Motivation, Stress, and Satisfaction of Graduate Students: A Comparative Study of Student Parents and Non-Parents

by

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Abstract

This study investigated the motivational orientation, perceived stress, and general satisfaction of student parents (i.e., students who have dependent children) and non-parents (i.e., students who do not have dependent children) in graduate school. Based on self-determination theory (Deci & Ryan, 1985), this study examined the 1) the influence of parental status and student major on graduate students' motivation, stress, and satisfaction and 2) the influence of gender and student major on graduate student parents' motivation, stress, and satisfaction.

A quantitative research design was used to address two research questions. The Academic Motivation Scale – College Version (AMS – C; Vallerand et al., 1992), the Perceived Stress Scale (PSS – 14; Cohen et al., 1983), and the Extended Satisfaction with Life Scale (ESWLS; Alfonso et al., 1996) were used in this study. Participants were students enrolled at a large southeastern research institution in the U.S. during the Summer semester, 2018. Survey data were analyzed through a factorial ANOVA.

The result of this study suggested that student parents and non-parents in graduate school may hold different motivations and levels of stress and satisfaction. Through the analysis, a student parent group showed higher motivation than a non-parent group. As for the stress level, student parents had significantly lower levels of stress and higher levels of general life satisfaction than non-parents. This result implies that graduate students who have dependent children are more engaged with learning for the fulfillment of achieving or creating something, while students who do not have dependent children may be driven by external influences, such as praise, rewards, and punishment evidence than their counterpart. Moreover, contrary to previous research that student parents are more likely to experience higher levels of stress and lower

levels of satisfaction, participants of our study showed the opposite. This result suggests that student parents might benefit from their multiple roles and get emotional comfort and support from their family, which can positively influence their academic and parenting roles. No significant influence of student major nor the interaction term of parental status and student major were found on graduate students.

In terms of the influence of gender and student major on graduate student parents, there were no significant influences found. Although motherhood, especially those in STEM fields, has been described as incompatible with academia (Crabb & Ekberg, 2014), the result of this study implies that the experience of graduate student fathers may be very similar to those of mothers. As there are few studies exclusively focusing on student fathers (Dillon, 2012; Thomas, 2014), studies focusing on the experiences of student fathers are warranted.

Overall, this study found that both female and male student parents, whether they are in STEM or non-STEM fields, have higher levels of motivation, lower levels of stress, and higher levels of satisfaction. These findings are partly consistent with previous studies of adult education, that nontraditional adult learners hold higher levels of intrinsic motivation in learning. This suggests that faculty and instructors should provide quality instructions and take adequate strategies to support and keep these students motivated in learning. Moreover, developing family-friendly policies and holding flexibility within the institution to assist this group of students in balancing their multiple roles is crucial.

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CHAPTER 1: INTRODUCTION

Overview

Students with dependent children are a special subpopulation of nontraditional students (Dolson & Deemer, 2020; Kremer, 2016; Springer et al., 2009; Van Rhijn & Lero, 2014), whose number has grown quickly over the past few years (Coronel, 2020; Greco et al., 2020; Polakow et al., 2014). In 2012, approximately 4.8 million students with dependent children enrolled in colleges and universities, which comprises 26% of the total students in the United States. This number is about 1.1 million higher than the number of students with dependent children in 2004 (Noll et al., 2017). Graduate student parents are those who have dependent children while pursuing a degree in either master's or doctoral programs. The most recent data on profiles of graduate students and first-professional students shows that 35.5% of total students in master's programs and 28.4% of total students in doctoral programs have dependents (National Center for Education Statistics, 2010).

Graduate student parents are unique due to specific circumstances they face while balancing academic work and family responsibilities. Studies found that the experiences of graduate student parents are similar to those of faculty parents (Kreicher, 2017). For example, both graduate student parents and faculty parents are required to fully commit themselves to time-intensive roles, including publishing peer-reviewed journals, participating in professional organizations, and making professional presentations (Kulp, 2020) while also caring for their children at home and trying to fulfill their role as a student (Springer et al., 2009). However, graduate student parents are different from faculty parents nor undergraduate students. Grady et al. (2014) explain that graduate students are in an "ambiguous position," where they are no

longer solely students but not yet fully professionals (p. 7). Despite the fact graduate students

contribute to institutional goals (Grady et al., 2014), they are constantly faced with financial

challenges, including inadequate health insurance, daycare costs, and transportation (Springer et

al., 2009).

One of the primary reasons that appear to explain student parents (i.e., students with

dependent children) pursuing a degree may be the desire to enhance the family welfare and their

children's success. A study from Doughlas-Hall and Chau (Douglas-Hall & Chau, 2007)

suggested that parents' education attainment is strongly linked with higher income, positive

family interaction, and higher academic achievement of their children. Similarly, in their study of

the influence of parents' education on their children, Shoukat et al. (Shoukat et al., 2013) stated,

"Parents with higher education make sure their children are exposed to lots of educational

opportunities in their communities" (p. 54), suggesting that parents with higher education often

show considerable involvement in their children's academic performance, such as by providing

facilities for their children's studies and educational activities. Moreover, Baum et al. (Baum et

al., 2013) maintained that the level of parental educational attainment leads to various positive

outcomes, such as healthier lifestyles, higher earnings, and a greater amount of time spent with

their children. They quoted, "Mothers with higher levels of education spend more time on their

children's activities" (p.10), suggesting that a higher level of education involvement enhances

the quality of family relationships and prospects for their children.

Despite the benefits of educational attainment to their families, the aforementioned

difficulties graduate student parents face put them into a risky situation of withdrawing from

studying (Kohler Giancola et al., 2009; Kreischer, 2017). A recent study on doctoral students

pointed out that 40 – 50% of these students do not complete their graduate degrees (Litalien &

Guay, 2015), due partly to family responsibilities, time constraints, ineffective or uncaring

advisors, and employment responsibilities/financial strain (Smith et al., 2006). In their attempt to

juggle multiple responsibilities, these students often experience role conflict. Springer et al.

(2009) pointed out that student parents are confronted with "conflicting and powerful ideologies"

due to social role requirements and pressures. In other words, student parents are constantly

facing identity conflicts of being a good parent as well as a good student. For example, in their

qualitative study of 20 female students, Moghadam et al. (2017) mentioned that a dual role of

student parents as a caregiver and a student could cause a significant dilemma for these students

who wish to undertake both roles in "ideal conditions" (p. 1). These students, who try to balance

multiple roles, often struggle and sometimes compromise either one of the roles. These role

conflicts can be even more severe for those students who had their first dependent child during

their studies (Springer et al., 2009). As a result, students often delay having a child due to fears

of the perceived dual workload, insufficient institutional support, and delayed progress in studies.

(Kennelly & Spalter-Roth, 2006; Springer et al., 2009).

Emotional stress such as frustration, anxiety, or anger caused by performing the multiple

roles of student, parent, and spouse or partner (Dobmeier & Moran, 2008) and lack of support

and resources may hinder them from learning (Dobmeier & Moran, 2008; Springer et al., 2009)

and may result in withdrawal from the study. Polakow et al. (2014) identified the challenges of

student parents and their impact on academic progress and timely graduation by a Child Care

Needs Survey questions and follow-up focus group interviews. Their findings addressed the

growing needs of supporting the "neglected needs" (p. 4) of student parents, such as affordable,

flexible, and high-quality childcare systems provided by institutions of higher education.

A series of previous studies indicated that the barriers to pursuing a degree might be greater for females than males (Deutsch & Schmertz, 2011; A. Home & Hinds, 2000; A. M. Home, 1997; Sweet & Moen, 2007). In her study of 443 adult women studying at universities, Home (1997) indicated that the dropout rate of female students with jobs and families is higher than their male counterparts due to non-academic reasons, and the withdrawal from studying might be even more significant for certain female students, such as single parents and mothers of younger children who experience "higher overload and work-family conflict" (p. 13). Through an in-depth narrative interview with college women in two institutions, (Deutsch & Schmertz, 2011) explained that conflicting demands imposed by multiple roles women play prevent them from pursuing a degree in higher education. For example, women tend to assume many responsibilities, such as managing family finances and being a primary caregiver to their children (Home & Hinds, 2000), which make it difficult for women to be successful in academia. Supporting previous studies, Sweet and Moen (2007) noted women returning to school experience increased levels of role conflict, especially when they have dependent children. What is interesting from their study is female student parents reported high satisfaction despite the increased role conflict. The participants acknowledged that their lives had been enhanced from the educational attainment as it became an important source for their growth and fulfillment beyond their roles as a mother and an employee. This result may partially explain the motive of student parents in pursuing a degree for the sake of their family's well-being and their children's future success.

A series of studies pointed out academic mothers in academic science, technology, engineering, and mathematics (STEM) discipline face bigger challenges than STEM fathers or non-STEM mothers in academia. Masculine work culture characteristics of STEM disciplines

create an unwelcome climate for women, which negatively affects their job satisfaction, stress levels, and attrition. Faculty mothers in STEM discipline perceive that they work harder, yet often their competence and commitment at work are challenged (Kmec, 2013). These perceived difficulties of being a faculty mother in these disciplines force the idea that they do not fit "ideal" workers for the job. Although Kmec (213) pointed out that the images of the ideal academic would be more gendered in the STEM discipline, Bleijenbergh et al. (2013) argued that women, regardless of their academic field, could not meet the "ideal" worker standard, let alone those with children. In their longitudinal studies on faculty mothers, Wolf-Wendel and Ward (2015) explained that parental status and gender in academia are greatly influenced by ideal worker norms, which are shaped by discipline contexts. They found that women in the STEM field are met with increased workload and extra works as the consequences of being one of a few women scholars in the field.

Previous literature suggested that successful learning of student with dependent children are influenced by appropriate support (Home, 1997; Kreischer, 2017). In her study, Home (1997) emphasized the importance of institutional support for adult learners with dependent children, by stating "Developing appropriates responses required knowledge of which students are more vulnerable to role strain and which kinds of support ease it" (p. 86). She also explained that support could mitigate the intense demands. Similarly, Fairchild (2003) maintained that services addressing the unique needs of nontraditional students who suffer from special difficulties are vital. Nonetheless, few official policies exist, most situations are accommodating individually, and graduate directors are often unaware of university services for graduate student parents (Springer et al., 2009). Faculty and administrators need to be aware that student parents are a vastly underrepresented group compared to those without children in graduate school who

experience heavy workload (Oswalt & Riddock, 2007) and emotional and financial stresses (Oswalt & Riddock, 2007), which can lead to higher attrition rates (Gardner, 2008; Golde, 2005). Thus, in order to better support this underrepresented group of students, it is important to be cognizant of the unique characteristics and needs of student parents in graduate school.

Problem Statement

Graduate student parents are those who have dependent children while pursuing a degree in either master's or doctoral program. They are a unique subpopulation in higher education that accounts for a large proportion of graduate students (National Center for Education Statistics, 2010). A thorough review of the literature reveals that these students experience numerous challenges and struggles in their attempt to balance multiple roles due to their particular social positioning within institutions of higher education (Brown & Watson, 2010; Dillon, 2012; Dolson & Deemer, 2020; Estes, 2011; Grady et al., 2014; Kreischer, 2017; Kulp, 2020; Sallee, 2015; Springer et al., 2009). These studies imply that student parents might have unique motivation in pursuing their degree while going through poor mental health, such as higher levels of stress and low levels of satisfaction. In addition, these studies suggest that female student parents, especially those who are in a STEM field, might experience bigger barriers and stress in their attempt to balance multiple roles. Despite the emergent need to support these students, little attention has been paid to student parents, especially in graduate school. Several studies that focused exclusively on graduate student parents examined challenges and negative experiences in the institutions, especially those of female students or single parents (Brown & Watson, 2010; Kulp, 2020; Springer et al., 2009). While understanding students' motivational orientation and their mental health is crucial in providing adequate support and quality

instruction (Hyun et al., 2006; Offstein et al., 2004; Sogunro, 2015), no known studies have examined motivation, stress, and satisfaction of graduate students nor investigated how these variables are affected by students' parental status, major, and gender.

