

**GRADUATE STUDENT WELL-BEING AND SATISFACTION: DOES  
GENDER AND ADVISOR CHOICE MATTER?**

by  
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*I dedicate this dissertation to my parents, Umugul Ozturk and Recep Ozturk  
who have given me love and support through all my life.*

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## GLOSSARY

1. ***Eudaimonic Well-being*** – “Eudaimonic approach defines well-being in terms of the degree to which a person is fully functioning” (Ryan & Deci, 2001, p.141).
2. ***Happiness***: “long-term propensity to frequently experience positive emotions.” (Lyubomirsky, King, & Diener, 2005, p.805).
3. ***Hedonic Well-being*** – “Hedonic approach defines well-being in terms of pleasure attainment and pain avoidance.” (Ryan & Deci, 2001, p.141).
4. ***Life Satisfaction*** – “refers to the cognitive-judgmental process.” (Diener et al., 1985, p.71).
5. ***Psychological Well-being*** – “as a function of two independent dimensions- positive and negative affect” (Bradburn, 1969, p. 53).
6. ***Subjective Well-being*** - “a person's cognitive and affective evaluations of his or her life as a whole” (Diener et al., 2009, p.187).
7. ***Well-Being***: “the state of being happy, healthy, or prosperous” (Merriam-Webster, n.d.)

## **LIST OF ABBREVIATIONS**

CGS	Council of Graduate Schools
CSHE	Center for Studies in Higher Education
DASS 21	Depression, Anxiety, Stress Scales
EWB	Eudaimonic Well-being
GradSERU	Graduate Student Experience in the Research University
HWB	Hedonic Well-being
IRB	Institutional Review Board
LS	Life Satisfaction
NCES	National Center for Educational Statistics
NDPS	The National Doctoral Program Survey
PANAS	Positive and Negative Affect Schedule
PRES	Postgraduate Research Experience Survey
PWB	Psychological Well-being
QPPQ	Quality in Ph.D. Processes Questionnaire
SWLS	Satisfaction with Life Scale
SPSS	Statistical Package for the Social Sciences
STEM	Science, Education, Technology, and Engineering
SWB	Subjective Well-being
SSI	Student Satisfaction Inventory

## **ABSTRACT**

This study examined the relationships between graduate student gender, advisor-advisee gender match, advisor selection methods, graduate student satisfaction with advising, overall satisfaction with graduate/professional programs, health and well-being. Graduate Student Experience in the Research University (GradSERU) public-use data collected from Purdue University and the administrative records of the 2019 Purdue University Graduate School were used in the study. A series of simple linear regression analysis in the Statistical Package for the Social Sciences (SPSS), version 26.0 and RStudio version 3.6.2, were used for all data analysis. Male graduate students reported significantly higher health and well-being scores than their female counterparts. The relationship between advisor-advisee gender match, satisfaction with advising, and overall satisfaction were found non-significant in this particular sample. Advisor selection method was a significant factor in graduate student satisfaction, health, and well-being. Implications, limitations, and recommendations for future research are discussed.

*Keywords:* gender, gender match, gradSERU, advising, satisfaction, health, and well-being

## CHAPTER 1. INTRODUCTION

This chapter provides an overview to the problem and research questions. It discusses the scope and significance of this study and provides the limitations, delimitations, and assumptions.

### 1.1 Problem Statement

Although research on graduate education has increased in the last few decades, critical problems have been ignored. Obtaining a Ph.D. degree is a “harrowing” process where graduate students experience academic, social, and financial problems including discrimination and equity (Jones, 2013); social isolation (Wong, 2018), and having a difficult relationship with advisors (Tenenbaum et al., 2001). Approximately 50% of doctoral students do not finish their degrees (Cassuto, 2013). Jones (2013) conducted a thematic analysis by examining 995 journal articles that focused on doctoral education, published in prominent higher education journals between the years 1971 and 2012. He also indicated that there were four prevalent and important problems in doctoral education: student attrition, relationship with an advisor, quality and competence of an advisor, and lack of socialization of Ph.D. students. Graduate student populations have been less frequently studied than the undergraduate student population (Ampaw & Jaeger, 2012; Golde, 2000). However, the graduate student degree progression showed different patterns than undergraduate degree progression (Burger, 2018). Non-completers (Ph.D. students who were unable to complete their graduate degrees) have been an invisible problem for many higher education institutions because they did not complain or report the reasons for their departure (Lovitts, 2001). Non-completers reported that their financial problems were the primary reasons for their departure; when indeed, the actual reason was dissatisfaction with experiences in their higher education institutions (Tinto, 1993). However, Ph.D. completion rates are a problematic concern for stakeholders, including higher education institutions, policymakers, and faculty

members. For example, the results of the Council of Graduate Schools (2008) Ph.D. completion project showed that the ten-year cumulative completion rate was 57%, 58% for men, and 55% for women. Moreover, the enrollment rate in postbaccalaureate programs increased from 2.2 million to 3 million (38%) in the years 2000 to 2016 in the US (National Center for Educational Statistics (NCES), 2018). The predictions showed that the enrollment to these programs would be 3.1 million by 2027 (NCES, 2018).

Previous studies showed that graduate student gender and advisor gender played a critical role in graduate student satisfaction (Lovitts, 2001; Schroeder & Mynatt, 1999). Yet, the results were inconsistent. Lovitts (2001) reported that male graduate students (54%) were more satisfied with their advisors than female graduate students (47%). Zhao et al. (2007) found that there was a systematic lower overall satisfaction for female doctoral students after controlling for academic discipline, personal circumstances, advisor choice, and advisor behavior. Females had lower scores in satisfaction with advising than male Ph.D. students, according to this study. The advisor-advisee gender match was not considered in these current students but is that needs to be taken into account in student satisfaction and well-being. Gender and race role model effects were significant in the undergraduate student population (Rask & Bailey, 2002). Posselt (2018) indicated that same-gender and same-race faculty had critical importance for doctoral students in terms of dealing with challenging circumstances like sexual harassment and racial discrimination. However, there is a research gap and inconsistent findings on the relationship between advisor-advisee gender match, graduate student satisfaction, and well-being.

Tinto (1993) emphasized that the main aim of the doctoral education process was “to integrate doctoral students into the social and intellectual life of the institution” (p. 50). Golde (2000) stated that taking graduate classes, enhancing research skills, and writing scientific papers were

significant parts of an academic integration. However, informal interaction with the faculty, and attending social events, were a part of social integration. Tinto (1993) explained that student satisfaction was critical in terms of institutional commitment and persistence. He indicated that students who were more satisfied with the experience in their institution would be more likely complete their degree. Tinto (1993) developed an interactional model that explained doctoral student persistence within higher education in a longitudinal process and highlighted the role of a faculty advisor on graduate student social and intellectual integration. Likewise, some of researchers emphasized that supervision related to academic responsibilities had a critical role for academic and social integration (Amundsen & McAlpine, 2009), and persistence (Denis et al., 2019). Jones (2013) indicated that the relationship with an advisor could to make or break the Ph.D. candidacy for doctoral students. For instance, the roles of faculty advisors as a gatekeeper could be a double-edged sword. Faculty advisors provide unique opportunities to their students via opening the doors to the academia or closing the door for them (Schneijderberg, 2019). Lovitts (2001) indicated that Ph.D. students who had no previous information about their advisor's bad reputation were not satisfied with the quality of advising and intellectual support that their advisor provided. Conversely, advisor reputation was not a significant factor in predicting graduate student satisfaction (Zhao et al., 2007).

Graduate program, faculty advisor, and the quality of an advisor-advisee relationship were key determinants of graduate student satisfaction (Dericks et al., 2019), health, and well-being (Juniper et al., 2012). However, the research findings on graduate student satisfaction, health, and well-being showed paradoxical characteristics. Most of the research showed that graduate students were satisfied with their graduate/professional programs and faculty advisors (Williams, 2019; Slight, 2017). Yet, students were dealing with serious health problems including stress, anxiety,

and depressive thoughts, all the while trying to complete their graduate programs. Therefore, this study examined gender dynamics and the relationship between the advisor selection methods, graduate student satisfaction with advising, overall satisfaction with their graduate program, and graduate student health and well-being.

## 1.2 Research Questions

The research questions of this study were as follows:

**RQ1:** To what extent does having a faculty advisor of the same gender (advisor-advisee gender match) relate to graduate student satisfaction with advising, overall satisfaction with graduate/professional program, and graduate student health and well-being?

**RQ2:** To what extent does graduate student gender relate to graduate student satisfaction with advising, overall satisfaction with graduate/professional program, and graduate student health and well-being?

**RQ3:** To what extent does the advisor selection method relate to graduate student satisfaction with advising, overall satisfaction with graduate/professional program, and graduate student health and well-being?

**RQ4:** To what extent does graduate student satisfaction with advising, and their overall satisfaction with graduate/professional program relate to graduate student health and well-being?

## 1.3 Hypotheses

The hypotheses of this study were as follows:

**H<sub>01</sub>:** There is no significant relationship between advisor-advisee gender match and graduate student satisfaction with advising.



- H02:** There is no significant relationship between advisor-advisee gender match and graduate student overall satisfaction with graduate/professional program.
- H03:** There is no significant relationship between advisor-advisee gender match and graduate student health and well-being.
- H04:** There is no significant relationship between graduate student gender and graduate student satisfaction with advising.
- H05:** There is no significant relationship between graduate student gender and graduate student overall satisfaction with graduate/professional program.
- H06:** There is no significant relationship between graduate student gender and graduate student health and well-being.
- H07:** There is no significant relationship between the advisor selection method and graduate student satisfaction with advising.
- H08:** There is no significant relationship between the advisor selection method and graduate student overall satisfaction with graduate/professional program.
- H09:** There is no significant relationship between the advisor selection method and graduate student health and well-being.
- H10:** There is no significant relationship between graduate student satisfaction with advising and graduate student health and well-being.
- H11:** There is no significant relationship between graduate student overall satisfaction with graduate/professional program and graduate student health and well-being.

#### 1.4 Scope

The scope of this research was to investigate the relationship between graduate student gender, advisor-advisee gender match, advisor selection method, graduate student satisfaction with

advising, overall satisfaction with graduate/professional program, and graduate student health and well-being.

### 1.5 Significance

Student satisfaction is not only important for student engagement and recruitment. It also has a significant influence on an institution's brand identity, prestige, and global university rankings. Therefore, the primary goal for higher education institutions should be increasing student satisfaction (QS Digital Marketing, 2018). The study contributed to understanding the gender dynamics and advisor selection methods in graduate student satisfaction, health and well-being in a new graduate sample. The larger implications of this study are to improve graduate experience and provide direction for policies aimed at improving the quality of graduate education.

### 1.6 Assumptions

The following assumptions have been made for this study:

1. All survey respondents answered the questions honestly and truthfully.
2. The survey respondents represent the population attending a Midwest research university.
3. Previous studies on gender match showed that there were not significant distinctions between Ph.D. students and master's degrees students (Smeby, 2000). Therefore, Ph.D. students and master's degree students were considered as graduate students in the present study.

### 1.7 Delimitations

The delimitation of this study is as follows:

1. The sample of this study limited to graduate students who were enrolled in a postgraduate program at Purdue University in 2019.
2. The measures which have better psychometric properties may provide different results regarding the explanatory and response variables in the current study.

#### 1.8 Limitations

The limitations associated with the study are as follows:

1. This research is limited to graduate student satisfaction with advising, graduate student overall satisfaction with their graduate/professional programs, and their health and well-being.
2. All variables were measured with the self-report instruments.

#### 1.9 Chapter Summary

This chapter introduced the problem statement, key research questions, hypotheses, scope, the significance of the study, assumptions, delimitations, and limitations of this study.

## **CHAPTER 2. LITERATURE REVIEW**

In following sections, the conceptual framework of graduate student satisfaction and wellbeing, contemporary conceptualizations of well-being, and significant factors associated with graduate student satisfaction are discussed.

### **2.1 Conceptual Framework of the Study**

Tinto (1993) developed a theory to explain the underpinnings and significant factors of student withdrawal and departure from their institution. The model explained the student departure with pre-entry attribute, goal/commitment, institutional experiences, and integration. Tinto (1993) indicated that psychological theories provided limited perspectives regarding student attrition, because these theories focused particularly on the student component and they ignored the institutional effect. According to Tinto's theory (1993), student involvement in academic and non-academic settings significantly correlated with quality of student effort and the interactions between faculty, staff, and peers played a significant role in academic and social integration of students.

