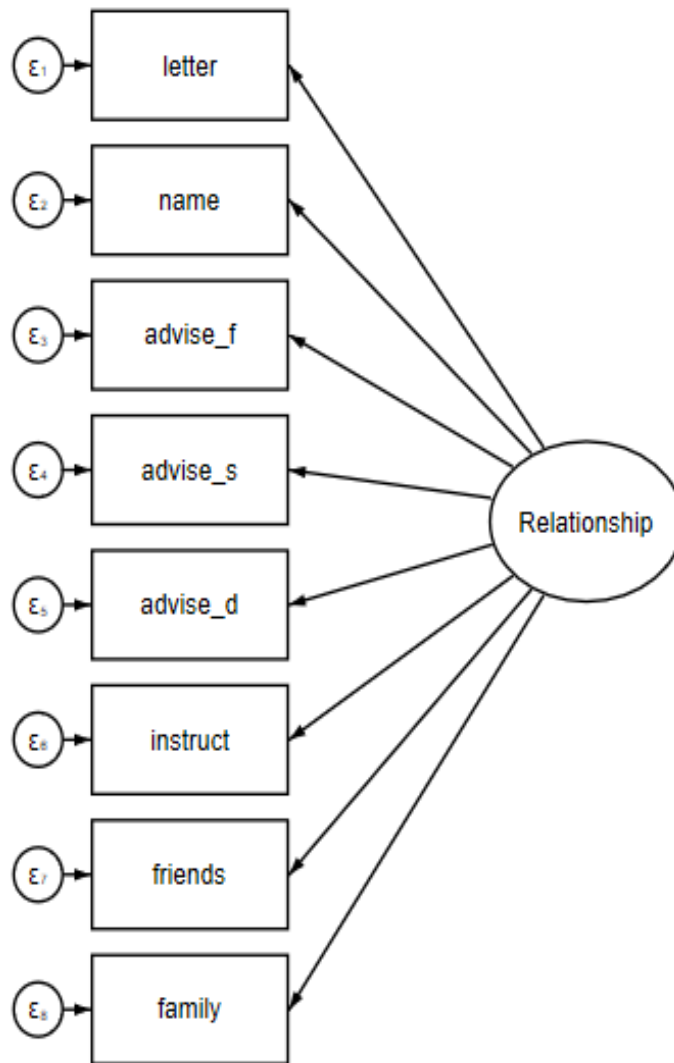
Figure 3.3 Relationships CFA model.

Meaning

Four items were used to assess Meaning of participants (see Table A.6 in Appendix A for descriptive statistics). All four items were assessed by the question: "How many hours do you spend in a typical week (7 days) on the following activities?" Time spent in spiritual or religious practice was assessed by the question: "How many hours do you spend in a typical week (7 days) participating in spiritual or religious activities?" Time spent in various entertainment activities

was assessed by the question: "How many hours do you spend in a typical week (7 days) attending cultural events, movies, concerts, sports or other entertainment with others?" Time spent in community service was assessed by the question: "How many hours do you spend in a typical week (7 days) performing community service or volunteer activities?" Time spent in student organizations was assessed by the question: "How many hours do you spend in a typical week (7 days) participating in student clubs or organizations?" Time expenditures in spiritual/religious activities, entertainment, community service, and student organizations were measured on an 8-point scale ranging from 1 (*0 hours*) to 8 (*30 hours or more*). Higher values on this latent variable indicate increased levels of Meaning. Cronbach's alpha for these four items was 0.67 (see Figure 3.4 for the Meaning CFA model).
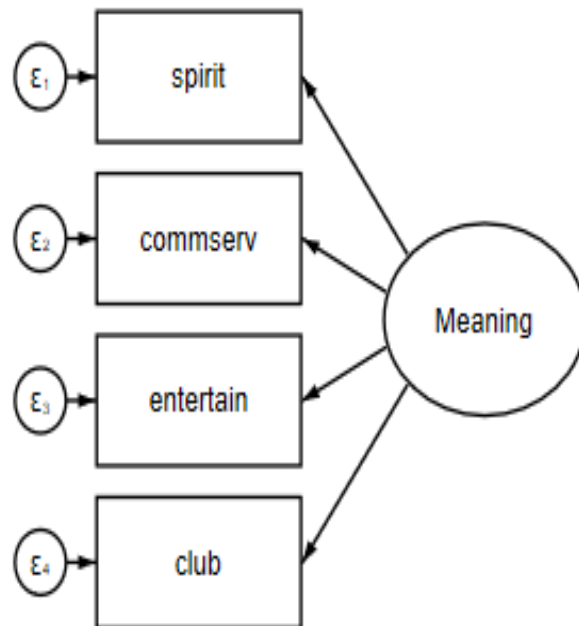
Figure 3.4 Meaning CFA model.

Accomplishment

Six items were used to assess participant Accomplishment (see Table A.7 in Appendix A for descriptive statistics). Best work was assessed by the statement: "My major challenges me to do my best work." Earn A was assessed by the statement: "My best work is required to earn an A in courses in my major." The next two items (i.e., class time and studying) were assessed by the question: "How many hours do you spend in a typical week (7 days) on the following activities?" Class time was assessed by the question: "How many hours do you spend in a typical week (7 days) attending classes, discussion sections, or labs?" Studying was assessed by the question: "How many hours do you spend in a typical week (7 days) studying and other academic activities outside of class?" The final two items (i.e., hard class and work hard) were assessed by the question: "How frequently have you engaged in these activities so far this academic year?" The frequency of choosing challenging courses on purpose was assessed by the question: "How frequently have you engaged in having chosen challenging courses?" Increased academic effort was assessed by the question: "How frequently have you engaged in having increased your academic effort due to the high standards of a faculty member?" Best work and earn A were measured on a 6-point scale from 1 (*strongly disagree*) to 6 (*strongly agree*). Class and study time were measured on an 8-point scale from 1 (*0 hours*) to 8 (*30 hours or more*). Challenging courses and increased academic effort were measured on a 6-point scale from 1 (*never*) to 6 (*very often*). Higher values on this latent variable indicate increased levels of Accomplishment. Cronbach's alpha for these six items was 0.64 (see Figure 3.5 for the Accomplishment CFA model).
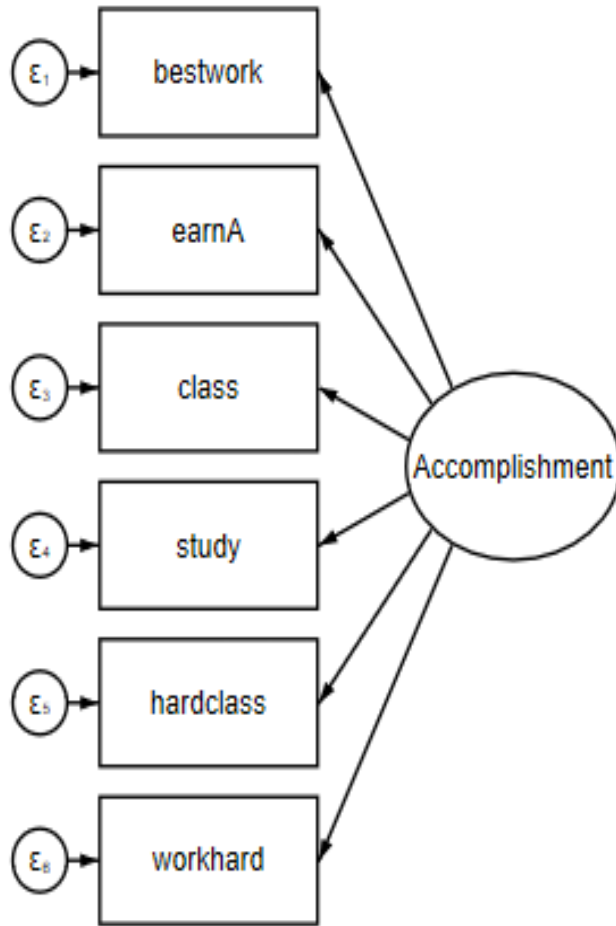
Figure 3.5 Accomplishment CFA model.

Statistical Analysis

Models were constructed based on the selected theory and content knowledge.

Modifications of the model were identified through use of StataSE 16. The sample size ($N =$

5,008) was deemed appropriate CFA based on the following general guidelines: $N > 200$ (Kline,

2016), at least three items per latent variable (Kelloway, 2015), and a N:q ratio of 5:10 (Bollen,

1989). Prior to analysis, data were examined visually for outliers and through analysis of

descriptive statistics. Missing data were calculated for each item and ranged between 0.3%–

13.2%. Responses varied from 1,790–4,484 on selected study items. Study participants were

randomly assigned to one of five groups; only one group was assigned to complete all survey

items. Missing data were handled using full information maximum likelihood (FIML)

estimation. FIML reduces bias in parameter estimates by using partial data in all available

responses (Enders, 2010). Normality of selected items was assessed by skewness, kurtosis

values, and graphical visualization. Skewness and kurtosis results were in suggested limits of

absolute values of skewness less than 3 and kurtosis less than 10 (Kline, 2011), with the

exception of family (kurtosis = 12.85), spirit (skew = 3.12, kurtosis = 18.08), and community

service (kurtosis = 14.17). These items were retained and, according to the literature deviations

of normality, do not make significant differences in analysis in samples greater than $N = 200$

(Tabachnick & Fidell, 2013). Pairwise correlations were calculated between items used in

construction of the five latent variables to look for possible multicollinearity. Of the 32 items,

seven correlations were greater than or equal to .70.

Following the development and validation of the five latent variables, a second order

well-being model was tested. Model fit was evaluated by size and significance of factor loadings

and model fit statistics. Standardized parameter estimates, standard errors, and significance

levels were obtained. Model fit was determined adequate if one or more fit statistics were in

acceptable range. Models were evaluated by the chi-square goodness of fit test, CFI, TLI, and

RMSEA. The chi-square goodness of fit statistic compared the proposed model to a fully

saturated model that has zero degrees of freedom (Acock, 2013). Chi-square test statistics are

sensitive to sample size; larger sample sizes will produce larger chi-square values and may lead

to model rejection (Bartholomew et al., 2011). When using the chi-square test, a nonsignificant

value is desired, which indicates the model reproduces the sample variances and covariances

well (Brown, 2015). Other fit statistics are not as sensitive to sample size. CFI and TLI are

considered comparative fit indices, comparing the model parameters to a baseline model. Both

CFI and TLI have similar possible values ranging from 0–1, with 0.9 indicating good fit and 0.95 indicating a well-fitting model (Hu & Bentler, 1999). RMSEA favors parsimony in statistical models; values typically range from 0–1 with desirable values less than .08, which indicates adequate model fit. RMSEA values of .05 or less demonstrate good model fit (Browne & Cudeck, 1993).

Following initial CFA model construction and testing, modification indices were run to guide model improvements. Model improvements were identified via StataSE 16 based on the model chi-squared statistic and were performed in a step wise fashion, only making one change at a time. All changes to models were guided by theoretical knowledge; no changes were made that did not make sense to me. Following each modification, the CFA model and model fit statistics were recalculated. Model fit was determined adequate if one or more fit statistics were in acceptable range. To aid model interpretation, variance of all latent variables was constrained to 1. Parameter estimates were standardized in all models to accommodate for differing response scales and to ease interpretability of results.

Model outputs included parameter estimates, standard errors, and significance of items and latent PERMA variables in all five CFA models (i.e., Positive Emotion, Engagement, Relationships, Meaning, Accomplishment) and the full PERMA well-being CFA model (see Figure 3.6). Significance level was set at $\alpha = .05$ for all analyses. Factor loadings were compared, thus indicating the strongest and weakest predictors in all models. Model fit statistics were used to evaluate the structure of the PERMA model of well-being theory in the sample population of undergraduate college students. Results are reported in Chapter 4.
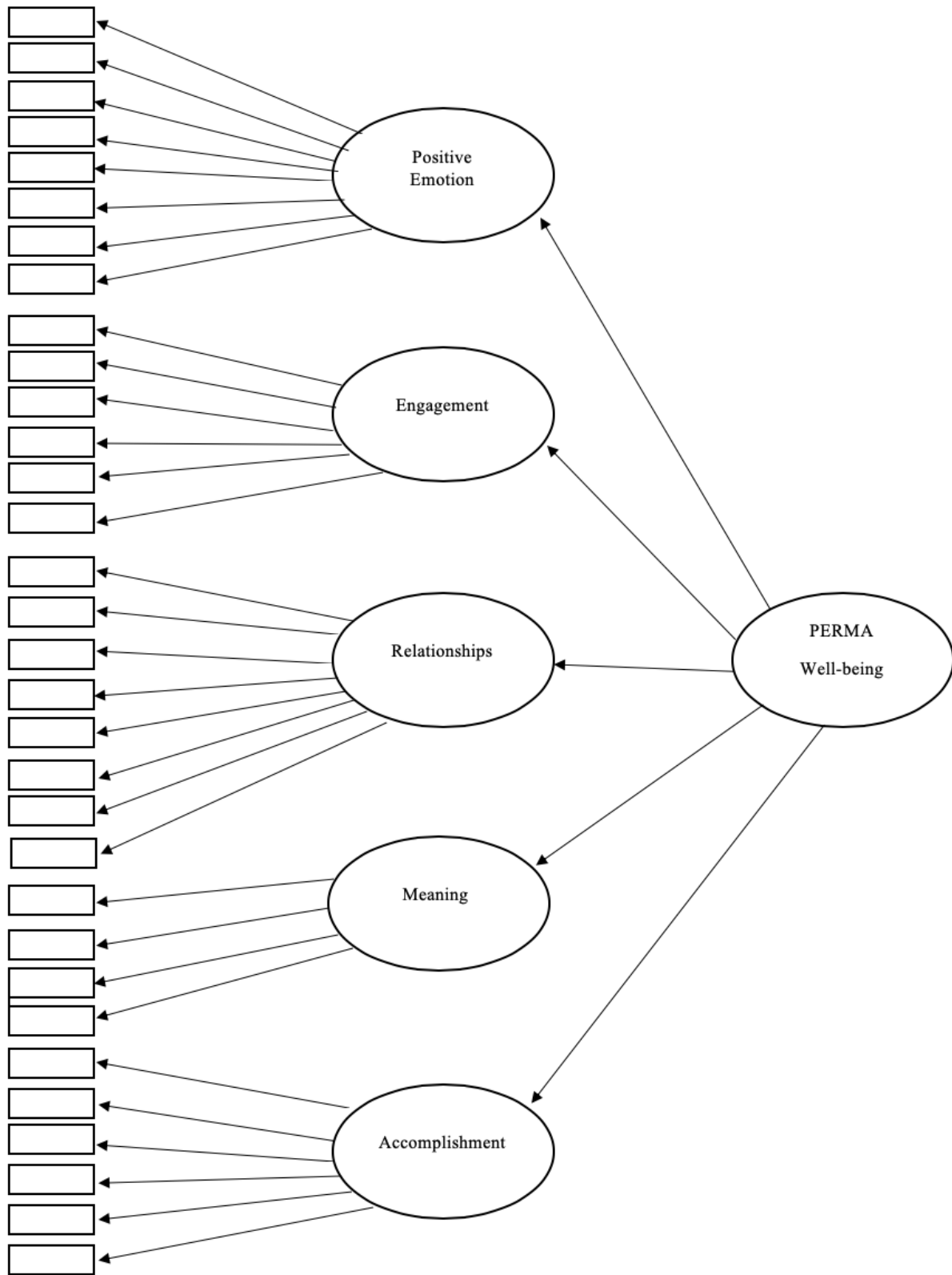
Figure 3.6 Overview of final SEM model.

CHAPTER 4: RESULTS

Results from the analyses are reported in this chapter. A summary of methods is listed to assist with understanding approach and statistical analysis. Figures and tables are present to display results in both graphic and textual formats.

Total sample size for the 2018 Purdue SERU was $N = 5008$. However, per the study design, participants were randomized into five groups, with only one group completing all survey items. This randomization was done in an attempt to increase participation in the study. Sample size varied from 1,790–4,484 on individual items used in this study. The amount of missing data was calculated for each of the 32 study items and ranged between 0.3%–13.2%. Due to the 2018 Purdue SERU research design, initial data screening and analysis was compared between Group 5 (i.e., the group that completed the entire survey) and all groups. Results were generally similar; thus, the decision was made to use the entire sample ($N = 5,008$) for final analyses.

Data screening was performed to assess assumptions of normality, outliers, and multicollinearity of variables prior to analysis. Summary statistics and bivariate correlations for all items used in the models are shown in Tables A.15–A.19 in Appendix A and are grouped by latent variable (i.e., Positive Emotion, Engagement, Relationships, Meaning, Accomplishment). Graphical visualization, skewness, and kurtosis values were used to assess for normality. Skewness and kurtosis results were in suggested values of skewness between -3 and +3 and kurtosis between -10 to +10 (Kline, 2011), with the exception of family (kurtosis = 12.85), spirit (skew = 3.12 and kurtosis = 18.08), and community service (kurtosis = 14.17). According to Tabachnick and Fidell (2013), deviations of normality in terms of skew and kurtosis do not make significant differences in analysis with samples greater than $N = 200$. Data were examined

visually for outliers; none were observed. Pairwise correlations were calculated for items used in all five latent variables (i.e., Positive Emotion, Engagement, Relationships, Meaning, Accomplishment) to look for multicollinearity. Of the 32 items, seven correlations were greater than or equal to .70.

Confirmatory factor analysis was performed to test the structural model of well-being theory (Seligman, 2011) for each latent variable. StataSE 16 was used for all data analysis. The following steps were conducted for each CFA model (i.e., Positive Emotion, Engagement, Relationships, Meaning, Accomplishment) and PERMA. Variance of latent variables was constrained to 1. Parameter estimates were standardized to account for differing response scales and to ease interpretability.

The following list provides an overview of how missing data, model fit, and modifications were performed in the CFA models.

1. FIML was used to estimate model parameters.

2. Goodness of fit statistics (chi-square test, CFI, TLI, and RMSEA) were used to evaluated model fit.

3. Model fit was determined adequate if one or more fit statistics were in acceptable range for good fit.

4. If adequate model fit was not achieved with the initial model, modifications were conducted. Model improvements were identified via StataSE 16 based on the model chi-squared statistic and were performed in a step wise fashion, only making one change at a time. All changes to models were guided by theoretical knowledge, no changes were made that did not make sense to the researcher based upon review of the existing literature.

Positive Emotion

Initial fit statistics showed poor fit with χ^2 (20, $N = 4{,}499$) = 3567.77, $p < .001$ with RMSEA = 0.20, CFI = 0.72, TLI = 0.61. The first modification allowed "belong" and "reenroll" errors to covary. Model fit improved slightly with this addition with χ^2 (19, $N = 4{,}499$) = 2176.79, $p < .001$ with RMSEA = 0.16, CFI = 0.83, TLI = 0.75. A second modification was performed, adding covariance of error terms between "class climate" and "major climate." Fit statistics in this third model demonstrated improving model fit with χ^2 (18, $N = 4{,}646$) = 1349.32, $p < .001$ with RMSEA = 0.13, CFI = 0.90, TLI = 0.84. A third modification was performed to add covariance of error terms between "value" and "belong." Once again, this modification improved model fit slightly with χ^2 (17, $N = 4{,}646$) = 880.00, $p < .001$ with RMSEA = 0.11, CFI = 0.93, TLI = 0.89. A fourth modification to the model added covariance between the error variances for "value" and "reenroll." This modification improved model fit slightly with χ^2 (16, $N = 4{,}646$) = 478.73, $p < .001$ with RMSEA = 0.08, CFI = 0.96, TLI = 0.94. A final modification to the model added covariance between "welcome" and "safe/secure" error terms. This modification resulted in acceptable fit statistics for the model with χ^2 (15, $N = 4{,}646$) = 290.36, $p < .001$ with RMSEA = 0.06, CFI = 0.98, TLI = 0.96. Throughout all modifications, all eight factor loadings were significant at $p < .001$. Factor loadings in the final model ranged from 0.42–0.89. "Campus climate" had the highest factor loading of these eight items, while "reenroll" had the lowest factor loading (see Figure 4.1 for the final model; see Table A.8 in Appendix A for standardized estimates, *SE*, and *p* values of all factors).
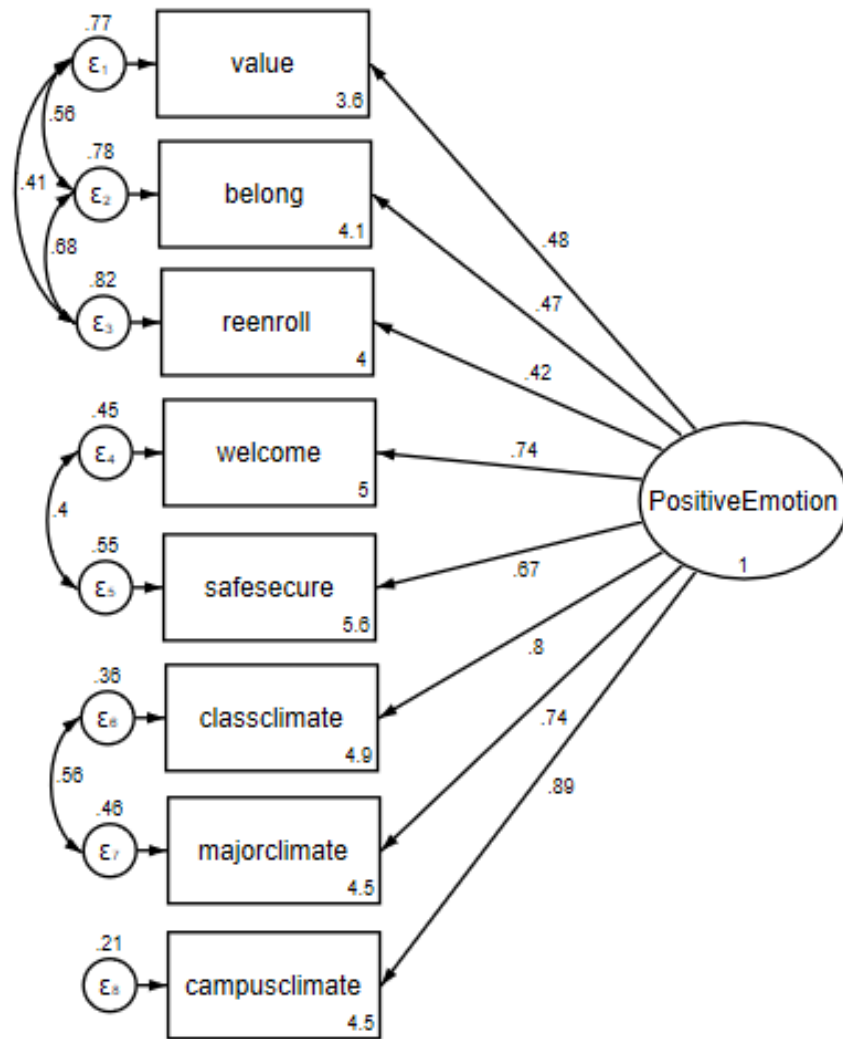
Figure 4.1 Positive Emotion model.