The purpose of this study was to identify the influence of parental status and student major on motivation, stress, and satisfaction among graduate students, as well as the influence of gender and student major on these variables among graduate student parents.

Research Questions

This study examined the following research questions:

1. How do parental status and student major affect graduate students' motivation, stress, and satisfaction?

2. How do gender and student major affect graduate student parents' motivation, stress, and satisfaction?

Significance of the Study

Motivation is an essential element in understanding learners' persistence and involvement in learning (Wentzel & Miele, 2009; Wigfield & Wentzel, 2007). Previous studies found that students who are motivated in learning display higher levels of persistence (Vallerand & Blssonnette, 1992), higher levels of performance, (Bailey & Phillips, 2016), higher levels of psychological well-being (Bailey & Phillips, 2016), and higher levels of satisfaction in life (Bailey & Phillips, 2016). Based on the previous studies, motivation, stress, and satisfaction are closely related together, affecting one another. Nowell (2017) found that students with higher levels of motivation displayed increased levels of satisfaction compared to those who were less motivated in learning. Another study on graduate students found that amotivation was the most influential factor associated with the level of stress and satisfaction (Yoo & Marshall, in press).

Studies suggest that student parents and non-parents hold different motivations in learning, and their perceived stress and satisfaction would be different. In other words, student parents may have different purposes and goals in pursuing a degree in higher education, and their levels of stress and satisfaction might be affected significantly by balancing multiple roles.

Although there is a wealth of research regarding student parents, research specific to student parents in graduate schools is relatively limited. Graduate students are different from university students as they assume many roles that are similar to faculty parents whose responsibilities seem never-ending (Dillon, 2012; Kreischer, 2017; Offstein et al., 2004). However, graduate student parents are situated in a unique position where they are challenged with financial and job insecurity while required to fully commit themselves to study, work, and family at the same time. As a result, graduate student parents experience higher levels of stress (Dillon, 2012), financial difficulties (Grady, 2014; Moreau & Kerner, 2015), and time constraints (Dillon, 2012; Offstein et al., 2004).

Considering the amount of work and effort graduate students put into achieving their goals, it is imperative to examine graduate student parents' motivation, stress, and satisfaction and how they differ from those who do not have children. Moreover, any differences in these variables between female and male graduate student parents in different disciplines will also be examined based on previous studies. This study provides suggestions for educational professionals to better understand the differences between these two student groups and to assist various learners efficiently based on their unique characteristics. Lastly, this study contributes to the literature regarding academic motivation, stress, and satisfaction.

Limitations of the Study

There are some limitations of the study regarding the definition of the key constructs of the study, study participants, and data collection method. First, the key construct of the study, motivation, is a general term that can be defined and be measured in various ways using different theoretical frameworks. This study, however, used Deci and Ryan's (1985) self-determination theory to assess the academic motivation of learners. Therefore, the result of this study concerning the motivation of graduate students with dependent children and those who do not have children may not be congruent with other studies using a different theoretical framework.

Second, this study adopts a self-reported questionnaire. Therefore, there is a possibility that respondents' answers on individual items might not accurately capture their true perceptions. Students who took this survey may not thoroughly understand their motivation in learning, and their level of stress and satisfaction can be affected by recent events they have experienced, including academic pressures or financial concerns.

Another limitation of the study concerns the generalizability of the sample. Participants of this study consist of graduate students in a large southeastern research institution, which may not represent all graduate students in the U.S. In addition, there exists the possibility of a voluntary selection bias in the sample; therefore, the participants who decided to take part in this survey may not have been representative of their counterparts who did not respond. In particular, student parents who volunteered their time to participate in this study may have been under less stress or time constraints than those who did not participate. Moreover, student parents who self-selected to participate in the study may place more value in their student role or be more engaged with their schooling.

A final limitation is that the analysis of the groups did not examine certain potentially influential variables that might have affected the level of motivation, stress, and satisfaction

among small sample sizes among specific groups due to uneven proportions. For example, the number of children and the age of one's children can have a measurable impact on one's familial and academic life. The departmental environment and relationship with faculty members can also be influential on one's motivation and mental health. Therefore, future analysis including these potentially influential variables may clarify the experiences of student parents more thoroughly.

Definition of Terms

Definitions of terms and theoretical considerations that are important in understanding this study are presented.

1. **Student Parents**: Parents enrolled in college at either the undergraduate or graduate level (Brooks, 2015; Moreau & Kerner, 2013)

2. **Non-Parents**: Students who do not have dependent children

3. **Faculty/Academic Parents**: Parents who are employed as faculty members in colleges or universities (Kreischer, 2017)

4. **Self-Determination Theory (SDT)**: A theory of human motivation and personality that proposes that humans have an innate desire for stimulation and learning from birth, which is either supported or discouraged within their environment. Deci and Ryan (1985) proposed three types of motivation, which are intrinsic motivation, extrinsic motivation, and amotivation, based on the degree of self-determined.

5. **Intrinsic Motivation:** Intrinsic motivation refers to engaging in the activity for the pleasure and satisfaction derived from the performance. Intrinsic motivation

leads people to act purely to satisfy their curiosity or desire for mastery (Cook & Artino Jr, 2016)

6. **Intrinsic Motivation to Know:** a behavior being performed for the pleasure or satisfaction one experiences while learning or understanding something new (Vansteenkiste et al., 2009)

7. **Intrinsic Motivation to Accomplish:** a behavior being performed for the fulfillment of achieving or creating something (Vansteenkiste et al., 2009)

8. **Intrinsic Motivation to Experience Simulation:** a behavior being performed to obtain stimulating experiences (Vallerand et al., 1992)

9. **Extrinsic Motivation**: Extrinsic motivation includes behaviors being performed to yield specific outcomes, typically involving individuals seeking rewards or avoiding punishments (Ryan & Deci, 2020; Vallerand & Bissonnette, 1992).

10. **Extrinsic Motivation External Regulation:** a behavior that is derived from external influences, such as praise, rewards, and punishment avoidance (Fortier et al.,1995; Vallerand & Bissonnette, 1992)

11. **Extrinsic Motivation Introjected Regulation:** this type of motivation is shown when external contingencies have been internalized, and the individual is engaged in an activity to facilitate self-esteem or lessen guilt and avoid demonstration of failure (Fortier et al.,1995; Vallerand & Bissonnette, 1992).

12. **Extrinsic Motivation Identified Regulation:** behaviors that are explicitly recognized and valued by the individual (Fortier et al., 1995; Vallerand & Bissonnette, 1992)

13. **Amotivation**: Amotivation refers to the lack of motivation. People or students with amotivation are neither extrinsically nor intrinsically motivated, suggesting that they are not motivated in what they do (Deci & Ryan, 1985; Ryan & Deci, 2000, 2020).

14. **Academic Motivation**: Academic motivation is a student's desire (as reflected in approach, persistence, and level of interest) regarding academic subjects when the student's competence is judged against a standard of performance or excellence (Wigfield & Wentzel, 2007). In this paper, the academic motivation scale is adopted from Vallerand et al.'s (1992) Academic Motivation Scale, measuring three types of motivation, intrinsic motivation, extrinsic motivation, and amotivation. Intrinsic motivation consists of three subcategories that are intrinsic motivation to know, intrinsic motivation to accomplish, and intrinsic motivation to experience stimulation. Extrinsic motivation also consists of three subcategories that are external regulation, introjected regulation, and identified regulation.

Organization of the Chapters

This dissertation is divided into five chapters. Chapter 1 contains an introduction to the study, statement and purpose of the problem, significance of the study, research questions, the significance of the study, limitations of the study, definition of the terms, and the organization of the study. Chapter 2 reviews related studies addressing the research questions. Chapter 3 describes the methods and data analysis of the study. Construction of the survey instruments, sample selections, administration of the instruments, and methods of data interpretation are also

discussed in Chapter 3. Chapter 4 presents demographic information of participants and survey

results. The survey results addressed how graduate students are affected by their parental status

and major and how graduate student parents are affected by their gender and major. Finally,

Chapter 5 provides implications for theory and practice, as well as suggestions for future studies.

CHAPTER 2: REVIEW OF LITERATURE

Overview

The review of the literature provides the major framework of this study by discussing adult learners and andragogy, nontraditional adult learners in higher education, parenting in academia, student parents in graduate school, and mothers in academia, highlighting gender inequality issues in higher education. Following the gender disparity, the literature reviews on motivation, stress, and satisfaction were presented.

Problem Statement

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Watson, 2010; Kulp, 2020; Springer et al., 2009). While understanding students' motivational orientation and their mental health is crucial in providing adequate support and quality instruction (Hyun et al., 2006; Offstein et al., 2004; Sogunro, 2015), no known studies have examined motivation, stress, and satisfaction of graduate student parents nor investigated how these variables are affected by students' parental status, major, and gender.

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Adult Learners and Andragogy

Adult learners generally share unique attributes different from children; therefore, adult teaching should take a different approach from teaching children. In order to develop an effective and successful program for adult learners, the unique characteristics of adult learners should be taken into account. Malcolm Knowles, an American educator, defined the term andragogy in the 1970s to describe adult learning (Knowles, 1970). He defined the term andragogy as the art and science of adult learning and developed a set of four assumptions about the characteristics of adult learners that are different from child learners (Knowles, 1970, 1975, 1978, 1980, 1984).

Later in 1984, he added the fifth assumption. Those five assumptions of andragogy are as follows.

1) Assumption one: Adult learners are self-directed

Knowles acknowledged that adult learners became more capable of taking responsibility for their own learning as they mature. Therefore, adult learners establish their own learning goals and activities within the course objectives. Merriam (2001) explains that self-directed learning is a foundational tenet of adult learning theory. Self-directed learning as follows:

a process in which individuals take the initiative, with or without the help of others, in diagnosing their needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes (Knowles, 1975, p. 18).

Blondy (2007) emphasized the importance of the facilitator maintaining ongoing communication with learners to assess learner self-directedness and provide support and direction on an individual basis.

2) Assumption two: Adults bring experience with them to the learning environment

Knowles acknowledged that adult learners bring a quality experience to the educational environment, which can be used as an important resource for both learners and facilitators (Knowles, 1980, Knowles et al., 2020). Similarly, Nelken (2009) suggested that adult learners are not "blank slates" (p. 183) and they enter learning situations with significant life experiences, often accompanied by strong opinions and perspectives. Knowles realized that adults were the

best resources for each other, thus encouraging and emphasizing group discussions and collaborative assignments that would draw on the heterogeneity and expertise within groups. In order to share their personal experiences and knowledge, he emphasized the importance of creating a welcoming environment, where learners can openly express opinions, share ideas, and discuss information and experiences valuable to them (Palloff & Pratt, 2010, 2013). However, Knowles et al. (2020) cautioned that adult learners could be negatively affected by their past experiences, defining themselves based on those experiences. Therefore, he suggested facilitators help learners be open-minded to the experiences of others.

3) Assumption three: Adults enter the learning environment ready to learn

Knowles (1980) observed that adults often experience a situation that would trigger a need to learn something new. As a result, adult learners often want to know why they need to know something before they learn it (Knowles et al., 2020). Therefore, facilitators must take steps to help learners identify their learning needs (Knowles, 1984). Having a discussion of a learners' reason for taking a course or asking questions for learners to think about what they want to accomplish in the learning environment can be helpful (Blondy, 2007).

4) Assumption four: Adult learners are problem-oriented

Knowles (1984) believed adults normally did not pursue learning simply for the sake of learning, but because they needed to immediately apply what they were learning to life situations. Knowles et al. (2020) refer to adult learners as "life-centered," and believed learning experience should be structured around life situations versus subject matter and that learners desire to be aware of the relevance of what they learn in relation to their life tasks or goals (p. 46). Blondy

(2007) suggested employing assignments and group projects that require learners to draw on their personal experiences and needs, applying the theoretical concepts to their real-life situations.