Tinto's theory (1993) highlighted the significance of graduate student satisfaction in terms of institutional commitment of student. According to his theory, students who were satisfied with the academic and social experiences within their institutions were more likely to show a higher level of institutional commitment and persistence for completion of their program. Importantly, Tinto (1993) indicated that student isolation and incongruence were the most important factors for student integration problem. However, he pointed out that incongruence was not an escapable problem for the higher educational institutions; conversely, isolation problems could be solved by enhancing student interactions with the faculty, staff, and peers.

## 2.2 Contemporary Conceptualizations of Well-being

The term “well-being” is defined as “the state of being happy, healthy, or prosperous” (Merriam-Webster, n.d.). Although there are different conceptualizations of well-being, it is primarily explained in philosophical and psychological theories. For example, ‘*Eudaimonia*’ was a Greek term that is translated as happiness; however, its meaning was closer to well-being than happiness (Michalos, 2007, p. 8). The philosophical approaches of well-being included the hedonistic and the eudaimonic views (Ryan & Deci, 2001). Hedonistic well-being was explained with ‘hedonic pleasure or happiness’ (Ryan & Deci, 2001, p.143); by contrast, eudaimonic well-being was explained with self-determination (Ryan & Deci, 2000), self-actualization (Ryan & Deci, 2001), and personal expressiveness (Waterman, 1993, 2007). Haybron (2008) summarized the key terms in definitions of well-being in a variety of theoretical approaches. He indicated that well-being was associated with actual satisfaction of an individual's desires in desire theories (p. 23); subjective well-being (SWB), life satisfaction (LS), and positive affect (PA) in authentic theories (p. 24), and knowledge, friendship, accomplishment, and pleasure in list theories (p. 26).

The term “subjective well-being” has been used interchangeably with happiness and satisfaction in the literature (Diener, 2008; Diener et al., 2018; Lykken & Tellegen, 1996; Ryff, 1989a). Ben-Shahar (2002) indicated that there were two dimensions of happiness; pleasure and meaning. However, Seligman (2011) highlighted that there were differences between the concepts of happiness and well-being. In Seligman’s well-being theory (2011), positive emotions, engagement, interest, meaning, and purpose were classified as core features; in addition, self-esteem, optimism, resilience, vitality, self-determination, and positive relationship were classified as additional features for flourishing. Diener et al. (2009) divided the theories of happiness into three categories; need-goal satisfaction theories, process-activity theories, and genetic-personality

predisposition theories. Based on the need-goal satisfaction theory, satisfaction depended on meeting basic needs; on the contrary, the process-activity theories assumed that satisfaction depended on engagement (Diener et al. 2009). For example, Csikszentmihalyi's (2000) concept of flow, which is described as engaging and motivating activities, is associated with process-activity theories. According to the genetic-personality theories, happiness depended on the genetic factors (Diener et al., 1984; Diener, Oishi, & Lucas, 2009), and there was a significant relationship between personality, genetic influences, and happiness. Lucas and Fujita (2000) investigated the effect of the Big 5 personality traits on happiness, and they found that neuroticism and extraversion were significantly correlated with happiness. Besides, research on twins showed that monozygotic twins who lived in different families had a similar level of happiness (Lykken & Tellegen, 1996). Moreover, some models have used a combination of different factors to explain happiness. For example, according to sustainable happiness theory, happiness level was mostly related to genetics (50%), life circumstances (10%), and intentional activities (40%) (Lyubomirsky, Sheldon, & Schkade, 2005). However, it should be highlighted that there were also common features of happiness and well-being theories. For instance, contemporary happiness and well-being theories emphasized that making intentional efforts in meaningful activities was critical to pursue sustainable happiness (Lyubomirsky, King, & Diener, 2005).

### 2.2.1 Psychological Well-Being

Psychological well-being (PWB) is usually defined within eudaimonic approaches and focuses on 'psychological thriving', that is, associated with dealing with difficult life situations (Takebayashi et al., 2018). Ryff (2014) identified the core dimensions of PWB as follows: "self-acceptance, positive relationships, autonomy, personal growth, environmental mastery, and purpose in life" (p.11). However, Bradburn (1969) highlighted that higher level PSW included

positive affect (PA), which dominated a low level of negative affect (NA), and PA and NA were dynamic concepts that can be changed over time.

### 2.2.2 Subjective Well-Being

SWB has been defined as a “person's cognitive and affective evaluations of his or her life” (Diener et.al., 2009, p.187) and life satisfaction (LS), frequent pleasant effects, and infrequent unpleasant effects were the main components of SWB (Diener & Suh, 1999). Kesebir (2018) indicated that the concept of happiness was divided into mainly two categories, including happiness as “*a state of mind*” and happiness as “*doing good*”(p.2). Butkovic et al. (2012) highlighted that the cognitive component of SWB was defined as ‘an individual’s reflective judgment about their life’; contrarily, the affective component had been defined as “emotions experienced in life with the idea that life is good” (p. 456).

### 2.2.3 Eudaimonic Well-being

The eudaimonic well-being is related a fully functioning person (Ryan & Deci, 2001),the energy of an individual in their daily life (Ryan & Frederick, 1997), Csikszentmihalyi’s concept of flow (Nakamura & Csikszentmihalyi, 2009), Ryan and Deci’s (2000) intrinsic motivation, and Waterman’s (1993) personal expressiveness.

### 2.2.4 Outcomes and Process of Well-being

More recent approaches have been focused on the outcomes and processes of well-being. De Neve et al. (2013) classified the objective benefits of SWB into three categories, including health and longevity, income and productivity, and individual and social behavior. They indicated that there was a significant relationship among happiness, mental, and physical health, and “positive

affect” was playing a significant role in sociality, stress, coping skills, suicide rates, and immune function system.

Although researchers in philosophy and theology used happiness and well-being interchangeably, happiness defined in a psychological perspective in science (Happiness & Well-being, 2020). In addition, the definitions of happiness have highlighted the elements related to the process. For example, happiness was defined “as a long-term propensity to frequently experience positive emotions” (Lyubomirsky, King & Diener, 2005, p. 805). Diener et al. (2018) emphasized that philosophers and religious leaders focused on explaining the features of a good life; on the contrary, professionals in behavioral sciences focused on significant factors of SWB. Having too many positive emotions on happiness has not been examined frequently by positive psychologists (Lyubomirsky, 2013); therefore, more studies are needed to explore the relationships between stress, health, well-being and satisfaction. Indeed, negative emotions cannot be categorized as bad all the time, because many great products were created to escape depression (Csikszentmihalyi 1993, p. 36). For example, Antaramian (2017) examined the relationship between a very high level of LS and academic success of undergraduate students and found that the students who had very high LS had higher GPAs and had advantages over the students who had a lower LS regarding academic self-efficacy, academic stress, focusing on academic goals.

### 2.3 Demographics, Well-being, and Satisfaction

Previous studies showed that age, gender, income, education level, and marital status were significant factors related to SWB (Blanchflower & Oswald, 2004, 2007; Charles et al., 2001; Diener et al., 2018; Mroczek & Spiro, 2005). The following section summarizes the relationship between demographic variables, graduate student well-being, and satisfaction.



### 2.3.1 Age

Although there has been a significant amount of research on age and well-being, findings varied across particular samples, age groups, and type of research design (González-Carrasco et al., 2017). Results showed that there was a U-shape relationship between age and happiness (Blanchflower & Oswald, 2004, 2007; Clark & Oswald, 2006); yet, some of them demonstrated an inverted U-shape relationship (Mroczek & Spiro, 2005, p. 197). In addition, a significant number of studies found that happiness increased with age (Charles et al., 2001; Kongarchapatara et al., 2014). Conversely, recent findings showed that LS decreased in adolescence (Goldbeck et al., 2007; González-Carrasco et al., 2017), and happiness decreased with age (Chiu & Wong, 2018; Sun et al., 2016). Moreover, studies on aging and well-being show results from the life-span perspective. Ryff (1989b) interviewed 171 middle-aged older men and women to examine their personal views of positive functioning. He found that older persons were happy about their present lives, and they did not want to change anything about them.

### 2.3.2 Gender and Gender Match

Results on the relationship between gender and well-being were mixed (Batz & Tay, 2018), and varied across specific age groups and domains (González-Carrasco et al., 2017). LS was found higher in women in some studies (Blanchflower & Oswald, 2004; Goldbeck et al., 2007; Kongarchapatara et al., 2014; Tay, Ng, Kuykendall, & Diener, 2014) and women had more intense positive emotions than men (Fujita, Diener, & Sandvik, 1991). However, a significant number of studies showed LS was higher in men (Bergman & Scott, 2001; Takebayashi et al., 2018) and men displayed a higher level of PSW, a lower level of depression, and a higher level of internal control than their female counterparts (Ryff, 1989a). Similarly, gender differences were found in some

mood and behaviors such as sadness, anxiety, antisocial personality disorder, anger, and positive moods (Nolen-Hoeksema & Rusting, 1999, p. 330).

Previous studies showed that one of the significant predictors in graduate student satisfaction and well-being with advising was student gender. Lovitts (2001) reported that male graduate students (54%) were more satisfied with their advisors than female graduate students (47%). Similarly, Zhao et al. (2007) found that female Ph.D. students had lower scores in satisfaction with their advising than male Ph.D. students. However, the results on the effect of advisor gender on student satisfaction were mixed. Arnold et al. (1998) developed a likert type scale to measure student satisfaction with advising, and they found no significant differences between advisor gender and student satisfaction with advising.

Research findings on advisor-advisee gender match in supervision differentiated in terms of perspectives of advisor and advisee. For example, Smeby (2000) collected data from 824 faculty members about the number of male and female graduate students they supervised. He found that there was a tendency to work with a graduate student with the same gender across different academic disciplines, and it was strongest in natural sciences and the weakest in social sciences for female graduate students. However, Smeby (2000) emphasized that the tendency to work with a female advisor among female students may not be a preference, instead related to male faculty advisors' discriminatory behaviors towards them. Conversely, some studies showed that having a same-gender instructor was playing a minor role in female students' academic performance (Hoffman & Oreopoulos, 2009) and their persistence (Price, 2010). For example, Schroeder and Mynatt (1999) examined the graduate students' relationships with female and male professors. They indicated that gender match could be an advantage for both male and female graduate

students. However, a female graduate student reported in their study that she chose a male advisor because of her previous negative experiences with female professors.

Some studies focused on the role model effect of gender match, particularly for female students in STEM fields. Bettinger and Long (2005) pointed out that female instructors might serve as role models for female students in the disciplines in which female students were underrepresented minorities like mathematics and geology. Schroeder and Mynatt (1999) indicated that having a female advisor might have a positive impact on female graduate students regarding finding a role model in an academic environment. Conversely, Neumark and Gardecki (1996) examined the effect of role model using sex of the dissertation chair, female faculty, and female faculty to female student ratios. They reported that the mentoring effects of female faculty were insignificant. Rothstein (1995) analyzed the effect of the percentage of female faculty on female students in terms of post-undergraduate education and labor market earnings in a sample of 1368 women. He found that percentage of female faculty members had a significant positive effect on female students' probability of continuing to their higher education for an advanced degree. However, Rothstein (1995) highlighted that having an advanced degree might represent a welcoming environment for women, and it was not a proof if there was a significant role model effect for female students.

The research findings on the relationship between student gender and Ph.D. student persistence to continue their graduate/professional programs were mixed (Bair, 1999). Burger (2018) made a history analysis upon gender differences in graduate student attrition, enrollment, and persistence in a sample of 26,664 Ph.D. students who were enrolled in Science, Technology, Engineering, and Mathematics (STEM) professional programs between 1999 and 2015. He found significant gender differences in attrition, persistence, and completion rates in STEM programs

among underrepresented minority populations. Conversely, Blanchard (2018) examined the gender differences in graduate student overall perceived stress in a sample of 169 Black graduate students and found that the differences were insignificant, but female graduate students reported higher perceived stress scores. Therefore, examining the relationship between graduate student gender, advisor-advisee gender match, graduate student satisfaction, and well-being across the different academic disciplines in a research university may provide unique findings to the literature.

### 2.3.3 Advisor Selection Method

Advisor-advisee relationship is one of the critical factors for student academic achievement, graduate degree progression, and completion (Girves & Wemmerus, 1988; Jones, 2013; Lovitts, 2001); student engagement, persistence, and retention (Arnold et al., 1998; Roberts & Styron, 2009); student satisfaction with doctoral education experience (Tinto, 1993); career choices (Zhao et al., 2007). Jones (2013) pointed out that the relationship with an advisor means to make or break the Ph.D. candidacy for doctoral students. Tinto (1993) explained that the informal and formal interactions with the faculty and their experience with the institution were the critical components of student departure. Importantly, he also indicated that the lack of interaction between student, faculty, and staff was associated with student social isolation, voluntary withdrawal, and academic dismissal. Golde (2000) examined three cases in a qualitative study and found that one of the reasons for student attrition was the inability to academic integration, which was related to problematic relationships with faculty advisors. He suggested that the most crucial component of the academic integration of doctoral students should be advisor-advisee relationships.