Engagement

Initial fit statistics showed poor fit with χ^2 (9, $N = 1,961$) $= 593.94$, $p < .001$ with RMSEA $= 0.18$, CFI $= 0.82$, TLI $= 0.70$. The first modification allowed the "more work" and "activity" errors to covary. Model fit improved slightly with this modification with χ^2 (8, $N = 1,961$) $= 226.47$, $p < .001$ with RMSEA $= 0.12$, CFI $= 0.93$, TLI $= 0.87$. The second modification allowed "activity" and "communicate" errors to covary. Model fit improved slightly with this change

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with χ^2 (7, $N = 1{,}961$) = 159.99, $p < .001$ with RMSEA = 0.11, CFI = 0.95, TLI = 0.90. The final

modification allowed "activity" and "communicate" errors to covary. Final fit statistics for the

model were acceptable with χ^2 (6, $N = 1{,}961$) = 64.31, $p < .001$ with RMSEA = 0.07, CFI = 0.98,

TLI = 0.96. Throughout all modifications, all six factor loadings remained significant at $p < .001$.

Factor loadings in the final model ranged from 0.18–0.86. "Study group" had the highest factor

loading of these 6 items, while "activity" had the lowest factor loading (see Figure 4.2 for the

final model; see Table A.9 in Appendix A for standardized estimates, standard error, and p

values of all factors).
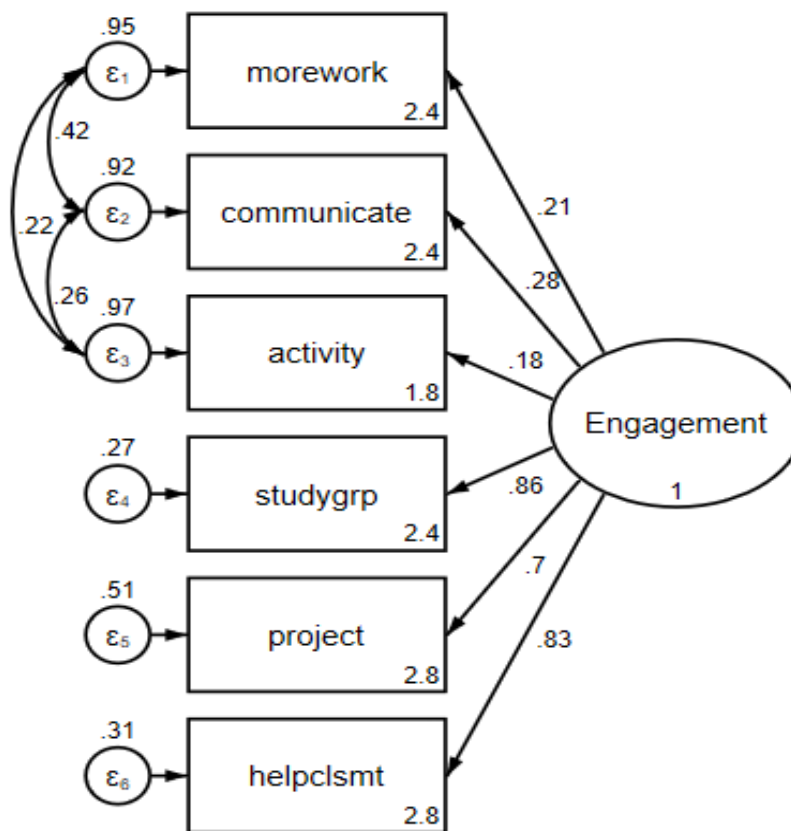
Figure 4.2 Engagement model.

Relationships

The CFA for Relationships was performed using eight items. Initial fit statistics showed marginal fit with χ^2 (20, N = 4,646) = 813.30, $p < .001$ with RMSEA = 0.09, CFI = 0.92, TLI = 0.89. Suggested modifications from StataSE 16 were performed, allowing covariance of error terms between "letter" and "name." This modification improved fit with χ^2 (19, N = 4,646) = 425.37, $p < .001$ with RMSEA = 0.07, CFI = 0.96, TLI = 0.94. A final modification was performed, adding covariance of error terms between "school advice" and "faculty advice." Fit statistics in this final model demonstrate good model fit with χ^2 (18, N = 4,646) = 174.61, $p < .001$ with RMSEA = 0.04, CFI = 0.99, TLI = 0.98. "Friends" was not significant in any of the models (p = .10), but all other seven factor loadings were significant at $p < .001$. In the final model, factor loadings ranged from 0.04–0.90. "Faculty advice" had the highest factor loading of these 8 items and "friends" had the lowest. Despite low factor loadings of "friends" (0.04) and "family" (0.07), these items were retained as I believed they are important to Relationships in undergraduate college students (see Figure 4.3 for the final model; see Table A.10 in Appendix A for standardized estimates, standard errors, and p values of all factors).
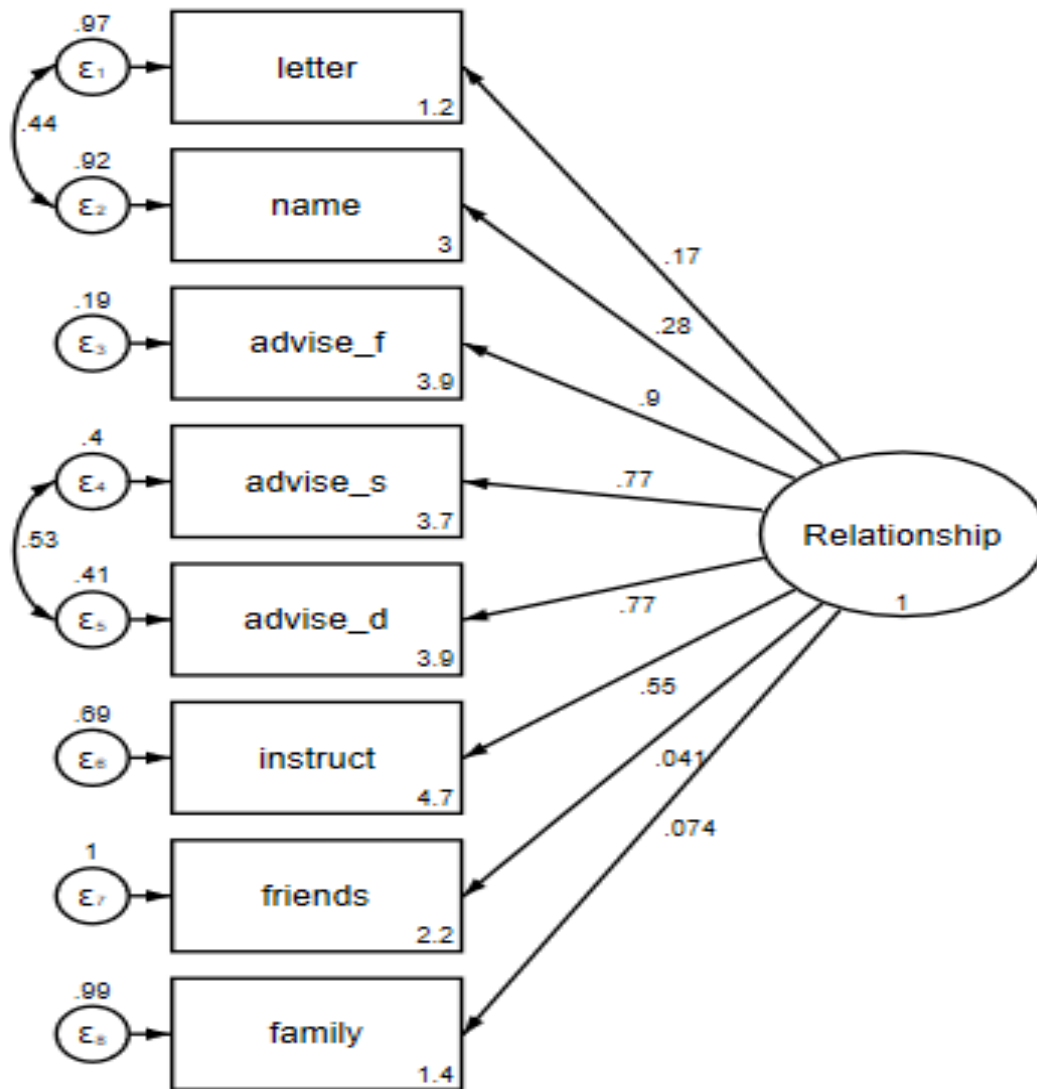
Figure 4.3 Relationships model.

Meaning

Results of the CFA for Meaning indicated all four factor loadings were significant at $p <$ .001. Per fit statistics, χ^2, RMSEA, CFI, and TLI show good fit to the data. Factor loadings ranged from 0.46–0.75. "Community service" had the highest factor loading of these 4 items and "spirit" had the lowest. No modifications were performed to the model based on χ^2 (2, N = 1,900) = 0.62, $p < .001$ with RMSEA = 0.00, CFI = 1.00, TLI = 1.00 (see Figure 4.4 for the

model; see Table A.11 in Appendix A for standardized estimates, standard errors, and p values of all factors).
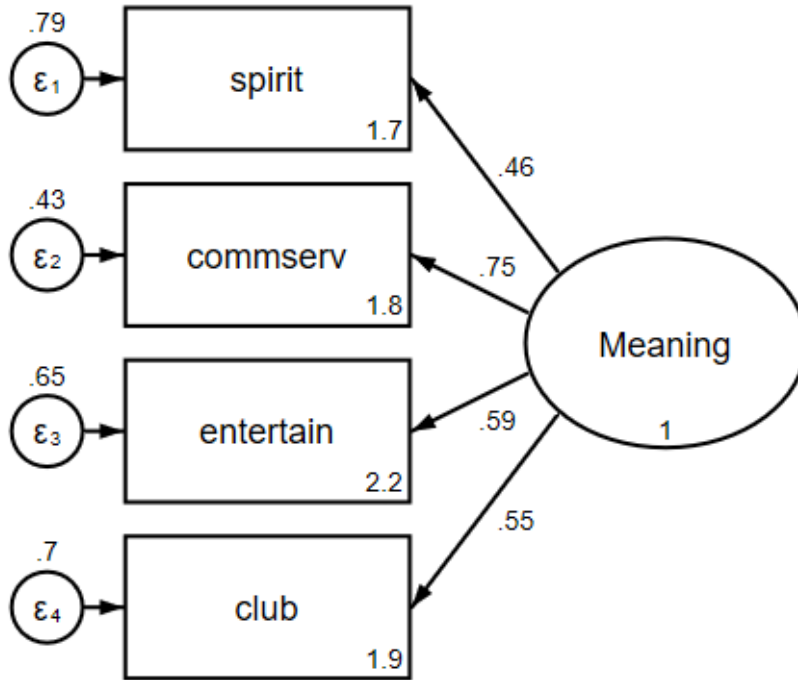
Figure 4.4 Meaning model.

Accomplishment

The CFA for Accomplishment was performed with six items. Initial fit statistics showed marginal fit with χ^2 (9, $N = 4{,}577$) $= 314.47$, $p < .001$ with RMSEA $= 0.09$, CFI $= 0.84$, TLI $= 0.74$. Suggested modifications from StataSE 16 were performed, allowing covariance of error terms between "letter" and "name." This addition improved model fit with χ^2 (8, $N = 4{,}577$) $= 128.81$, $p < .001$ with RMSEA $= 0.06$, CFI $= 0.94$, TLI $= 0.88$. A final modification was made by adding covariance of error terms between "class" and "study." Results of the final Accomplishment CFA demonstrated good model fit per RMSEA, CFI, and TLI with χ^2 (7, $N = 4{,}577$) $= 19.68$, $p < .001$ with RMSEA $= 0.02$, CFI $= 0.99$, TLI $= 0.99$. No further modifications were made to the model. All six factor loadings were significant at $p < .001$ in all models. Factor

loadings ranged from 0.26–0.55. "Hard class" had the highest factor loading and "class" had the

lowest factor loading of these six items (see Figure 4.5 for the model; see Table A.12 in

Appendix A for standardized estimates, standard errors, and *p* values of all factors).
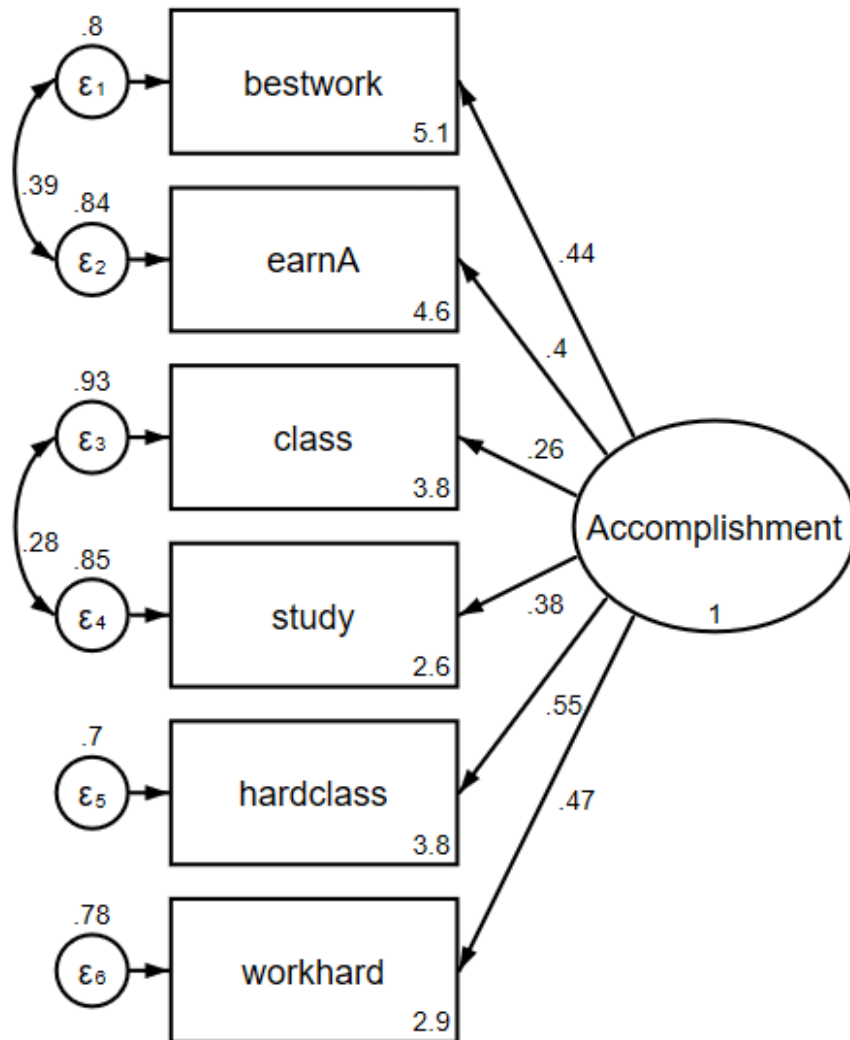
Figure 4.5 Accomplishment model.

Full PERMA Model

The full PERMA model was built as a second order CFA using the previously created latent variables (see Figure 4.6). Results of the full PERMA model indicated that all five latent variables were significant at $p < .001$. Initial model fit was χ^2 (459, $N = 4{,}672$) = 8821.027, $p < .001$ with RMSEA = 0.06, CFI = 0.75, TLI = 0.78. To improve model fit, covariances of error terms were allowed between: "best work" and "earn A," "class" and "study," "letter" and
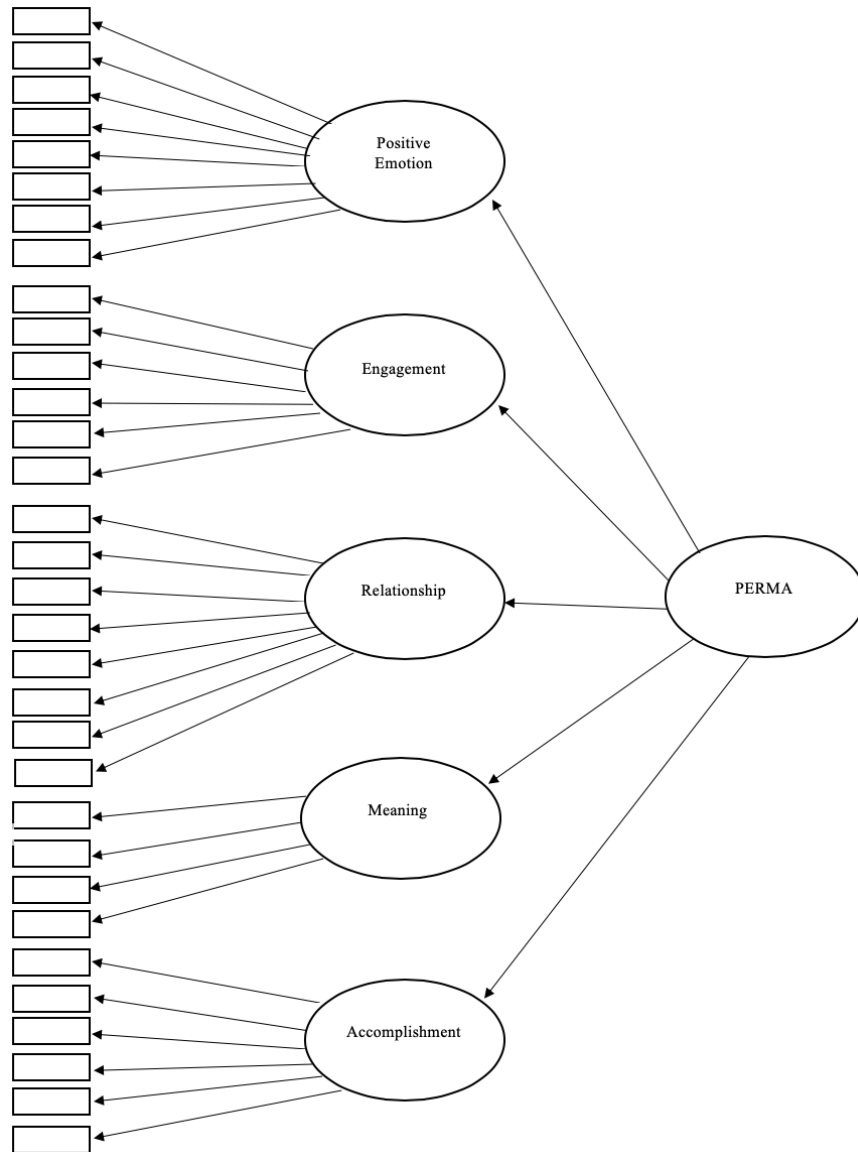
Figure 4.6 Final PERMA model.
Note. Covariances of the error terms are not shown in the figure.