    5) Assumption five: Adults are motivated to learn by internal factors

    Knowles (1984) believed that adults were motivated by some external rewards, such as getting a better job or promotion, but were best motivated to learn by internal factors, such as self-esteem, job satisfaction, or recognition. He believed that adults were best motivated to succeed with their educational goals when recognized and appreciated for their individual contribution to the class.

    In sum, Knowles (1980, 1984) explained that adults are self-directed in learning, making their own choices relevant to their learning goals, adult learners bring an accumulated life experience that can become valuable resources for learning, adults enter educational setting ready to learn, adult learners are problem-centered in their learning, and adult learners are best motivated by internal factors.

    The assumptions of andragogy are quite different from the assumptions of pedagogy, which view learners as dependent beings who bring little or no experience to the educational activity, and learners attend to such activities with little volition (Blondy, 2007). In pedagogy, the subject matter is often sequenced logically, and information is predetermined by others as necessary to know, such as parents or teachers. However, Knowles viewed andragogy and pedagogy are on a continuum instead of them being dichotomous. He noted that there were times when either approach might be appropriate based on the circumstances or needs of individual learners (Blondy, 2007; Knowles, 1984).

In order for educators to implement and employ his assumptions of andragogy, Knowles (1980) explained a seven-step process. These steps include cooperative learning climate, mutual goal planning, diagnosis of learner needs, assistance in formulating learner's own learning objectives, adoption of a variety of methods to meet the objectives, and evaluation and reassessment for continued learning (Blondy, 2007). Knowles (1970) emphasized the importance of creating a climate of mutual trust and clarification of mutual expectations with the learners.

Considering these differences between adults and children, Russell (2021) suggests that these traits and the readiness to learn should be included when designing and planning programs for adult learners in higher education. In respect of adult education, Knowles (1980) maintained that the goal of adult education should be self-actualization. In other words, the learning process should involve the whole emotional, psychological, and intellectual being. Therefore, the mission of adult educators is to assist adults in developing their full potential. When teaching adults, the teacher becomes a facilitator who aids adults in becoming self-directed learners (Knowles, 2020).

In order to further distinguish between the pedagogical and andragogical approaches for developing adult education programs, Knowles and his colleagues (2020) compared the andragogical model with a pedagogical model that is used to teach pre-adults or children. The following table discusses the differences in characteristics between pedagogy and andragogy.

Table 1

Differences between Andragogical and Pedagogical Assumption

Assumptions	Pedagogical	Andragogical
The learner	The learner is dependent upon the instructor for all learning. The teacher/instructor assumes full responsibility for what is taught and how it is learned. The teacher/instructor evaluates learning	The learner is self-directed. The learner is responsible for his/her own learning. Self-evaluation is characteristic of this approach
Self-concept	Learner has a depenent personality.	Responsible for their learning (Increasingly self-directed)
Role of the learners' experience	The learner comes to the activity with little experience that could be tapped as a resource for learning. The experience of the instructor is most influential	The learner brings a greater volume and quality of experience. Adults are a rich resource for one another. Different experiences assure diversity in groups of adults. Experience becomes the source of self-identity
Readiness to learn	Students are told what they have to learn in order to advance to the next level of mastery	Any change is likely to trigger a readiness to learn. The need to know in order to perform more effectively in some aspect of one's life is important. Ability to assess gaps between where one is now and where one wants and needs to be
Orientation to	Learning is a process of acquiring	Learners want to perform a task,

learning	prescribed subject matter. Content units are sequenced according to the logic of the subject matter	solve a problem, live in a more satisfying way. Learning must have relevance to real-life tasks. Learning is organized around life/work situations rather than subject matter units
Motivation for learning	Primarily motivated by external pressures, competition for grades, and the consequences of failure	Internal motivators: self-esteem, recognition, better quality of life, self-confidence, self-actualization

In summary, considering the unique characteristics of adult learners, facilitators of adult learners should adopt different strategies and programs from teaching children. These characteristics include motivation, life experience, goal-oriented, relevancy oriented, practical, and respect.

Nontraditional Adult Learners in Higher Education

In recent years, the number of nontraditional adult students' enrollment in higher education has seen rapid increases and is projected to rise significantly (Markle, 2015). Often defined by the criterion of being aged 25 years and older, one-third of students enrolled in U.S. colleges and universities are considered nontraditional (Markle, 2015). According to the most recent data on post-baccalaureate programs, around 81% of students in master's programs and 86% of students in doctoral programs are over the age of 25 in 2007-08. (NCES, 2010). These nontraditional learners are different from traditional learners, who are often considered younger and are likely to have followed an unbroken linear path through the education system. The

National Center for Education Statistics (2015) defines nontraditional students as meeting one of seven characteristics: delayed enrollment into postsecondary education; attends college part-time; works full-time; is financially independent for financial aid purposes; has dependents other than a spouse; is a single parent; or does not have a high school diploma.

Despite the growing number of adult learners in higher education in the U.S, these institutions may not be prepared to most effectively meet the needs of nontraditional adult students(Chen, 2014). Kasworm (2010) maintained that universities are youth-centric and derive their reputations from this population, resulting in uneven support for adult learners. Adult students are not attracted to the aforementioned type of education model (Nelken, 2009), and it may preclude them from participating, especially if they have had prior negative experiences (Crossan et al., 2003) or if they feel like they do not belong (Reay et al., 2002). Their learning needs may not match well with current university life because the academic structure is often focused on transmission-based pedagogy, or 'the science and art of teaching children' (Knowles, 1980, p. 40). Consequently, their identities may often be shaped by institutional shortcomings related to adult learning needs (Kasworm 2010; O'Donnell & Tobbell, 2007), reinforcing the feeling of academic alienation and social isolation from higher education.

One of the significant characteristics that differentiate nontraditional adult students from traditional students is the role strain. Adult students often juggle other roles in both their personal and professional lives while enrolled in school. These roles are often those of employee, spouse/partner, parent, caregiver, and community leader/member (Ross-Gordon, 2011). Nontraditional adult learners with multiple roles often encounter difficult challenges in allocating

time for academic study as well as participation in organizations and activities (Ross-Gordon, 2011).

Many of these nontraditional adult learners are older students completing their initial education in the college or university environment, returning to the collegiate environment after some time spent away, employed/unemployed, parents returning to the workforce, older adults facing retirement, and/or seeking to improve their current life situations (Nashashibi & Watters, 2003). As these nontraditional adult students are enrolling in higher education for a wide variety of motives, purposes, and expectations, they are generally thought to have vastly different needs from more traditional students in terms of education, guidance, and support (Nashashibi & Watters, 2003).

Moreover, adult learners may view the structure of education differently than traditional students do (Pelletier, 2010). They often have a difficult time with the traditional format and structure, such as length of semesters, parking on the campus, getting to a traditional campus with a traditional schedule from their place of work. If their travel schedule sends them out of town, they have a difficult time being in a classroom environment, particularly during the day but also on a traditional Monday-Wednesday-Friday or Tuesday-Thursday schedule. Besides, they are often meet in a conflict of traveling to student support offices, such as billing, career counseling, or tutoring, as many of them work full-time or part-time or between jobs. To work within those constraints, adult students might have to leave work early, drive a long distance, and perhaps scramble to find a parking spot. Competing tension between life obligation and educational obligation is one of the biggest problems for adults. Moreover, adult learners learn differently from traditional learners, suggesting faculty members take different teaching

approaches. One of the interviewers in Pelletier's (2010) study suggested that adult learners should be provided with sufficient information and clear expectations regarding the course and degree so that adult learners can set their own plans and goals for their learning. Knowles et al. (2020) warned that adult learners can be reluctant in accepting new ideas or values due to due to their mental habits, biases, and presuppositions that were developed from their previous experiences. Therefore, adult educators need to help adult learners examine their habits and biases and open their minds to new approaches.

The challenges and struggles of adult learners are well-examined in Chen's (2017) study of nontraditional adult learners in postsecondary education. Youth-centricity of postsecondary education, such as residential housing and physical education/athletics targeting the lifestyles of the traditional-age student, negatively impact academic entry and learning success of adult learners. In their study of student parents in colleges and universities, Eckerson et al., (2016) found that daycare centers in colleges and universities have steadily decreased over the past 10 to 15 years, regardless of the fact that student parents who have access to childcare are not only more likely to return to school but are also three times more likely to graduate. Many adult students are insecure about coming back to school into a traditional environment. They are worried about failure, cost and about whether they can balance the other activities in their lives along with academic studies (Pelletier, 2010).

Considering adult learners' unique circumstances and characteristics, faculty members and policy makers adopt difference strategies and programs from teaching children. In his assumption on adult learners, Knowles (1984) suggested that adult learners often enter the learning environment when they experience situations that trigger a need to learn something new.

Specific events that forced a change in one's life, such as birth, divorce, or loss of a job, would often increase the motivation to learn. The implication of this assumption to the learning environment is that facilitators must realize each learner enters the learning environment for a specific reason, whether a personal desire to learn something or because the course is required by an employer or institution (Palloff & Pratt, 2010, 2013). Nashashibi and Watters (2003) explained that many of the nontraditional adult learners are older students completing their initial education in the college or university environment, returning to the collegiate environment after some time spent away, employed/unemployed, parents returning to the workforce, older adults facing retirement, and/or seeking to improve their current situation. Because these nontraditional adult students are enrolling in colleges and universities for a wide variety of motives, purposes, and expectations, they are generally thought to have vastly different needs from more traditional students in terms of education, guidance, and support.

Despite many challenges experienced by both nontraditional adult students as well as educators and administrators in the higher education setting, some report positive experiences with having adult learners in classrooms. Adult students are often described as more eager, motivated, and committed than traditional students in the classroom setting (Hardin, 2008). However, in order for adult learners to succeed in their study, educators and administrators need to acknowledge that adult learners bring different expectations to the teaching and learning experience. As Knowles and his colleagues (2020) described, adults bring life experiences and knowledge to learning experiences, adult learners prefer talking about their experiences over lecture-type of format. Adult learners have an experiential focus; they want to apply the knowledge that they gained in their education to their work environment for the purpose of enhancing their career right away. Consequently, adult students more appreciate faculty who

have real-world experience. Faculty with rich work experiences can provide practical career advising in the classroom and give assignments that help students build portfolios that can help them land jobs.

Parenting in Academia

Life in academia can be extremely stressful (Lashuel, 2020). The ambiguous yet greedy nature of academic culture expects academe to work endless hours (Wolf-Wendel & Ward, 2015), expecting "ideal workers" who commit endless hours to their work and prioritize their academic roles above all others (Kreischer, 2017; Wright et al., 2004). Universities and colleges are often called "greedy institutions" because academia expects undivided and exclusive attention and effort (Kreischer, 2017; Moreau & Kerner, 2015; Wright et al., 2004). Managing caregiving responsibilities while performing to be an "ideal worker," therefore, can impact academic parents' lives severely (Flaherty, 2020). Academic parents encounter several types of challenges and barriers in their attempt to perform multiple roles (Baker, 2010; Kinman & Jones, 2008; Trussell, 2015). In their study of faculty members in universities in the UK, Kinman and Jones (2008) found that around half of the faculty parents felt that universities were not helpful in their attempts to achieve work-life balance. Similarly, in a study of faculty parents in the U.S., faculty members, especially in the midcareer stage, felt that they lack institutional support. As a result, faculty members, especially women, "making it work primarily through their own efforts and relied little on assistance from institutions or departments" (Wolf-Wendel & Ward, 2015, p. 22).

Previous research highlighted the institutional inflexibility as well as the lack of family-friendly policies to support parents in academia in managing these schedules (Baker, 2010). In their study of 2438 tenure-track assistant professors in the U.S., Lisnic et al. (2019) found that

female faculties were less likely to report tenure expectations as reasonable and that departments and institutions are supportive of family-work balance than male counterparts. These studies suggest that creating a family-friendly environment may have a more significant and positive influence on women faculty members than male counterparts.