Personal characteristics such as gender, race, and physical handicaps (Tinto, 1993), having the same research interest with an advisor, and advisor's preferred management style (Bastalich, 2015), also had a significant impact on the quality of the advisor-advisee relationship. Supervision

style was another significant factor regarding the quality of the advisor-advisee relationship; however, there were a variety of supervision practices in doctoral education. For example, Schneijderberg (2019) classified supervision practices into 14 categories, including advisor, booster, coach, controller, crisis manager, disillusionator, door opener, evaluator, interrogator, motivator, overseer, realist, pilot, and educator. He indicated that there could be a significant relationship among types of supervision practice and doctoral student personality development, knowledge, skills, and attrition rates during academic and social integration.

There were a variety of advisor selection methods; yet, little is known about how these methods impact graduate student satisfaction, health, and well-being. Lovitts (2001) found that Ph.D. students (58%) who selected their advisor were reported higher satisfaction scores than the students (16%) who did not select their advisor. She also maintained that the graduate students who did not know their advisor's bad reputation about the completion rates of their previous students also did not have any intellectual support from their advisor. Zhao et al. (2007) explained that the advisor of graduate students, particularly in Humanities, were assigned by their departments; conversely, in Science departments, advisors and advisees usually had a common decision to work together. Zhao et al. (2007) also examined the criteria of graduate student advisor selection in a sample of 4,010 graduate students in eleven disciplines and across twenty-seven universities. They found that generalized reputation of advisor, intellectual compatibility, and pragmatic benefits were the most critical factors, and all of them significantly correlated with advisor choice.

Furthermore, student age was another significant factor related to advisor selection. According to Zhao et al. (2007), older students were not less likely to consider advisor reputation and pragmatic aspects, and they were less likely to have experience regarding advisors' deceitful and

unethical behaviors. Presumably, older graduate students might demonstrate savvy behavior, and their expectations from the advisor might be different from their younger counterparts in the advisor selection process.

#### 2.3.4 Education

Recent research showed that education was a significant predictor of well-being (Butkovic et al., 2012; Keyes et al., 2002; Meeks & Murrell, 2001; Melin et al., 2003; Sun et al., 2016). However, the relationship between education, satisfaction, and well-being depended on the definition of education. If education has been defined as the highest level of formal education and measured it with standardized instruments, the effect of it may not be significant (Michalos, 2007).

#### 2.3.5 Socioeconomic Status

According to the resource theory of SWB, an individual's satisfaction with their lives depended on having enough resources to achieve their goals (Diener & Fujita, 1995). However, financial considerations provided mixed results regarding graduate student attrition, satisfaction levels, health, and well-being. Previous research showed that the correlation between financial situation and happiness was small or moderate (Boyce et al., 2017; Chancellor, & Lyubomirsky, 2014; Diener et al., 2010; Howell & Howell, 2008). Indeed, the focus on earning more money required more work, which did not give a greater level of happiness (Mogilner, 2010); yet its effect cannot be ignored (Diener et al., 2018). Myers and Diener (1995) highlighted that wealth showed similar features with health that if one did not have wealth or health, they might feel miserable; conversely, if one has them, they may not be necessarily happy.

The findings on the relationship between financial considerations and graduate student attrition were not clear. Although financial support was found as a useful predictor for doctoral

student attrition (Bair, 1999), and non-completers reported that the primary reason for their leave was financial problems, the true reason was dissatisfaction with institutional experience (Tinto, 1993).

#### 2.4 Measurement of Well-being

Some researchers have skeptical views about the validity of self-reporting SWB instruments (Diener et al., 2018), including measurement error, method effects, definitions of well-being, and effect of time and situational factors (Eid, 2018). However, these measures provided valid results with an acceptable convergent validity (Diener & Suh, 1999). One of the major criticisms of SWB measures was that these measures were affected by situational influences. The moods of people changed day by day, and they may avoid extreme responses in self-reporting measures (Diener & Suh, 1999). For example, survey responders who indicated that they felt happy at one time, they might notice later that they were not happy at that time. Clark et al. (2018) stated that older or middle-aged adults could judge and evaluate their well-being, whereas young children did not have this ability when they were asked for their current moods in their daily lives.

One controversial issue related to measuring well-being was operationalizing the definition of SWB. The objective happiness and SWB were at the center of this paradoxical debate. Kahneman (1999) defined the term objective happiness as “the measure of the time integral of instant utility” (p.4). On the contrary, Alexandrova (2005) pointed out that Kahneman was not clear about measuring good mood and LS; and, objective happiness depended on the context. Moreover, measuring LS was more appropriate for a few reasons, including providing holistic views of well-being, clear perspectives for readers, and democratic and valuable information for policymakers (Clark et al., 2018).

#### 2.4.1 Measures of Satisfaction and Well-being

One of the frequently used measures of well-being is Satisfaction with Life Scale (SWLS). SWLS was developed to measure global life satisfaction (GLS) and included five 7-point Likert type items (Diener et al., 1985). It has been commonly used in happiness research for a few reasons. First, SWLS filled a gap in the literature that previous studies had focused on affective components of well-being, including PA and NA; however, SWLS provided a holistic approach of well-being (Diener et al., 1985, p.71). Second, it was a valid and reliable measure (Diener et al. 1985; Pavot & Diener, 1993; Pavot et al., 1991). Third, it was preferred by researchers due to its brevity and applicability to a variety of populations (Alfonso et al., 1996).

The psychometric properties of SWLS were examined in a sample of 176 undergraduate students at the University of Illinois by Diener et al. (1985). They also administered SWLS to 76 students from the same sample two months later and found the test-retest reliability coefficient as 0.82, and Cronbach's alpha 0.87. The interrater reliability coefficient for the two interviewers was found 0.73; however, item-total correlations were found 0.31, 0.63, 0.61, 0.75, and 0.66 (Diener et al., 1985). The psychometric properties of SWLS were also examined different populations including disabled students (Chwalisz et al., 1988); Chinese students (Shao & Diener, 1992), Arabic students (Abdallah, 1998), and Russian students (Balatsky & Diener, 1993). SWLS showed a high level of internal consistency from 0.79 to 0.87 and moderate test-retest reliability from 0.50 to 0.84 in the diverse populations within different temporal intervals (Pavot & Diener, 1993). Pavot et al. (1991) examined the convergent validity of SWLS using peer reports, memory measure, and clinical ratings in a sample of elderly persons and college students in the US. SWLS showed moderate to strong correlations (from 0.39 to 0.82) with other measures except for Peer-Affect Balance measure and favorable convergent validity (Pavot et al., 1991). The normative sample of



SWLS contains a variety of international samples. Balatsky and Diener (1993) examined Russian students SWB in a sample of 63 students from Moscow University and 53 students from the Glazov Institute. They found that both samples were dissatisfied with their life; however, their satisfaction level was found significantly lower than the American counterparts. Eid and Diener (2004) examined reliability, consistency, occasion specificity, and the correlations between mood, SWLS, and other SWB scales in a sample of 249 individuals. They reported the reliability coefficient of SWLS (0.90), and the correlation between occasion-specific level mood and SWLS ( $r = 0.13$ ).

Positive and Negative Affect Schedule (PANAS; Watson et al., 1988) was one of the frequently used instruments in well-being research. It included ten positive and ten negative adjectives, and respondents were asked to rate them based on their feelings during a specific time, and the Cronbach alpha for PA was found 0.78; for NA 0.87 (Mackinnon et al., 1999).

Depression, Anxiety, Stress Scales (DASS)-21 was a shorter version of DASS. Henry and Crawford (2005) investigated the construct validity of DASS-21 in a sample of 1,794 individuals in the UK. They found Cronbach's alpha coefficient .88 for the Depression scale, 0.82 for the Anxiety scale, 0.90 for the Stress scale, and 0.93 for the Total Scale (Henry & Crawford, 2005, p.231). They also examined the correlations between DASS-21, PA, and NA and found the total score 0.69 and -0.40. Norton (2007) examined the psychometric properties of DASS-21 among four different racial groups, including African American, Caucasian, Hispanic/ Latino, and Asian, in a sample of 895 undergraduate students in Texas. He reported Cronbach's alpha as 0.83 for the Depression scale, 0.78 for the Anxiety Scale, 0.87 for the Stress scale, and the alpha coefficients were found similar among four racial groups. Norton (2007) also examined the convergent and divergent validity of DASS-21, and the magnitude of associations between BDI and DASS-21 (0.203), BAI (0.018), PANAS-NA (0.051), and PANAS- PA (0.04) were found significant. The

psychometric properties of the DASS full version and DASS-21 were examined in the clinical samples and a community group (Antony et al., 1998). They reported Cronbach's alpha for the DASS Depression scale (0.97), the Anxiety scale (0.92), the Stress Scale (0.95), for DASS-21 Depression scale (0.87), the Anxiety scale (0.87) and the Stress scale (0.91).

The Academic Satisfaction Scale (Lent et al., 2007) included seven items, and responses were coded into a 5-point Likert type scale ranged from *strongly disagree (1) to strongly agree (5)*. Lent et al. (2007) investigated the psychometric properties of the scale and found coefficient alpha .94 in their study. They reported correlations between predictors and outcome variables for criterion-related validity and found that academic satisfaction had moderate to strong correlations with predictor variables ranged from 0.52 to 0.67.

#### 2.4.2 Measures of Graduate Student Satisfaction and Well-being

There were measures that were developed particularly to measure overall student satisfaction, satisfaction with advising, and well-being. Dericks et al. (2019) devised a valid and reliable ten-item scale to measure overall Ph.D. student satisfaction. Sample item included, "Thinking about your overall experience of your Ph.D. as a whole, how much do you agree that the following words accurately describe your overall Ph.D. experience to date?" Dericks et al. (2019) reported that the scale was unidimensional, Cronbach's alpha coefficient was 0.94, and all the factor loadings were above 0.73.

Juniper et al. (2012) developed a reliable and valid measure to evaluate Ph.D. student well-being. They examined 58 items across seven domains of Ph.D. student well-being, including development, facilities, home and health, research, social, supervisor, and university. Cronbach's alpha coefficient was ranged from 0.78 to 0.91 for all domains and the instrument had good content validity.

The National Doctoral Program Survey (NDPS) was a comprehensive online study conducted by the National Association of Graduate and Professional Students in 2000 (Weibl, 2001). The purpose of the NDPS study was to examine perceptions of doctoral students who were enrolled in a graduate program in the US and Canada (Fagen & Sudekamp Wells, 2004). It included 48 questions in nine categories, including information for prospective students, curricular breadth and flexibility, teaching, professional development, career guidance, and placement services, time to degree, faculty mentoring, financial support/resources, program climate, and overall satisfaction. (Fagen & Sudekamp Wells, 2004, p. 75). The sample item includes, “I am satisfied with the quality of time I spend with my advisor” (Barnes & Randall, 2012).

MED-NORD is another measure that was developed to measure the well-being of medical students and their study orientations (Lonka et al., 2008, p. 72). It has 93 items and takes 20 minutes to complete; it has adequate internal reliability (.60 and above) and useful content validity (Lonka et al., 2008). Stubb et al. (2011) investigated doctoral student socio-psychological well-being among 669 doctoral students in Finland. They modified MED-NORD for Ph.D. candidates who enrolled in a doctoral program in humanities, medicine, and behavioral sciences at the University of Helsinki.

Student Satisfaction Inventory (SSI) was distributed by Ruffalo Noel Levitz in the US and it included 116 items, which measure 11 dimensions of perceived importance and satisfaction, including academic advising effectiveness, service excellence, and student-centeredness (Elliott, & Healy, 2001). SSI was a valid and reliable measure, and Cronbach’s alpha coefficient for the perceived importance was 0.97 and 0.98 for satisfaction (Elliott, & Healy, 2001, p. 4).

Postgraduate Research Experience Survey (PRES) was developed by the Higher Education Academy (HEA) in 2007, and it was redesigned in 2013 (Slight, 2017). The recent version, 2019

PRES, included forty-one questions, including thirty-one 5-point Likert scale questions and ten open-ended with five well-being questions (Williams, 2019). 2019 PRES questions were categorized into seven dimensions, such as supervision, resources, research culture, progress and assessment, responsibilities, research skills, and professional development (Williams, 2019).