"name," "school advise" and "faculty advise," "more work" and "activity," "class climate" and "major climate," "major climate" and "campus climate," "class climate" and "campus climate," "value" and "belong," and "value" and "re-enroll." As per previous models, modifications were made one at a time. Variance of Positive Emotion error was constrained to .3297871, which was the average calculated error of items in the Positive Emotion CFA model to allow model convergence. Accomplishment had the highest factor loading (0.76) of these five latent variables. Meaning had the lowest factor loading (0.25), indicating weak influence on well-being in this model. In the full PERMA model, all 32 items were significant. Final fit statistics were χ^2 (448, $N = 4,672$) = 4355.61 $p < .001$ with RMSEA = 0.04, CFI = 0.88, TLI = 0.87. Per the final model fit statistics, RMSEA demonstrated good fit. CFI and TLI trended toward model fit (see Tables A.13 and A.14 in Appendix A for standardized estimates, standard errors, and p values). Table 4.1 contains fit statistics for all models.

Table 4.1 PERMA model fit statistics

Model	N	χ^2	df	RMSEA	CFI	TLI
Positive Emotion	4499	290.36	15	0.06	0.99	0.96
Engagement	1961	64.31	6	0.07	0.98	0.96
Relationships	4646	174.61	18	0.04	0.99	0.98
Meaning	1900	0.62	2	0.00	1.00	1.00
Accomplishment	1900	19.68	7	0.02	0.99	0.99
PERMA	4672	4355.61	448	0.04	0.88	0.87

CHAPTER 5: DISCUSSION

The purpose of this study was to examine if the PERMA model of well-being (Seligman, 2011) could be measured in the context of an undergraduate college sample and thus support the use of well-being theory with college students. To guide this study, two aims were identified. This exploratory study: (a) examined whether the PERMA constructs of well-being could be constructed using items from the 2018 Purdue SERU survey and (b) if a second-order well-being construct could be measured using all five PERMA variables, thus supporting application of the theory in the context of undergraduate college students at a large research intensive university. Results supported the study aims and hypotheses: All five PERMA constructs of well-being were supported using items from the 2018 Purdue SERU and a second order well-being construct could be built using all five PERMA constructs from the 2018 Purdue SERU data.

This study involved analysis of secondary data from the 2018 Purdue SERU survey, which were distributed by the Office of Institutional Research, Assessment, and Effectiveness. This survey was completed by 5,008 undergraduate students in Spring 2018 for the purpose of understanding student experiences at Purdue University. Participation in the SERU was voluntary; all registered undergraduate students at the time were invited to participate. Random drawings for Amazon gift cards were offered to encourage survey participation.

Confirmatory factor analysis was used to validate the multidimensional structure of well-being theory. Using 32 items from the 2018 Purdue SERU survey, five latent variables were constructed in accordance with the PERMA model of well-being. To address the first study aim, I used content knowledge to build five latent variables representing Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment. Per CFA testing of these five latent variables, 31 out of 32 items were statistically significant ($p < .001$). The only nonsignificant

item was "friends," an indicator for the latent variable Relationships. All five PERMA models demonstrated acceptable fit per one or more model fit statistics.

To address Aim 2, a second order PERMA well-being model was assembled using the five PERMA variables constructed in Aim 1. In the full PERMA well-being model, all five PERMA constructs were significant. Accomplishment had the highest factor loading and Meaning had the lowest factor loading of these five constructs. In the full PERMA well-being model, all 32 items were statistically significant and demonstrated acceptable model fit. The results provide support for the PERMA model of well-being and further support the measurement of well-being as a multidimensional construct.

Positive Emotion

In the PERMA model of well-being, Positive Emotion is defined as subjective reports of happiness, life satisfaction, and similar emotions that may include joy, hope, and optimism (Seligman, 2011). Using this theoretical definition and information from the literature review, Positive Emotion was constructed as a latent variable from eight items in the 2018 Purdue SERU survey. These eight items measured feelings of "value," "belonging," "desire to reenroll," "welcome," "safety/security," "class climate," "major climate," and "campus climate." Model fit statistics demonstrated good fit and all eight items in the Positive Emotion model were statistically significant. Correlations between these eight items and Positive Emotion were moderate to strong (0.42 to 0.89). The strongest association was noted between Positive Emotion and campus climate, while the weakest association was noted with desire to reenroll. Moderate-strong correlations were noted between all items, indicating a relationship or overlap between them. These results aligned with those by Chang et al. (2019), who found positive affect was

positively correlated with hope and life satisfaction. Positive emotion is often associated with each other; thus, increasing any positive emotion is likely to produce positive benefits.

From the eight items, insight is gained into the Positive Emotion of college students. The three strongest predictors of well-being in this model related to diversity and inclusion in campus, class, and major environments. Thus, climate for diversity and inclusiveness was strongly related to Positive Emotion in the sample. Feeling safe, secure, and welcome on campus were moderate contributors to positive emotion. These items reflect basic psychosocial needs, which are fundamental to all humans. Feelings of individual value, belonging, and choice to reenroll at Purdue University contributed least to Positive Emotion in the model. These findings can be understood per Maslow's (1943) hierarchy of needs, where physiological needs are fundamental to other needs of safety, love, esteem, and self-actualization.

Basic feelings of acceptance, security, and welcoming must be present first before one would feel value and belonging at a particular university. When students feel accepted, safe, secure, and valued, they are likely to have a sense of belonging and would choose to reenroll at the same university. All these concepts contribute to Positive Emotion of college students, which adds to well-being. Ultimately, all this Positive Emotion boosts student satisfaction, which may be useful to attract and retain quality students. Positive Emotion is beneficial to students throughout college, with academic benefits including increased GPA (Barker et al., 2016), retention (Gallagher et al., 2017, and graduation in 4 years (Gallagher et al., 2017). Positive Emotion may also contribute to physical health as healthier dietary habits were noted among happier students (Lesani et al., 2016). Well-being assessments should examine items that look at Positive Emotion, particularly fundamental feelings of comfort with climate for diversity and inclusiveness, safety, and security in college students. When students are satisfied with climate

for diversity and inclusion, they may be more likely to feel accepted, safe, welcome, valued, and belonging.

Engagement

Engagement is defined as commitment to a task or activity during which thoughts and feelings may be absent. Engagement can also represent a state of being known as flow (Seligman, 2011). Using this theoretical definition and the literature review, Engagement was constructed as a latent variable from six items in the 2018 Purdue SERU survey. These six items measured "doing additional work," "communication with faculty," "activity engagement," "study group participation," "class project participation," and "helping classmates." Although these items do not align purely to Seligman's theoretical definition of Engagement, they were selected as types of Engagement for the study population as discussed in relevant literature. Results of the Engagement CFA demonstrated good model fit as demonstrated by fit statistics. All six items in the final Engagement CFA model were statistically significant and correlations in this model between items and Engagement varied from weak to strong. The strongest association was noted between Engagement and study group participation, while the weakest association was noted with activity Engagement.

The six items used to build the latent variable Engagement demonstrate dimensions of Engagement with coursework, faculty, and other students. In the current study, the strongest correlation was noted between Engagement and study group participation. Helping a fellow classmate and class project participation also demonstrated statistically significant correlations with Engagement. These three items (i.e., study group participation, helping a fellow classmate, and class project participation) reflect course engagement with fellow students. In the literature, mentoring by upperclassmen, participation in collaborative learning activities, and interactions

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with peers outside of class increased self-confidence, contributed to academic adjustment, provided emotional support, and increased psychosocial wellness (Awang et al., 2014; Berger & Milem, 2002).

The other three items in the model (i.e., more work, communicate, and activity) were significant, and reflect engagement with faculty outside of courses through additional work, discussion of class concepts, and participation in extracurricular activities. These results are confirmed by the literature, which identify a positive relationship between Engagement and faculty interactions (Kim & Lundberg, 2016). Extracurricular engagement with instructors may encourage participation in extracurricular activities and foster a sense of community (Glass et al., 2017).

The literature on Engagement in college students revealed associations between engagement, sense of belonging (Kim & Lundberg, 2016; Wilson et al., 2015), self-efficacy (Wilson et al., 2015), and emotional intelligence (Maguire et al., 2017). Benefits of student engagement include cognitive skill development (Kim & Lundberg, 2016). Missing from the literature are implications for well-being. Future studies should examine Engagement opportunities on university campuses to determine which types are most beneficial to well-being. Although personal preferences may vary, Engagement should be encouraged and supported in college students as a dimension of well-being.

<center>**Relationships**</center>

In the PERMA model of well-being, Relationships is defined as close connections to others (e.g., family, friends, colleagues, neighbors). Such relationships contribute to well-being in multiple ways as positive events usually occur in the presence of others (Seligman, 2011). Based on this definition and review of the literature, eight items from the 2018 Purdue SERU

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survey were selected for the Relationships CFA. These eight items were "letter," "name," faculty advice," "staff advice," "department advice," "instruction," "friends," and "family." These items assessed relationships with faculty, department staff, friends, and family. Results of the Relationships CFA demonstrated good model fit. Friends was not significant in the model, but all other seven factor loadings were statistically significant. Correlations in this model between items and Relationships varied from very weak to strong. The strongest association was noted between Relationships and faculty advice, while the weakest association was noted with friends.

Despite the low factor loadings of friends (0.04) and family (0.07), these items were retained as I believed they were important to Relationships in undergraduate college students. Yuan et al. (2016) found family support was associated with increased self-efficacy and improved academic performance. Similarly, kin relationships provided support and increased academic persistence of African American college students (Brooks & Allen, 2016). Peers may predict college adaptation (Turkpour & Mehdinezhad, 2016) and reduce somatic complaints in victims of racial and ethnic discrimination (Juang et al., 2016). Several explanations are possible for the low factor loadings of friends and family.

First, friends and family were measured as time-use items in the original survey, whereas the other six items indicated level of satisfaction. This means friends and family were measuring quantity (i.e., time spent) in an average week, rather than quality of these relationships. It is possible to have high-quality relationships with friends or family, but not spend much time with them in an average week of the academic semester. Time with friends or family while at college may be limited due to school or work responsibilities, housing situations, and geographic barriers. Another consideration is relationships with family and friends may be less important than relationships with instructors and university staff in the context of undergraduate students

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during the academic semester. Finally, it is important to remember these items were not administered to assess well-being of undergraduate students or the quality of their relationships with family and friends. Diener and Seligman (2002) found very happy college undergraduates had stronger social and romantic relationships, so it may be beneficial to include Relationships in models of student well-being. The items included in this study show relationships with university staff and faculty contribute to college student well-being. From a theoretical standpoint, many undergraduate students live on campus and interact with university faculty and staff on a regular basis throughout the academic year. Gender differences should be considered as Sax et al. (2005) found female students reported more frequent positive interactions with faculty than male students. In the context of college students, well-being assessments should include items that reflect relationships with university staff and faculty.

Meaning

In the PERMA model of well-being, Meaning is defined as belief and membership in something larger than oneself. Meaning may be obtained through religion, spirituality, or advocacy (Seligman, 2011). Based on this definition and review of the literature, four items from the 2018 Purdue SERU survey were selected for the Meaning CFA: "spirituality," "entertainment," "community service," and "club participation." Results of the Meaning CFA demonstrated good model fit, and the factor loadings of all four items were statistically significant. Correlations in this model between items and Meaning varied from moderate to strong. The strongest association was noted between Meaning and community service, while the weakest association was time spent in spiritual practice.

College students desire meaningful academic majors and future careers (Allan et al., 2017). Shin et al. (2016) found meaning in life increased in first semester college freshmen,

which suggests meaning in life changes at the onset of college experiences. In the literature, positive associations were noted between Meaning and intrinsic motivation, subjective well-being, and GPA (Bailey & Phillips, 2016). Meaning was found to be beneficial for students who have experienced trauma, predicting posttraumatic growth (Grad & Zeligman, 2017). Religion/spirituality was found to be associated with meaning in life (Abu-Hilal et al., 2017) and coping (Krok, 2015). In the present study, spirituality was the weakest predictor of Meaning. Spirituality was measured as a time-use item, indicating time spent in religious or spiritual practice during a typical week. Although spiritual time demonstrated the weakest correlation with Meaning, it still contributes significantly to well-being of college students. Some students may not identify as religious or spiritual, thus spiritual time may not be an applicable predictor of well-being in all students. Coping, which was found to correlate positively with religion/spirituality, may represent a useful life skill in college and beyond (Krok, 2015). Results indicated the strongest association was between Meaning and community service. These results are supported by the literature with community service participation associated with increased Meaning and psychosocial wellness among college student participants (Berger & Milem, 2002; Rockenbach et al., 2014). On a theoretical level, these results are supported by Seligman's (2011) definition that Meaning can be obtained by group advocacy or membership; participation in community service or volunteer activities should increase Meaning by helping others and civic engagement.

Results from these four items indicate college students derived most Meaning from participation in volunteer or community service. Attending cultural events, movies, concerts, sports, or other entertainment activities was the second most influential predictor of Meaning. Participation in student organizations or clubs also contributed to Meaning, and lastly

religion/spiritual practice contributed the least to Meaning in this sample. All four items in this model were time-use questions and indicated average time spent for these activities in a typical week. Results from this study suggested Meaning may be increased in college students by helping others, entertainment events, group membership, and religion/spiritual practice. Universities and colleges offer many organizations, events, and opportunities that may contribute to a sense of meaning and purpose in students. These opportunities should be identified to incoming students and highlighted regularly for current students, so that meaning can be fostered and contribute to well-being of college students.

Accomplishment

In the PERMA model of well-being, Accomplishment is defined as pursuits that occur throughout the lifespan for the sole reason of "winning" and usually require hard work and dedication (Seligman, 2011). Based on the theoretical definition and literature review, six items from the 2018 Purdue SERU survey were selected for the Accomplishment CFA. These items were "best work," "earn A," "class," "study," "hard class," and "work hard." Fit statistics in the Accomplishment CFA demonstrated good model fit as factor loadings of all six items were statistically significant. Correlations in this model between items and Accomplishment varied from low to moderate, with the strongest association noted between Accomplishment and choosing to enroll in hard classes, and the weakest association was time spent in class.

In this study, items best work, earn A, class, study, hard class, and work hard were chosen to represent Accomplishment. The items best work and earn A reflect being challenged in major classes, and best efforts are needed to earn As. Class and study indicate time spent in class or studying in a typical week. Hard class demonstrated the deliberate act of choosing challenging courses, and work hard indicated increased academic efforts to meet the high standards of a

faculty member. These six items highlight the fact Accomplishment requires choices and intentional behaviors to achieve something; they do not occur without conscious thought and actions. These sentiments are noted in Seligman's (2011) definition of Accomplishment.

Moving forward, academic faculty and advisors should encourage students to enroll in challenging courses to promote Accomplishment. Challenging courses will require best efforts, but these efforts will likely prove beneficial to some students by increasing academic success and increasing well-being. Time in class, although significant to Accomplishment, was the weakest predictor of Accomplishment. Thus, time in class seems less important than choice of class and efforts in coursework.

Facilitators of Accomplishment were identified as teachers (Bitew, 2016), writing across the curriculum (Huskin, 2016), study abroad programs (Campbell, 2016), honors programs (Johnson, 2015), and motivational instruction (Liu et al., 2015). Some overlap is suggested as faculty interactions were positively related to student engagement (Kim & Lundberg, 2016) and were also a strong predictor of Relationships in this study. Satisfaction with faculty advising was contained in the item faculty advice. Engagement with faculty was present in the Engagement construct, reflected in the items more work, communicate, and activity which indicate engagement outside of courses through additional work, discussion of class concepts, and participation in extracurricular activities.

Intrapersonal strategies such as perseverance of effort (Wolters & Hussain, 2015) and mindfulness (Leland, 2015) were shown to increase positive academic outcomes. Bowman (2010) noted high achievements and academic aspirations were associated with increased psychological well-being of college freshman starting college.

Results from this study, which highlight choices and behaviors necessary to succeed, combined with identified barriers and facilitators from the literature, created a detailed picture of Accomplishment in college students. In the context of college students, well-being assessments should include items that reflect Accomplishment and the efforts necessary to achieve them.

PERMA Well-Being

In the PERMA model of well-being, well-being is composed of five constructs: (a) Positive Emotion, (b) Engagement, (c) Relationships, (d) Meaning, and (e) Accomplishment. This second-order PERMA well-being CFA was constructed using 32 items from the 2018 Purdue SERU survey and five PERMA constructs. In the final well-being model, all five PERMA constructs were statistically significant. Factor loadings for the PERMA constructs ranged from 0.25–0.76, indicating weak to strong correlations with well-being. Accomplishment had the strongest association with well-being and Meaning had the lowest association of these five constructs. All 32 items used to construct the latent variables were statistically significant and acceptable fit was demonstrated (RMSEA = 0.04).

The present study confirmed and extended previous results from Coffey et al. (2016) by demonstrating support for the multidimensional structure of the PERMA well-being model. In a small sample of undergraduate students ($n = 149$), four out of five PERMA constructs were supported across 3 years. Meaning was not able to be constructed using available survey items (Coffey et al., 2016). The current study validated all five PERMA constructs in a larger sample of undergraduate college students ($N = 5,008$) using cross-sectional data collection. Cronbach's alpha values were similar for the PERMA constructs, ranging from 0.64–0.90 in the present study, compared to 0.52–0.79 in the study by Coffey et al. Factor loadings of the PERMA constructs were also similar, ranging from 0.49–0.76 in the present study to values of 0.40–0.96

obtained by Coffey et al. Coffey et al. found Accomplishment as the highest factor loading and Relationships as the weakest factor loading. In my study, Accomplishment was also the highest factor loading (0.76) and Meaning was the lowest factor loading (0.49).

Coffey et al. (2016) also tested the PERMA model of well-being using an adult community sample ($n = 831$), which produced similar results. Cronbach's alpha for the PERMA constructs ranged from 0.69–0.95 in this adult sample, which was similar to values in my study (0.64–0.90). In my study, all five PERMA constructs were statistically significant in the second order well-being model. Achievement demonstrated the highest factor loading (0.84), and Relationships had the lowest factor loading (0.61; Coffey et al., 2016). In my study, Accomplishment also demonstrated the highest factor loading (0.76), followed by Positive Emotion (0.73), Relationships (0.54), Engagement (0.49), and Meaning (0.25).

Comparison of study findings support reproducibility of the PERMA model in different samples (i.e., college and general adult). From these results, Accomplishment was most strongly related to well-being in adult populations and college student populations (Coffey et al., 2016), and was also demonstrated in my study of undergraduate students. However, my study found Meaning to be the weakest predictor of well-being, whereas Coffey et al. (2016) found Relationships to be the weakest predictor of college student well-being and adult well-being. Findings by Coffey et al. support PERMA constructs as dimensions of well-being in adult samples, but suggest they contribute to well-being differently across age groups. Further research is needed to test the full PERMA model across diverse populations.

Findings of my study support well-being as a multidimensional concept, which may be constructed from Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment in undergraduate college students. Well-being theory asserts well-being is composed of

cognitive, affective, and eudemonic components, which are present in the PERMA constructs (Seligman, 2011). From these theoretical components of optimal well-being, flourishing is a combination of life satisfaction (i.e., cognition), positive emotions (i.e., affect), and a sense of meaning/purpose (i.e., eudaimonia).

Optimal well-being combines thoughts, feelings, and behaviors in multiple dimensions of daily life. Many of the items used in this study address individual student responsibility. Students make conscious decisions to engage in particular behaviors (e.g., joining a study group, participating in a student organization). Some of the survey items (e.g., *campus climate for diversity and inclusion*) suggest a combined product of individual student behaviors and university policy and programming. Items such as campus climate, major climate, and class climate are influential to student well-being and indicate joint responsibility of students and university officials; policy and programming support is needed to create positive culture. Items that reflect feelings are products of subjective experiences and choices. Although one cannot exert control over all life experiences, we can choose how we react and view these experiences. Positive reframing may allow us to learn and grow from negative experiences (Lambert et al., 2012). From this view, we see student well-being is a product of individual and collective college experiences. Students have free will to make individual choices, but educators and administrators can guide and support college experiences to increase well-being. Finally, my study provides a rich multidimensional view of well-being through the use of items from a student experience survey; such insight would not be possible by asking students to rate their present well-being level.

Implications

The current study has several important findings with potential to measure, support, and increase the well-being of undergraduate students, a population that may experience low levels of well-being and high levels of mental health concerns. The findings support the use of well-being theory to measure dimensions of well-being in the context of undergraduate students at a large research-intensive university in Midwestern United States. Results from this study may be used to inform programming to support well-being for undergraduate students by focusing on Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment. The PERMA model of well-being provides a framework for university faculty and staff to assess and improve the well-being of students they serve.

Policy

University administration may consider infusing elements of well-being theory into campus initiatives to foster community well-being. There are several ways this can be done. New student orientation should include well-being information in context of campus health and counseling services. Well-being activities should be included in annual mental health awareness events, which tend to focus more on mental illness and less on positive mental health. Finally, general education or elective courses should be offered to educate students about personal well-being. Such well-being courses would provide science-based information, and better prepare college students to experience optimal well-being and positive outcomes (e.g., academic success, life skills).