Due to difficulty balancing the demands of academic and parental roles at the same time, some faculty members choose to change their family plan, such as having fewer babies than planned, postpone having a baby, or not having a baby at all (Baker, 2010; Mason & Goulden, 2004). For example, in their study of 4,400 faculty members at the University of California, Mason and Goulden (2004) found that 38 percent of women and 18 percent of men reported having fewer children than they planned. One of the faculty members in their study advised, "Avoid having kids before getting tenure. I wish it wasn't so, but I had to learn it the hard way myself." (p. 14). "May baby" or "posttenure babies" are another strategies that many faculty members consider (Armenti, 2004, p. 217). "May baby" refers to the planning of delivering babies in May in order to avoid disrupting one's progress at work during the academic year. "Posttenure babies" refer to not having any children prior to achieving tenure. This is a similar result to Grant et al.'s (2000) study on 602 academic parents in the U.S. They found that female faculty members choose to delay becoming a parent until they achieve tenure or give up having a baby. This change of family plan can have a huge impact on personal life, especially on women faculty, when considering the age for women to conceive a child (Ward & Wolf-Wendel, 2004). Oftentimes, the decision of "whether and when" to have children was influenced by their experiences in graduate school and by their advisors' expectations of them (Ward & Wolf-Wendel, 2004, p. 247).

Even though some faculty members choose to keep their original family plan and become parents, they are often distracted and stressed at home due to heavy workloads (Kinman & Jones, 2008). These psychological stress and distraction may arise from having difficulty finding time to accomplish necessary parenting and academic tasks (Coe, 2013; Wolf-Wendel & Ward, 2006). In addition, academic parents may experience interrole conflict, which occurs when pressures in one role are incompatible with pressures in another role (Dolson & Deemer, 2020). In other words, parents in academia are negatively affected by the struggle to meet the expectations of the "ideal worker" and the "intensive parents" at the same time (Lisnic et al., 2019; Raddon, 2002; Trussell, 2015). Academic parents are often not able to conform to the "ideal" worker expectation as they need to schedule their work around family responsibilities (Fox et al., 2011). In between these two roles, academic parents often struggle with feelings of guilt associated with not meeting the expectations of either of the roles (Grady et al., 2014; Trussell, 2015). For example, in her autoethnography of being a faculty mother, Trussell (2015) recounts her difficult challenges in overcoming the guilt that comes from the feeling that she lacked time to fulfill her responsibilities at home or at work.

Despite many difficulties juggling multiple roles, several faculty parents acknowledged several positive aspects of being both a parent and a scholar (Chesser, 2012; Trussell, 2015; Ward & Wolf-Wendel, 2004). Trussell (2015) argues that "being a mother and a scholar are complementary" (p. 171), suggesting that the two roles positively influence one another. For instance, faculty parents were able to deepen their relationship with their children as well as receive creative ideas for research from their parenting role. Ward & Wolf-Wendel (2004) refer to the dual roles of being a professor and mother at the same time as "silver lining and dark clouds" (p. 241), suggesting that faculty parents experience both negatives and positives from

their academic works and parenting roles. While also acknowledging the "greedy" nature of academic and family life, faculty mothers in their study suggested that the two roles worked as a "buffer" to one another (p. 253). For example, accumulated stress at home can be lessened through academic accomplishments, and increased tension from work can be reduced by the presence of a child at home. In light of the perceived positive aspects of multiple roles, the authors emphasize the importance of balancing work and family. When either one role is threatened or added to, the quality of either role can be threatened, ultimately leads to having higher levels of stress and nonproductivity.

Student Parents in Graduate School

A large volume of studies acknowledges the struggles of working parents in balancing family life and work responsibilities. Nonetheless, focused studies on student parents, especially in graduate programs, are rare (Dolson & Deemer, 2020; Grady et al., 2014; Kreischer, 2017; Kulp, 2020; Springer et al., 2009). Considering the unique circumstances and difficulties they face while navigating their roles of being a parent and a student simultaneously, a study exclusively focusing on these populations is warranted (Dolson & Deemer, 2020; Kreischer, 2017; Springer et al., 2009).

In many ways, the experiences of graduate student parents are quite similar to those of faculty parents as they suffer from time poverty balancing multiple roles (Kreischer, 2017). Class schedules and childcare availability can give additional conflict for both student parents and faculty parents (Brown & Nichols, 2012). Both groups are likely to have feelings of guilt for not being an "ideal worker' and "ideal parent" (Brooks, 2015; Moreau & Kerner, 2015). However, graduate student parents are in a unique position where they are challenged with financial and job insecurity while also required to fully commit themselves to never-ending study, work, and

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family. The reality where they must live with a tight budget leads to higher levels of anxiety and stress (Grady et al., 2014; Moreau & Kerner, 2015). In addition to financial insecurity, graduate students are met with higher expectations, more workload, and effort (Moreau & Kerner, 2015). Estes (2011) describes an 'ideal student' as an unmarried student who dedicates solely to graduate coursework. Graduate students are often expected to fully commit themselves to their school responsibilities as well as making themselves available to their professors or advisors at any time (Brus, 2006; Dolson & Deemer, 2020).

Studies of graduate students suggest that they experience higher levels of stress, time pressure, loneliness, and financial constraints (Cho et al., 2021; Dolson & Deemer, 2020; Grady et al., 2014; Hyun et al., 2006; Offstein et al., 2004). These numerous struggles graduate students experience may be derived from their unique position within the institution, which makes them marginalized and lack institutional power (Grady et al., 2014). Grady et al. (2014) refer to the position of these students as they are in "betwixt and between," suggesting that they are "neither fully students nor fully professionals" (p. 6). While graduate students are expected to fully dedicate themselves to their studies, graduate school expectations consist of open-ended work with no formal separation between the working hour and leisure time. This may add additional pressure to students to constantly perform better, complete more work, or volunteer for additional tasks (Moreau & Kerner, 2015). Many graduate students suffer from time pressure and feel that they are not fulfilling their academic and nonacademic duties (Grady et al., 2014).

Beyond role conflict and overload, graduate students are faced with multiple sources of stress, which severely impact their mental health (Hyun et al., 2006; Grady et al., 2014; Offstein et al., 2004). In their qualitative research, (Offstein et al., 2004) found that graduate students suffer from constant stress due to ongoing competing demands. Similarly, Hyun et al. (2006)

reported that almost half of the participants of their study reported a high level of stress that significantly and negatively affected their academic performance or emotional well-being. In their study of 17 graduate students, Grady et al. (2014) found that about 67 percent of participants sought out professional mental health resources during their study, and all participants reported having some type of self-defined stress or mental health-related experiences. In their analysis, they identified five primary sources of stress experienced by graduate student participants: 1) intrarole strain among graduate students' academic role-set, 2) interrole strain between academic and non-academic roles, 3) mentoring relationships, 4) isolation within the university and between the university and non-university life, and 5) funding levels and availability. Other stressors may exist, but these sources were reported to have students feel unable to fulfill their role demands adequately and feel stressed.

Graduate students with dependent children need to fulfill their endless academic requirements while also attending to their parenting responsibilities. As a result, graduate student parents meet with additional stressors that are similar to working parents or academic parents. In their study of 245 graduate students in the U.S., Dolson and Deemer (2020) found that graduate student parents experience parenting discrimination and interrole conflict via burnout. Graduate student parents are hesitant from using an institutions' family-friendly policies for fear of being viewed as they are not taking their academic role seriously (Chater & Hatch, 1991; Serrano, 2008). The ongoing discrimination in the workplace may increase burnout levels, which could ultimately hinder student parents' from balancing their multiple roles (Dolson & Deemer, 2020).

In order to manage and minimize their stress, graduate students develop some type of coping strategies (Offstein et al., 2004). These strategies include establishing structure or routine, striving for efficient time management, making wise choices and using efficient methods,

pursuing self-awareness, seeking out a mentoring advisor, seeking support from family relationships and peer/friend relationships, and capitalizing on the strengths of others in the program. However, studies report that many graduate students do not seek formal mental health services. Hyun et al. (2006) studied more than 3,000 full-time graduate students, and they found that only 31 percent of the participants who reported having emotional distress used those services, mostly unmarried students. One possible reason for unmarried students using mental health services more frequently than their counterparts may be that married or partnered students often seek relief and comfort from their partners or from their families.

Similar to faculty parents, who often face unfavorable institutional policies that hinder them from balancing multiple roles simultaneously (Markle, 2015), student parents also struggle with policies and procedures that are not supportive of them. Springer et al. (2009) highlighted the importance of departmental flexibility as well as official policies and practices that are specially tailored to graduate student parents to help them reach their goals. However, most policies and resources provided are informal and decided on a case-by-case basis. Without having concrete and formal structures, it is likely that graduate students would be in a "precarious or vulnerable position" as they must ask for the favor of flexibility, instead of using the policy or resources (Springer et al., 2009, p. 444). In addition to inflexible and informal policies, having insufficient facilities for parents is problematic, especially for those with younger children. Inadequate health insurance, lack of spaces for breast pumping or lactation, and insufficient and unaffordable childcare centers can hinder student parents from focusing on their study and research (Brown & Nichols, 2013; Exstrum, 2015; Springer et al., 2009). Due to this lack of resources, student parents often have to choose between missing classes and deadlines or notifying their instructors to ask for accommodations (Brown & Nichols, 2013).

Springer et al. (2009) maintain that students with children are a special subgroup of students and should be provided with adequate resources, just as people with disabilities and students athletes are offered support and academic assistance. Developing family-friendly university strategies is essential in helping student parents reach their goals (Springer et al., 2009). Examples of these policies include paid parental leave, an extension of deadlines and part-time options, financial support for childcare, and health insurance for dependents. In addition to the institutional policies, departmental strategies might also be helpful. These strategies include mentoring and faculty support, department chair and faculty training, graduate student training, and creating a family-friendly departmental culture (Brown & Nichols, 2013; Springer et al., 2009). In addition to developing family-friendly policies and environment, having affordable childcare centers on campus is crucial (Brown & Nichols, 2013; Kreischer. 2017). Mostly the cost of childcare is relatively expensive for graduate students who live with a tight budget, giving additional stress and burden on them (Kreischer, 2017). In addition to the high cost of childcare centers, finding available one can be difficult, and sometimes students have to wait for a long time to have their child admitted to the center (Brown & Nichols, 2013). Some students experience a conflict between the schedule of a childcare center and university classes. Most times, university childcare centers close during university breaks, when graduate teaching/research assistants are expected to perform their duties during these times (Kreischer, 2017).

Mothers in Academia: Gender Inequality Issues

Gender issues emerge consistently in the literature regarding academic parents. While many studies acknowledge the challenges and struggles of parents in academia, those barriers seem much more significant for women scholars (Coe, 2013; John, 2017; Kulp, 2020; Lisnic et

al., 2019; Trussell, 2015; Wolf-Wendel & Ward, 2015). In their study of 166 domestic graduate students, Mallinckrodt and Leong (1992) found that women scholars had a higher level of stress than men and felt they had less support within their departments as well as at home. John (2017) addressed gender disparities in her report, stating that female faculty members in higher education still lag behind male counterparts in achieving tenure. In fact, in her observation, Coe (2013) reports that married male professors tend to be promoted more quickly than their single colleagues, while it is the opposite for women. One of the interviewers in Coe's (2013) explains that few women faculty members have stay-at-home spouses, whereas many males have helpful wives at home, allowing them to fully commit themselves to their professions. Often, marriage "accelerates a man's career" (p. 4). Kelly and Grant (2012) argue that male faculty with children receive a "fatherhood premium" in the form of a 5.4 increase in pay compared to childless, unmarried male faculty members (p. 869). In fact, the "ideal worker" these days tend to indicate a married man whose spouse takes care of his and the family's needs (Acker, 2011; Williams, 2001). This "man-as-normative approach" (Lisnic et al., 2019, p. 342) prevailing in academia expects faculty members to achieve their tenure within seven years of academic appointment and fulfill their duties for the rest of their academic years, with no parental leave.