Quality in Ph.D. Processes Questionnaire (QPPQ) was specially developed to measure doctoral student PWB and their perceptions about key factors of the research process (Herrmann, & Wichmann-Hansen, 2017). QPPQ was a valid measure which included six subscales including collegial research environment ( $\alpha = 0.903$ ), loneliness ( $\alpha = 0.715$ ), exhaustion ( $\alpha = 0.811$ ), insecurity ( $\alpha = 0.800$ ), harsh tone ( $\alpha = 0.663$ ), and ownership ( $\alpha = 0.594$ ) (Hermann & Wichmann-Hansen, 2017). The sample item included, “Do you feel that your work as a Ph.D. student takes up so much time and energy that it affects your private life?” (Herrmann & Wichmann-Hansen, 2017).

Arnold et al. (1998) developed a measure to examine the relationship between student satisfaction and academic advising. They reported Cronbach’s alpha coefficient for the satisfaction with advising index ( $\alpha = 0.74$ ). The questionnaire included 5-point Likert type questions including “I am satisfied with the advising I am received” (Arnold et al., p. 250).

#### 2.4.3 Alternative Measures of Subjective Well-Being

The alternative measures, or non-traditional measures, of well-being, were developed in recent decades (Eid, 2018; Kesebir, 2018). Some of these measures and techniques were brain activity, smiling, experience sampling methodology (ESM), the day reconstruction method, memory measures, cognitive accessibility, informant reports, implicit measures, and big data (Scollon, 2018). Ford et al. (2018) examined the correlations among Google searches of affect-related terms including self-reported affect, well-being, personality, heart disease, and depression at the state

and metro area levels in the US. Although they indicated that the construct validity of Google research results was one of the most significant limitations of their study, the results provide critical insights. Ford et al. (2018) reported that the results of Google searches were significantly correlated with neuroticism for most of the participants, and the word “scared” was correlated with “disengagement,” “engagement” and “positive relationships”; “depression” was correlated with “negative emotion” and “anxiety” (p. 13).

## 2.5 Research on Graduate Student Well-Being

Doctoral student well-being has been defined as, “a researcher’s overall well-being that is primarily influenced by their Ph.D. role and can be influenced by university-based interventions”. (Juniper et al., 2012, p. 565). However, the findings about graduate student well-being were mixed and demonstrated paradoxical characteristics. Majority of studies showed that graduate students were satisfied with their graduate programs and faculty advisors (Arnold et al., 1998; Slight, 2017); yet, they were dealing with serious health problems including stress, anxiety, and depressive thoughts (Barreira et al., 2018; Jones, 2013; Rotenstein et al., 2016; Storrie et al., 2010). Barreira et al. (2018) investigated the mental well-being of 513 Ph.D. students in economics and found that 18% of students experienced depression and anxiety, and 11% experienced suicidal thoughts.

Furthermore, recent studies focused on new dimensions of graduate student well-being. Juniper et al. (2012) developed a scale to assess Ph.D. student well-being in a sample of 2500 postgraduate researchers. They found that Ph.D. students’ research experience, socialization, the role of a university, and the impact of student research were important dimensions in their health. Juniper et al. (2012) indicated that advising was a significant factor for completion of the graduate program, and overall research experience of a student; however, there were more significant factors which had an impact on Ph.D. students’ well-being.

Graduate student well-being is not only a critical problem on the national level. Levecque et al. (2017) investigated mental health problems in a sample of 3659 Ph.D. students in Belgium. They found that 32% of the participants had a risk of a psychiatric disorder, and unhappiness, depression, and sleeping problems were the most common problems (Levecque et al., 2017). 2019 PRES findings showed that postgraduate student well-being was lower than the general population, and anxiety was the most common problem among postgraduate students in the UK (Williams, 2019). Similarly, Stewart-Brown et al. (2000) surveyed students' emotional and physical well-being in a sample of 1208 students as well as their attitudes and beliefs about health in three UK universities. In that study, 38% of the respondents reported emotional health problems, 49% of them indicated that there was a large gap among their performance and expectations in a negative way, and 39% of them had serious concentration problems on their academic studies (Stewart-Brown et al., 2000).

Graduate student well-being correlated with specific health outcomes, components of the graduate program, student attitudes, and motivation. For example, Takebayashi et al. (2018) examined the relationship between PWB, cognitive vulnerabilities, and generalized anxiety, and the findings showed that PWB had critical importance for preventing generalized anxiety disorder.

## 2.6 Research on Graduate Student Satisfaction

Student satisfaction has been defined as, “a short-term attitude resulting from an evaluation of a student’s educational experience,” and it “results when actual performance meets or exceeds the student’s expectations” (Elliott, & Healy, 2001, p.2). Student satisfaction has not only influences student engagement and retention, but it also has a significant impact on the perceived brand identity, prestige of the institution, and global rankings; therefore, increasing student satisfaction should be the primary goal for the institutions (QS Digital Marketing, 2018). Student

satisfaction was a comprehensive concept that included personal, institutional, and perceptual components. For example, personal contact with the instructor, quality of relationships with classmates, and climate in the classroom were important factors of student satisfaction with a course (Harnash-Glezer & Meyer, 1991), and learning and teaching aspects were more important factors than physical facilities in student satisfaction with higher education institution (Douglas et al., 2006). Michalos and Orlando (2006) used four variables to calculate SWB scores, including satisfaction of life, overall quality of life, living standards, and overall happiness. The results showed that the satisfaction with course instructors was the most significant predictor for LS of students, and the satisfaction of self-esteem was found to be the most critical predictor for the overall quality of life (Michalos & Orlando, 2006). Dericks et al. (2019) conducted a study on the determinants of doctoral student satisfaction in a sample of 409 Ph.D. candidates in 63 universities from 20 countries. They examined the effects of academic qualities, supportiveness of advisors and departments on Ph.D. student satisfaction. Their results showed supportiveness of an advisor was the most significant predictor on doctoral student satisfaction. Dericks et al. (2019) emphasized that the supportiveness of an advisor, academic qualities of the department, and departmental support were significantly associated with Ph.D. student satisfaction; however, advisors' academic qualities and peer effect were not statistically significant when they used all of variables concurrently.

One of the comprehensive research on Ph.D. student overall satisfaction was conducted by the National Association of Graduate and Professional Students (NAGPS). In this study, the National Doctoral Program Survey (NDPS), was administered over 32,000 doctoral students in the US and Canada (Fagen & Sudekamp Wells, 2004). The findings showed that 81% of the students satisfied with their graduate programs, and they indicated that they would recommend their

graduate programs to prospective graduate students (Fagen & Sudekamp Wells, 2004). Postgraduate Research Experience Survey (PRES) was used to explore postgraduate students' experiences and to enhance student engagement since 2007 in the UK (Slight, 2017). 2019 PRES data were collected from 107 institutions and 50,600 individuals, and the findings showed that 81% of the respondents satisfied with their overall experience in their institution (Williams, 2019). 2019 PRES findings provided a longitudinal perspective on the overall satisfaction of postgraduate students. Williams (2019) reported that student satisfaction was increased over time; however, the highest satisfaction level was measured in 2011 (86%). This report also showed that there were large gaps in overall satisfaction across academic disciplines. Postgraduate students who were enrolled in Health Sciences demonstrated the highest satisfaction, and students within social sciences demonstrated the lowest satisfaction, according to the PRES 2019 report (Williams, 2019).

Research findings on the relationship between advisor role and student satisfaction were puzzling. 2000 NDPS results showed that 86% of Ph.D. students were satisfied with their faculty advisors (Fagen & Sudekamp Wells, 2004). Posselt (2018) examined the effect of the faculty role in Ph.D. student persistence and well-being in a sample of 29 Ph.D. students who were enrolled in a STEM program at two research universities. She found that the faculty role was important in academic, sociocultural, psychosocial, and cognitive dimensions. In addition, she reported that having meaningful relationships with advisors was beneficial regarding developing a growth mindset, enhancing student competence, and understanding unique dimensions of working in an academic environment. On the contrary, Barnes and Randall (2012) found former Ph.D. graduates in humanities, physical, social, and life sciences were dissatisfied with their relationship with their advisors (p. 69). The advisor role was not only important for Ph.D. students but also critical for the satisfaction of master level students. The master level students (N= 401) reported that they



were more dissatisfied with the high level of perceived control and more satisfied with their advisor contribution to their learning and interpersonal affiliation (De Kleijn et al., 2012).

Factors like type and prestige of the university and academic discipline had a significant influence on graduate student satisfaction. For example, Barnes & Randall (2012) examined the mean and item level of satisfaction among 23,009 former graduates and current doctoral students across seven academic disciplines. They reported that there were no significant differences in doctoral student overall satisfaction in research-intensive and research extensive universities, and students were satisfied with communicating with their advisors. Conversely, students were dissatisfied with their amount of information they received, according to this study. However, the doctoral students were less satisfied with their experience and guidance in research universities, and the satisfaction levels differed across the academic discipline (Barnes & Randall, 2012).

## 2.6 Chapter Summary

This chapter summarized the literature regarding contemporary conceptualizations of well-being including psychological well-being, subjective well-being, eudaimonic well-being, outcomes and process of well-being, important factors of well-being and student satisfaction, measurement of well-being, measures of well-being, measures of graduate student satisfaction, alternative measures of SWB, research on graduate student well-being and graduate student satisfaction.

## **CHAPTER 3. METHOD**

This chapter explains the methodology used in this study, including the study design, participants, sample, sample size, research questions, and hypotheses. A summary of the data analysis procedures is discussed at the end of the chapter.

### **3.1 Study Design**

An explanatory correlational research design was used to examine the relationships between the explanatory and response variables. “An explanatory research design is a correlational design in which the researcher is interested in the extent to which two variables (or more) co-vary, that is, where changes in one variable are reflected in changes in the other” (Creswell, 2012, p. 340). Simple regression was used to test the significance of the relationship overall graduate student satisfaction with the graduate/professional program, satisfaction with advising, health and well-being, and graduate student gender, advisor-advisee gender match, and advisor selection method.

### **3.2 Participants**

The data were obtained from a public use gradSERU data set and 2019 administrative records of the Purdue University Graduate School. The gradSERU data were collected through online surveys. The purpose of collecting gradSERU data was to analyze the relationship between graduate education experience, graduate student psychological, social, emotional, and professional development (“gradSERU Survey Design,” n.d.).

### 3.3 Population

The population of this study consisted of graduate students who were enrolled in a postgraduate program at Purdue University in 2019. The sample of this study consisted of 2,339 graduate students who responded gradSERU survey in 2019.

### 3.4 Sample Size

A priori power analysis for regression with 1 and 2 predictors was conducted using G\*Power Version 3.1.9.7 (Faul et al., 2009) to determine the desired sample size using medium effect size ( $f^2 = 0.15$ ), and an alpha of .05 for each hypothesis. The results showed that a total sample of 89 participants required to achieve a power of .95 for one predictor, and a total sample of 107 participants required to achieve a power of .95 for two predictors. The sample in the present study exceeded desirable sample size to test each hypothesis.

### 3.5 Research Questions

The research questions of this study were as follows:

**RQ1:** To what extent does having a faculty advisor of the same gender (advisor-advisee gender match) relate to graduate student satisfaction with advising, overall satisfaction with graduate/professional program, and graduate student health and well-being?

**RQ2:** To what extent does graduate student gender relate to graduate student satisfaction with advising, overall satisfaction with graduate/professional program, and graduate student health and well-being?

**RQ3:** To what extent does the advisor selection method relate to graduate student satisfaction with advising, overall satisfaction with graduate/professional program, and graduate student health and well-being?

**RQ4:** To what extent does graduate student satisfaction with advising, and their overall satisfaction with graduate/professional program relate to graduate student health and well-being?

### 3.6 Hypotheses

The hypotheses of this study were as follows:

**H<sub>01</sub>:** There is no significant relationship between advisor-advisee gender match and graduate student satisfaction with advising.

**H<sub>02</sub>:** There is no significant relationship between advisor-advisee gender match and graduate student overall satisfaction with graduate/professional program.

**H<sub>03</sub>:** There is no significant relationship between advisor-advisee gender match and graduate student health and well-being.

**H<sub>04</sub>:** There is no significant relationship between graduate student gender and graduate student satisfaction with advising.

**H<sub>05</sub>:** There is no significant relationship between graduate student gender and graduate student overall satisfaction with graduate/professional program.