Research

Future initiatives to assess and improve college student well-being may consider use of survey items that measure PERMA constructs or conduct assessments with the PERMA meter (Seligman, 2016) or PERMA profiler (Butler & Kern, 2016). See Tables A.20 and A.21 in Appendix A to view these surveys. Ideally, these surveys should be administered regularly across the college experience to capture changes from enrollment to graduation. Including well-being items in student information forms at the time of registration would provide baseline measurements. Future well-being assessments could be included annually with course registration or advising sessions. These results would reveal a multidimensional perspective of well-being across the college experience. Postgraduate and alumni surveys should also include well-being items, which would provide longitudinal insight by following graduates as they enter the workforce. Examination of results by demographic variables (i.e., race/ethnicity, gender, international/native, age, college/major) may provide further insight into facilitators and barriers to well-being, especially in diverse university populations.

Practice

Providers at university health and counseling centers may use well-being theory to assess and promote optimal well-being of their patients/clients. The PERMA model represents a practical measurement tool that is easy for providers and patients to understand and use. Well-being assessments may provide useful insight in addition to physical and psychological assessments. Such insight may contribute to a richer, multidimensional understanding of the patient/client as mind body connections often manifest as somatic physical symptoms. Holistic health care should include assessment of positive mental health, which may be beneficial to decrease physical and mental illnesses and promote optimal health. The PERMA model can be

used in patient/client education; students can be empowered to increase their personal well-being through use of the model.

Limitations

This study did have limitations, which should be identified. First, cross-sectional data were used for this study, which provided information only at the time of data collection. Caution should be advised in making causal interpretations from cross-sectional data as longitudinal data collection would allow for stronger conclusions about student well-being (Menard, 2002). Second, data collected in the study were self-reported and may be subject to response or social desirability bias. Bias may have been introduced into the study as participants were incentivized, which may have influenced their responses in a more positive fashion.

Third, the study used secondary data collected to understand student experiences at Purdue University, not for the purposes of this study. PERMA constructs were created using available survey items in accordance with Seligman's theoretical definitions of Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment. Some constructs (e.g., Engagement) did not align closely with theoretical definitions, but were guided by review of the literature. Future well-being assessments should be conducted for the purpose of understanding student well-being and include primary data collection. Use of standardized instruments in future studies may provide different results and potentially increase factor loadings in PERMA models.

Fourth, I chose to use the PERMA model of well-being; other theoretical frameworks could provide a good fit for the data. Also, other survey items may have been selected to construct the latent PERMA variables (i.e., Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment). Finally, the sample consisted of undergraduate students from one large public research university in Midwestern United States. Caution is advised in

generalizing results of this study to other populations. Results may reflect demographics specific to the sample population as Purdue University is a large, research university known for engineering and sciences. Replication of this study should be performed with diverse settings and populations.

<h2 style="text-align:center">Future Research</h2>

Despite the limitations identified, this study provided initial support for the PERMA model of well-being in context of undergraduate students at a large public research university. Although results are encouraging, there are several implications for future study. The current study used cross-sectional data and provided insight into undergraduate student experiences in Spring 2018. Well-being is a fluid everchanging construct, which may change on a daily or even momentary basis. Collection of longitudinal data would improve understanding of well-being in undergraduate students and changes that occur throughout the college experience. A stronger case could be made for causal relationships with a longitudinal research design.

A second recommendation for future work involves the use of latent class analysis with existing data. Latent class analysis would allow for classification and measurement of results, allowing for classification of well-being levels in the sample. Using the 2018 Purdue SERU data, it would be possible to assess actual levels of student well-being. Latent class analysis could determine how many undergraduate students display low, moderate, and high levels of well-being, along with levels of Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment. These classifications could identify group characteristics and inform strategies to support well-being. Latent class analysis would provide insight into individual and community well-being at Purdue University and would allow for comparisons to other samples.

A third recommendation for future studies is to examine outcomes of well-being. From the literature, there are positive outcomes of increased well-being. Looking at health behaviors and academic success outcomes would be relevant in the college student population. Examples of outcomes might include diet, exercise, sleep, GPA, and graduation. Research of this kind could inform programs to increase well-being of undergraduate students and potentially increase health and academic success.

A fourth recommendation for future work is the use of standardized scales developed from well-being theory. Well-being theory has two tools: the PERMA meter (Seligman, 2016) and the PERMA profiler (Butler & Kern, 2016). Comparisons could be made to this study, thus assessing reliability and validity of the present results. Similar results from this study and future studies would add additional support for well-being theory. Primary data collection with use of standardized well-being scales (i.e., PERMA meter or PERMA profiler) would allow for ease of data collection and interpretation of results.

A final recommendation for future work would be to conduct well-being research in diverse populations. Well-being is relevant to all age groups and cultures. Use of well-being theory should be examined to identify and understand differences across cultures and lifespans, advocate funding for interventions, and support well-being programs.

Conclusions

Well-being is a holistic, multidimensional construct that provides insight into the condition or state of being. Although definitions and measurements vary, well-being assessments provide valuable information about individuals and groups. This information is valuable to researchers, corporations, policymakers, and governments. Inclusion of well-being items in national and international surveys allows for comparison of results across time and geographic

location. Such results may be useful to inform programming, policy, or funding to support the well-being of individuals, communities, and nations.

Results of national surveys indicate a high prevalence of mental health concerns across university campuses in the United States; anxiety, stress, and depression are the most commonly reported concerns (LeViness et al., 2018). Mental illnesses are most prevalent among young adults; the diagnosis and treatment of several mental health conditions increased significantly between 2009–2015 among college students in the United States (NIMH, 2017; Oswalt et al., 2020). Findings from NIMH (2017) and LeViness et al. (2018) suggested well-being of college students is threatened and warrants further assessment.

Using well-being theory (Seligman, 2011), the PERMA model of well-being was tested in context of undergraduate students at a large public research university using secondary data. The research aims and hypotheses were supported as the five PERMA constructs and higher order well-being construct were created and demonstrated adequate model fit using CFA. Thirty-two items from the Purdue 2018 SERU survey provided insight into Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment of undergraduate students as they contribute to student well-being.

Results from the PERMA CFA models demonstrated significance of all items with the exception of friends. Family, although statistically significant, was a weak predictor in the Relationships model. These results may be influenced by measurement of the items as both friends and family were time expenditure items in the original survey. Future studies should use prospective data collection or standardized tools such as the PERMA meter (Seligman, 2016) or PERMA Profiler (Butler & Kern, 2016) to ease interpretation of results.

In the second-order well-being model, all five PERMA variables and 32 items were significant. Accomplishment demonstrated the strongest correlation to well-being while Meaning demonstrated the weakest correlation to well-being. These results mirrored previous studies that found Accomplishment to be the strongest predictor of well-being in adult samples and college student samples (Coffey et al., 2016). This finding is not surprising, given the sample was comprised of undergraduate students at a research-intensive university. Meaning—although found to be the weakest predictor of well-being in the model—should not be discounted. Meaning may be less important than other psychosocial concerns in this age group as they transition from adolescence to adulthood. Many choices are made as students contemplate who they are and who they wish to become. Meaning may be something that undergraduate students are still searching for or something to be obtained later when they develop a stronger sense of self. Further research is needed to understand these implications.

This study adds to well-being research by validating the full PERMA model of well-being in undergraduate students attending a large public research university. Previous studies have validated the PERMA model; however, none have validated the full PERMA model in a college student sample. This study fills that gap and extends understanding of predictors of well-being. Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment are supported as dimensions of well-being in the sample and demonstrate significant associations with well-being. As results from this study demonstrate adequate model fit for the data, the next step should be use of well-being theory to assess levels of well-being in undergraduate students. Understanding well-being levels in the sample would identify areas of weakness, which could then be targeted by university programs and interventions to increase. The PERMA framework is unique as Seligman proposed its use to measure and build well-being of individuals and

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communities. Findings from this study may be useful to promote and increase the well-being of

undergraduate students.

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APPENDIX A. ADDITIONAL TABLES

Table A.1 PERMA constructs of well-being (Seligman, 2011)

Well-Being Construct	Characteristics
Positive Emotion	Subjective reports of happiness, life satisfaction, and similar emotions that may include joy, hope, and optimism among others.
Engagement	Commitment to a task or activity. Thoughts and feelings may be absent during engagement but provide pleasure retrospectively. State of being known as flow.
Relationships	Close connections to others (family, friends, colleagues, neighbors). Such relationships contribute to well-being in multiple ways. Positive events usually occur with others present.
Meaning	Belief and membership in something larger than oneself. Meaning may be represented by religion, spirituality, or advocacy.
Accomplishment	Pursuits that occur throughout the lifespan (academic, athletic, career). Such pursuits occur for the sole reason of "winning" and usually require hard work and dedication.

Table A.2 Signature strengths of well-being (Seligman, 2005, 2011)

Strength	Definition
Curiosity/Interest in world	Open to experiences and active engagement in new experiences.
Love of Learning	Excitement in learning new things.
Judgement/Critical Thinking/ Open-mindedness	Approaching decisions with careful consideration and flexibility. Avoidance of generalizations.
Ingenuity/Originality/Common Sense	Use of creativity or new ways to do things.
Social/Personal/Emotional Intelligence	Knowledge of self and others regarding feelings, strengths, and intentions.
Perspective	Ability to draw on experience to solve problems for yourself and others.
Valor/Bravery	Facing fear, threats, challenges, or difficulties.
Perseverance/Diligence	Keeping promises and finishing tasks.
Integrity/Honesty	Your actions and words are authentic and sincere.
Generosity and Kindness	Acts that consider the wants, needs, and interests of others.
Loving others and allowing oneself to be loved	Having close intimate relationships.
Citizenship/Duty/Collaboration/Loyalty	Respect for authority and teamwork.
Equity and Fairness	Treating others equally and without prejudice.
Leadership	Being a humane effective leader of groups and tasks.
Self-control	Ability to keep desires and impulses under control.
Caution/Prudence/Discretion	Being careful and avoidance of rash decisions and actions.

Strength	Definition
Modesty and Humility	Avoiding excessive attention, allowing your accomplishments to speak for themselves. Not viewing oneself as extraordinary.
Appreciation of Beauty and Excellence	Appreciation, awe, or wonder in all life domains.
Gratitude	Appreciation of good things in life and expressing thanks.
Hope/Optimism/Future-mindedness	Positive feelings and plans toward future events.
Spirituality/Purpose/Faith/Religiosity	Belief in a higher purpose and meaning of the universe.
Mercy and Forgiveness	Forgiving those who have wronged you and allowing second chances.
Humor and Playfulness	Laughing, smiling, and focusing on lighter side of life.
Passion/Zest/Enthusiasm	Excitement for the day and passion for activities.

Table A.3 Descriptive statistics of Positive Emotion items

Item	N	M	Min.	Max.	SD	Skewness	Kurtosis
Value	4422	4.33	1	6	1.19	-0.81	3.47
Belong	4418	4.77	1	6	1.16	-1.14	4.28
Re-enroll	4420	4.90	1	6	1.24	-1.30	4.32
Welcome	1791	5.01	1	6	1.00	-1.38	5.51
Safe/secure	1789	5.03	1	6	0.91	-1.33	6.08
Class climate	1790	4.83	1	6	0.99	-1.24	5.12
Major climate	1791	4.79	1	6	1.07	-1.25	4.88
Campus climate	1791	4.76	1	6	1.07	-1.22	4.87

Table A.4 Descriptive statistics of Engagement items

Item	N	M	Min.	Max.	SD	Skewness	Kurtosis
More work	1946	3.06	1	6	1.27	0.45	2.67
Communicate	1957	3.15	1	6	1.33	0.32	2.37
Activity	1957	2.00	1	4	1.12	0.71	2.08
Study group	1932	3.73	1	6	1.56	-0.08	1.93
Class project	1930	4.12	1	6	1.45	-0.38	2.26
Help classmate	1930	3.93	1	6	1.39	-0.23	2.31

Table A.5 Descriptive statistics of Relationships items

Item	N	M	Min.	Max.	SD	Skewness	Kurtosis
Letter	4484	1.47	0	4	1.22	0.46	2.28
Name	1952	4.19	1	6	1.39	-0.36	2.23
Faculty advice	4477	4.52	1	6	1.15	-0.89	3.75
School advice	4473	4.51	1	6	1.21	-0.93	3.61
Department advice	4454	4.51	1	6	1.16	-0.89	3.71
Faculty instruct	4452	4.62	1	6	0.97	-0.92	4.40
Friends	1898	3.32	1	8	1.51	1.24	4.50
Family	1890	1.72	1	8	1.20	2.83	12.85

Table A.6 Descriptive statistics of Meaning items

Item	N	M	Min.	Max.	SD	Skewness	Kurtosis
Spirit	1896	1.53	1	8	0.89	3.12	18.08
Community service	1898	1.70	1	8	0.93	2.63	14.17
Entertain	1899	2.24	1	8	1.02	1.89	9.21
Club	1897	2.30	1	8	1.20	1.71	7.31

Table A.7 Descriptive statistics of Accomplishment items

Item	N	M	Min.	Max.	SD	Skewness	Kurtosis
Best work	4347	4.90	1	6	0.96	-1.15	5.00
Earn A	4347	5.02	1	6	1.08	-1.24	4.54
Class	1899	4.72	1	8	1.24	0.24	3.74
Study	1894	4.41	1	8	1.70	0.56	2.55
Hard class	1955	3.24	1	4	0.86	-0.84	2.78
Work hard	1928	3.72	1	6	1.29	-0.26	2.52

Table A.8 Positive Emotion model estimates

Item	Standardized Estimate	SE	p
value	.48	.02	< .001
belong	.47	.02	< .001
reenroll	.42	.02	< .001
welcome	.74	.01	< .001
safe secure	.67	.02	< .001
class climate	.80	.01	< .001
major climate	.74	.01	< .001
campus climate	.89	.01	< .001

Table A.9 Engagement model estimates

Item	Standardized Estimate	SE	p
more work	.22	.02	< .001
communicate	.28	.02	< .001
activity	.18	.02	< .001
study group	.86	.01	< .001
project	.70	.01	< .001
help classmate	.83	.01	< .001

Table A.10 Relationships model estimates

Item	Standardized Estimate	SE	p
letter	.17	.02	< .001
name	.28	.02	< .001
faculty advice	.90	.01	< .001
school advice	.78	.01	< .001
department advice	.77	.01	< .001
instruct	.55	.01	< .001
friends	.04	.03	.100
family	.07	.02	.003

Table A.11 Meaning model estimates

Item	Standardized Estimate	SE	p
spirit	.46	.02	< .001
entertain	.59	.02	< .001
community service	.75	.02	< .001
club	.55	.02	< .001

Table A.12 Accomplishment model estimates

Item	Standardized Estimate	SE	p
best work	.44	.03	< .001
earn A	.40	.03	< .001
class	.26	.03	< .001
study	.39	.03	< .001
hard class	.55	.03	< .001
work hard	.47	.03	< .001

Table A.13 PERMA model estimates (latent variables)

Construct	Standardized Estimate	SE	p
Positive Emotion	.73	.03	< .001
Engagement	.49	.03	< .001
Relationships	.54	.02	< .001
Meaning	.25	.04	< .001
Accomplishment	.76	.03	< .001

Table A.14 PERMA model estimates (items)

Items	Standardized Estimate	SE	p
value	.60	.01	< .001
belong	.60	.01	< .001
reenroll	.54	.02	< .001
welcome	.91	.01	< .001
safe secure	.77	.01	< .001
class climate	.63	.02	< .001
major climate	.59	.02	< .001
campus climate	.73	.01	< .001
more work	.27	.02	< .001
communicate	.32	.02	< .001
activity	.20	.02	< .001
study group	.83	.01	< .001
project	.70	.01	< .001
help classmate	.85	.01	< .001
letter	.18	.02	< .001
name	.29	.02	< .001
faculty advice	.88	.01	< .001
school advice	.78	.01	< .001
department advice	.78	.01	< .001
instruct	.57	.01	< .001
friends	.06	.03	.014
family	.08	.03	.002
spirit	.45	.02	< .001
entertain	.60	.02	< .001
community service	.74	.02	< .001
club	.55	.02	< .001
best work	.59	.02	< .001
earn A	.40	.02	< .001
class	.22	.03	< .001
study	.31	.03	< .001
hard class	.43	.03	< .001
work hard	.50	.03	< .001

Table A.15 Correlations of Positive Emotion items

Item	Value	Belong	Reenroll	Welcome	Safe/secure	Class climate	Major climate	Campus climate
Value	1.00							
Belong	.66***	1.00						
Reenroll	.52***	.74***	1.00					
Welcome	.52***	.54***	.49***	1.00				
Safe/secure	.38***	.39***	.36***	.70***	1.00			
Class climate	.38***	.36***	.30***	.56***	.52***	1.00		
Major climate	.34***	.34***	.29***	.53***	.45***	.82***	1.00	
Campus climate	.39***	.38***	.35***	.65***	.60***	.73***	.67***	1.00

*** $p < .001$

Table A.16 Correlations of Engagement items

Item	More work	Communicate	Activity	Study group	Project	Help classmate
More work	1.00					
Communicate	.46***	1.00				
Activity	.25***	.29***	1.00			
Study group	.13***	.21***	.12***	1.00		
Project	.15***	.19***	.16***	.61***	1.00	
Help classmate	.24***	.26***	.16***	.71***	.57***	1.00

*** *p* < .001

Table A.17 Correlations of Relationships items

Item	Letter	Name	Faculty advice	School advice	Dept. advice	Instruct	Friends	Family
Letter	1.00							
Name	.46***	1.00						
Faculty advice	.15***	.24***	1.00					
School advice	.13***	.21***	.69***	1.00				
Dept. advice	.08***	.19***	.70***	.81***	1.00			
Instruct	.17***	.30***	.49***	.44***	.41***	1.00		
Friends	-.01	.01	.03	.05*	.03	.04	1.00	
Family	.08***	.09***	.06**	.07**	.06**	.06**	.11***	1.00

* *p* < .05. ** *p* < .01. *** *p* < .001

Table A.18 Correlations of Meaning items

Item	Spirit	Entertain	Community service	Club
Spirit	1.00			
Entertain	.27***	1.00		
Community service	.35***	.44***	1.00	
Club	.24***	.33***	.41***	1.00

*** $p < .001$

Table A.19 Correlations of Accomplishment items

Item	Best work	Earn A	Class	Study	Hard class	Work hard
Best work	1.00					
Earn A	.50***	1.00				
Class	.09***	.08***	1.00			
Study	.15***	.18***	.35***	1.00		
Hard class	.23***	.19***	.18***	.23***	1.00	
work hard	.25***	.20***	.10***	.15***	.25***	1.00

*** $p < .001$.

Table A.20 PERMA-profiler (Butler & Kern, 2016)

Question #	Question
1	How much of the time do you feel you are making progress towards accomplishing your goals?
2	How often do you feel absorbed in what you are doing?
3	In general, how often do you feel joyful?
4	In general, how often do you feel anxious?
5	How often do you achieve the important goals you have set for yourself?
6	In general, how would you say your health is?
7	In general, to what extent do you lead a purposeful and meaningful life?
8	To what extent do you receive help and support from others when you need it?
9	In general, to what extent do you feel that what you do in your life is valuable and worthwhile?
10	In general, to what extent do you feel excited and interested in things?
11	How lonely do you feel in your daily life?
12	How satisfied are you with your current physical health?
13	In general, how often do you feel positive?
14	In general, how often do you feel angry?
15	How often are you able to handle your responsibilities?
16	In general, how often do you feel sad?
17	How often do you lose track of time while doing something you enjoy?
18	Compared to others of your same age and sex, how is your health?
19	To what extent do you feel loved?
20	To what extent do you generally feel you have a sense of direction in your life?
21	How satisfied are you with your personal relationships?
22	In general, to what extent do you feel contented?
23	Taking all things together, how happy would you say you are?

*Responses are 0=never, 10=always or 0=terrible, 10=excellent, or 0=not at all, 10=completely

Table A.21 PERMA meter (Seligman, 2016)

Question	In the past 2 weeks have you…
1	Felt positive emotion?
2	Been totally engaged in what you were doing?
3	Experienced positive relationships?
4	Engaged in a meaningful activity?
5	Accomplished a goal?