The increased workload in higher education, including teaching, research, and service expectations, grant funding, and longer wait times for publication in top journals, exacerbate gender inequality in academia (Eagan Jr & Garvey, 2015). One of the interviewees in Coe's (2013) article states that "Men are better at protecting their time," explaining that women faculty are often asked to do double the amount of service as men. While service also plays an important role in getting promoted, publications play a much larger role. It is reported that women scholars

have a difficult time keeping up with the publishing output while service takes a lot of their time from research (Coe, 2013).

While both male and female faculty members struggle to earn tenure in their position, studies on academic parents point out that female faculty with children are less likely to earn tenure during the same timeframe (Mason et al., 2013) due to work-family balance struggles. Although both women and men have family care responsibilities as a parent, these responsibilities place more demands on women's time (Lisnic et al., 2019; Ward & Wolf-Wendel, 2012). As a result, most women who achieve tenure are unmarried and childless (Mason & Goulden, 2004; Reuter, 2018). Women who have children often consider giving up their academic careers (Rosser & Lane, 2002), while tenured men are more likely to be both married and have children (White, 2005). The previous research suggests that men's careers seem to benefit, not suffer, from family expansion (Mason et al., 2013; Mason & Goulden, 2004).

Existing literature points out the structural barriers that women graduate students face in performing multiple roles (Lynch, 2008; Springer et al., 2009). Often a woman's amount and quality of time to study are governed by balancing home and academic life, causing a great deal of stress (Bennett & Burke, 2018; Brown & Watson, 2010). Student mothers are constantly in between the tension between idealized mothering and idealized student. In between these roles, they often suffer from feelings of guilt when they fail to meet one of those roles (Brown, 2007). More recent research (Lyonette, 2015; Moreau & Kerner, 2015) shows an unchanging picture of caring demands and unequal division of childcare and household tasks, placing pressure on women students in comparison to their male counterparts. Role conflict between higher education studies and caring responsibilities (Lister, 2003) causes further barriers for mothers to learn.

Multiple role constraint is particularly relevant in the literature of graduate student mothers. The phenomenon of multiple role constraints describes conflicts of multiple roles as mother and students with the structural elements around which role is performed. Brown and Watson (2010) pointed out that balancing home and academic life is a source of stress, and graduate student mothers are often torn between their roles as a wife, mother, and student. Inadequate support and resources further exacerbate their familial and academic dedication, which results in attrition in pursuing a degree (Lynch, 2007).

In spite of these feelings of guilt and stress, some studies found that support from family can be a motivator to study and increase student parents' drive and commitment to their studies (Dillon, 2012; Webber & Dismore, 2020). Some studies focused on the source of capital that aids student parents' educational opportunities. For example, in their study of doctoral women students, Webber and Dismore (2020) emphasized the importance of family support and categorized four types of capital that can aid to women's success in higher education. These capitals include 1) economic capital, 2) social capital, 3) cultural capital, and 4) emotional capital. Economic capital refers to financial stabilities that can assist childcare, reducing work hours to study, or employing a career to maximize space and time to study. Social capital is related to support and solidarity from family members. Cultural capital refers to knowledge of higher education systems and the culture of higher education values within a home. The authors describe that cultural capital legitimizes time and space to study. Lastly, emotional capital relates to encouragement and empathy from family members regarding the workload. This emotional capital lessens the feeling of guilt that comes from studying and promotes enjoyment for studying. The author describes this emotional capital can act as a buffer during times of pressure.

In their attempt to navigate their roles as a parent and a student, some acknowledge these seemingly conflicting roles are complementing each other (Dillon, 2012; Trussell, 2015). For example, in her autoethnography of being a faculty mother, Trussell (2015) recounts that being a mother gives a sense of creativity and purpose in her work. Similarly, Dillon (2012) also emphasized the positive role of their children in sparking research interests. Moreover, student parents view their academic role as beneficial as they are providing positive role models for their children (Moreau & Kerner, 2015). These studies suggest that student parents benefit from their parenting role in several ways. In their attempt to balance their multiple roles, graduate student parents employ several strategies (Sallee, 2015), such as completing their homework at night after putting their kids to bed, or abandoning hobbies and volunteer activities to spend more time with their family. Participants also acknowledge that these modifications were possible due to their supportive supervisor and institutional flexibility, which are crucial elements to support student parents.

Parenting in STEM

Extensive studies pointed out that gender imbalance is predominant in science, technology, engineering, and mathematics (STEM) discipline. Despite the fact that more women scholars earn doctoral degrees than before, only a third become full professors (Torres et al., 2020). Although gender disparity issues in the STEM field received attention for the past few years, parenting in the STEM field has rarely been discussed. A recent study reported that 43% of women leave full-time STEM employment when 23% of men leave STEM after their first child (Cech & Blair-Loy, 2019). In addition, new mothers are more likely to switch to part-time work and exit the labor force. Kmec (2013) explains that faculty mothers' job satisfaction, stress

levels, and attrition are negatively affected by masculine work culture characteristics of STEM discipline. In spite of the fact that faculty mothers perceive they work harder than others, their commitment and competence are often challenged. These perceived difficulties of being a faculty mother in these disciplines force the idea that they do not fit "ideal" workers for the job. In their longitudinal studies on faculty mothers, Wolf-Wendel and Ward (2015) explained that parental status and gender in academia are greatly influenced by ideal worker norms, which are shaped by discipline contexts. They found that women in the STEM field are met with increased workload and extra works as the consequences of being one of a few women scholars in the field. Bleijenbergh et al. (2013) argued that women, regardless of their academic field, could not meet the "ideal" worker standard, let alone those with children.

Motivation, Stress, and Satisfaction

As all the other learners, adult learners best learn when they are motivated (Sogunro, 2015). Understanding adult learners' motivation in learning can ensure their success in higher education. When it is low, potential for learning diminishes (Wlodkowski & Ginsberg, 2017). The word *motivation* is derived from the Latin verb *movere*, meaning *move*. Beck (2004) explains, "motivation is then concerned with our movements, or actions, and what determines them" (p. 3). Motivation is often used to explain why people engage in particular activities at particular times (Beck, 2004). Thorkildsen (2002) defines motivation as an internal force that activates, guides, and maintains behavior over time. Schunk et al. (2008) defines motivation as the process whereby goal-directed activity is instigated and sustained. The importance and the role of motivation in learning has been extensively studied by researchers in the last three decades. Based on a study of 203 university students, Sogunro (2015) examined factors in

motivating adult learners in higher education and reported eight major themes. Figure 1 shows eight motivating factors for adult learners in higher education.

Figure 1

Motivating Factors for Adult Learners in Higher Education
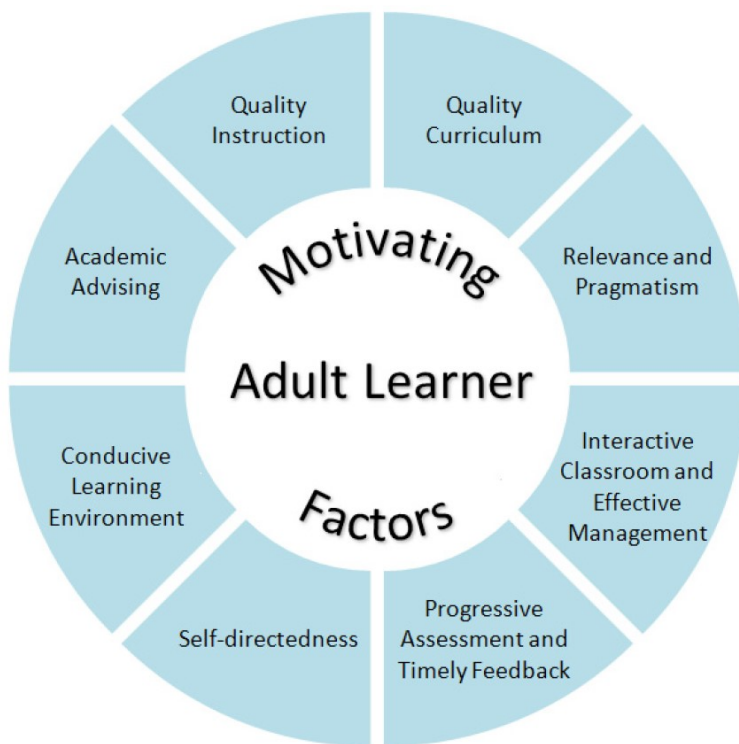
As many other learners, adult learners are motivated when instructors provide quality instruction, with often includes effective planning and organization, manifestation of currency of knowledge of content, use of modern technology, and instructor's embracing personality attributes. One of the participants in his study stated that "Instructors of higher education programs must be those who understand the complexities of adult life. They must be grown adults themselves and must be sensitive to adult learning styles and needs" (Sogunro, 2015; p. 29). Adult learners are more prone to have a higher level of satisfaction in learning when course

instructors take learners interests or immediate needs into consideration. Prior to taking the course, learners often examine syllabus to see if their needs are reflected and then decide to take the course or not. Regarding the choice of the course, adult learners do not like changes in syllabus; thus, instructors need to make their syllabi a finished product needing no modification (Sogunro, 2015). Adult learners are problem-oriented, and they like to apply their knowledge into practice (Knowles et al., 2020). Sogunro (2015) also found that adult learners value learning experiences "only if they are relevant and applicable to their needs" (p. 29). Similarly, Wlodkowski (2003) explains that relevance leads to what human beings generally experience as interest and when adult learners feel interested in what they learn, their motivation increases toward more meaningful learning. Adult learners' intrinsic motivation will increase when instructors show the connection between the course and learner's own interests or needs.

One of the most influential theories in motivation is the self-determination theory developed by Deci and Ryan (1985). Ryan and Deci (2000) define motivation as "motivation concerns energy, direction, persistence, and equifinality – all aspects of activation and intention" (p. 69). Self-determination theory (SDT; Deci & Ryan, 1985) suggests that people become self-determined when their basic psychological needs are met. These three innate needs include competence, relatedness, and autonomy. (Deci et al., 1991). Competence relates to performing the action by understanding how to attain and control outcomes; relatedness involves interacting and connecting with others.; and autonomy refers to being self-regulated in one's own actions (Deci et al., 1991). In other words, motivation will be maximized when these three basic psychological needs for competence, relatedness, and autonomy are satisfied.