**H<sub>06</sub>:** There is no significant relationship between graduate student gender and graduate student health and well-being.

**H<sub>07</sub>:** There is no significant relationship between the advisor selection method and graduate student satisfaction with advising.

**H<sub>08</sub>:** There is no significant relationship between the advisor selection method and graduate student overall satisfaction with graduate/professional program.

**H<sub>09</sub>:** There is no significant relationship between the advisor selection method and graduate student health and well-being.

**H<sub>10</sub>:** There is no significant relationship between graduate student satisfaction with advising and graduate student health and well-being.

**H<sub>11</sub>:** There is no significant relationship between graduate student overall satisfaction with graduate/professional program and graduate student health and well-being.

### 3.7 Measures

The Graduate Student Experience in the Research University (gradSERU) survey and the administrative records of the 2019 Purdue University Graduate School were used to measure all variables in this study. GradSERU was developed by the SERU Consortium (“gradSERU Survey Design”, n.d.). The main purposes of gradSERU were to explore best practices in higher education, to provide knowledge to the research institutions to develop meaningful and efficient policies for higher education, and to collaborate with other institutions at the national and international level (“gradSERU Survey Design”, n.d.).

The conceptual foundations of gradSERU are related to Tinto’s doctoral persistence theory, which is categorized the graduate student experience in a research university into the three stages: the entry stage, the development stage, and the degree completion stage, respectively (“gradSERU Survey Design”, n.d.). In addition, graduate student experiences are classified into the five domains in the gradSERU, including curricular experiences, co-curricular experiences, research experiences, teaching experiences and professional development, the social life and conditions, and personal life and conditions (“gradSERU Survey Design”, n.d.). In this study, the final version of gradSERU is required 30-45 minutes for completion (gradSERU Survey, 2020 January 15). Further information on the survey design and development of gradSERU can be found in the Center for Studies in Higher Education (CSHE) at the University of California at Berkeley (<https://cshe.berkeley.edu/seru/about-seru/gradseru-survey-design>).

**Table 1 gradSERU Items Used to Construct the Graduate Student Satisfaction with Advising Score**

<i>Item</i>	<i>M (SD)</i>	<i>Scoring</i>
1. My advisor has expertise in the area I am researching or studying.	3.57 (0.71)	1 to 4
2. My advisor's intellectual interests match mine.	3.42 (0.73)	1 to 4
3. My advisor is able to effectively help me.	3.4 (0.75)	1 to 4
4. My advisor provides me with information that helps me think about my future career.	3.25 (0.87)	1 to 4
5. My advisor has time for me when I need help or advice.	3.46 (0.74)	1 to 4
6. My advisor helps me get financial support.	3.25 (0.92)	1 to 4
7. My advisor assists me in writing for presentations/publications.	3.26 (0.89)	1 to 4
8. My advisor advises me about teaching.	2.79 (0.99)	1 to 4
9. My advisor teaches me the details of good research practice.	3.26 (0.88)	1 to 4
10. My advisor is interested in collaborating with me on research.	3.32 (0.87)	1 to 4
11. My advisor helps me network with other researchers and scholars.	3.1 (0.93)	1 to 4
12. My advisor respects me as an individual.	3.57 (0.68)	1 to 4
13. My advisor considers my personal abilities, talents, and interests when advising me.	3.47 (0.74)	1 to 4
14. My advisor emphasizes the importance of transforming creative ideas and innovations into practical solutions.	3.38 (0.8)	1 to 4
15. My advisor encourages the expression of intellectual differences or disagreements.	3.33 (0.82)	1 to 4
16. My advisor has a reputation of being a good advisor.	3.4 (0.8)	1 to 4
17. Preparing for written qualifying examinations	3.39 (1.35)	1 to 5
18. Preparing for the oral qualifying examination	3.46 (1.35)	1 to 5
19. My dissertation/thesis research	3.86 (1.18)	1 to 5
20. Writing and revising my dissertation/thesis	3.75 (1.27)	1 to 5
21. Dissertation defense or final oral qualifying exam	3.76 (1.3)	1 to 5
22. Searching for opportunities to publish/present at a professional conference	3.67 (1.3)	1 to 5
23. Developing professional relationships with other researchers in my field	3.43 (1.34)	1 to 5
24. Writing for publications	3.71 (1.26)	1 to 5
25. Writing grants and contract proposals	3.41 (1.4)	1 to 5
26. Researching or studying in other countries	2.95 (1.53)	1 to 5
27. Selection of academic career options	3.41 (1.32)	1 to 5
28. Selection of non-academic career options	3.11 (1.36)	1 to 5

**Table 2 gradSERU Items Used to Construct the Graduate Student Overall Satisfaction with Graduate/ Professional Program Score**

<i>Item</i>	<i>M (SD)</i>	<i>Scoring</i>
1. Quality of instruction	3.31 (0.73)	1 to 4
2. Course availability	3.08 (0.81)	1 to 4
3. Quality of advising (supervision)	3.24(0.84)	1 to 4
4. Knowledge gained	3.45 (0.65)	1 to 4
5. Financial support/funding	3.06 (0.88)	1 to 4
6. Quality of facilities and equipment	3.28 (0.74)	1 to 4
7. Quality of IT (computer, etc.) support	3.24 (0.74)	1 to 4
8. Quality of support staff	3.42 (0.66)	1 to 4
9. Quality of university library resources and support	3.47 (0.59)	1 to 4
10. Opportunities for research	3.25 (0.74)	1 to 4
11. Opportunities for teaching	3.09 (0.77)	1 to 4
12. Departmental climate (atmosphere, policies, practices)	3.16 (0.77)	1 to 4
13. Overall graduate/professional program quality	3.32 (0.70)	1 to 4
14. Value of the education you are getting for the money you are paying	3.35 (0.71)	1 to 4
15. Would you choose the same field of graduate/professional research or study?	3.51 (0.76)	1 to 4
16. Would you enroll in the same graduate/professional program?	3.38 (0.87)	1 to 4
17. Would you choose the same university for your graduate/professional studies?	3.39 (0.87)	1 to 4
18. Would you choose the same advisor?	3.48 (1.05)	1 to 4
19. Would you choose the same dissertation topic?	3.78 (1.08)	1 to 4
20. Would you recommend this university to someone considering your field of graduate/professional research or study?	3.48 (0.82)	1 to 4

Composite scores were calculated for the following variables in this study: Graduate student satisfaction with advising, graduate student overall satisfaction with graduate/professional program, and graduate student health and well-being. The gradSERU items used to construct for each composite score were presented in Table 1, Table 2, and Table 3, respectively.

**Table 3 gradSERU Items Used to Construct the Graduate Student Health and Well-being Score**

<i>Item</i>	<i>M (SD)</i>	<i>Scoring</i>
1. Your current physical health	3.93 (0.86)	1 to 5
2. Your current mental health	3.70 (0.99)	1 to 5
3. Your current emotional well-being	3.60 (1.03)	1 to 5
4. Your current ability to manage stress	3.59 (0.98)	1 to 5
5. Your current ability to get the nightly sleep you need	3.34 (1.12)	1 to 5
6. Your current ability to eat a balanced and nutritious diet	3.49 (1.06)	1 to 5
7. Your current ability to get at least 150 minutes of exercise per week	3.03 (1.03)	1 to 5
8. Little interest or pleasure in doing things	4.22 (1.69)	1 to 4
9. Feeling down, depressed, or hopeless	4.21 (1.70)	1 to 4
10. Feeling nervous, anxious, or on edge	4.0 (1.84)	1 to 4
11. Not being able to stop worrying	1.82 (0.94)	1 to 4

### 3.8 Explanatory and Response Variables

The response variables of this study were overall graduate student satisfaction with graduate/professional program, graduate student satisfaction with advising, and graduate student health and well-being. The explanatory variables of this study were graduate student gender, advisor-advisee gender match, and the advisor selection method. However, graduate student satisfaction with advising was used both as an explanatory and response variable. All response variables were continuous in this study. Frequencies and percentages of demographic variables of this study are presented in Table 4.



**Table 4** Frequencies for Demographic Variables of the Graduate Student Sample

<i>Variable</i>	<i>Frequency</i>	<i>Percent (%)</i>
<i>Graduate student gender</i>		
Female	1124	47.9%
Male	1215	51.8%
No response	6	.3%
<i>Gender match</i>		
Same gender	1264	49.1%
Different gender	810	31.5%
No response	499	19.4%
<i>Age</i>		
24 and under	593	25.3%
25 to 34	1391	59.3%
35 to 44	240	10.2%
45 and over	115	4.9%
No response	6	.3%
<i>Education level</i>		
Masters	856	36.5%
Doctoral research	1301	55.5%
Doctoral-prof.	183	7.8%
Other	5	.2%

### 3.8.1 Satisfaction with Advising

Student satisfaction and satisfaction with advising were considered separate variables in the study as there were inconsistent findings in terms of student satisfaction with advising and their overall satisfaction with graduate programs. There were 28 questions in the advising index in the gradSERU survey. Sixteen out of 28 survey questions were coded into a 4-point Likert type scale as *strongly disagree (1)*, *disagree (2)*, *agree (3)*, or *strongly agree (4)*. Twelve out of 28 survey questions were coded into a 5-point Likert type scale as *not at all helpful (1)*, *slightly helpful (2)*, *helpful (3)*, *very helpful (4)*, or *extremely helpful (5)*. The composite score for advising was calculated by averaging all items related to advising ( $M_A = 3.39$ ,  $Mdn_A = 3.46$ ,  $SD_A = .92$ ). In order

obtain more comparable data, the items related to advising were rescaled. For the for the 4- point Likert scale data, score 1 was rescaled as 0, 2 as 0.33, 3 as 0.67 and 4 as 1. For the for the 4- point Likert scale data, 1 was rescaled 0, 2 as 0.25, 3 as 0.75, and 4 as 1.

### 3.8.2 Overall Satisfaction with Graduate/Professional Program

Twenty items were used to measure overall graduate student satisfaction with graduate/professional programs in gradSERU data. These items are related to the quality of instruction, course availability, quality of advising, the knowledge gained, financial support and funding, quality of facilities and equipment, quality of IT support, quality of support staff, quality of university library resources and support, opportunities for research, opportunities for teaching, departmental climate, overall graduate/professional program quality, and value of the education. Fourteen out of 20 items were coded into a 4-point Likert type scale as *very dissatisfied* (1), *dissatisfied* (2), *satisfied* (3), and *very satisfied* (4). Six out of 20 items were coded into a 4-point Likert type scale as *definitely not* (1), *probably not* (2), *probably* (3), or *definitely* (4). ( $M = 3.31$ ,  $Mdn = 3.35$ ,  $SD = .47$ ). Although all the items in overall satisfaction scores were coded into 4 - point Likert type scale, they were rescaled before the regression analysis to obtain more comparable results.

### 3.8.3 Graduate Student Health and Well-being

Eleven gradSERU items were used to construct the graduate student health and well-being score. The sample items related to current physical health, current mental health, current emotional well-being, and current ability to manage stress and feeling down, depressed, or hopeless. Seven out of 11 survey questions were coded into the 5-point Likert type scale as *very poor* (1), *poor* (2), *fair* (3), *good* (4), and *very good* (5). Four out of 11 survey items were reverse coded into the 4-

point Likert type scale as *not at all (1)*, *several days (2)*, *more than half the days (3)*, *nearly every day (4)*. The mean of graduate student health and well-being score was 3.52, the median was 3.57, with a standard deviation of .80. In order obtain more comparable data, the items related to graduate student health and wellbeing were rescaled. For the for the 4- point Likert scale data, score 1 was rescaled as 0, 2 as 0.33, 3 as 0.67 and 4 as 1. For the for the 4- point Likert scale data, 1 was rescaled 0, 2 as 0.25, 3 as 0.75, and 4 as 1.

#### 3.8.4 Graduate Student Gender and Advisor-Advisee Gender Match

Among the 2345 participants, 1124 were female (47.9%), and 1215 were male (51.8%). The males were coded to 0, and females were coded to 1 for the data analysis. A new variable was created for the advisor-advisee gender match. The student who had a faculty advisor with the same gender was coded to 1. The student who had a faculty advisor with different gender was coded to 0. There were 1264 survey respondents (49.1%) who had a faculty advisor with the same gender; there were 810 survey respondents (31.5%) who had a faculty advisor with a different gender.