*Response choices: 1 = *not at all*, 2 = *a little*, 3 = *somewhat*, 4 = *often*, 5 = *almost all the time*

Table A.22 SERU items selected for Positive Emotion factor

SERU Paper Copy Item	SERU EXCEL Item	Question	New Variable Label	PERMA Construct
I#1f	R47_RUCAGREEINDVAL	Please select your level of agreement or disagreement with the following statements.-I feel valued as an individual at this campus	value	P
I#1g	R47_RUCAGREEBELONG	Please select your level of agreement or disagreement with the following statements.-I feel that I belong at Purdue University	belong	P
I#1h	R47_RUCAGREEREENRLL	Please select your level of agreement or disagreement with the following statements.-Knowing what I know now, I would still choose to enroll at Purdue University	reenroll	P
VII#2g	R18_RUCWELCOME	Please select your level of agreement or disagreement with the following statements. Purdue University is a welcoming campus.	welcome	P
VII#2f	R18_RUCSAFESECURE	Please select your level of agreement or disagreement with the following statements. Purdue University is a safe and secure campus.	safesecure	P

Table A.22 continued

Table A.22 continued

SERU Paper Copy Item	SERU EXCEL Item	Question	New Variable Label	PERMA Construct
VII#2e	R18_RUCCLIMATECLS	Please select your level of agreement or disagreement with the following statements.-Overall, I feel comfortable with the climate for diversity and inclusion in my classes	classclimate	P
VII#2d	R18_RUCCLIMATEMAJ	Please select your level of agreement or disagreement with the following statements.-Overall, I feel comfortable with the campus climate for diversity and inclusion in my major.	majorclimate	P
VII#2c	R18_RUCCLIMATE	Please select your level of agreement or disagreement with the following statements.-Overall, I feel comfortable with the climate for diversity and inclusiveness at Purdue University.	campusclimate	P

Response choices: 1 = *strongly disagree*, 2 = *disagree*, 3 = *somewhat disagree*, 4 = *somewhat agree*, 5 = *agree*, 6 = *strongly agree*

Table A.23 SERU items selected for Engagement factor

SERU Paper Copy Item	SERU EXCEL Item	Question	New Variable Name	PERMA Construct
V#1d	R1_RUCCHLLNGINTRST	During this academic year, how often have you done each of the following?-Found your courses so interesting that you did more work than was required	morework	E
V#1e	R1_RUCFCLTYDISCEX	During this academic year, how often have you done each of the following?-Communicated with the instructor outside of class about issues and concepts derived from a course	communicate	E
V#2c	R2_RUCFCLTYOTHACT	How frequently have you engaged in these activities so far this academic year?-Worked with a faculty member on an activity other than coursework (e.g., student organization, campus committee, cultural activity)	activity	E
V#3g	R3_RUCSTUDYGROUP	How frequently during this academic year have you done each of the following?-Studied with a group of classmates outside of class	studygrp	E
V#3h	R3_RUCCLASSPROJECT	How frequently during this academic year have you done each of the following?-Worked on class projects with classmates outside of class	project	E

Table A.23 continued

SERU Paper Copy Item	SERU EXCEL Item	Question	New Variable Name	PERMA Construct
V#3i	R3_RUCHELPEDMATE	How frequently during this academic year have you done each of the following?-Helped a classmate better understand the course material when studying together	helpclsmt	E

Response choices (items 1–2, 5–7): 1 = *never*, 2 = *rarely*, 3 = *occasionally*, 4 = *somewhat often*, 5 = *often*, 6 = *very often*;
Response choices (items 3–4): 1 = *never*, 2 = *1 time*, 3 = *2 times*, 4 = *3 or more times*

Table A.24 SERU items selected for Relationships factor

SERU Paper Copy Item	SERU EXCEL Item	Question	New Variable Name	PERMA Construct
IV#9	R30_RUCPROF1RE	How many professors do you know well enough to ask for a letter of recommendation in support of a letter of recommendation?	letter	R
V#1g	R1_RUCCHLLNGNAME	During this academic year, how often have you done each of the following?-Had a class in which the professor knew or learned your name	name	R
II#6b	R29_RUCFACADVC	How satisfied or dissatisfied are you with each of the following aspects of your educational experience-Academic advising by faculty	advise_f	R
II#6c	R29_RUCCOLADVC	How satisfied or dissatisfied are you with each of the following aspects of your educational experience-Academic advising by school or college staff	advise_s	R
II#6d	R29_RUCDEPADVC	How satisfied or dissatisfied are you with each of the following aspects of your educational experience-Academic advising by departmental staff	advise_d	R

Table A.24 continued

SERU Paper Copy Item	SERU EXCEL Item	Question	New Variable Name	PERMA Construct
II#6e	R29_RUCFACINST	How satisfied or dissatisfied are you with each of the following aspects of your educational experience-Quality of faculty instruction	instruct	R
IX#h	R8_RUCTIMEFRIEND	How many hours do you spend in a typical week (7 days) on the following activities?-Socializing with friends?	friends	R
IX#i	R8_RUCTIMEFAMILY	How many hours do you spend in a typical week (7 days) on the following activities?-Spending time with family?	family	R

Response choices: item 1: 0 = *0*, 1 = *1*, 2 = *2*, 3 = *3*, 4 = *4 or more*; item 2: 1 = *never*, 2 = *rarely*, 3 = *occasionally*, 4 = *somewhat often*, 5 = *often*, 6 = *very often*; items 3–7: 1 = *very dissatisfied*, 2 = *dissatisfied*, 3 = *somewhat dissatisfied*, 4 = *somewhat satisfied*, 5 = *satisfied*, 6 = *very satisfied*; item 8: 1 = *0*, 2 = *1-5*, 3 = *6-10*, 4 = *11-15*, 5 = *16-20*, 6 = *21-15*, 7 = *26-30*, 8 = *30 or more*

Table A.25 SERU items selected for Meaning factor

SERU Paper Copy Item	SERU EXCEL Item	Question	New Variable Name	PERMA Construct
IX#1f	R8_RUCTIMESPIRIT	How many hours do you spend in a typical week (7 days) on the following activities?-Participating in spiritual or religious activities?	spirit	M
IX#3c	R8_RUCTIMEENTERTAIN	How many hours do you spend in a typical week (7 days) on the following activities?-Attending cultural events, movies, concerts, sports or other entertainment with others	entertain	M
IX#3d	R8_RUCTIMECOMMSRV	How many hours do you spend in a typical week (7 days) on the following activities?-Performing community service or volunteer activities?	commserv	M
IX#3g	R8_RUCTIMECLUB	How many hours do you spend in a typical week (7 days) on the following activities?-Participating in student clubs or organizations?	club	M

Response choices: items 1–3, 5: 1 = *0*, 2 = *1-5*, 3 = *6-10*, 4 = *11-15*, 5 = *16-20*, 6 = *21-15*, 7 = *26-30*, 8 = *30 or more*;

Response choice: item 4: 0 = *no*, 1 = *yes*

Table A.26 SERU items selected for Accomplishment factor

SERU Paper Copy Item	SERU EXCEL Item	Question	NEW Variable Name	PERMA Construct
II#2	PUWC2	My major challenges me to do my best work.	bestwork	A
II#3	PUWC3	My best work is required to earn an A in courses in my major.	earnA	A
IX#3a	R8_RUCTIMECLASS	How many hours do you spend in a typical week (7 days) on the following activities?-Attending classes, discussion sections, or labs?	class	A
IX#3b	R8_RUCTIMESTUDY	How many hours do you spend in a typical week (7 days) on the following activities?-Studying and other academic activities outside of class?	study	A
V#2b	R2_RUCCHLLNGCOURSE	How frequently have you engaged in these activities so far this academic year?-Chosen challenging courses?	hardclass	A
V#3d	R3_RUCINCREASEEFFORT	How frequently during this academic year have you done each of the following?-Increased your academic effort due to the high standards of a faculty member	workhard	A

Response choices: items 1-2: 1=strongly disagree 2=disagree 3=somewhat disagree 4=somewhat agree 5=agree 6=strongly agree, items 3-4: 1=0 2=1-5 3=6-10 4=11-15 5=16-20 6=21-15 7=26-30 8=30 or more, items 5-6: 1=never 2=rarely 3=occasionally 4=somewhat often 5=often 6=very often, item

APPENDIX B. IRB APPROVAL

This Memo is Generated From the Purdue University Human Research Protection Program System, [Cayuse IRB](#) **.**
Date: March 13, 2020
PI: VICKI SIMPSON
Department: PWL NURSING
Re: Initial - IRB-2020-435
Application of the PERMA Model of Well-being to Undergraduate Students

The Purdue University Human Research Protection Program (HRPP) has determined that the research project identified above qualifies as exempt from IRB review, under federal human subjects research regulations 45 CFR 46.104. The Category for this Exemption is listed below . Protocols exempted by the Purdue HRPP do not require regular renewal. However, the administrative check-in date is **March 13, 2023**. The IRB must be notified when this study is closed. If a study closure request has not been initiated by this date, the HRPP will request study status update for the record.

Specific notes related to your study are found below.
Decision: Exempt
Category:
Category 4. Secondary research for which consent is not required: Secondary research uses of identifiable private information or identifiable biospecimens, if at least one of the following criteria is met:

(i) The identifiable private information or identifiable biospecimens are publicly available;

(ii) Information, which may include information about biospecimens, is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained directly or through identifiers linked to the subjects, the investigator does not contact the subjects, and the investigator will not re-identify subjects;

(iii) The research involves only information collection and analysis involving the investigator's use of identifiable health information when that use is regulated under 45 CFR parts 160 and 164, subparts A and E, for the purposes of "health care operations" or "research" as those terms are defined at 45 CFR 164.501 or for "public health activities and purposes" as described under 45 CFR 164.512(b); or

(iv) The research is conducted by, or on behalf of, a Federal department or agency using government-generated or government-collected information obtained for nonresearch activities, if the research generates identifiable private information that is or will be maintained on information technology that is subject to and in compliance with section 208(b) of the E-Government Act of 2002, 44 U.S.C. 3501 note, if all of the identifiable private

information collected, used, or generated as part of the activity will be maintained in systems of records subject to the Privacy Act of 1974, 5 U.S.C. 552a, and, if applicable, the information used in the research was collected subject to the Paperwork Reduction Act of 1995, 44 U.S.C. 3501 et seq.

Findings:
Research Notes:

Any modifications to the approved study must be submitted for review through Cayuse IRB. All approval letters and study documents are located within the Study Details in Cayuse IRB.

What are your responsibilities now, as you move forward with your research?

Document Retention: The PI is responsible for keeping all regulated documents, including IRB correspondence such as this letter, approved study documents, and signed consent forms for at least three (3) years following protocol closure for audit purposes. Documents regulated by HIPAA, such as Release Authorizations, must be maintained for six (6) years.

Site Permission: If your research is conducted at locations outside of Purdue University (such as schools, hospitals, or businesses), you must obtain written permission from all sites to recruit, consent, study, or observe participants. Generally, such permission comes in the form of a letter from the school superintendent, director, or manager. You must maintain a copy of this permission with study records.

Training: All researchers collecting or analyzing data from this study must renew training in human subjects research via the CITI Program (www.citiprogram.org) every 4 years. New personnel must complete training and be added to the protocol before beginning research with human participants or their data.

Modifications: Change to any aspect of this protocol or research personnel must be approved by the IRB before implementation, except when necessary to eliminate apparent immediate hazards to subjects or others. In such situations, the IRB should still be notified immediately.

Unanticipated Problems/Adverse Events: Unanticipated problems involving risks to subjects or others, serious adverse events, and
noncompliance with the approved protocol must be reported to the IRB immediately through an incident report. When in doubt, consult with the HRPP/IRB.

Monitoring: The HRPP reminds researchers that this study is subject to monitoring at any

time by Purdue's HRPP staff, Institutional Review Board, Research Quality Assurance unit, or authorized external entities. Timely cooperation with monitoring procedures is an expectation of IRB approval.

Change of Institutions: If the PI leaves Purdue, the study must be closed or the PI must be replaced on the study or transferred to a new IRB. Studies without a Purdue University PI will be closed.

Other Approvals: This Purdue IRB approval covers only regulations related to human subjects research protections (e.g. 45 CFR 46). This determination does not constitute approval from any other Purdue campus departments, research sites, or outside agencies. The Principal Investigator and all researchers are required to affirm that the research meets all applicable local/state/ federal laws and university policies that may apply.

If you have questions about this determination or your responsibilities when conducting human subjects research on this project or any other, please do not hesitate to contact Purdue's HRPP at irb@purdue.edu or 765-494-5942. We are here to help!

Sincerely,

Purdue University Human Research Protection Program/ Institutional Review Board
Login to Cayuse IRB

IMPORTANT: Purdue HRPP/IRB Measures in Response to COVID-19
This approval letter was issued on the date at the top of the page. As of 3/10/2020 the Purdue HRPP/IRB issues the following recommendations. For the most updated correspondence, please see www.irb.purdue.edu

For full information about COVID-19 measures at Purdue see this link. https://www.purdue.edu/newsroom/releases/2020/Q1/need-to-know-info-about-covid-2019.html

IRB Face to Face Walk-In Hours are temporarily suspended. Please call or e-mail to schedule a virtual meeting or phone call.

Purdue Human Research Protection Program and Institutional Review Board COVID-19 Recommendations

In response to questions regarding COVID-19 and Human Subjects Research, the Purdue HRPP/IRB makes the following recommendations to researchers.

Closely follow university recommendations and announcements through Purdue Today and the Purdue University [preparedness website](). Please allow at-risk participant populations (e.g. elderly, those with underlying health conditions) to take proper precautions.

- When collecting biospecimens (e.g. saliva, blood) from human research participants, utilize proper Personal Protective Equipment (PPE) as designated by campus [Radiological and Environmental Management]() (REM) or the Institutional Biosafety Committee (IBC) protocol for the lab. Make sure that all researchers are trained on safety practices and any measures to maintain hygienic lab and equipment conditions.
- Consider rescheduling in-person human subjects data collections that are not of immediate need. Allow research participants who indicate self-quarantine, illness, or at-risk status to continue their health-appropriate course of action.

In this time of public health concern, new measures are being encountered in everyday life. As a result, the following exceptions are temporarily deemed to be changes not requiring review under HRPP Standard Operating Procedure (SOP) 305. The HRPP/IRB will allow the following changes without an amendment to the IRB protocol.

1.Substitution of telephone, web conferencing, and secure electronic communication (examples like Purdue's instances of [Box](), [WebEx](), [Qualtrics](), and [Docusign]()) to conduct data collection procedures normally done in-person. These methods may be added when possible and practical for mitigating research risks to subjects or others related to COVID-19. If there are questions about any changes to participant risk, please contact the HRPP/IRB Office at [irb@purdue.edu]() or 765-494-5942.

2.For the purposes of screening, recruitment, data collection, and follow-up visits with in-person close contact or collection of biospecimens, the IRB waives the modification requirement to add the questions below to screening/eligibility questionnaires.

o *Have you traveled within the last 14 days to a location designated by the CDC to be an at-risk area for novel Coronavirus, COVID-19?*
o *Have you or members of your household been diagnosed with COVID-19 or asked to self-quarantine due to potential exposure to the novel Coronavirus, COVID-19?*

If the above questions are implemented by the Principal Investigator, they should be a documented part of a screening or eligibility script and asked in the same manner to every potential participant. Researchers must also consider and document the follow-up process that will occur (according to best-available public health resources) should a participant give an affirmative answer. Such actions could include a participant not being eligible for the

study, recontact/rescheduling for contact at a later date.

These changes will be in place until further notice and may expand as more information is known. If researchers choose to implement use of these practices, the revised documents must become part of the study file in the Principal Investigator's records. To allow the IRB to have a record of the implementation of either procedure above, please send an e-mail message noting the study record title(s), PI name, and reference number(s) to the IRB (irb@purdue.edu) within 10 business days of the implementation. The office will include this information in your study file in the Cayuse system.

As necessary, the HRPP/IRB will communicate its recommendations with university public health leadership. For questions about the IRB review process or additional instances requiring insight on the topic above. please contact irb@purdue.edu.

APPENDIX C. DATA SHARING AGREEMENT

To whom it may concern:

This is to confirm that an electronic file of data was shared with Melissa Kovich on September 28, 2018. The data was for her research and was as described here.

1. The data consisted of Individual students' responses to the 2018 undergraduate SERU survey
2. All respondents were 18 years or older
3. Questions pertain to student opinions about their academic and social experiences while attending Purdue
4. The dataset contained a subset of the SERU questions which was customized for meet the requirements of Melissa Kovich's research.
5. No questions on the survey created any form of personal risk to the respondents
6. All responses were de-identified completely. Identification of any individual respondent was impossible.
7. The data were collected by Purdue's Office of Institutional Research, Assessment & Effectiveness (Now IDA+A)
8. Diane Beaudoin was the Principle Investigator for the protocol (# 1211012943). Data collection ceased in April 2018. The protocol has been closed. The protocol included authorization to share de-identified portions of the dataset, such as was given to Melissa Kovich.

Andy Zehner

Assessment & Data Analyst
Young Hall, Rm. 957
155 S. Grant St.
West Lafayette, IN 47907
765-494-6743

APPENDIX D. SURVEY

Qualtrics Survey Software

PURDUE
UNIVERSITY®

Introduction

Browser Meta Info

This question will not be displayed to the recipient.

Browser: **Chrome**

Version: **64.0.3282.119**

Operating System: **Windows NT 10.0**

Screen Resolution: **1680x1050**

Flash Version: **-1**

Java Support: **0**

User Agent: **Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/64.0.3282.119 Safari/537.36**

2018 SERU Consent Form
After reading this important information, please select "Agree" at the bottom of this page and then the "Next" button.

What is the SERU Survey?
The Student Experience in the Research University (SERU) is being administered at Purdue University and at other major research universities including Michigan State University, North Dakota State University, Rutgers University, U of Iowa, U of Michigan, U of Minnesota, U of Pittsburgh, U of Oregon, U of Texas, and U of Virginia. Researchers and administrators from these institutions helped design the survey.

Study Procedure

If you agree to be in this survey, we are asking that you complete the SERU questionnaire. The survey should take about 20 minutes to complete. The main purpose of this survey project is to gain a fuller understanding of the undergraduate experience at major research universities, so that campus administrators can provide the best programs and services possible. The design of the study requires that we also obtain background information about you from official campus records. This includes major, years of attendance, previous schools attended, date of birth, gender, race and ethnicity, SAT/ACT scores, credits completed, high-school rank, high-school and college GPAs.

Voluntary Participation

Participation in this research is entirely voluntary. Your decision whether or not to participate in the survey will not affect your grades or your relationship with Purdue University or benefits to which you may otherwise be entitled. You may choose to withdraw at any time without penalty.

Benefits

While there may not be any direct benefit to you from participating, SERU gives students an opportunity to comment on the quality of the education they are receiving, student services, and other aspects of their undergraduate experience that help the University evaluate and improve undergraduate programs and services.

Accessibility

If you are using a screen reading software (e.g., JAWS), please use table navigation. You are also encouraged to send a reply or call Mark Miazga at 612-624-0675 for confidential assistance.

Protecting your privacy

Any identifiable information that is obtained in connection with this study will remain confidential and will be disclosed only with your permission or as required by law. Please be assured that except to allow for this matching, your identity will not be connected to your survey responses, your responses will be confidential, and the results of the study will be reported only as aggregate data. Any quotations from responses to open ended questions used in reporting will be reviewed to ensure that your identity cannot be ascertained. Responses to the survey may not be reviewed immediately.

You can contact the primary researcher at the University of Minnesota, Ronald Huesman, at 612-624-4851 or huesm003@umn.edu if you have any questions. If you would like to talk to someone other than the researcher(s), you are encouraged to contact the Research Subjects' Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455; 612-625-1650.

Statement of Consent

By selecting "Agree," I am providing my consent to this survey research effort, as described above.
I understand and will participate.

○ Agree

○ Disagree

This year's survey has three parts:

I. Your experiences at Purdue University

II. Your Background and Personal Characteristics

III. A module emphasizing items of special interest to Purdue University.

Your questionnaire is not submitted until you press the "Submit" button at the end.

PART I Academic Engagement

PART I: Your experiences at Purdue University.

Academic Engagement

During this academic year, how often have you done each of the following?

	Never	Rarely	Occasionally	Somewhat often	Often	Very often
Contributed to a class discussion	O	O	O	O	O	O
Brought up ideas or concepts from different courses during class discussions	O	O	O	O	O	O
Asked an insightful question in class	O	O	O	O	O	O
Found your courses so interesting that you did more work than was required	O	O	O	O	O	O
Communicated with the instructor outside of class about issues and concepts derived from a course	O	O	O	O	O	O
Made a class presentation	O	O	O	O	O	O
Had a class in which the professor knew or learned your name	O	O	O	O	O	O

How frequently have you engaged in these activities so far this academic year?

	Never	One time	Two times	Three or more times
Taken a small research-oriented seminar with faculty	O	O	O	O
Chosen challenging courses	O	O	O	O
Worked with a faculty member on an activity other than coursework (e.g., student organization, campus committee, cultural activity)	O	O	O	O

How frequently during this academic year have you done each of the following?

	Never	Rarely	Occasionally	Somewhat often	Often	Very often
Turned in a course assignment late	O	O	O	O	O	O

	Never	Rarely	Occasionally	Somewhat often	Often	Very often
Gone to class prepared	O	O	O	O	O	O

Gone to class unprepared	○	○	○	○	○	○
Skipped class	○	○	○	○	○	○
Increased your academic effort due to the high standards of a faculty member	○	○	○	○	○	○
Substantially revised a paper before submitting it to be graded	○	○	○	○	○	○
Sought academic help from instructor or tutor when needed	○	○	○	○	○	○
Studied with a group of classmates outside of class	○	○	○	○	○	○
Worked on class projects with classmates outside of class	○	○	○	○	○	○
Helped a classmate better understand the course material when studying together	○	○	○	○	○	○

On average, how much of your assigned course reading have you completed this academic year?