Different from the unitary view of motivation (Bandura, 1986; Eccles & Wigfield, 2009), SDT views that motivation is more related to quality or type (Vansteenkiste et al., 2009). For example, a unitary view of motivation suggests that a higher level of motivation may lead to more desirable outcomes; on the contrary, SDT suggests that a higher level of motivation is not necessarily associated with positive outcomes if the quality is poor. As such, good quality of motivation, such as seen in autonomous or self-determined motivation, may yield more desirable outcomes when compared to poor quality, such as seen in controlled motivation (Ryan & Deci, 2000; Vansteenkiste et al., 2006; Vansteenkiste et al., 2009).
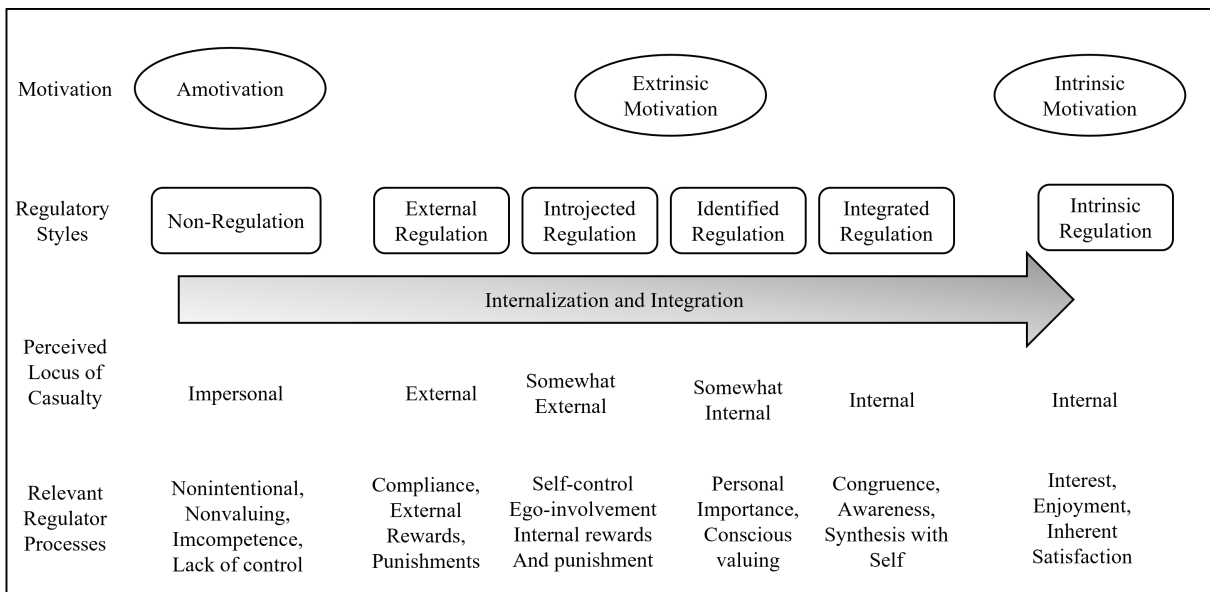
According to self-determination theory, there are two types of motivation: (1) controlled motivation and (2) autonomous or volitional motivation. Autonomous or volitional motivation is conceptualized with two subcomponents: intrinsic motivation and well-internalized extrinsic motivation. Controlled motivation consists of two subcomponents: external regulation and introjected regulation (Vansteenkiste et al., 2009). External regulation is explained as a behavior that is derived from external influences, such as praise, rewards, and punishment avoidance (Fortier et al., 1995; Vallerand & Bissonnette, 1992). It is the most pressured and controlled type of motivation, which is characterized by an external perceived locus of causality (Vansteenkiste et al., 2009). Introjected regulation, which involves a slightly higher level of self-determination, is shown when external contingencies have been internalized, and the individual is engaged in an activity to facilitate self-esteem or avoid the negative feelings of guilt or failure (Fortier, Vallerand, & Guy, 1995; Vallerand & Bissonnette, 1992; Vanteenkiste et al., 2009).

Intrinsic motivation refers to engaging in the activity for the pleasure and satisfaction derived from their performance. When people are intrinsically motivated, people engage in

activities that interest them with a full sense of volition (Deci & Ryan, 1985; Deci et al., 1991).

For example, a student who studies out of curiosity and pleasure of doing so is intrinsically

motivated for that activity. Vansteenkiste et al. (2009), refer to this type of motivation as "the

most optimal type of motivation, because it is fully autonomous or self-determined" (p. 672).

Previous literature found that autonomous motivation is associated with positive outcomes,

including greater use of adaptive meta-cognitive strategies (Vansteenkiste et al., 2005), better

cognitive processing (Grolnick & Ryan, 1987; Vansteenkiste et al., 2005), and greater intention

to persist (Hardres & Reeve, 2003). Figure 2 presents the self-determination continuum showing

types of motivation with their regulatory styles.

Figure 2

The Self-Determination Continuum

Motivation	Amotivation		Extrinsic Motivation			Intrinsic Motivation
Regulatory Styles	Non-Regulation	External Regulation	Introjected Regulation	Identified Regulation	Integrated Regulation	Intrinsic Regulation
		Internalization and Integration →				
Perceived Locus of Casualty	Impersonal	External	Somewhat External	Somewhat Internal	Internal	Internal
Relevant Regulator Processes	Nonintentional, Nonvaluing, Imcompetence, Lack of control	Compliance, External Rewards, Punishments	Self-control Ego-involvement Internal rewards And punishment	Personal Importance, Conscious valuing	Congruence, Awareness, Synthesis with Self	Interest, Enjoyment, Inherent Satisfaction

SDT suggests that student's motivation in learning is facilitated when they are provided

with an environment that satisfies their needs for autonomy, competence, and relatedness

(Vansteenkiste et al., 2009). An autonomy-supportive environment includes providing students with greater choices, using less controlling language, and providing a meaningful rationale (Deci et al., 1994; Reeve & Jang, 2006; Vansteenskiste et al., 2009). More recent studies provided empirical evidence of providing a supportive environment that can increase students' motivation in learning. For example, Cheon and Reeve (2015) found that teacher intervention to increase students' psychological needs satisfaction can be effective in increasing students' motivation. Their findings showed that students of the trained teachers who demonstrated autonomy-supportive and less controlling instructional behavior showed decreased amotivation and increased engagement in learning. Similarly, Perlman (2015) tested the impact of teacher instruction, suggesting students in classes with teachers who provided a more supportive teaching environment reported higher levels of self-determined motivation and relatedness in learning.

Stress is another factor that influences learners' persistence and academic performance. Stress and its negative effects have been well documented in previous literature (Chatters, 1988; Cohen & Herbert, 1996; Schiffrin & Nelson; 2010; Struthers et al., 2000; Suh et al., 1996; Weinstein & Laverghetta, 2009). For example, in their study of college students, Weinstein and Laverghetta (2009) reported that student stress levels are negatively correlated with life satisfaction. Moreover, a higher level of stress can have negative impacts on students, including lower academic achievement (Struthers et al., 2000) and poor health outcomes (Cohen & Herbert, 1996). Based on previous literature, stress impedes yielding positive outcomes in learning; however, a thorough test should be performed to test these relationships between stress and its outcomes.

Summary

The Chapter briefly reviewed the experiences of faculty parents, student parents in academia, graduate student parents, and inequality issues of gender and discipline. Graduate student parents often suffer from multiple role conflicts, lack of time, and financial constraints, which leads to higher levels of stress at home and school. Some point out that student parents have some advantages to being non-traditional learners, such as rich life experience, knowing their goals and future careers, being prepared to make informed decisions regarding their education (Holmes, 2005; van Rhijn et al., 2016). However, the unique challenges student parents experience from their circumstances and obligations in continuing their academic studies, family-related roles and commitment, childcare responsibilities, and additional financial commitments (van Rhijn et al., 2011) could never be neglected.

Exploring the motive of adult learners returning to higher education is complex, and so is examining student parent's reasons for returning to school. Kasworm (1990) found no distinct pattern of motives of adult undergraduates in higher education while some studies found that mature learners have higher levels of intrinsic motivation than extrinsic motivation, suggesting that their reason for returning to school may be more related to enhancing self-esteem or seeking enjoyment in learning. However, some found that adult learners have specific goals in pursuing a degree, such as improving their current life situations (Watters, 2003). Van Rhijin et al. (2016) report adult learners have both extrinsic and intrinsic motivation to learn. Even though the motivation of student parents pursuing a degree in higher education is complex, understanding why student parents choose to return back to school is important.

In addition to reviewing adult learners and student parents in higher education, the Self-Determination Theory (SDT) and its association with levels of stress and satisfaction were reviewed. Concerning SDT, three types of motivation were identified: intrinsic motivation, extrinsic motivation, and amotivation. According to previous studies, good quality of motivation, or intrinsic motivation, is associated with higher levels of well-being and lower levels of stress. Some reported that not only intrinsic motivation but both intrinsic and extrinsic motivation is associated with lower levels of stress. However, no known research directly examined how motivation, stress, and satisfaction are affected by graduate students' parental status, gender, and major. This research aims to fill this gap by investigating the influence of parental status and major on graduate students. In addition, the influence of gender and major on graduate student parents was examined. The following chapter describes the methods of the present study in detail.

CHAPTER 3: METHODS

Overview

The purpose of this study was to investigate the motivational orientation, stress, and satisfaction of student parents and non-parents in graduate school. Based on self-determination theory (Deci & Ryan, 1985), this study examined the influence of parental status (parents or non-parents) and major (STEM or non-STEM) on graduate students' motivation, stress, and satisfaction. Moreover, the influence of major (STEM or non-STEM) and gender (female or male) on graduate student parents' motivation, stress, and satisfaction was examined. The present study included an analysis of data gathered from a self-report questionnaire, which was voluntarily completed by students who were studying at a large U.S. southeastern research institution during the Summer semester in 2018 in the U.S. The questionnaires chosen to collect data for this research were the Academic Motivation Scale – College Version (AMS-C) developed by Vallerand et al. (1992), the Perceived Stress Scale (PSS-14) by Cohen et al. (1983), and the Extended Satisfaction with Life Scale (ESWLS) developed by Alfonso et al. (1996). This Chapter is comprised of the following sections: 1) research questions, 2) participants, 3) instruments, 4) data collection procedures, 5) validity and reliability, and 6) data analysis

Problem Statement

Graduate student parents are those who have dependent children while pursuing a degree in either master's or doctoral program. They are a unique subpopulation in higher education that accounts for a large proportion of graduate students (National Center for Education Statistics, 2010). A thorough review of the literature reveals that these students experience numerous challenges and struggles in their attempt to balance multiple roles due to their particular social

positioning within institutions of higher education (Brown & Watson, 2010; Dillon, 2012; Dolson & Deemer, 2020; Estes, 2011; Grady et al., 2014; Kreischer, 2017; Kulp, 2020; Sallee, 2015; Springer et al., 2009). These studies imply that student parents might have unique motivation in pursuing their degree while going through poor mental health, such as higher levels of stress and low levels of satisfaction. In addition, these studies suggest that female student parents, especially those in a STEM field, might experience bigger barriers and stress in their attempt to balance multiple roles. Despite the emergent need to support these students, little attention has been paid to student parents, especially in graduate school. Several studies that focused exclusively on graduate student parents concentrate on challenges and negative experiences in the institutions, especially those of female students or single parents ((Brown & Watson, 2010; Kulp, 2020; Springer et al., 2009). While understanding students' motivational orientation and their mental health is crucial in providing adequate support and quality instruction (Hyun et al., 2006; Offstein et al., 2004; Sogunro, 2015), no known studies have examined motivation, stress, and satisfaction of graduate student parents nor investigated how these variables are affected by students' parental status, major, and gender.

The purpose of this study was to identify the influence of parental status and student major on graduate students' motivation, stress, and satisfaction, as well as the influence of gender and major on graduate student parents.

Research Questions

This study examined the following research questions:

1. How do parental status and student major affect graduate students' motivation, stress, and satisfaction?

2. How do gender and student major affect graduate student parents' motivation, stress, and satisfaction?

Participants

The present study explored the influence of parental status and student major on graduate students' motivation, stress, and satisfaction. The participants of the current study were graduate students who were enrolled and studying at a large southeastern research institution during the Summer semester in 2018. The students were selected as possible participants because they were enrolled as graduate students who were age 19 or older.

Student populations were divided into two different categories: student parents and non-parents. The criteria applied to identify their status were whether they have dependent children or not. Students who had dependent children were labeled as student parents. Meanwhile, those students who did not have any dependent children were labeled as non-parents.

Instruments

The survey used in this study was comprised of a demographic information section, the Academic Motivation Scale-College Version, the Perceived Stress Scale, and one subscale of Extended Satisfaction with Life Scale (see Appendix A).

The demographic information was developed based on the characteristics of adult learners (Kasworm et al., 2002). It was designed to elicit students' demographic information such as gender, age, race, educational background, major, and status (parent or non-parent). This section was designed to provide additional information about the participants and help contextualize the results of academic motivation, stress, and school satisfaction. Focusing on the research questions, gender and status was used in the data analysis.

Academic Motivation Scale-College Version

The Academic Motivation Scale-College Version (AMS-C) is an English version of Eschelle de Motivation en Education (EME). The EME is based on the tenets of self-determination theory and is composed of 28 items subdivided into seven subscales assessing three types of intrinsic motivation (intrinsic motivation to know, to accomplish things, and to experience stimulation), three types of extrinsic motivation (external, introjected, and identified regulation), and amotivation. The EME was translated into English and cross-culturally validated by Vallerand et al. in 1992. The English version of the scale was renamed the Academic Motivation Scale.