#### 3.8.5 Advisor Selection Method

For advisor selection method, participants were asked, “How was your current, primary advisor determined?” The survey responses were coded into the following categories: “I enrolled in my current program to work with my current, primary advisor,” “I was assigned my current, primary advisor by my Director of Graduate Studies or by my program,” and “I selected my current, primary advisor after starting my current program.” (gradSERU Survey, 2020). According to the descriptive findings 722 (30.8%) participants responded that they enrolled in their current program to work with their current, primary advisor; 450 participants (19.2%) responded that they were

assigned their current, primary advisor, and 671 participants (28.6%) responded that they selected their current, primary advisor after starting their current program.

### 3.9 Data Collection

Data were obtained from the online 2019 gradSERU survey. For the advisor-advisee gender match variable, administrative records of 2019 Purdue University Graduate School were used. The Institutional Review Board (IRB) of Purdue University approved the present study as an exempt study (IRB Protocol No: IRB-2020-91). The appendix provides a copy of the approval from the IRB.

### 3.10 Data Analysis

A series of simple regression analysis was used to analyze each research question. All data were analyzed with the Statistical Package for the Social Sciences (SPSS), version 26.0, and RStudio Version 3.6.2. Dummy variables were created for graduate student gender and advisor selection method variables. The responses that were coded “*Branching skip*,” “*Partial break off*,” “*No answer*,” and “*Not applicable*” were omitted from the data set. There were four items that were reverse coded in the gradSERU health and well-being module. These items were recoded before calculating the mean of graduate student health and well-being scores. The correlations between response variables, including graduate student overall satisfaction with graduate/professional program, satisfaction with advising, and health, and well-being, were presented in Table 5.

### 3.11 Chapter Summary

This chapter included the key research questions, hypotheses, population, participants, data collection, research procedures, and data analysis. In addition, descriptive statistics and percentages were provided for explanatory and response variables in this study.

## CHAPTER 4. RESULTS

This chapter provides the data analysis results on gender dynamics and the relationship between advisor selection methods, graduate student satisfaction and well-being.

### 4.1 Response Variables

The response variables were as follows: Overall graduate student satisfaction with graduate/professional program, their health, and well-being. In addition, graduate student satisfaction with advising scores was used both as a response and explanatory variable. The range of satisfaction with advising score was 3.43, and the average was 3.39 ( $SD = 0.92$ , *Cronbach's alpha*=0.97). The range of the graduate student's overall satisfaction with the graduate/professional program was 2.85, and the average was 3.31 ( $SD = 0.47$ , *Cronbach's alpha* = 0.89). The range of the graduate student health and well-being score was 4, and the average was 3.52 ( $SD = 0.80$ , *Cronbach's alpha* = 0.87). The response variables were rescaled to obtain more comparable results. After rescaling, mean and standard deviations of the response variables were as follows: Advising:  $M_A = 0.69$ ,  $SD_A = 0.25$ ; overall satisfaction:  $M_S = 0.85$ ,  $SD_S = 0.23$ ; Health and Wellbeing:  $M_{HWB} = 0.63$ ,  $SD_{HWB} = 0.20$ .

### 4.2 Explanatory Variables

Graduate student gender, advisor-advisee gender match, the advisor selection method, and graduate student satisfaction with advising scores were used as explanatory variables in the study. The sample consisted of 1124 females (47.9%) and 1215 males (51.8%). The items that measure the advisor selection method included three categories. The first category was "I enrolled in my current program to work with my current, primary advisor," and the second category was "I was assigned my current, primary advisor by my Director of Graduate Studies or by my program."

Finally, the third category was “I selected my current, primary advisor after starting my current program.” In addition, 1264 survey respondents (49.1%) had a faculty advisor with the same gender; and 810 survey respondents (31.5%) had a faculty advisor with a different gender.

**Table 5 Means, Standard Deviations, And Correlations with Confidence Intervals  
of Response Variables**

Variable	<i>M</i>	<i>SD</i>	1	2
1. Satisfaction with Advising	3.38	.92		
2. Overall Satisfaction	3.31	.47	.71** [.63, .77]	
3. Health and Well-being	3.52	.80	.37** [.25, .47]	.38** [.33, .43]

*Note.* *M* and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. The confidence interval is a plausible range of population correlations that could have caused the sample correlation (Cumming, 2014). \* indicates  $p < .05$ . \*\* indicates  $p < .01$ .

A Pearson product-moment correlation was conducted between graduate student satisfaction with advising, overall graduate student satisfaction with graduate/ professional program, and their health and well-being scores. Cohen's (1998) classification was used to interpret the strength of the relationship between the variables. According to Cohen's (1988) classification, the correlation coefficients between 0.10 and 0.29 indicates a small effect size, the correlation coefficients between 0.30 and 0.49 indicates moderate effect size, and the correlation coefficients above 0.50 indicate large effect size. The correlations, mean, and standard deviations are presented in Table 5. The correlation coefficients were interpreted with the alpha value of 0.05. A significant positive correlation was found between graduate student satisfaction with advising and their overall satisfaction with graduate/professional program ( $n = 189$ ,  $r_p = 0.71$ ,  $p < .01$ ). The correlation coefficient between graduate student satisfaction with advising and their overall satisfaction with

graduate/professional program was found 0.71, indicating a large effect size. It showed that as graduate student satisfaction with advising scores increases, their overall satisfaction with graduate/ professional program scores tends to increase. A significant positive correlation was found between graduate student satisfaction with advising and their health and well-being scores ( $n = 222, r_p = 0.37, p < .01$ ). The correlation coefficient between graduate student satisfaction with advising and their health and well-being scores was found 0.37, representing a moderate effect size. It showed that as graduate student satisfaction with advising scores increases, their health and well-being scores tend to increase. Similarly, a significant positive correlation was found between overall graduate student satisfaction with graduate/ professional program and their health and well-being ( $n = 1073, r_p = 0.38, p < .01$ ). The correlation coefficient between graduate student overall satisfaction with graduate/professional program and their health and well-being was found 0.38, indicating a moderate effect size. This correlation showed that as graduate student overall satisfaction with graduate/professional program scores increases, their health and well-being scores tend to increase.

#### 4.3 Hypothesis H<sub>01</sub>

A simple linear regression analysis was used to examine the first null hypothesis that indicated what extent advisor-advisee gender match related to graduate student satisfaction with advising. Table 6 displays unstandardized coefficients ( $b$ ), intercepts, standardized regression coefficients ( $\beta$ ),  $t$ -value, and  $p$ -values. The intercept represented the average satisfaction with advising scores of graduate students who had a faculty advisor of different gender, and the slope regression coefficient represented the average difference in satisfaction with advising scores between graduate students who had a faculty advisor of different gender and the graduate students who had a faculty advisor of the same gender. The graduate students who had a faculty advisor of different



gender were coded to 0, and the graduate students who had a faculty advisor of the same gender were coded to 1.

**Table 6 Summary of Simple Regression Analysis for Gender Match and Satisfaction with Advising**

Variable	<i>b</i>	95% CI [LL, UL]	$\beta$	<i>t</i>	<i>p</i>
(Intercept)	0.698**	[0.64, 0.75]		25.942	.000
Gender match	-0.011	[-0.80, 0.59]	-0.021	-0.309	.758

*Note.* *b* represents unstandardized regression weights. *beta* ( $\beta$ ) indicates the standardized regression weights. CI = Confidence interval for *b*. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively. \* indicates  $p < .05$ . \*\* indicates  $p < .01$ .  $R^2 = .000$

The data analysis showed that the model was non-significant; so there was not enough evidence to reject null at the 95% confidence level, indicating that the relationship between advisor-advisee gender match and graduate student satisfaction with advising was not statistically significant ( $F(1, 219) = 0.095, p = .758$ ).

#### 4.4 Hypothesis H<sub>02</sub>

A simple linear regression analysis was used to examine the second null hypothesis that indicated what extent advisor-advisee gender match related to graduate overall student satisfaction with graduate/professional program. The summary of regression results was presented in Table 7. The intercept represented the average of overall satisfaction scores with graduate/professional program of graduate students who had a faculty advisor of a different gender. The slope regression coefficient represented the average difference in overall satisfaction scores with graduate/professional program between the graduate students who had a faculty advisor of different gender and the graduate students who had a faculty advisor of the same gender.

**Table 7 Summary of Simple Regression Analysis for Graduate Student Overall Satisfaction and Gender Match**

Variable	<i>b</i>	95% CI [LL, UL]	$\beta$	<i>t</i>	<i>p</i>
(Intercept)	0.852**	[0.828, 0.876]		69.286	.000
Gender match	-0.007	[-0.038, 0.023]	-.016	-.479	.632

*Note.* *b* represents unstandardized regression weights. *beta* ( $\beta$ ) indicates the standardized regression weights. CI = Confidence interval for *b*. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively. \* indicates  $p < .05$ . \*\* indicates  $p < .01$ .  $R^2 = .0001$

The data analysis results showed the model was non-significant; so, there was not sufficient evidence to reject null at the 95% confidence level, indicating that the relationship between advisor-advisee gender match and graduate student overall satisfaction with graduate/professional program was not statistically significant ( $F(1, 900) = .229, p = .632$ ).

#### 4.5 Hypothesis H<sub>03</sub>

A simple linear regression analysis was used to examine the third null hypothesis that indicated what extent advisor-advisee gender match related to graduate student health and well-being. Table 8 summarizes the regression analysis for H<sub>03</sub>. The intercept represented the average health and well-being scores of graduate students who had a faculty advisor of different gender and the slope regression coefficient represented the average difference in health and well-being scores between the graduate students who had a faculty advisor of different gender and the graduate students who had a faculty advisor of the same gender.

**Table 8 Summary of Simple Regression Analysis for Gender Match and Graduate Student Health and Well-being**

Variable	<i>b</i>	95% CI [LL, UL]	$\beta$	<i>t</i>	<i>p</i>
(Intercept)	0.632**	[0.61, 0.64]		74.902	.000
Gender match	-0.003	[-0.02, 0.19]	-0.006	-0.235	.814

*Note.* *b* represents unstandardized regression weights. *beta* ( $\beta$ ) indicates the standardized regression weights. CI = Confidence interval for *b*. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively. \* indicates  $p < .05$ . \*\* indicates  $p < .01$ .  $R^2 = .000$

The data analysis showed that the model was non-significant, there was not sufficient evidence to reject null at the 95% confidence level, indicating that the relationship between advisor-advisee gender match and graduate student health and well-being was not statistically significant ( $F(1, 1458) = 0.055, p = .814$ ).

#### 4.6 Hypothesis H<sub>04</sub>

A simple linear regression analysis was used to examine the fourth null hypothesis that indicated what extent graduate student gender related to their satisfaction with advising scores. The relationship between graduate student gender and the satisfaction with advising score is presented in Table 9. The intercept was the average satisfaction of advising scores among males, and the slope regression coefficient was the average difference in satisfaction of advising scores between male and female graduate students. A dummy variable was created for graduate student gender. All male respondents were coded to 0, and female respondents were coded to 1.

**Table 9 Summary of Simple Regression Analysis for Graduate Student Satisfaction of Advising and Student Gender**

Variable	<i>b</i>	95% CI [LL, UL]	$\beta$	<i>t</i>	<i>p</i>
(Intercept)	0.742**	[0.64, 0.83]		15.498	.000
Gender1	-0.35	[-0.10, 0.29]	-0.067	-1.071	.285

*Note.* *b* represents unstandardized regression weights. *beta* ( $\beta$ ) indicates the standardized regression weights. CI = Confidence interval for *b*. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively. \* indicates  $p < .05$ . \*\* indicates  $p < .01$ .  $R^2 = .004$

The data analysis showed that the model was not statistically significant, indicating there was not enough evidence to reject the null hypothesis ( $F(1, 255) = 1.146, p = 0.285$ ). The relationship between graduate student gender and their satisfaction with advising scores was not statistically significant. On average, female graduate students reported the satisfaction with advising score that was 0.35 points lower than the male graduate students. The graduate student gender was not significant at the 5% level, and the coefficient of determination was found very low ( $R^2 = 0.004$ ). In addition, the *t*-value was -1.071, with a corresponding *p*-value of 0.285. The 95% confidence limits from -0.10 to 0.29.

#### 4.7 Hypothesis H<sub>05</sub>

A simple linear regression analysis was used to examine the fifth null hypothesis that indicated what extent graduate student gender related to their overall satisfaction with the graduate/professional program scores. The relationship between student gender and their overall satisfaction with the program is presented in Table 10. The intercept was the male graduate student average score of overall satisfaction with the graduate/professional program, and the slope regression coefficient was the average difference in the overall satisfaction with graduate/professional program scores between male and female graduate students.