○ 0-10%

○ 11-20%

○ 21-30%

○ 31-40%

○ 41-50%

○ 51-60%

○ 61-70%

○ 71-80%

○ 81-90%

○ 91-100%

Time Allocation

During this academic year, how many hours do you spend in a typical week (7 days) on the following activities? (Must be numeric, enter 0 for none)

Paid employment (including internships) **on** campus:

Paid employment (including internships) **off** campus:

Of your 0 hours spent working for pay, about how many hours were related to your academic interests? (Must be numeric, enter 0 for none)

How many hours do you spend in a typical week (7 days) on the following activities?

	0	1-5	6-10	11-15	16-20	21-25	26-30	More than 30
Attending classes, discussion sections, or labs	○	○	○	○	○	○	○	○
Studying and other academic activities outside of class	○	○	○	○	○	○	○	○
Attending cultural events, movies, concerts, sports or other entertainment with others	○	○	○	○	○	○	○	○
Performing community service or volunteer activities	○	○	○	○	○	○	○	○

	0	1-5	6-10	11-15	16-20	21-25	26-30	More than 30
Participating in physical exercise, recreational sports, or physically active hobbies	○	○	○	○	○	○	○	○
Participating in spiritual or religious activities	○	○	○	○	○	○	○	○
Participating in student clubs or organizations	○	○	○	○	○	○	○	○

	0	1-5	6-10	11-15	16-20	21-25	26-30	More than 30
Socializing with friends	○	○	○	○	○	○	○	○

	0	1-5	6-10	11-15	16-20	21-25	26-30	More than 30
Partying	○	○	○	○	○	○	○	○
Spending time with family	○	○	○	○	○	○	○	○
Spending time on entertainment from television, internet, and other media	○	○	○	○	○	○	○	○

During this academic year, what was the average number of hours per night you slept on weeknights?

○ 4 or less

○ 5

○ 6

○ 7

○ 8

○ 9 or more

Educational Experiences

Have you completed or are you now participating in the following activities at Purdue University?

	Yes, doing now or have done	No
First-year seminar	○	○
Learning community (taking two or more linked classes with the same cohort of students)	○	○
Living-learning program(s) (where students with common interests live together and share learning experiences in and out of the classroom)	○	○
Writing-intensive/enriched course(s)	○	○
Academic experiences with a diversity (e.g., race, gender, sexual orientation, etc.) focus	○	○
	Yes, doing now or have done	No

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	Yes, doing now or have done	No
Capstone or thesis project(s)	○	○
Academic service learning or community-based learning experience	○	○
Credit bearing internship, practicum, or field experience	○	○
Non-credit bearing internship, practicum, or field experience	○	○
Honors program	○	○

	Yes, doing now or have done	No
Leadership program	○	○
Entrepreneurial program	○	○
On campus academic experiences with an international/global focus	○	○
Study abroad—academically-focused time outside of the U.S. in which at least 1 academic credit is accrued	○	○

Indicate the following scholarship, research, and creative activities that you are currently doing or have completed as a Purdue University student.

A research project refers to original projects in any discipline or field of studies and may include critical analysis of primary or secondary sources, scientific investigations, and developing and testing systems/tools.

A creative project refers to original projects in any discipline or field of studies and may include design of various media forms, performance arts, marketing campaign, and curating an exhibit.

	Yes, doing now or have done	No
A research project or research paper as part of your coursework	○	○
At least one research methods course	○	○
At least one independent study course	○	○
Assist faculty in conducting research	○	○
A creative project as part of your coursework	○	○

	Yes, doing now or have done	No
Assist faculty with their creative project	○	○
Conduct own research or creative project outside of your regular coursework <u>under</u> the guidance or supervision of a faculty member	○	○
Conduct own research or creative project outside of your regular coursework <u>without</u> the guidance or supervision of a faculty member	○	○

You indicated that you are assisting or have assisted faculty with research. Which of the following best describes the nature of that assistance? *(Please select all that apply based on the variety of experiences you are having or have had)*

☐ As a research participant

☐ As a research assistant

☐ Other, please specify [   ]

You indicated you are assisting or have assisted faculty with a creative project. Was your assistance with the creative project for... *(Please select all that apply based on the variety of experiences you are having or have had)*

☐ Course credit without pay

☐ Pay without course credit

☐ Pay with course credit

☐ Volunteer without pay or course credit

Was your assistance with research for... *(Please select all that apply based on the variety of experiences you are having or have had)*

☐ Course credit without pay

☐ Pay without course credit

☐ Pay with course credit

☐ Volunteer without pay or course credit

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You indicated you are or have conducted your own research or creative project outside of your regular coursework. If you communicated or shared the results of your research or creative project, please indicate how you did this *(Please select all that apply)*

☐ Through presenting/exhibiting/performing it on campus

☐ Through presenting/exhibiting/performing it outside of campus, such as at a regional, national and/or international conference or competition

☐ Through publishing in a peer-reviewed professional journal

☐ Through publishing in a campus or student journal

☐ Through publishing in an electronic forum or other public arena

☐ Other ways; please specify [   ]

This academic year, how often have you done each of the following?

	Never	Rarely	Occasionally	Somewhat often	Often	Very often
Appreciate the world from someone else's perspective: In the classroom	○	○	○	○	○	○
Appreciate the world from someone else's perspective: Outside the classroom	○	○	○	○	○	○
Interact with someone with views that are different from your own: In the classroom	○	○	○	○	○	○
Interact with someone with views that are different from your own: Outside the classroom	○	○	○	○	○	○
Discuss and navigate controversial issues: In the classroom	○	○	○	○	○	○

	Never	Rarely	Occasionally	Somewhat often	Often	Very often
Discuss and navigate controversial issues: Outside the classroom	O	O	O	O	O	O

Campus Climate for Diversity and Inclusiveness

Please indicate how strongly you agree or disagree with the following statements in terms of yourself.

	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agr
Students of my race/ethnicity are respected on this campus	O	O	O	O	(
Students of my socio-economic status are respected on this campus	O	O	O	O	(
Students of my gender are respected on this campus	O	O	O	O	(
Students of my religious beliefs are respected on this campus	O	O	O	O	(
Students of my political beliefs are respected on this campus	O	O	O	O	(
Students of my sexual orientation are respected on this campus	O	O	O	O	(

Please indicate how strongly you agree or disagree with the following statements in terms of yourself.

	Not applicable	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agr
Students of my immigration background are respected on this campus	O	O	O	O	O	C
Students with a disability or condition like mine are respected on this campus	O	O	O	O	O	C

Please select your level of agreement or disagreement with the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Stro agr
Overall, I feel comfortable with the climate for diversity and inclusiveness at Purdue University.	○	○	○	○	○	C
Overall, I feel comfortable with the campus climate for diversity and inclusion in my major.	○	○	○	○	○	C
Overall, I feel comfortable with the climate for diversity and inclusion in my classes.	○	○	○	○	○	C
Purdue University is a safe and secure campus.	○	○	○	○	○	C
Purdue University is a welcoming campus.	○	○	○	○	○	C

PART I Evaluation of the Major or Evaluation of the Educational Experience

Evaluation of the Major

The next section of the survey asks you to evaluate your major based on your experience. Below is listed your major according to campus records.

If you do not want to evaluate the major listed, then you will need to make another selection or if you have changed majors and would like to evaluate your new major, please select the "Other" option and then choose your new major from the subsequent list.

○ ${e://Field/MAJOR_TEXT1}

○ Other

Please select your new major from the following list.

[▼]

Were the following factors very important to you in deciding on your major?

	Yes	No
Intellectual curiosity	○	○
Leads to a high paying job	○	○
Prepares me for a fulfilling career	○	○
Parental/family desires	○	○
Prestige	○	○
Could not get into my first choice major	○	○
Prepares me for graduate/professional school	○	○
Other, please elaborate [ ]	○	○

Thinking back over your coursework *in your major* this academic year, how often were you *required* to do the following?

	Never	Rarely	Occasionally	Somewhat often	Oft
Recognize or recall specific facts, terms, and concepts	○	○	○	○	○
Explain methods, ideas, or concepts and use them to solve problems	○	○	○	○	○
Break down course material into component parts to see the basis for different outcomes and conclusions	○	○	○	○	○
Judge the value of information, ideas, actions, and conclusions based on the soundness of sources, methods, and reasoning	○	○	○	○	○
Create or generate new ideas, products, or ways of understanding	○	○	○	○	○

Evaluation of the Educational Experience

**Thinking back over your coursework this academic year, how often were you
<u>required</u> to do the following?**

	Never	Rarely	Occasionally	Somewhat often	Oft
Recognize or recall specific facts, terms, and concepts	O	O	O	O	C
Explain methods, ideas, or concepts and use them to solve problems	O	O	O	O	C
Break down course material into component parts to see the basis for different outcomes and conclusions	O	O	O	O	C
Judge the value of information, ideas, actions, and conclusions based on the soundness of sources, methods, and reasoning	O	O	O	O	C
Create or generate new ideas, products, or ways of understanding	O	O	O	O	C

**Thinking back over your coursework <u>*in your major*</u> this academic year, how often
did you do each of the following?**

	Never	Rarely	Occasionally	Somewhat often	Often	Very often
Used facts and examples to support your viewpoint	O	O	O	O	O	O
Incorporated ideas or concepts from different courses when completing assignments	O	O	O	O	O	O
Examined how others gathered and interpreted data and assessed the soundness of their conclusions	O	O	O	O	O	O
Reconsidered your own position on a topic after assessing the arguments of others	O	O	O	O	O	O

**Thinking back over <u>all</u> of your coursework this academic year, how often did you
do each of the following?**

	Never	Rarely	Occasionally	Somewhat often	Often	Very often
Used facts and examples to support your viewpoint	O	O	O	O	O	O

Incorporated ideas or concepts from different courses when completing assignments	○	○	○	○	○	○
Examined how others gathered and interpreted data and assessed the soundness of their conclusions	○	○	○	○	○	○
Reconsidered your own position on a topic after assessing the arguments of others	○	○	○	○	○	○

Please answer the following questions about your major.

	Yes	No
Do you understand how the requirements of your major combine to produce a coherent understanding of a field of study?	○	○
Are the program requirements well defined?	○	○
Are department rules and policies clearly communicated?	○	○
Is the description of the major in the catalog accurate?	○	○

Please answer the following questions about your educational experience overall.

Please answer the following questions about your educational experience overall.

How often have you experienced the following?

	Never	Rarely	Occasionally	Somewhat often	Often	\o
Open channels of communication between faculty and students regarding student needs, concerns, and suggestions	○	○	○	○	○	
Students treated equitably and fairly by the faculty	○	○	○	○	○	
Clear explanation of what constitutes plagiarism	○	○	○	○	○	
Faculty providing prompt and useful feedback on student work	○	○	○	○	○	
Faculty maintaining respectful interactions in classes	○	○	○	○	○	

	Never	Rarely	Occasionally	Somewhat often	Often	\ o
Opportunities for active participation in lecture and discussion classes	O	O	O	O	O	
An instructor who increases your enthusiasm for the subject	O	O	O	O	O	

How satisfied or dissatisfied are you with each of the following aspects of your educational experience in the major?

	Very dissatisfied	Dissatisfied	Somewhat dissatisfied	Somewhat satisfied	Satisfied	Very satisfied
Variety of courses available in your major	O	O	O	O	O	O
Quality of lower-division courses in your major	O	O	O	O	O	O
Quality of upper-division courses in your major	O	O	O	O	O	O
Communication between students and the department	O	O	O	O	O	O

How satisfied or dissatisfied are you with each of the following aspects of your educational experience overall?

	Very dissatisfied	Dissatisfied	Somewhat dissatisfied	Somewhat satisfied	Satisfi
Academic advising by faculty	O	O	O	O	O
Academic advising by school or college staff	O	O	O	O	O
Academic advising by departmental staff	O	O	O	O	O
Quality of faculty instruction	O	O	O	O	O
Quality of teaching by graduate students (TAs, AIs)	O	O	O	O	O
	Very dissatisfied	Dissatisfied	Somewhat dissatisfied	Somewhat satisfied	Satisfi

	Very dissatisfied	Dissatisfied	Somewhat dissatisfied	Somewhat satisfied	Satisfi
Availability of courses for general education or breadth requirements	○	○	○	○	○
Availability of courses needed for graduation	○	○	○	○	○
Access to small classes	○	○	○	○	○
Access to faculty outside of class	○	○	○	○	○
Ability to get into a major that you want	○	○	○	○	○

	Very dissatisfied	Dissatisfied	Somewhat dissatisfied	Somewhat satisfied	Satisfi
Opportunities for research experience or to produce creative products	○	○	○	○	○
Educational enrichment programs (e.g., service-learning, study abroad, internships)	○	○	○	○	○
Availability of library research resources	○	○	○	○	○

How many professors do you know well enough to ask for a letter of recommendation in support of an application for a job or for graduate or professional school?

○ Zero
○ 1
○ 2
○ 3
○ 4 or more

PART I Evaluation of the Second Major

Would you like to evaluate another major?

○ Yes
○ No, skip to next part of questionnaire

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Please select your second major to evaluate from the following list.

○ ${e://Field/MAJOR_TEXT1}

○ ${e://Field/MAJOR_TEXT2}

○ Other

Please select your new major from the following list.

[▼]

Were the following factors very important to you in deciding on your major?

	Yes	No
Intellectual curiosity	○	○
Leads to a high paying job	○	○
Prepares me for a fulfilling career	○	○
Parental/family desires	○	○
Prestige	○	○
Could not get into my first choice major	○	○
Prepares me for graduate/professional school	○	○
Other, please elaborate [ ]	○	○

Thinking back over your coursework <u>in your major</u> this academic year, how often were you <u>required</u> to do the following?

	Never	Rarely	Occasionally	Somewhat often	Oft
Recognize or recall specific facts, terms, and concepts	○	○	○	○	C
Explain methods, ideas, or concepts and use them to solve problems	○	○	○	○	C
Break down course material into component parts to see the basis for different outcomes and conclusions	○	○	○	○	C

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	Never	Rarely	Occasionally	Somewhat often	Oft
Judge the value of information, ideas, actions, and conclusions based on the soundness of sources, methods, and reasoning	O	O	O	O	C
Create or generate new ideas, products, or ways of understanding	O	O	O	O	C

Thinking back over your coursework in your major this academic year, how often did you do each of the following?

	Never	Rarely	Occasionally	Somewhat often	Often	Very often
Used facts and examples to support your viewpoint	O	O	O	O	O	O
Incorporated ideas or concepts from different courses when completing assignments	O	O	O	O	O	O
Examined how others gathered and interpreted data and assessed the soundness of their conclusions	O	O	O	O	O	O
Reconsidered your own position on a topic after assessing the arguments of others	O	O	O	O	O	O

Please answer the following questions about your major.

	Yes	No
Do you understand how the requirements of your major combine to produce a coherent understanding of a field of study?	O	O
Are the program requirements well defined?	O	O
Are department rules and policies clearly communicated?	O	O
Is the description of the major in the catalog accurate?	O	O

Please answer the following questions about your experience in the major.

How often have you experienced the following?

	Never	Rarely	Occasionally	Somewhat often	Often	Very ofter
Open channels of communication between faculty and students regarding student needs, concerns, and suggestions	O	O	O	O	O	O
Students treated equitably and fairly by the faculty	O	O	O	O	O	O
Clear explanation of what constitutes plagiarism	O	O	O	O	O	O
Faculty providing prompt and useful feedback on student work	O	O	O	O	O	O

How satisfied or dissatisfied are you with each of the following aspects of your educational experience in the major?

	Very dissatisfied	Dissatisfied	Somewhat dissatisfied	Somewhat satisfied	Satisfied	Very satisfied
Variety of courses available in your major	O	O	O	O	O	O
Quality of lower-division courses in your major	O	O	O	O	O	O
Quality of upper-division courses in your major	O	O	O	O	O	O
Communication between students and the department	O	O	O	O	O	O

PART I contin and PART II Background and Personal Characteristics

Co-Curricular Experience

While a student at Purdue University have you been involved or are you currently involved in a student organization(s)?

○ Yes

○ No

Are you or have you been an officer of a student organization?

○ Yes

○ No

During the current academic year, how often have you done the following activities in a student club or organization of which you are a member?

	Never	1-2 times	3-5 times	More than 5 times
Chaired a meeting	○	○	○	○
Planned an event	○	○	○	○
Promoted or marketed an event	○	○	○	○
Led or facilitated a discussion	○	○	○	○
Recruited new members for the organization/club	○	○	○	○
Mediated a dispute	○	○	○	○
Partnered with a community organization or organized community outreach	○	○	○	○
Developed a budget	○	○	○	○
Delegated tasks to others	○	○	○	○

Please rate how important your interactions with other students in student clubs and organizations has been to each of the following:

	Of no importance	Somewhat important	Very important	Essential
Becoming more dependable and reliable	○	○	○	○
Learning how to resolve disputes	○	○	○	○

	Of no importance	Somewhat important	Very important	Essential
Developing an ability to work with others to accomplish a goal	○	○	○	○

	Very Poor	Poor	Fair	Good	Very Good	Excellent

Developing your knowledge of how organizations work ○ ○ ○ ○

Understanding how to succeed in competitive situations ○ ○ ○ ○

Developing oral presentation skills ○ ○ ○ ○

Developing networking skills ○ ○ ○ ○

Developing writing skills ○ ○ ○ ○

Academic and Personal Development

Please rate your level of proficiency in the following areas when you <u>started</u> at this campus and <u>now</u>.

	Very Poor	Poor	Fair	Good	Very Good	Excellent
Analytical and critical thinking skills: When you started here	○	○	○	○	○	○
Analytical and critical thinking skills: Now	○	○	○	○	○	○
Ability to be clear and effective when writing: When you started here	○	○	○	○	○	○
Ability to be clear and effective when writing: Now	○	○	○	○	○	○

	Very Poor	Poor	Fair	Good	Very Good	Excellent

	Very Poor	Poor	Fair	Good	Very Good	Excellent

Ability to read and comprehend academic material:

When you started here   ○   ○   ○   ○   ○   ○

Ability to read and comprehend academic material:

Now   ○   ○   ○   ○   ○   ○

Understanding your field of study (i.e., college major):

When you started here   ○   ○   ○   ○   ○   ○

Understanding your field of study (i.e., college major):

Now   ○   ○   ○   ○   ○   ○

	Very Poor	Poor	Fair	Good	Very Good	Excellent
Quantitative (mathematical and statistical) skills: When you started here	○	○	○	○	○	○
Quantitative (mathematical and statistical) skills: Now	○	○	○	○	○	○
Oral communication skills: When you started here	○	○	○	○	○	○
Oral communication skills: Now	○	○	○	○	○	○

Please rate your level of proficiency in the following areas when you started at this campus and now.

	Very Poor	Poor	Fair	Good	Very Good	Excellent
Ability to understand international perspectives (economic, political,						

social, cultural):

When you started here

〇　〇　〇　〇　〇　〇

Ability to understand international perspectives (economic, political, social, cultural):

Now

〇　〇　〇　〇　〇　〇

Leadership skills:

When you started here

〇　〇　〇　〇　〇　〇

Leadership skills:

Now

〇　〇　〇　〇　〇　〇

	Very Poor	Poor	Fair	Good	Very Good	Excellent
Library and online information research skills (e.g., finding books, articles, evaluating information sources): When you started here	〇	〇	〇	〇	〇	〇
Library and online information research skills (e.g., finding books, articles, evaluating information sources): Now	〇	〇	〇	〇	〇	〇
Ability to prepare and make a presentation: When you started here	〇	〇	〇	〇	〇	〇
Ability to prepare and make a presentation: Now	〇	〇	〇	〇	〇	〇

	Very Poor	Poor	Fair	Good	Very Good	Excellent
	Very Poor	Poor	Fair	Good	Very Good	Excellent

Ability to design, conduct, and evaluate research:

When you started here

○ ○ ○ ○ ○ ○

Ability to design, conduct, and evaluate research:

Now

○ ○ ○ ○ ○ ○

Interpersonal and teamwork skills:

When you started here

○ ○ ○ ○ ○ ○

Interpersonal and teamwork skills:

Now

○ ○ ○ ○ ○ ○

Satisfaction

How satisfied or dissatisfied are you with the following aspects of your campus experiences/education?

	Very dissatisfied	Dissatisfied	Somewhat dissatisfied	Somewhat satisfied	Satisfied	Very satisfied
My Purdue University grade point average	○	○	○	○	○	○
Overall social experience	○	○	○	○	○	○
Overall academic experience	○	○	○	○	○	○
Value of your education for the price you are paying	○	○	○	○	○	○

Please select your level of agreement or disagreement with the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree
I feel valued as an						

individual at this campus.	○	○	○	○	○	○
I feel that I belong at Purdue University.	○	○	○	○	○	○
Knowing what I know now, I would still choose to enroll at Purdue University.	○	○	○	○	○	○

Plans and Aspirations

Which of the following best represents your plans for after graduation? (Select only one)

○ Enroll in graduate or professional school

○ Work full-time

○ Work part-time

○ Be self-employed

○ Study or work abroad

○ Join armed forces

○ Do a paid internship

○ Do an unpaid internship/volunteer

○ Take a year off

○ Do something else

○ I have no idea at this point

○ Other

What career do you hope to eventually have after you have completed your education? (Select only one)

○ Agriculture, Food, & Natural Resources

○ Architecture & Construction

○ Arts, Audio/Visual Technology, & Communications

○ Business Management & Administration

○ Education & Training

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○ Finance

○ Government & Public Administration

○ Health Science

○ Hospitality & Tourism

○ Human Services

○ Information Technology

○ Law, Public Safety, Corrections, & Security

○ Manufacturing

○ Marketing, Sales, and Service

○ Military Service

○ Science, Technology, Engineering, & Mathematics

○ Transportation, Distribution, & Logistics

○ I have no idea whatsoever

○ Other

What is the highest academic degree or credential that you eventually plan to earn?