The AMS-C consists of 28 Likert scale items that map onto seven subscales, which assess three types of motivation: intrinsic motivation, extrinsic motivation, and amotivation. Three subscales measure intrinsic motivation, including the intrinsic motivation to know, to accomplish, and to experience stimulation. Three additional subscales measure extrinsic motivation, including behaviors exhibiting external regulation, introjection, and identification. A single subscale measures amotivation. Ratings are made on a seven-point scale that ranges from 1 (does not correspond at all) to 7 (corresponds exactly), answering the question "Why do you go to college?" In order to keep consistent with the Perceived Stress Scale, the present study modified the 7-point Likert scale to a 5-point Likert scale. In addition, the term "college" was changed to "graduate school" to adapt this scale to graduate students. The AMS has satisfactory internal consistency (mean α=.81) and temporal stability over a one-month period (mean test-retest correlation = .79) (Vallerand et al., 1992, 1993). The variable used in this study was Relative Autonomous Motivation (RAM), which indicates how much of the students' motivation originated from within themselves (autonomous) as compared to that originating from external factors (controlled; Vansteenkiste et al., 2005). RAM was constructed by assigning a weight to

each of the motivation subscales depending on their placement on the self-determination continuum (external regulation -2; introjection -1; identification +1; intrinsic motivation +2), and then summing these weighted scores.

The Perceived Stress Scale

The Perceived Stress Scale (PSS) has been used extensively to measure the construct of stress (Cohen et al., 1983; Lee, 2012). The PSS measures the degree to which situations in one's life are appraised as stressful. Three versions of the scale exist (14, 10, and 4 items), each with satisfactory internal consistency. The PSS-14 is the original instrument that was developed by Cohen et al. (1983), with seven positive items and seven negative items. The full 14-item version was used in this study to measure perceived stress. PSS scores are obtained by reversing the scores on the seven positive items, e.g., $0 = 4$, $1 = 3$, $2 = 2$, etc., and then summing across all 14 items. Items 4, 5, 6, 7, 9, 10, and 13 are the positively stated items. The PSS was designed for use with community samples with at least a junior high school education. The items are easy to understand, and the response alternatives are simple to grasp. This instrument consists of a five-point Likert scale ranging from 0 (never) to 4 (very often). Ample research using the PSS-14 has demonstrated satisfactory internal consistency reliability (Cronbach's alpha) of .70 or above (Andreou et al., 2011; Cohen, 1988; Lee, 2012; Leung et al., 2010; Mimura & Griffiths, 2004; Ramírez & Hernández, 2007; Remor, 2006; Yokokura et al., 2017). Higher scores indicate a stronger feeling of stress.

Extended Satisfaction with Life Scale

The Extended Satisfaction with Life Scale (ESWLS) was developed by Alfonso et al. (1996) as an extension of The Satisfaction with Life Scale (SWLS) by Diener et al. (1985). The ESWLS is a 50-item self-report scale that measures life satisfaction in nine domains. The

readability of ESWLS was estimated to be between seventh and tenth-grade levels and can be completed by most people in under 20 minutes. One of the five subscales of ESWLS – the general life satisfaction subscale was used in this study to measure graduate student satisfaction in general. Each subscale consists of five Likert scale items, ranging from 1 (strongly disagree) to 7 (strongly agree), with higher scores indicating higher levels of satisfaction. The ESWLS scale has an internal consistency that ranges from .81 to .96 and two-week test-retest reliability that ranges from .74 to .87 (Alfonso et al., 1996).

Data Collection Procedures

Data collection for this study was administered in an online survey with a set of questionnaires, comprising part 1 for demographics, part 2 for motivation, part 3 for stress, and part 4 for satisfaction. Emails were sent to the Graduate School for assistance in distributing the survey through group emails to the enrolled students at this institution. Invitation emails were then sent through those third parties every two weeks three times to all graduate students in this university. The survey was approved by the Institutional Review Board (IRB) (See Appendix D).

At the beginning of the data collection process, participants were informed of the purpose of the research and the expected time to take the survey. It was also informed that their participation in this survey was completely anonymous and voluntary. Participants were informed that no foreseeable risks were associated with this study. Furthermore, participants were requested to answer in terms of how well the statement described themselves according to their motivation in learning, stressful events, and satisfaction in school. They were noted that there were no right or wrong answers for each item. In addition, participants were informed that all of the personal information, answers, and responses collected from them would be kept confidential. With the help from the Graduate School, 667 students participated in answering the

survey in the Summer semester of 2018, and 545 respondents were usable, which was an 81.7%

response rate.

Data Analysis Procedures

Data collected from the online survey were processed using the statistical package for the

Social Sciences (SPSS) 26.0 to analyze descriptive statistics, reliability estimates, a factorial

ANOVA analysis (see Table 2). The original plan for this study was to conduct two-way

MANOVA to examine the differences of multiple dependent variables (i.e., motivation, stress,

and satisfaction); however, due to low correlation between the dependent variables, a factorial

ANOVA was used to test the main effects and interaction effects of 1) parental status and student

major on graduate students, and 2) gender and student major on graduate student parents.

Prior to analysis, data were examined for missing values. Missing values revealed that

5.1% of the data was missing. Performing complete case analysis would yield a loss of 13

participants, as these participants had missing values on one or more items. A missing values

analysis indicated that Little's (1988) test of Missing Completely at Random (MCAR) was not

significant, Chi square=468.078, df = 491, p = .77. As the missing cases are completely at

random, the Expectation-Maximization technique was used to estimate missing values.

Analysis methods were selected and employed based on each research question.

Descriptive statistics were employed to evaluate and provide descriptive data concerning the

different variables such as means, standard deviations, and frequencies. They were calculated to

represent demographic information and to summarize the graduate students' academic

motivations, stress, and satisfaction by parental status, major, and gender. A factorial ANOVA

was used to examine the impact of parental status and student major on graduate students'

motivation, stress, and satisfaction, as well as the impact of gender and student major on graduate student parents.

Table 2

Methods of Data Analysis for Research Questions

Research Question	Survey Instrument Used to Address Question	Analysis of the Data
Question 1: How do parental status and student major affect graduate students' motivation, stress, and satisfaction?	AMS-C PSS-14 ESWLS	A factorial ANOVA
Question 2: How do gender and student major affect graduate student parents' motivation, stress, and satisfaction?		

Summary

This chapter provided a review of the methods that were used to investigate the influence of parental status and student major on graduate students as well as the influence of gender and student major on graduate student parents' motivation, stress, and satisfaction. The population used in this study were students enrolled in a large southeastern research institution during the Summer semester in 2018 in the US. The instrument used for data collection was AMS-C, PSS-14, and one subscale of ESWLS. A factorial ANOVA was used to analyze the quantitative data. Findings and results were presented and addressed based on the different research questions in the following chapter.

CHAPTER 4: FINDINGS

Overview

In this chapter, demographic data, results, and findings from data analysis will be presented. The results and findings for each research question are described along with the tables and figures from the data analysis.

Problem Statement

Graduate student parents are those who have dependent children while pursuing a degree in either master's or doctoral program. They are a unique subpopulation in higher education that accounts for a large proportion of graduate students (National Center for Education Statistics, 2010). A thorough review of the literature reveals that these students experience numerous challenges and struggles in their attempt to balance multiple roles due to their particular social positioning within institutions of higher education (Brown & Watson, 2010; Dillon, 2012; Dolson & Deemer, 2020; Estes, 2011; Grady et al., 2014; Kreischer, 2017; Kulp, 2020; Sallee, 2015; Springer et al., 2009). These studies imply that student parents might have unique motivation in pursuing their degree while going through poor mental health, such as higher levels of stress and low levels of satisfaction. In addition, these studies suggest that female student parents, especially those in a STEM field, might experience bigger barriers and stress in their attempt to balance multiple roles. Despite the emergent need to support these students, little attention has been paid to student parents, especially in graduate school. Several studies that focused exclusively on graduate student parents concentrate on challenges and negative experiences in the institutions, especially those of female students or single parents ((Brown & Watson, 2010; Kulp, 2020; Springer et al., 2009). While understanding students' motivational orientation and their mental health is crucial in providing adequate support and quality

instruction (Hyun et al., 2006; Offstein et al., 2004; Sogunro, 2015), no known studies have examined motivation, stress, and satisfaction of graduate student parents nor investigated how these variables are affected by students' parental status, major, and gender.

The purpose of this study was to identify the influence of parental status and student major on graduate students' motivation, stress, and satisfaction, as well as the influence of gender and major on graduate student parents.

Research Questions

This study examined the following research questions:

1. How do parental status and student major affect graduate students' motivation, stress, and satisfaction?

2. How do gender and student major affect graduate student parents' motivation, stress, and satisfaction?

Demographic Results

A total number of 545 students participated and completed the survey. Among the total participants, 145 were student parents (26.61%) and 400 were non-parents (73.39%). Table 3 presents a breakdown of the characteristics of the participants by gender, age, ethnicity, and major between the two groups.

Table 3

Frequency Distribution of Participants for each Demographic Category

		Parent (N = 145)	Non-Parent (N = 400)	Total Participants (N = 545)
Gender	Female	82 (56.6%)	257 (64.3%)	339 (62.2%)
	Male	63 (43.4%)	143 (35.8%)	206 (37.8%)

Age	19 – 24	2 (1.4%)	108 (27%)	110 (20.2%)
	25 – 34	41 (28.3%)	235 (58.8%)	276 (50.6%)
	35 +	102 (70.3%)	57 (14.4%)	159 (29.2%)
Ethnicity	White/Caucasian	90 (62.1%)	280 (70%)	370 (67.9%)
	African American	24 (16.6%)	27 (6.8%)	51 (9.4%)
	Asian	15 (10.3%)	64 (16%)	79 (14.5%)
	Others	16 (11%)	29 (7.2%)	45 (8.3%)
Major	STEM	46 (31.7%)	224(56%)	270 (49.5%)
	Non-STEM	99 (68.3%)	176 (44%)	275 (50.5%)

Reliability

Using the Cronbach Coefficient Alpha test, the results of the tests for motivation, stress, and school satisfaction are presented in Table 4. The reliability coefficients indicate the degree to which the results on a scale can be considered internally consistent or reliable. They can be interpreted as the percent of the consistent variance in the students' answers. The Cronbach alpha can range from .00 to 1.00. A value of .70 or higher was considered evidence of reliability, a value between 0.6 and 0.7 is acceptable, a value between 0.5 and 0.6 is considered poor reliability, while a value below 0.5 is unacceptable (Becker, 2000).

The instrument for measuring student motivation consists of 27 items divided by seven subscales. The value of Cronbach's Alpha for intrinsic motivation to know (IMK), intrinsic motivation toward accomplishment (IMA), intrinsic motivation to experience stimulation (IMS) were .886, .884, and .870, respectively. The value of Cronbach's Alpha for extrinsic motivation identified regulation (EMID), extrinsic motivation introjected regulation (EMIN), extrinsic

motivation external regulation (EME), and amotivation were .720, .875, .784, and .848, respectively. Relative Autonomous Motivation (RAM) was then calculated to get a single variable of motivation in order to get an idea of the overall self-determined or autonomous motivation. Based on Vansteenkiste et al. (2005), RAM was calculated by assigning weights to each type of motivation and summing these weighted scores. The instrument for measuring satisfaction consists of 5 items. The value of Cronbach's Alpha for General life satisfaction (GS) was .931. Lastly, the instrument for measuring stress consists of 15 items. The value of Cronbach's Alpha for stress was .879. Overall, the Cronbach alpha estimates of all items were acceptable.

Table 4

Reliability of the Motivation, Stress, and Satisfaction

Variables	Number of Items	Cronbach's α
Motivation		
IMK	4	.886
IMA	4	.884
IMS	4	.870
EMID	4	.720
EMIN	4	.875
EME	4	.784
Amotivation	4	.848
Satisfaction		
GS	5	.931

		Stress	14		.879

Note. IMK = Intrinsic motivation to know, IMA = Intrinsic motivation toward accomplishment, IMS = Intrinsic motivation to experience stimulation, EMID = Extrinsic motivation identified regulation, EMIN = Extrinsic motivation introjected regulation, EME = Extrinsic motivation external regulation, GS = General life satisfaction.