**Table 10 Summary of Simple Regression Analysis for Graduate Student Gender and Overall Satisfaction**

Variable	<i>b</i>	95% CI [LL, UL]	$\beta$	<i>t</i>	<i>p</i>
(Intercept)	0.849**	[0.830, 0.867]		88.680	.000
Gender1	-0.005	[-0.033, 0.023]	-0.011	-0.352	.725

*Note.* *b* represents unstandardized regression weights. *beta* ( $\beta$ ) indicates the standardized regression weights. CI = Confidence interval for *b*. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively. \* indicates  $p < .05$ . \*\* indicates  $p < .01$ .  $R^2 = .00011$

The data analysis showed that the model was non-significant, indicating there was not enough evidence to reject null at the 95% confidence level ( $F(1, 1078) = 0.124, p = .725$ ). The relationship between graduate student gender and overall satisfaction with the graduate/professional program was not statistically significant for this particular sample. On average, female graduate students reported the overall satisfaction with graduate/professional program scores that was 0.005 points lower than the male graduate students. However, graduate student gender was not significant at the 5% level. In addition, the coefficient of determination was found very low ( $R^2 = .00011$ ). In addition, a *t*-value of was found -0.352, with a corresponding *p*-value of 0.725.

#### 4.8 Hypothesis H<sub>06</sub>

A simple linear regression analysis was used to examine the sixth null hypothesis that indicated what extent of graduate student gender related to their health and well-being. The summary of the regression analysis results is shown in Table 11. The intercept represented the average health and well-being scores for male graduate students, and the slope regression coefficient represented the average difference in health and well-being scores between male and female graduate students.

**Table 11 Summary of Simple Regression Analysis for Graduate Student Health and Well-Being and Student Gender**

Variable	<i>b</i>	95% CI [LL, UL]	$\beta$	<i>t</i>	<i>p</i>
(Intercept)	0.682**	[0.653, 0.712]		45.488	.000
Gender1	-0.034**	[-0.053, -0.016]	-0.086	-3.615	.000

*Note.* *b* represents unstandardized regression weights. *beta* ( $\beta$ ) indicates the standardized regression weights. CI = Confidence interval for *b*. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively. \* indicates  $p < .05$ . \*\* indicates  $p < .01$ .  $R^2 = .007$

The regression results showed that the model was statistically significant; so, there was sufficient evidence to reject null at the 95% confidence level with the 95% confidence limits from -0.053 to -0.016. ( $F(1, 1766) = 13.068, p < .001, R^2 = .007$ ). On average, female graduate students reported a health and well-being score that is .034 points lower than the male graduate students. The coefficient of determination was found very low at .007 that indicated only 0.7% of the variation in health and well-being scores was explained by the graduate student gender. The results showed that the sample provided enough evidence to conclude that the relationship between graduate student gender and graduate student health and well-being was statistically significant.

#### 4.9 Hypothesis H<sub>07</sub>

A simple linear regression analysis was used to examine the seventh null hypothesis that indicated what extent the advisor selection method related to graduate student satisfaction with advising. The dummy variables were created in order to use advisor selection method variable, which had three categories in this regression. Each dummy variable represented one category of the variable, and if the case falls in that category, it was coded to 1, and all other cases were coded to 0. The reference category was Category 1, which included the following answer, “I enrolled in my current program to work with my current, primary advisor.” The dummy coding for the advisor selection variable is presented in Table 12.

**Table 12 Dummy Coding for the Advisor Selection Method**

<i>Categories of Advisor Choice</i>	<i>New Variable Category 1</i>	<i>New Variable Category 2</i>	<i>New Variable Category 3</i>
<i>Category 1: Enroll to work with the current advisor (Reference Category)</i>	1	0	0
<i>Category 2: Assigned by a graduate program</i>	0	1	0
<i>Category 3: Selected by graduate student</i>	0	0	1

The relationship between the advisor selection method and the graduate student satisfaction with advising are reported in Table 13. The intercept was the average satisfaction with advising scores of graduate students who selected the reference category, Category 1. Category 2 referred to determine by the graduate program, and Category 3 referred to select by a graduate student. The slope regression coefficients were the average difference in satisfaction with advising scores between Category 1 and Category 2 respondents, and Category 1 and Category 3 respondents, respectively. There were 722 respondents (39.18%) in Category 1, 450 respondents (24.42%) in Category 2, and 671 respondents (36.41%) in Category 3.

**Table 13 Summary of Simple Regression Analysis for Advisor Selection Method and Satisfaction with Advising**

Variable	<i>b</i>	95% CI [LL, UL]	$\beta$	<i>t</i>	<i>p</i>
(Intercept)	0.734**	[0.688, 0.781]		30.982	.000
Cat2	-0.219**	[-0.308, -0.129]	-0.311	-4.829	.000
Cat3	-0.015	[-0.080, 0.051]	-0.029	-0.445	.657

*Note.* *b* represents unstandardized regression weights. *beta* ( $\beta$ ) indicates the standardized regression weights. CI = Confidence interval for *b*. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively. \* indicates  $p < .05$ . \*\* indicates  $p < .01$ .  $R^2 = 0.091$

The data analysis showed that the overall model was statistically significant, so there was sufficient evidence to reject the null hypothesis ( $F(2, 254) = 12.739, p < .001, R^2 = 0.091$ ). The advisor selection method (with all categories together) was a useful predictor of the graduate student satisfaction with advising. The coefficient of determination was found at 0.091. This means that 9.1% of the variation in satisfaction of advising score was explained by the advisor selection method. Because the variable included several categories, there were differences in graduate student satisfaction with advising scores by advisor selection method. The individual predictors, Category 2 and Category 3 represented the comparison between Category 1 and Category 2, and Category 1 and Category 3, respectively. And the  $b$  values were the mean differences between these groups.

Table 13 shows that there was a marginally significant difference between Category 1 and Category 2 ( $b = -0.219, t(254) = -4.829, p < .001$ ). This indicated that students whose faculty advisor was assigned by their graduate programs reported satisfaction with advising score that was .219 lower points than the graduate students who enrolled to work with their advisor. The findings showed that there was a non-significant difference between Category 1 and Category 3 ( $b = -0.015, t(254) = -0.445, p = 0.657$ ).

In the final step, to examine the difference between Category 2 and Category 3, the reference category was changed. Category 3 was used as a reference, and the regression analyses were recalculated. The results showed that there was marginally significant difference between those two groups ( $b = -0.204, t(254) = -4.531, p < .001$ ). This indicated that the graduate students who selected their advisor reported satisfaction with advising score was 0.204 points higher than the graduate students whose faculty advisor assigned by their graduate programs.



#### 4.10 Hypothesis H<sub>08</sub>

A simple linear regression analysis was used to examine the eighth null hypothesis that indicated what extent the advisor selection method related to graduate student overall satisfaction with graduate/professional program. The relationship between variables are reported in Table 14. The range of the graduate student overall satisfaction with graduate/professional program score (before rescaling) was 2.85, and the average was 3.31 ( $SD = 0.47$ , *Cronbach's alpha* = 0.89). The intercept represented the average overall satisfaction scores with graduate/professional programs of graduate students who selected Category 1. The slope regression coefficients were the average difference in the overall satisfaction scores with graduate/professional programs between Category 1 and Category 2 respondents, and Category 1 and Category 3 respondents, respectively.

**Table 14 Summary of Simple Regression Analysis for Advisor Selection Method and Graduate Student Overall Satisfaction**

Variable	<i>b</i>	95% CI [LL, UL]	$\beta$	<i>t</i>	<i>p</i>
(Intercept)	0.842**	[0.822, 0.862]		82.556	.000
Cat2	0.063**	[0.023, 0.104]	0.098	3.069	.002
Cat3	-0.015	[-.045, .015]	-0.032	-1.001	.317

*Note.* *b* represents unstandardized regression weights. *beta* ( $\beta$ ) indicates the standardized regression weights. CI = Confidence interval for *b*. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively. \* indicates  $p < .05$ . \*\* indicates  $p < .01$ .  $R^2 = .013$

The data analysis showed that the overall model was statistically significant ( $F(2, 1077) = 6.993$ ,  $p < .001$ ,  $R^2 = .013$ ). The advisor selection method (using all categories together) was a useful predictor of graduate student overall satisfaction scores for this particular sample. There was a marginally significant difference between Category 1 and Category 2 ( $b = 0.063$ ,  $t(1077) = 3.069$ ,  $p < .05$ ,  $R^2 = 0.013$ ). Likewise, there was significant difference between Category 2 and Category 3 ( $b = 0.055$ ,  $t(1077) = 2.660$ ,  $p < .05$ ,  $R^2 = 0.016$ ).

#### 4.11 Hypothesis H<sub>09</sub>

A simple linear regression analysis was used to examine the ninth null hypothesis that indicated what extent of advisor selection method related to graduate student health and well-being. The regression results are presented in Table 15. The intercept (the reference category) was the average health and well-being scores of graduate students who selected Category 1. The slope regression coefficients represented the average difference in the health and well-being scores of Category 1 and Category 2 respondents, and Category 1 and Category 3 respondents, respectively.

**Table 15 Summary of Simple Regression Analysis for Advisor Selection Method and Graduate Student Health and Well-Being**

Variable	<i>b</i>	95% CI [LL, UL]	$\beta$	<i>t</i>	<i>p</i>
(Intercept)	0.627**	[0.613, 0.640]		89.168	.000
Cat2	0.025*	[0.001, 0.049]	0.052	2.030	.042
Cat3	-0.003	[-0.025, 0.018]	-0.008	-0.297	.767

*Note.* *b* represents unstandardized regression weights. *beta* ( $\beta$ ) indicates the standardized regression weights. CI = Confidence interval for *b*. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively. \* indicates  $p < .05$ . \*\* indicates  $p < .01$ .  $R^2 = .003$

The data analysis showed that the overall model was non-significant once Category 1 used as a reference ( $F(2, 1765) = 2.675, p = 0.069, R^2 = .003$ ). However, once the reference category was changed, Category 3, the model became statistically significant ( $F(2, 1765) = 3.336, p = 0.036, R^2 = .004$ ). Therefore, results showed that advisor selection method was a significant factor for graduate student health and well-being; however, the relationship between each advisor selection method was not significant.

#### 4.12 Hypothesis H<sub>10</sub>

A simple linear regression was used to examine the tenth null hypothesis that indicated what extent satisfaction with advising related to graduate student health and well-being. The skewness of graduate student satisfaction of advising was -.735, which indicated that its distribution was moderately skewed towards to the left; so, it was not transformed. There were no outliers in the graduate student overall satisfaction and satisfaction with advising scores. The summary of the regression analysis is presented in Table 16. The intercept represented the expected graduate student health and well-being score for the average score of graduate student satisfaction with advising. The slope represented the average increase in the graduate health and well-being scores associated with a one-unit increase in the average of the graduate student satisfaction with advising.

**Table 16 Summary of Simple Regression Analysis for Graduate Student Satisfaction with Advising and Graduate Student Health and Well-being**

Variable	<i>b</i>	95% CI [LL, UL]	$\beta$	<i>t</i>	<i>p</i>
(Intercept)	0.402**	[0.322, 0.483]		9.833	.000
Advising	0.318**	[0.210, 0.427]	0.363	5.782	.000

*Note.* *b* represents unstandardized regression weights. *beta* ( $\beta$ ) indicates the standardized regression weights. CI = Confidence interval for *b*. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively. \* indicates  $p < .05$ . \*\* indicates  $p < .01$ .  $R^2 = .132$

The slope of the sample line was significantly different from zero and, hence that there was sufficient evidence to reject the null hypothesis at the 95% confidence level, indicating the relationship between graduate student satisfaction with advising and their health and well-being was statistically significant ( $F(1, 220) = 33.428$ ,  $p < .001$ ,  $R^2 = .132$ ). The coefficient of determination is .132; therefore, 13.2% of the variation in the graduate student health and well-being score was explained by graduate student satisfaction with advising. The size and direction of the relationship between the graduate student satisfaction of advising and their health and well-

being scores suggest that the graduate students who were more satisfied with advising were more likely to have better health and well-being scores than the students who were less satisfied with advising.

#### 4.13 Hypothesis H<sub>11</sub>

A simple linear regression was carried out to investigate what extent graduate student overall satisfaction with graduate/professional programs was related to their health and well-being. The skewness of graduate student overall satisfaction of their graduate/professional program was found -.646, which indicated that its distribution was moderately skewed towards the left; so, it was not transformed. There were ten outliers ranged from 1.70 to 1.90 in the overall satisfaction scores, and they were omitted from the dataset before the data analysis. The regression results are presented in Table 17. The intercept was the expected graduate student health and well-being score for the average graduate student overall satisfaction with their graduate/professional program. The slope was the average increase in the health and well-being scores associated with a one-unit increase in the average of the graduate student overall satisfaction scores.