○ Bachelor's degree (B.A., B.S., etc.)

○ Teaching credential

○ Business master's (M.B.A.)

○ Other professional master's (M.Ed., M.PP., M.PH., M.FA., M.LIS., M.SN., M.SW., M.ARCH., etc.)

○ Academic master's (M.A., M.S., etc.)

○ Law degree (L.L.B., J.D., etc.)

○ Medical doctorate other than M.D. (D.O., D.D.S., D.V.M., etc.)

○ Medical doctor (M.D.)

○ Doctorate (Ph.D., Ed.D., etc.)

○ Multiple doctoral degrees (M.D./Ph.D.)

○ I do not know yet

○ If other, please elaborate [   ]

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How important is it to you to graduate within four years after starting college?

○ Not that important

○ Somewhat important

○ Very important

○ Essential

○ Not applicable

Will you complete a bachelor's degree this spring or summer?

○ Probably yes

○ Probably no

How concerned have you been about paying for your undergraduate education up to now?

○ Not concerned

○ Somewhat concerned

○ Concerned

○ Very concerned

How concerned are you about paying for your undergraduate education next year?

○ Not concerned

○ Somewhat concerned

○ Concerned

○ Very concerned

How concerned are you about your accumulated educational debt?

○ Not concerned

○ Somewhat concerned

○ Concerned

○ Very concerned

Have you ever received a Pell grant?

○ Yes

○ No

How frequently have you engaged in the following behaviors in the past year?

	Never	Rarely	Occasionally	Somewhat often	Often	Very often
Skipped or cut the size of meals because there wasn't enough money for food	○	○	○	○	○	○
Cut down on personal/recreational spending	○	○	○	○	○	○
Worried about my debt and financial circumstances	○	○	○	○	○	○

Which of the following have you done this current academic year to meet college expenses?

	Yes, doing now or have done	No
Applied for financial aid, scholarships, and/or grants	○	○
Asked financial aid office to reevaluate my application	○	○
Bought fewer books, bought cheaper/used books, read books on reserve	○	○
Took a leave of absence or a quarter/semester off	○	○
Took more courses per term	○	○
Took action to graduate more quickly	○	○
Did not retake a class to improve grade	○	○
Took a community college course because it was cheaper	○	○
Took a job for the first time at college	○	○

	Yes, doing now or have done	No
Worked before but increased the number of hours worked	○	○
Increased the debt I carry on my credit card	○	○
Increased my annual student loan amount	○	○
Other, please elaborate: [ ]	○	○

To what extent do you agree or disagree with this statement: Given the grants and scholarships, if any, that you receive, the total cost of attending Purdue University is manageable.

○ Strongly disagree

○ Disagree

○ Somewhat disagree

○ Somewhat agree

○ Agree

○ Strongly agree

Is there anything else that you would like to tell us about the impact of the cost to attend on your educational experience at Purdue University?

[   ]

PART II: Your Background and Personal Characteristics

When did you come to the United States to live?

○ I was born in the U.S.	○ 2007	○ 2013
○ 2002 or earlier	○ 2008	○ 2014
○ 2003	○ 2009	○ 2015
○ 2004	○ 2010	○ 2016
○ 2005	○ 2011	○ 2017 or later

○ 2006   ○ 2012

When did you learn to speak English?

○ English is my native language

○ Before I was 6 years old

○ When I was 6 to 10 years old

○ When I was 11 to 15 years old

○ After turning 16 years old

Please identify, to the best of your knowledge, where the following were born.

	In U.S.	Outside the U.S.	Do not know
My Parent A / Guardian A / Mother	○	○	○
My Parent B / Guardian B / Father	○	○	○

Which of the following best describes the educational experience of your parents/guardians?

○ Neither parent/guardian attended any college

○ One or both parents/guardians attended some college, but neither has a four-year degree

○ One parent/guardian has a four-year degree

○ Both parents/guardians have a four-year degree

○ One parent/guardian has a graduate or professional degree

○ Both parents/guardians have a graduate or professional degree

Which of the following best describes your social class when you were growing up?

○ Wealthy

○ Upper-middle or professional-middle

○ Middle-class

○ Working-class

○ Low-income or poor

What is your religious/spiritual preference?

○ No particular religion and not particularly spiritual

○ Agnostic

○ Atheist

○ Baptist

○ Buddhist

○ Christian Church (Disciples of Christ)

○ Eastern Orthodox

○ Episcopalian

○ Greek Orthodox

○ Hindu

○ Jewish/Orthodox

○ Jewish/Other

○ Jewish/Reformed

○ Lutheran

○ Methodist

○ Mormon

○ Muslim/Other

○ Muslim/Shia

○ Muslim/Sunni

○ Non-denominational Evangelical

○ Presbyterian

○ Quaker

○ Roman Catholic

○ Russian Orthodox

○ Seventh Day Adventist

○ Sikh

○ Spiritual but not associated with a major religion

○ Taoist

○ Unitarian/Universalist

○ United Church of Christ/Congregational

○ Religious/spiritual preference not listed above. Please Specify:

[   ]

Do you have any conditions or disabilities that significantly affect your experience as a student at Purdue University including how you learn or perform academically, interact with others, or access campus?

	Yes	No
Physical disability or condition (e.g., mobility limitation, sensory condition)	○	○
Learning disability or condition (e.g., dyslexia, speech disorder)	○	○
Neurodevelopmental/cognitive disability or condition (e.g., autism, attention-deficit/hyperactivity disorder, brain injury)	○	○
Emotional or mental health concern or condition (e.g., depression, anxiety, post-traumatic stress disorder)	○	○
Other disability or condition (please specify) [ ]	○	○

Do you currently receive accommodations from your campus due to your disability/condition?

○ Yes

○ No

○ I am not aware of such services

Is there anything else you would like to tell us about how your disability/condition affects your experiences as a student on this campus?

[   ]

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What is your current gender identity?

○ Man

○ Woman

○ Trans Man

○ Trans Woman

○ Genderqueer/Gender Non-Conforming

○ Not listed above (please specify) [   ]

What sex were you assigned at birth, such as on an original birth certificate?

○ Male

○ Female

○ Intersex/Non-binary

What is your current sexual orientation?

○ Heterosexual or straight

○ Gay or lesbian

○ Bisexual

○ Queer

○ Questioning

○ Not listed above (please specify) [   ]

How would you characterize your political orientation?

○ Very liberal

○ Liberal

○ Slightly liberal

○ Moderate or middle of the road

○ Slightly conservative

○ Conservative

○ Very conservative

○ Other, please elaborate: [   ]

Where are you living this term?

○ Campus residence hall

○ Campus owned apartment or house (on-or off-campus)

○ Sorority or fraternity

○ Co-op student housing

○ Off-campus in an apartment

○ Off-campus in a house

○ No stable residence/Homeless

○ Other, please elaborate [   ]

How far do you live from campus?

○ On campus or < 1 mile

○ 1 mile to 2 miles

○ 3 miles to 10 miles

○ 11 to 20 miles

○ 21 miles or more

With whom do you live? Please select the option that best describes your living situation this term.

○ I live alone

○ I share an apartment, house, or residence hall room with at least one other Purdue University student

○ I share an apartment or house with peers who are not Purdue University students

○ I live with at least one family member

○ I am a single parent living with children

○ I live with my spouse or domestic partner and children

○ I live with my spouse or domestic partner without children

○ Other, please elaborate
[   ]

International Student Experience

How easy or difficult have the following been for you as an international student at Purdue University?

	Very Difficult	Difficult	Neither easy nor difficult	Easy	Very Easy
Understanding classroom lectures	O	O	O	O	O
Keeping up with my writing assignments and writing clearly in English	O	O	O	O	O
Participating in classroom or study group discussions	O	O	O	O	O
Making friends with Americans	O	O	O	O	O
Learning how to understand and respond to Americans of the opposite sex	O	O	O	O	O
Fitting into the social scene, such as finding organizations and groups of students where I feel comfortable and can socialize	O	O	O	O	O

How satisfied or dissatisfied are you with each of the following?

	Very dissatisfied	Dissatisfied	Somewhat dissatisfied	Somewhat satisfied	Satisfied
The interest in and attention to international students shown by professors	O	O	O	O	O
The interest in and attention to international students shown by American students	O	O	O	O	O
The campus services provided specifically for international students; services such as help with visas, arrival orientation, English language resources, etc.	O	O	O	O	O
The campus services provided for all students; services such as academic advising, career services, housing, food services, etc.	O	O	O	O	O
	Very dissatisfied	Dissatisfied	Somewhat dissatisfied	Somewhat satisfied	Satisfied

	Very dissatisfied	Dissatisfied	Somewhat dissatisfied	Somewhat satisfied	Satisfied
The quality of information provided to you about campus rules, regulations, degree requirements, and resources on campus	◯	◯	◯	◯	◯
The opportunities to explore American life and culture outside the university	◯	◯	◯	◯	◯
Opportunities for making friends from your home country	◯	◯	◯	◯	◯

How much of a concern are or have each of the following been for you?

	Not a concern	Somewhat a concern	A serious concern
Finding satisfactory housing	◯	◯	◯
Obtaining an ATM or bank card	◯	◯	◯
Violence and personal security on and around the campus	◯	◯	◯
Having adequate financial support	◯	◯	◯
Understanding U.S. medical insurance and obtaining health services	◯	◯	◯
Securing a job in the U.S. after graduation	◯	◯	◯

Is your interaction primarily with American students or other international students during each of the following?

	All or almost all international	Mostly international	About half and half	Mostly American	All or almost all American
When studying or doing homework with other students	◯	◯	◯	◯	◯
When socializing (parties, going to movies, recreation)	◯	◯	◯	◯	◯

	All or almost all international	Mostly international	About half and half	Mostly American	All or almost all American
When participating in clubs or	◯	◯	◯	◯	◯

student organizations

What are your plans after you complete your undergraduate degree? *(Select all that apply)*

☐ To pursue an advanced degree in the U.S.

☐ To pursue an advanced degree at home or in a country other than the U.S.

☐ To work temporarily in the U.S.

☐ Other

What were the primary reasons for your decision to pursue your undergraduate studies in the U.S.? *(Select up to three)*

☐ The international reputation of this campus

☐ An interest in understanding the U.S. and its culture

☐ Desire to increase your English language proficiency

☐ An appreciation for the quality of teaching at U.S. campuses

☐ An interest in working in the U.S. in the future.

☐ Have family members living in the U.S.

PART III Module 1 Academic Experience

Part III: Academic Experience and Globalization

Academic Experience

While a student at [University Name], have you completed or are you now participating in any of the following internationally-based experiences? Please check yes or no for each item.

Note: Study abroad is defined as an academically-focused time outside of the U.S. in which at least 1 academic credit is accrued.

	Yes	No

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	Yes	No
A study abroad program lasting a full academic year	○	○
A study abroad program for a semester or at least 4 months	○	○
A short-term study abroad program or tour lasting less than 3 months	○	○
An intensive language only study program	○	○
An international internship or work abroad experience	○	○
A service-learning or volunteer service opportunity in another country	○	○
A research project or field placement in another country	○	○

You indicated that you did not have a study abroad experience(s). Was this mainly because:

Note: Study abroad is defined as an academically-focused time outside of the U.S. in which at least 1 academic credit is accrued.

○ I did not consider it

○ I considered study abroad but decided against it because of the cost

○ I considered study abroad but decided against it for another reason. Please elaborate:

○ Planning to do so later

Please answer the questions below about your international and/or education abroad experience.

	Select all that apply			In which country were/are
	Organized and sponsored by [University name]?	Did you/will you receive academic credit?	Did or does the program entail intensive foreign language?	
» A study abroad program lasting a full academic year	☐	☐	☐	

	Select all that apply			In which country were/are
	Organized and sponsored by [University name]?	Did you/will you receive academic credit?	Did or does the program entail intensive foreign language?	
» A study abroad program for a semester or at least 4 months	☐	☐	☐	
» A short-term study abroad program or tour lasting less than 3 months	☐	☐	☐	
» An intensive language only study program	☐	☐	☐	
» An international internship or work abroad experience	☐	☐	☐	
» A service-learning or volunteer service opportunity in another country	☐	☐	☐	
» A research project or field placement in another country	☐	☐	☐	

Please answer the following questions about your experiences abroad that you previously selected.

How much did or will your experience abroad contribute to each of the following:

	Little or not at all	Somewhat	A great deal
Foreign language proficiency	○	○	○
Cultural awareness	○	○	○
Self-confidence	○	○	○
Clarifying my choice of major or career	○	○	○

Why did you decide to pursue an international experience as part of your undergraduate studies? (Check up to three)

☐ To enhance my career and employment prospects

☐ To understand my own culture from outside its confines

☐ To acquire greater proficiency in a foreign language

☐ To understand a foreign culture and develop my intercultural skills

☐ To experience a new environment

☐ To study something different

☐ To gain insights about my family's heritage

In your own words, what has been or will be the most significant contribution of your participation in your experience abroad to your overall undergraduate education?

We would like to hear more about being an undergraduate at a research campus. Please indicate your level of agreement with the following statements.

	Strongly disagree	Disagree	Disagree somewhat	Agree somewhat	Agree	Stro agr
[University Name] has a strong commitment to undergraduate education	○	○	○	○	○	○
Attending a campus with world-class researchers is important to me	○	○	○	○	○	○
It does not really matter where I get my undergraduate education ([University Name], regional college, community college) since they are all similar in quality	○	○	○	○	○	○
The emphasis on research detracts from the quality of teaching at this campus	○	○	○	○	○	○

How important to you are the following aspects of being an undergraduate at a research campus like the [University Name]?

	Not that important	Somewhat important	Very important	Essential
Learning about faculty research	○	○	○	○
Having courses with faculty members who refer to their own research as part of the class	○	○	○	○
Learning research methods	○	○	○	○
Assisting faculty members in their research, for pay or as a volunteer	○	○	○	○
Pursuing your own research	○	○	○	○
The prestige of this campus when you apply to grad school	○	○	○	○
The prestige of this campus when you apply for a job	○	○	○	○
Having access to a world-class library collection	○	○	○	○
Being able to attend plays, concerts, lectures, and other cultural events	○	○	○	○

While attending [University Name], how frequently have you engaged in the following?

	Never	Rarely	Occasionally	Somewhat often	Often
Interacted with students from outside the U.S. in class (e.g., through section discussions, study groups, or class projects)	○	○	○	○	○
Interacted with students from outside the U.S. in social settings (e.g., in clubs or student organizations, or in informal settings)	○	○	○	○	○
Developed a friendship with a student from outside the U.S.	○	○	○	○	○
Worked with a faculty member on a project with an international/global theme	○	○	○	○	○
Presented a paper at a symposium or conference or participated in a panel on international/global topics	○	○	○	○	○
Attended lectures, symposia, workshops, or conferences on international/global topics	○	○	○	○	○
Attended a performance with an international/global focus	○	○	○	○	○

During this academic year, how frequently have you followed news about the following?

	Never	Rarely	Occasionally	Somewhat often	Often	Very often
Global politics and diplomacy	○	○	○	○	○	○
Global climate and environmental issues	○	○	○	○	○	○
International business and economics	○	○	○	○	○	○
Global health issues	○	○	○	○	○	○
International conflicts and peace issues	○	○	○	○	○	○

Please rate your level of proficiency in the following areas when you started at this campus and now.

As a [University Name] student, how would you rate your competencies below?

	Very poor	Poor	Fair	Good	Very good	Excellent
Understanding the complexities of global issues: When you started here	○	○	○	○	○	○
Understanding the complexities of global issues: Now	○	○	○	○	○	○

	Very poor	Poor	Fair	Good	Very good	Excellent
Ability to apply disciplinary knowledge in a global context: When you started here	○	○	○	○	○	○

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Ability to apply disciplinary knowledge in a global context:

Now

○   ○   ○   ○   ○   ○

Linguistic and cultural competency in at least one language other than my own:

When you started here

○   ○   ○   ○   ○   ○

	Very poor	Poor	Fair	Good	Very good	Excellent
Linguistic and cultural competency in at least one language other than my own: Now	○	○	○	○	○	○
Ability to work with people from other cultures: When you started here	○	○	○	○	○	○
Ability to work with people from other cultures: Now	○	○	○	○	○	○
Comfort working with people from other cultures: When you started here	○	○	○	○	○	○
Comfort working with people from other cultures: Now	○	○	○	○	○	○

During this academic year, how often have each of the following been obstacles to your school work or academic success?

	Never	Rarely	Occasionally	Somewhat often	Often	Very often
Competing job responsibilities (e.g., paid employment)	○	○	○	○	○	○

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paid employment)

	Never	Rarely	Occasionally	Somewhat often	Often	Very often
Competing family responsibilities	○	○	○	○	○	○
Other competing responsibilities (e.g., athletics, clubs, internship)	○	○	○	○	○	○
Weak English skills	○	○	○	○	○	○
Weak math skills	○	○	○	○	○	○

	Never	Rarely	Occasionally	Somewhat often	Often	Very often
Inadequate study skills (e.g., knowing how to start, organizing material)	○	○	○	○	○	○
Poor study behaviors (e.g., wait till last minute, easily distracted, too much social time, too much web surfing)	○	○	○	○	○	○
Poor study environment (e.g., noisy roommate, poor internet access, inadequate computer or software)	○	○	○	○	○	○
Feeling depressed, stressed, or upset	○	○	○	○	○	○
Physical illness or condition	○	○	○	○	○	○

	Never	Rarely	Occasionally	Somewhat often	Often	Very often
I am reluctant to ask for help when I need it	○	○	○	○	○	○
I cannot concentrate on my work	○	○	○	○	○	○
Military deployment	○	○	○	○	○	○
Other; please elaborate:	○	○	○	○	○	○

PART III Module 2 Community Engagement

Part III: Community and Civic Engagement

Activities and Organizations

To what extent do you agree or disagree with the following statements?

	Strongly disagree	Disagree	Disagree somewhat	Agree somewhat	Agree

	Strongly disagree	Disagree	Disagree somewhat	Agree somewhat	Agree
Opportunities to engage in community service while a [University Name] student are important to me	O	O	O	O	O
Opportunities to develop my leadership skills while a [University Name] student are important to me	O	O	O	O	O
Opportunities to connect my academic work with community-based experience are important to me	O	O	O	O	O

Community and Civic Engagement

Community Service

During this academic year, have you participated in community service?

	Yes	No
On campus	O	O
Off campus	O	O

Which of the following were significant reasons for getting involved in community service?

	A significant reason	Not a significant reason
Required as part of my academic program	O	O
Required by my fraternity/sorority	O	O
Unique or interesting opportunity arose to participate	O	O
Encouragement from friends or family	O	O
Encouragement from [University Name] faculty/staff	O	O

	A significant reason	Not a significant reason

	A significant reason	Not a significant reason

	A significant reason	Not a significant reason
Encouragement from other [University Name] students	○	○
Belief in the particular cause	○	○
Location of the work	○	○
Opportunity to learn new things	○	○
Opportunity to enhance my academic achievement	○	○
Opportunity to develop leadership skills	○	○
Become a better citizen and community participant	○	○
Change conditions in the community	○	○
Strengthen my resume for graduate school or employment	○	○
Other, please elaborate [_____]	○	○

What was the focus of the organization(s) where you did this community service? *(Select all that apply)*

☐ Education (includes child care, education K-12, higher education, tutoring, mentoring)

☐ Health (includes agriculture/nutrition, health, mental health, substance abuse)

☐ Social issues (includes civil rights/human rights, disability, diversity, housing/homelessness, hunger, immigrants, seniors/elder services, women's issues, social justice)

☐ Environment (includes animal welfare, environment/sustainability)

☐ Arts

☐ Economic development

☐ International

☐ Other; please elaborate: [_____]

If your involvement in community service was through a related class, please list the name and number of the course:

Course name and number:

Please name up to three organizations and their location (for example, "United Way, City, State") where you participated in community engagement during this academic year:

Organization name and location

Organization name and location

Organization name and location

Thinking about your participation in all forms of community service, which includes service through clubs, courses, and one-time events, please estimate how many total hours of service you completed this academic year:

○ 1-10 hours
○ 11-20 hours
○ 21-50 hours
○ 51-100 hours
○ More than 100 hours

Community and Civic Engagement

Service-Learning

Service-learning courses involve combining academic learning with service participation with non-profits, citizens groups, or governmental entities to support infrastructure or programming that allows these groups to meet community-identified needs and issues. Students work on a wide range of issues and perform a wide variety of tasks, some examples are: working in after-school programs, homeless shelters, pre-K to 12 education, Adult Basic Education, citizenship education, clinics, employment programs, violence prevention efforts, the environment, and the arts.