**Table 17 Summary of Simple Regression Results for Graduate Student Overall Satisfaction and Graduate Student Health and Well-Being**

Variable	<i>b</i>	95% CI [LL, UL]	$\beta$	<i>t</i>	<i>p</i>
(Intercept)	0.447**	[0.403, 0.491]		19.974	.000
Satisfaction	0.205**	[0.155, 0.255]	0.238	8.025	.000

*Note.* *b* represents unstandardized regression weights. *beta* ( $\beta$ ) indicates the standardized regression weights. CI = Confidence interval for *b*. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively. \* indicates  $p < .05$ . \*\* indicates  $p < .01$ .  $R^2 = 0.057$

The slope of the sample line was significantly different from zero, hence that there was sufficient evidence to reject the null hypothesis at the 95% confidence level, indicating the

relationship between graduate student overall satisfaction with the graduate program and their health and well-being were statistically significant ( $F(1, 1071) = 64.399, p < .001, R^2 = 0.057$ ). The coefficient of determination was found .057; therefore, 5.7% of the variation in the graduate student health and well-being score was explained by graduate student overall satisfaction with graduate/professional program. The size and direction of the relationship between the graduate student overall satisfaction and their student health and well-being scores suggested that satisfaction was a critical component of graduate student health and well-being.

#### 4.14 Chapter Summary

This chapter has provided the analysis related to each hypothesis. Of the eleven hypotheses tested, advisor selection method was found to be statistically significant, including  $H_{07}$ ,  $H_{08}$ , and  $H_{09}$ . Student gender was not found significant in satisfaction with advising and overall satisfaction, including  $H_{04}$  and  $H_{05}$ . Advising and overall satisfaction with the graduate program were found significant which were tested in  $H_{10}$  and  $H_{11}$ . Gender match variable was not found significant in  $H_{01}$ ,  $H_{02}$ , and  $H_{03}$ .

## **CHAPTER 5. DISCUSSION, CONCLUSIONS AND FUTURE RESEARCH**

The current study was focused on the gender dynamics and the advisor selection methods in graduate student satisfaction, health and well-being. This study investigated the existing framework of satisfaction and well-being in a new graduate student sample within a cross-sectional explanatory correlational research design. The advisor selection method has not been frequently studied in the literature. Therefore, the present study contributed to the research gap regarding advisor selection methods and its role on graduate student satisfaction, health and well-being.

Furthermore, the studies on graduate student satisfaction, health and well-being were presented as paradoxical findings. Most of the research findings demonstrated that graduate students were satisfied with the advising and their graduate programs. Conversely, the recent research on graduate student health and well-being showed that graduate students had serious mental health problems including stress, depression and suicidal thoughts. The findings showed that the relationships between graduate student satisfaction with advising, overall satisfaction, health and well-being were positive and significantly correlated with each other.

The results of the regression analysis showed that graduate student satisfaction with advising, overall satisfaction with the graduate program, their health and well-being scores were above average ( $M_A = 3.39$ ,  $M_S = 3.31$ ,  $M_{WB} = 3.52$ ). It showed that most of the graduate students were satisfied with advising and their graduate programs. These findings were in line with the previous research results (Slight, 2017; Williams, 2019). Overall, the research results confirmed that student satisfaction with advising and overall satisfaction were significant factors in health and well-being.

Graduate student gender did not have a significant relationship with advising satisfaction or overall satisfaction with the graduate program. However, the relationship between graduate student

gender, health, and well-being was significant. These findings were supported by Zhao et al. (2007) who reported female graduates showed a lower overall satisfaction than male graduate students.

Gender match was not a significant factor for graduate satisfaction with advising, overall satisfaction, health, and wellbeing. However, the results were interpreted at 0.05 significance level in this particular sample; however, the missing cases in satisfaction with advising score was a limitation in the study. Presumably, large sample sizes may provide significant results. The results on advisor-advisee gender match may indicate that other factors like advisor behavior (Zhao et al., 2007), availability (Arnold et al., 1998), supportiveness, and academic competence of an advisor (Dericks et al., 2019) might play a critical role in satisfaction with advising. The findings on graduate student gender showed that overall graduate student satisfaction was a complex and multidimensional component, and there were other significant factors that contributed to graduate student overall satisfaction. Female graduates have reported significantly lower health and well-being scores than their male counterparts. However, the results of this study contradict the findings of Blanchard 's (2018) study that reported a non-significant gender effect on graduate student stress levels.

The relationship between advisor selection methods and satisfaction with advising, overall satisfaction, health and well-being were significant. Graduate students should have an active role in the advisor selection process. Students need to receive academic counseling and support for selecting an advisor in the entry stage of education because the factors like experience, maturity, expectations, and age may play significant role for meaningful decisions that foster the advisor-advisee connection. In addition, advisor selection is an interactive process that must account for the expectations of both students and faculty advisors.

## 5.1 Conclusion

The purpose of this study was to examine the degree of the relationship between graduate student gender, advisor-advisee gender match, advisor selection methods, graduate student satisfaction with advising, overall satisfaction with the graduate/professional program, health and well-being. The 2019 GradSERU survey and the 2019 administrative records of the Purdue University Graduate School were used for this study.

The current study suggests that the advisor selection method is significant factor in graduate student satisfaction with advising, overall satisfaction, health and well-being. Graduate students who enrolled to work with their advisor reported higher satisfaction with advising scores compared to the graduate students whose faculty advisor was assigned by their graduate program. These findings suggest that graduate students should be a part of the advisor selection process. This study provided information about graduate students who were in the development and completion stage of their Ph.Ds. Likewise, it might be useful to examine the relationship between the stage of the doctoral program and student satisfaction and well-being. Students might display a different level of satisfaction and well-being in each stage of doctoral education, the entry stage, development stage, and completion stage, respectively (Tinto, 1993).

The results confirmed that advising and overall satisfaction were important dimensions of graduate student health and well-being. However, student gender was not found as a significant factor for graduate student overall satisfaction and advising satisfaction in the study. Likewise, the relationships between advisor-advisee gender match, graduate student satisfaction with advising, overall satisfaction, health, and well-being were found to be insignificant.



## 5.2 Limitations

The sample of this study was limited to graduate students who enrolled in a graduate program in a Midwest research university. However, graduate student perceptions may differentiate based on the prestige of the university, type of university (research university vs. versus liberal arts college, for example), location of the university, or features of the graduate program (traditional on the ground vs. online-based graduate programs).

One of the limitations of the present study was the number of missing cases in satisfaction with advising scores. Therefore, nonresponse bias may influence the generalizability of the findings regarding advising satisfaction. Likewise, the disproportion of gender match variable, having an advisor of a same-gender (49.1%) and different gender (31.5%), was another limitation of the current study.

## 5.3 Recommendations for Future Research

Graduate education progress shows unique patterns compared to undergraduate education (Burger, 2018); and, it requires a closer relationship for both a graduate student and faculty advisors for the academic and professional development of students (Fagen & Sudekamp Wells, 2004). Therefore, additional research is suggested to examine the relationships between different types of advising styles, advisor selection methods, and new approaches of advising. In addition, future studies should examine the differences between male and female faculty advising styles and their relationships between graduate student satisfaction.

This study provided information about graduate student perceptions and their satisfaction with advising and overall satisfaction. Most of the studies in the literature focus on graduate student perspectives and there is a lack of research on faculty advisor's perspectives (Jones, 2013). It is

recommended that future studies examine faculty advisor's perspectives on enhancing the advisor-advisee quality of relationships.

According to Tinto's theory (1993), lack of student integration resulted from two reasons: isolation and incongruence. He maintained that incongruence was an inescapable problem for higher education institutions; however, student isolation can be solved by using effective strategies. First, increasing student satisfaction by enhancing the quality of student-advisor relationship to support academic integration of students needs be considered by higher education institutions. Second, Tinto's theory (1993) highlighted the importance of institutional commitment of student and its relationship with satisfaction. In other words, students who were satisfied with their higher education experience were more likely to show a higher level of persistence in terms of completion of the program. In addition, the past experiences of these institutions should be evaluated objectively to analyze missing points in student integration.

The descriptive findings of this study demonstrated that there was a tendency to work with the same gender graduate students. These results were in line with the previous findings (Smeby, 2000). However, it might not be a preference for both graduate students and faculty advisors. Students may not have a choice to select their advisors, or the proportion of female to male faculty may not be equal in some graduate programs including STEM, Humanities, and Social Sciences. Therefore, it is recommended that future studies investigate the underpinnings of this circumstance.

Finally, this study was a cross-sectional and provided limited generalizable information about the existing framework in a particular sample. However, longitudinal studies on the relationship between graduate student satisfaction and well-being might provide more comprehensive and unique insights to the problem of the current study.

#### 5.4 Chapter Summary

This chapter explained the summary of results, conclusion, and discussion of the findings and limitations of the present study. In addition, theoretical and practical implications future research are explained. It is recommended that future studies examine the key factors like socioeconomic level, age, minority, underrepresented, and underchallenged graduate students, quality of student effort, quality of advisor-advisee relationship, and female and male faculty advising styles to enhance intellectual and social integration of graduate students.

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## APPENDIX A PURDUE IRB APPROVAL DOCUMENT



**This Memo is Generated From the Purdue University Human Research Protection Program System, [Cayuse IRB](#).**

**Date:** February 28, 2020

**PI:** JAMES MOHLER

**Department:** PWL COMPUTER GRAPHICS TECH, REGULATORY AFFAIRS A

**Re:** Initial - IRB-2020-91

*Graduate Student Wellbeing and Satisfaction: Does Gender and Advisor Choice Matter?*

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 **February 27, 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:** N/A

**Research Notes:** N/A

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](http://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, and federal laws 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](mailto: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](#)



## CURRICULUM VITAE

**EMINE OZTURK**

[ozturke@purdue.edu](mailto:ozturke@purdue.edu)

### EDUCATION

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<b>Purdue University, Purdue Polytechnic Institute</b>	West Lafayette, IN
<b>PhD</b> in Technology	August 2020
<b>Purdue University, Psychological Sciences</b>	West Lafayette, IN
<b>Grad Cert</b> in Psychological Statistics	August 2020
<b>Purdue University, Educational Psychology</b>	West Lafayette, IN
<b>Grad Cert</b> in Quantitative Research, Assessment, and Evaluation in Education	August 2020
<b>Istanbul University, Special Education</b>	Istanbul, TUR
<b>BA</b> in Gifted and Talented Education, Honors	June 2012
<b>Istanbul University</b>	Istanbul, TUR
<b>BA</b> in Foreign Language Education	July 2012
<b>Istanbul University, Education</b>	Istanbul, TUR
<b>BA</b> in Elementary Education in minors Science	June 2008

### SKILLS

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- Software and Additional Applications: SAS, Stata, SPSS, LISREL, Mplus.
- Programming Languages: R, Python.
- Languages: Turkish (Native), English (Fluent), German (Basic)

## EXPERIENCE

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### Research Experience

#### **Purdue Polytechnic Institute**

Bilsland Strategic Initiative Fellow

West Lafayette, IN

April 2020-August 2020

#### **Institutional Review Board (IRB)- Human Research Protection Program**

Graduate Assistant  
2020

West Lafayette, IN

October 2016-April

### Teaching Experience

#### **Purdue Human Development and Family Studies (HDFS)**

Teaching Assistant for HDFS -210 Human Development  
2016

West Lafayette, IN

August 2016- December

## AWARDS AND HONORS

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- *Bilsland Strategic Initiative Fellowship*, Purdue Polytechnic Institute April 2020
- *The Path Breaker Award*, American Educational Research Association (AERA) April 2019
- *NAGC Research Gala Award*, National Association for Gifted Children, November 2017  
(Non-Doctoral Level Completed Research -First place)
- *College of Education Dean's Travel Support*, Purdue University February 2017
- *Department of Educational Studies Graduate Student Travel Award*, Purdue University September 2016/2017

## PEER-REVIEWED PUBLICATIONS

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- **Ozturk, E.**, & Mohler, J. L. (2019). Developmental trajectories of smoking and perceived intelligence: A longitudinal study from early adolescence to young adulthood. *Journal of Substance Use*, 1-8. <https://doi.org/10.1080/14659891.2019.1642404>
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**PROFESSIONAL AFFILIATIONS**

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- American Educational Research Association (AERA)
- American Psychological Association (APA)