How many times have you enrolled in a [University Name] course that had a service-learning component?

◯ Zero

◯ Once

◯ Twice

◯ Three times

◯ More than three times

In considering all of the service-learning courses you took, what was the average number of hours of service you completed for a course?

◯ 1-10 hours

◯ 11-25 hours

◯ 26-50 hours

◯ More than 50 hours

Community and Civic Engagement

Community-focused experiences

Community-focused experiences refer to educational experiences that are connected to communities outside the university.

To what extent have you been involved in the following community-focused experiences during this academic year or last summer?

	Not at all	Once	More than once
	Not at all	Once	More than once
Study abroad or other internationally-based experience with a service learning focus	◯	◯	◯

Community-based capstone experience	○	○	○
Internship or clinical practicum	○	○	○
Academic field study	○	○	○
Community-based research	○	○	○
Other, please elaborate [ ]	○	○	○

In considering your overall experience(s) with community-focused learning activities during this academic year, which of the following best characterizes the purpose of those experience(s)?

○ Charity (providing help to individuals)

○ Empowering others

○ Participatory Democracy (changing laws)

○ Social change (changing societal conditions or views)

○ Community development

○ Job experience or specific career development

○ Other, please elaborate [   ]

To what extent has your participation in community-focused activities at this campus influenced your desire to continue community-focused activities after you graduate?

○ Not at all

○ To some extent

○ To a great extent

How often have you been asked to?

	Never	Rarely	Occasionally	Sometimes	Often	Very often

	Never	Rarely	Occasionally	Sometimes	Often	Very often

Acknowledge personal differences:

In the classroom

  ○   ○   ○   ○   ○   ○

Acknowledge personal differences:

Outside the classroom

  ○   ○   ○   ○   ○   ○

Define an issue or challenge and identify possible solutions:

In the classroom

  ○   ○   ○   ○   ○   ○

Define an issue or challenge and identify possible solutions:

Outside the classroom

  ○   ○   ○   ○   ○   ○

How often have you been asked to?

	Never	Rarely	Occasionally	Sometimes	Often	Very often
Implement a solution to an issue or challenge: In the classroom	○	○	○	○	○	○
Implement a solution to an issue or challenge: Outside the classroom	○	○	○	○	○	○
Reflect upon the solution of an issue or challenge: In the classroom	○	○	○	○	○	○
Reflect upon the solution of an issue or challenge: Outside the classroom	○	○	○	○	○	○

How often have you been asked to?

Very

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	Never	Rarely	Occasionally	Sometimes	Often	very often
Reflect on community or social issues as a shared responsibility: In the classroom	○	○	○	○	○	○
Reflect on community or social issues as a shared responsibility: Outside the classroom	○	○	○	○	○	○
Reflect on your individual responsibility for community or social issues: In the classroom	○	○	○	○	○	○
Reflect on your individual responsibility for community or social issues: Outside the classroom	○	○	○	○	○	○
Act on community or social issues: In the classroom	○	○	○	○	○	○
Act on community or social issues: Outside the classroom	○	○	○	○	○	○

Have you ever considered running for an elected position in government?

○ Yes
○ No

Have you ever run for an elected position in government?

○ Yes
○ No

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What elected positions in government did you run for? *(Select all that apply)*

- ☐ School Board
- ☐ Mayor
- ☐ State Legislator
- ☐ Member of the U.S. House of Representatives
- ☐ U.S. Senator
- ☐ President
- ☐ City, County, or Town Council
- ☐ Governor
- ☐ Statewide office (i.e., Attorney General)

How strong is your interest in running for an elected position in government?

- ○ Not at all strong
- ○ Slightly strong
- ○ Strong
- ○ Very strong
- ○ Extremely strong

What elected positions in government would you consider running for? *(Select all that apply)*

- ☐ School Board
- ☐ Mayor
- ☐ State Legislator
- ☐ Member of the U.S. House of Representatives
- ☐ U.S. Senator
- ☐ President
- ☐ City, County, or Town Council
- ☐ Governor
- ☐ Statewide office (i.e., Attorney General)

How likely is it that you would ever run for an elected position in government?

○ Not at all likely

○ Slightly likely

○ Likely

○ Very likely

○ Extremely likely

Has anyone ever suggested that you run for an elected position in government?

○ Yes

○ No

Who has suggested that you run for an elected position in government? *(select all that apply)*

☐ An official from a political party

☐ A co-worker or business associate

☐ An elected official

☐ A friend or acquaintance

☐ A spouse or partner

☐ A member of your family

☐ A non-elected political activist

☐ A student or classmate

☐ A faculty member or instructor

☐ An administrator or staff member

☐ Other (please specify) [   ]

How qualified do you feel you are to hold an elected position in government?

○ Not at all qualified

○ Slightly qualified

○ Qualified

○ Very qualified

○ Extremely qualified

PART III Module 3 Student Life and Development

Part III: Student Life and Development

How often have you gained a deeper understanding of other perspectives through conversations with fellow students because they differed from you in the following ways?

	Never	Rarely	Occasionally	Somewhat often	Often	Very often
Their religious beliefs were different	○	○	○	○	○	○
Their political opinions were different	○	○	○	○	○	○
They were an immigrant or from an immigrant family	○	○	○	○	○	○
They were of a different nationality	○	○	○	○	○	○
They were of a different race or ethnicity	○	○	○	○	○	○
Their gender was different	○	○	○	○	○	○
Their sexual orientation was different	○	○	○	○	○	○
They were from a different social class	○	○	○	○	○	○
They had physical or other observable disabilities	○	○	○	○	○	○
They had learning, psychological, or other disabilities that are not readily apparent	○	○	○	○	○	○

In this academic year, I have heard <u>teaching faculty or instructors</u> express negative or stereotypical views about:

	Never	Rarely	Occasionally	Somewhat often	Often	Very often
Races or ethnicities	○	○	○	○	○	○

	Never	Rarely	Occasionally	Somewhat often	Often	Very often
Genders	○	○	○	○	○	○
Sexual orientations	○	○	○	○	○	○
Political affiliation, opinions, or beliefs	○	○	○	○	○	○
Religions	○	○	○	○	○	○
Social classes	○	○	○	○	○	○
Immigrant backgrounds	○	○	○	○	○	○
Physical or other observable disabilities	○	○	○	○	○	○
Learning, psychological, or other disabilities that are not readily apparent	○	○	○	○	○	○

In this academic year, I have heard <u>non-teaching staff or administrators</u> express negative or stereotypical views about:

	Never	Rarely	Occasionally	Somewhat often	Often	Very often
Races or ethnicities	○	○	○	○	○	○
Genders	○	○	○	○	○	○
Sexual orientations	○	○	○	○	○	○
Political affiliation, opinions, or beliefs	○	○	○	○	○	○
Religions	○	○	○	○	○	○
Social classes	○	○	○	○	○	○
Immigrant backgrounds	○	○	○	○	○	○
Physical or other observable disabilities	○	○	○	○	○	○
Learning, psychological, or other disabilities that are not readily apparent	○	○	○	○	○	○

In this academic year, I have heard <u>students</u> express negative or stereotypical views about:

	Never	Rarely	Occasionally	Somewhat often	Often	Very often
Races or ethnicities	○	○	○	○	○	○

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Genders	○	○	○	○	○	○
Sexual orientations	○	○	○	○	○	○
Political affiliation, opinions, or beliefs	○	○	○	○	○	○
Religions	○	○	○	○	○	○
Social classes	○	○	○	○	○	○
Immigrant backgrounds	○	○	○	○	○	○
Physical or other observable disabilities	○	○	○	○	○	○
Learning, psychological, or other disabilities that are not readily apparent	○	○	○	○	○	○

Please rate your awareness and understanding of the following issues when you started at this campus and now.

	Very poor	Poor	Fair	Good	Very good	Excellent
My own racial and ethnic identity: When you started	○	○	○	○	○	○
My own racial and ethnic identity: Now	○	○	○	○	○	○
Social class and economic differences/issues: When you started	○	○	○	○	○	○
Social class and economic differences/issues: Now	○	○	○	○	○	○
Racial and ethnic differences/issues: When you started	○	○	○	○	○	○

	Very poor	Poor	Fair	Good	Very good	Excellent
	Very poor	Poor	Fair	Good	Very good	Excellent

	poor		Good	good	

Racial and ethnic differences/issues:

Now

○　○　○　○　○　○

Gender differences/issues:

When you started

○　○　○　○　○　○

Gender differences/issues:

Now

○　○　○　○　○　○

Sexual orientation differences/issues:

When you started

○　○　○　○　○　○

Sexual orientation differences/issues:

Now

○　○　○　○　○　○

	Very poor	Poor	Fair	Good	Very good	Excellent

Physical or other observable disabilities:

When you started

○　○　○　○　○　○

Physical or other observable disabilities:

Now

○　○　○　○　○　○

Learning, psychological, or other disabilities that are not readily apparent:

When you started

○　○　○　○　○　○

	Very poor	Poor	Fair	Good	Very good	Excellent

Learning, psychological, or other disabilities that are not readily

apparent:

    ○   ○   ○   ○   ○   ○

Now

What is your level of agreement or disagreement with the following:

	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree
I am proud to be a student at this campus	○	○	○	○	○	○
Most students are proud to attend this school	○	○	○	○	○	○
This campus values students' opinions	○	○	○	○	○	○
Academic cheating is a problem at this campus	○	○	○	○	○	○
Alcohol use is a problem at this campus	○	○	○	○	○	○
Drug use is a problem at this campus	○	○	○	○	○	○
Diversity is important at this campus	○	○	○	○	○	○
Diversity is important to me	○	○	○	○	○	○

Please describe for us the most important way that you have changed or developed as a person since you became a student at [University Name].

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PART III Module 4 Technology

Part III: Technology Module

Please answer A and B for each of the following:

	A. Do you own the following?		B. On a typical weekday, how often do you use each of the following (whether your own or shared) for academic purposes?							
	Yes	No	0 hours	Less than 1 hour	1 to 3 hours	3 to 5 hours	5 to 7 hours	7 to 9 hours	More than 9 hours
Laptop	O	O	O	O	O	O	O	O	O
Tablet	O	O	O	O	O	O	O	O	O
Desktop computer	O	O	O	O	O	O	O	O	O
Smartphone	O	O	O	O	O	O	O	O	O

Many web-based technologies allow users to participate actively in the creation of online content. About how often do you do each of the following?

	Multiple times a day	About once a day	A few times a week	A few times a month	A few times a semester	Seldom or never
Send a tweet via Twitter	O	O	O	O	O	O
Create or contribute to a blog	O	O	O	O	O	O
Create a podcast	O	O	O	O	O	O
Upload a video (e.g., to YouTube)	O	O	O	O	O	O
Upload photos (e.g., to Instagram, Snapfish, Picasa)	O	O	O	O	O	O
Contribute to a Google document or spreadsheet	O	O	O	O	O	O
Upload content to Facebook	O	O	O	O	O	O

Approximately how many courses (including your current courses and courses taken at other campuses of higher education) have you taken that were delivered in each of these ways? (Mark one answer for each.)

	0 courses	1 to 3 courses	4 to 6 courses	7 to 10 courses	more than 10 courses
Course delivered totally online for [University Name] students only.	O	O	O	O	O

Course delivered totally online for a larger audience (e.g., EdX, Coursera, etc.)	○	○	○	○	○
Course with some face-to-face time replaced with time spent working online (a primarily/partially online or hybrid course)	○	○	○	○	○

Approximately how many fully online courses did you complete successfully (meaning that you received a passing grade?) (Mark one answer for each)

	0 courses	1 to 3 courses	4 to 6 courses	7 to 10 courses	more than 10 courses
Course delivered totally online for a larger audience (e.g., EdX, Coursera, etc.)	○	○	○	○	○
Course delivered totally online for [University Name] students only.	○	○	○	○	○

Preferences for course format. Many campuses are considering increasing the number of courses they offer fully online, i.e., with no face-to-face contact at all. What is your preference about taking courses fully online as opposed to face-to-face courses? *(Please mark only one answer.)*

○ Strongly prefer fully online courses

○ Somewhat prefer fully online courses

○ Neutral between fully online and face-to-face courses

○ Somewhat prefer face-to-face courses

○ Strongly prefer face-to-face courses

○ Don't know

What is your preference about taking hybrid (blended, with both online and face-to-face components) as opposed to traditional face-to-face courses? *(Please mark only one answer.)*

○ Strongly prefer hybrid courses

○ Somewhat prefer hybrid courses

○ Neutral between hybrid and traditional courses

○ Somewhat prefer traditional courses

○ Strongly prefer traditional courses

○ Don't know

Have you participated in a course which used a Learning Management System (e.g., Blackboard, Canvas, Desire2Learn, eLearning Commons, Moodle)?

○ Yes

○ No

How much do you agree or disagree about the role Learning Management Systems (LMS) like Blackboard, Canvas, Desire2Learn, eLearning Commons, or Moodle have played in your learning experiences at this campus?

	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly Agree
LMS have helped me to interact with my instructors	○	○	○	○	○	○
LMS have resulted in prompt feedback from my instructors	○	○	○	○	○	○
LMS have made it easier to work with other students	○	○	○	○	○	○
LMS have helped me to complete assignments on time	○	○	○	○	○	○
LMS have helped me be more efficient with my study time	○	○	○	○	○	○
	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly Agree
LMS are only useful for transmitting information	○	○	○	○	○	○
In general, LMS have helped me to succeed in my coursework	○	○	○	○	○	○
The advantages gained by using LMS outweigh the disadvantages	○	○	○	○	○	○
LMS have made my education more affordable	○	○	○	○	○	○

For the purposes of this survey, "educational technology" means digital technology used for educational purposes. This includes digital tools and materials that are used in the classroom or lab (e.g., PowerPoint presentations, digital videos, animations) as well as those made available online (e.g., course-related websites, online discussion tools, email, web-based quizzes, and assignments).

To what degree has each of the following factors been a problem for your use of educational technology in your courses?

	Not a problem	Small problem	Moderate problem	Large problem
Instructors not using educational technologies at all	O	O	O	O
Instructors not using educational technologies well	O	O	O	O
Amount of time needed to learn educational technologies	O	O	O	O
Amount of time needed to use educational technologies	O	O	O	O

Thinking about your college experience within the past year, how many of your instructors…

	None	Some	Most	All
effectively use technology to impact your academic success?	O	O	O	O
provide you with adequate training for the technology used in courses?	O	O	O	O
have adequate technical skills for carrying out course instruction?	O	O	O	O
use "the right kind(s)" of technology?	O	O	O	O
have used technology to aid your understanding of course materials and ideas?	O	O	O	O

Different instructors use different technologies. For each of the following resources/tools please indicate (A) are your instructors using it? and (B) what is

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your opinion about instructors using it?

	A. Do your instructors use it?				B. Instructors s			
	None	Some	Most	All	Not use it	Use it less	Use it about the same	
Course or Learning Management System (Blackboard, Canvas, Desire2Learn, eLearning Commons, Moodle, etc.)	O	O	O	O	O	O	O	
E-portfolios	O	O	O	O	O	O	O	
E-books or e-textbooks	O	O	O	O	O	O	O	
Freely available course content beyond your campus (OpenCourseWare, Khan Academy, etc.)	O	O	O	O	O	O	O	
Locally installed word processor and spreadsheet software (Word, Excel, etc.)	O	O	O	O	O	O	O	
Locally installed presentation software (PowerPoint)	O	O	O	O	O	O	O	
Web-based word processor, spreadsheets, presentation software (Google Documents, NumSum, Prezi, etc.)	O	O	O	O	O	O	O	
Wikis (Wikipedia, course wiki, etc.)	O	O	O	O	O	O	O	
Blogs	O	O	O	O	O	O	O	
Recommend an article or information online by tagging/bookmarking/"liking" (Delicious, Digg, Newsvine, Twine, etc.)	O	O	O	O	O	O	O	
	None	Some	Most	All	Not use it	Use it less	Use it about the same	
Online forums or bulletin boards	O	O	O	O	O	O	O	
Podcasts and webcasts	O	O	O	O	O	O	O	
Web-based music	O	O	O	O	O	O	O	
Web-based videos	O	O	O	O	O	O	O	
Video-sharing websites (YouTube, etc.)	O	O	O	O	O	O	O	
Photo-sharing websites (Instagram, Snapfish, Picasa, etc.)	O	O	O	O	O	O	O	

	A. Do your instructors use it?				B. Instructors s			
	None	Some	Most	All	Not use it	Use it less	Use it about the same	
Online multi-user computer games	○	○	○	○	○	○	○	
Simulations or educational games	○	○	○	○	○	○	○	
Facebook	○	○	○	○	○	○	○	

To what extent do you agree or disagree with the following statements?

	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree
I get more actively involved in courses that use technology.	○	○	○	○	○
By the time I graduate, the technology I have used in my courses will have adequately prepared me for the workplace.	○	○	○	○	○
My institution's technology services are always available when I need them for my coursework.	○	○	○	○	○
I skip classes when materials from course lectures are available online.	○	○	○	○	○

	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree
When I entered college, I was adequately prepared to use technology needed in my courses.	○	○	○	○	○
Technology makes me feel more connected to what's going on at the campus.	○	○	○	○	○
Technology better prepares me for future educational plans (i.e., transferring to another degree program, getting into graduate school).	○	○	○	○	○
Technology makes me feel connected to other students.	○	○	○	○	○

	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree
Technology makes me feel connected to professors.	○	○	○	○	○

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	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree
Technology elevates the level of teaching.	○	○	○	○	○
Technology helps me achieve my academic outcomes.	○	○	○	○	○

Purdue Wildcard Questions

PART III: Items of Special Interest to Purdue University

During this year, how often have you had a writing assignment in a class?

○ Never

○ Rarely

○ Occasionally

○ Sometimes

○ Often

○ Very often

My major challenges me to do my best work.

○ Strongly disagree

○ Disagree

○ Somewhat disgree

○ Somewhat agree

○ Agree

○ Strongly agree

My best work is required to earn an A in courses in my major.

○ Strongly disagree

○ Disagree

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○ Somewhat disagree

○ Somewhat agree

○ Agree

○ Strongly agree

Which of the following have you done or do you plan to do before you graduate?

	Done or in progress	Plan to do	Do not plan to do	Have not decided
Participate in an internship, co-op, field experience, student teaching, or clinical placement.	○	○	○	○
Hold a formal leadership role in a student organization or group.	○	○	○	○
Participate in a learning community or some formal program where groups of students take two or more classes together.	○	○	○	○
Participate in a study abroad program.	○	○	○	○
Work with a faculty member on a research project.	○	○	○	○
Complete a culminating senior experience (capstone course, senior project or thesis, comprehensive exam, portfolio, etc.)	○	○	○	○

About how many of your courses at this institution have included a community-based project (service-learning)?

○ None

○ Some

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○ Most

○ All

Indicate the quality of your interactions with the following people at your institution:

	1 (Poor)	2	3	4	5	6	7 (Excellent)
Students	○	○	○	○	○	○	○
Academic advisors	○	○	○	○	○	○	○
Faculty	○	○	○	○	○	○	○
Student services staff (career services, student activities, housing, etc.)	○	○	○	○	○	○	○
Other administrative staff (registrar, financial aid, etc.)	○	○	○	○	○	○	○

How much does your institution emphasize the following?

	Very little	Some	Quite a bit	Very much
Spending significant amounts of time studying and on academic work	○	○	○	○
Providing support to help students succeed academically	○	○	○	○
Using learning support services (tutoring services, writing center, etc.)	○	○	○	○
Encouraging contact among students from different backgrounds (social, racial/ethnic, religious, etc.)	○	○	○	○
Providing opportunities to be involved socially	○	○	○	○
	Very little	Some	Quite a bit	Very much

	Very little	Some	Quite a bit	Very much
Providing support for your overall well-being (recreation, health care, counseling, etc.)	○	○	○	○
Helping you manage your non-academic responsibilities (work, family, etc.)	○	○	○	○
Attending campus activities and events (performing arts, athletic events, etc.)	○	○	○	○
Attending events that address important social, economic, or political issues	○	○	○	○

PART IV Closing Comments

Browser Meta Info

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Version: **64.0.3282.119**

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Screen Resolution: **1680x1050**

Flash Version: **-1**

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Summary Observations

Closing Comment

What is one of the most meaningful learning experiences you have had at Purdue University? Please use fewer than 500 characters.

When you select "Submit" at the bottom of this page, your survey will be securely locked and you will receive no further messages from us about this survey.

After locking your response, if you need to change a prior response, please contact the SERU Coordinator, Mark Miazga, at miazg003@umn.edu

Thanks! Your help is much appreciated. Please look for results to be made public in the months ahead.

For questions or comments please contact **miazg003@umn.edu**

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