Discussion of Findings

A factorial ANOVA was used to examine research questions 1 and 2. The significance level was set at $p < .0167$, based on a Bonferroni correction on the alpha significance level, which was .05 divided by three dependent variables.

Research Question 1: How do parental status and student major affect motivation, stress, and satisfaction among graduate students?

Descriptive statistics of motivation, stress, and satisfaction by parental status and student major are shown in table 5. A correlation matrix of three dependent variables is shown in table 6.

Table 5

Descriptive Statistics of Motivation, Stress, and Satisfaction by Parental Status and Major

Motivation	Parental Status	*Major*	*N*	*M*	*SD*
RAM	Student Parents	STEM	46	.64	2.20
		Non-STEM	99	.73	2.49
	Non-Parents	STEM	224	-.13	2.35
		Non-STEM	176	-.09	2.49
Stress	Student Parents	STEM	46	1.64	.47

		Non-STEM	99	1.51	.64
	Non-Parents	STEM	224	2.02	.61
		Non-STEM	176	1.90	.60
Satisfaction	Student Parents	STEM	46	5.28	1.40
		Non-STEM	99	5.42	1.31
	Non-Parents	STEM	224	4.77	1.42
		Non-STEM	176	5.00	1.31

Table 6

A Correlation Matrix of RAM, Stress, and Satisfaction of Graduate Students

	Stress	Satisfaction
RAM	-.208**	.189**
Stress		-.570**

** Correlation is significant at the .01 level (2-tailed)

Motivation

Levene's test showed that the variances of the groups were equal ($F(3, 541) = .750$, p > .05). A factorial ANOVA was conducted to compare the main effects of parental status and student major as well as their interaction effects on motivation. The result of the analysis showed that parental status was statistically significant at $p < .001$. The main effect of parental status yielded an effect size of 0.021, indicating that 2.1% of the variance in the motivation was explained by parental status ($F(1, 541) = 11.494$, $p < .001$). The main effect of student major was not significant ($F(1, 541) = .062$, p = .803). The interaction effect was also not significant ($F(1,

541) = .012, p = .912), indicating that there was no combined effect for parental status and student major on motivation. The result showed that student parents (M = .685, SD = .205) had statistically significantly higher motivation than non-parents (M = -.111, SD = .115).

Stress

The assumption of homogeneity of variances was tested and satisfied via Levene's F test, $F(3, 541) = 1.32$, p = .269. A factorial ANOVA was conducted to compare the main effects of parental status and student major as well as their interaction effects on stress. The result of the analysis showed that parental status was statistically significant at p < .001. The main effect of parental status yielded an effect size of 0.053, indicating that 5.3% of the variance in the stress was explained by parental status ($F(1, 541) = 30.019$, p < .001. The main effect of student major was not significant, ($F(1, 541) = 1.674$, p = .196). The interaction effect was also not significant ($F(1, 541) = .451$, p = .502, indicating that there was no combined effect for parental status and student major on stress. The result showed that student parents (M = 1.625, SD = .054) had statistically significantly lower levels of stress than non-parents (M = 1.963, SD = .030).

General Life Satisfaction

The assumption of homogeneity of variances was tested and satisfied via Levene's F test, $F(3, 541) = .785$, p = .503. A factorial ANOVA was conducted to compare the main effects of parental status and student major as well as their interaction effects on General Satisfaction. The result of the analysis showed that parental status was statistically significant at p < .001. The main effect of parental status yielded an effect size of 0.020, indicating that 2.0% of the variance in the satisfaction was explained by parental status ($F(1, 541) = 11.098$, p < .005. The main effect of student major was not significant, ($F(1, 541) = 1.811$, p = .179). The interaction effect was also not significant ($F(1, 541) = .090$, p = .764, indicating that there was no combined effect

for parental status and student major on satisfaction. The result showed that student parents (M = 5.351, SD = .122) had statistically significantly lower levels of stress than non-parents (M = 4.886, SD = .069).

Research Question 2: How do gender and student major affect motivation, stress, and satisfaction among graduate student parents?

      Descriptive statistics of motivation, stress, and satisfaction by gender and student major are shown in table 7. A correlation matrix of three dependent variables is shown in table 8.

Table 7

Descriptive Statistics of Motivation, Stress, and Satisfaction by Gender and Major

Motivation	Gender	*Major*	*N*	*M*	*SD*
RAM	Female	STEM	20	.067	2.14
		Non-STEM	62	.80	2.52
	Male	STEM	26	1.10	2.19
		Non-STEM	37	.61	2.48
Stress	Female	STEM	20	1.64	.47
		Non-STEM	62	1.63	.64
	Male	STEM	26	1.65	.48
		Non-STEM	37	1.56	.65
Satisfaction	Female	STEM	20	5.05	1.47
		Non-STEM	62	5.34	1.40
	Male	STEM	26	5.45	1.34
		Non-STEM	37	5.56	1.15

Table 8

A Correlation Matrix of RAM, Stress, and Satisfaction of Graduate Student Parents

	Stress	Satisfaction
RAM	-.329**	.189**
Stress		-.506**

** Correlation is significant at the .01 level (2-tailed)

Motivation

Levene's test showed that the variances of the groups were equal ($F(3, 141) = .322$, p = .810). A factorial ANOVA was conducted to compare the main effects of gender and student major as well as their interaction effects on motivation. The result of the analysis showed that the main effect of gender was not significant ($F(1, 141) = .926$, p = .338) nor the main effect of student major ($F(1, 141) = .087$, p = .769). The interaction effect was also not significant ($F(1, 141) = 1.893$, p = .171, indicating that there was no combined effect for gender and student major on motivation.

Stress

Levene's test showed that the variance of the groups were equal ($F(3, 141) = 1.215$, p = .307). A factorial ANOVA was conducted to compare the main effects of gender and student major as well as their interaction effects on stress. The result of the analysis showed that the main effect of gender was not significant ($F(1, 141) = .051$, p = .821) nor the main effect of student major ($F(1, 141) = .176$, p = .676). The interaction effect was also not significant ($F(1,$

141) = .135, p = .713), indicating that there was no combined effect for gender and student major on stress.

General Life Satisfaction

Levene's test showed that the variance of the groups were equal ($F(3, 141) = 1.520$, p = .212). A factorial ANOVA was conducted to compare the main effects of gender and student major as well as their interaction effects on satisfaction. The result of the analysis showed that the main effect of gender was not significant ($F(1, 141) = 1.649$, p = .201) nor the main effect of student major ($F(1, 141) = .678$, p = .412). The interaction effect was also not significant ($F(1, 141) = .143$, p = .706, indicating that there was no combined effect for gender and student major on satisfaction.

Summary

The quantitative data addressed two research questions of the present study: 1) How do parental status and student major affect graduate students' motivation, stress, and satisfaction? 2) How do gender and student major affect graduate student parents' motivation, stress, and satisfaction?

Research question 1 sought to find the influence of parental status (i.e., student parents or non-parents) and student major (i.e., STEM or non-STEM) on motivation, stress, and satisfaction of graduate students in general ($N = 545$). A result of a factorial ANOVA showed a statistically significant influence of parental status on motivation, stress, and satisfaction, at a significance level of .001. Student parents had higher levels of motivation and satisfaction, and lower levels of stress than those of non-parents. However, the influence of major and interaction effect of parental status and major was not significant in this study.

Research question 2 sought to find the influence of gender (i.e., female or male) and student major (i.e., STEM or non-STEM) on motivation, stress, and satisfaction of graduate student parents ($N = 145$). A result of factorial ANOVA showed no significant influence of gender, major, nor an interaction effect of gender and major on dependent variables.

CHAPTER V. SUMMARY, CONCLUSIONS, IMPLICATIONS, LIMITATIONS, AND RECOMMENDATIONS FOR FUTURE RESEARCH

Overview

The chapter presents the study summary, conclusions based on the data analysis, implications of the findings, limitations, and results. Recommendations for future research are also described.

Problem Statement

Graduate student parents are those who have dependent children while pursuing a degree in either master's or doctoral program. They are a unique subpopulation in higher education that accounts for a large proportion of graduate students (National Center for Education Statistics, 2010). A thorough review of the literature reveals that these students experience numerous challenges and struggles in their attempt to balance multiple roles due to their particular social positioning within institutions of higher education (Brown & Watson, 2010; Dillon, 2012; Dolson & Deemer, 2020; Estes, 2011; Grady et al., 2014; Kreischer, 2017; Kulp, 2020; Sallee, 2015; Springer et al., 2009). These studies imply that student parents might have unique motivation in pursuing their degree while going through poor mental health, such as higher levels of stress and low levels of satisfaction. In addition, these studies suggest that female student parents, especially those in a STEM field, might experience bigger barriers and stress in their attempt to balance multiple roles. Despite the emergent need to support these students, little attention has been paid to student parents, especially in graduate school. Several studies that focused exclusively on graduate student parents concentrate on challenges and negative experiences in the institutions, especially those of female students or single parents ((Brown &

Watson, 2010; Kulp, 2020; Springer et al., 2009). While understanding students' motivational orientation and their mental health is crucial in providing adequate support and quality instruction (Hyun et al., 2006; Offstein et al., 2004; Sogunro, 2015), no known studies have examined motivation, stress, and satisfaction of graduate student parents nor investigated how these variables are affected by students' parental status, major, and gender.

The purpose of this study was to identify the influence of parental status and student major on graduate students' motivation, stress, and satisfaction, as well as the influence of gender and major on graduate student parents.

Research Questions

This study examined the following research questions:

1. How do parental status and student major affect graduate students' motivation, stress, and satisfaction?

2. How do gender and student major affect graduate student parents' motivation, stress, and satisfaction?

Summary

Study Overview

Student parents are a vastly underrepresented group compared to those without children in graduate school (Kulp, 2020). Graduate students with dependent children may go through numerous challenges and struggles as they assume multiple roles. Being both a graduate student and a parent requires balancing multiple responsibilities, such as taking a course for their study, teaching, research tasks, as well as parenting responsibilities (Offstein et al., 2004). Graduate student parents are often compared to faculty parents, as they share similar responsibilities, but lack secure positions and finance. Graduate student parents often have to compromise either one

of the roles in their attempt to balance multiple roles. Emotional stress such as frustration, anxiety, or anger caused by performing the multiple roles of student, parent, and spouse or partner may hinder them from learning (Dobmeier & Moran, 2008).

In light of the growing number of student parents in higher education, understanding why these students who have children chose to pursue their degree in graduate school is important as motivation is a crucial element for success, especially at the graduate level (Hegarty, 2011). The primary focus of this study was to highlight the absence of research and measurement of this student population. While much research on student parents highlights the struggles of students with children, this study examined their motive in learning and how it is affected by students' parental status and major. In addition, examining how their stress and satisfaction are affected by parental status and major would be beneficial as there are few studies that directly assessed those influences. Therefore, the purpose of this study was to examine the influence of parental status, major, and gender on graduate students' motivation, stress, and satisfaction.

Self-determination theory was provided as the framework for this study. A quantitative research design was used to address two research questions using an online survey hosted by Qualtrics. Three instruments were adopted in this survey: 1) Academic Motivation Scale - College Version (AMC-28) developed by Vallerand et al. (1992); 2) the Perceived Stress Scale (PSS – 14) by Cohen et al. (1983), and 3) one subscale of the Extended Satisfaction with Life Scale (ESWLS) developed by Alfonso et al. (1996).

The online questionnaire was distributed to the students who were enrolled in graduate school at a southeastern four-year university in the United States. There were approximately 3,306 students enrolled in graduate school during Summer 2018. Of those 3,306 students, 1,666

students were females, and 1,640 students were males. Among those students, 667 students responded to the survey, which is about 20.18% of the response rate. Among those 667 responses, 545 responses were usable as 122 responses were incomplete (usable rate equals 81.7%). Among the valid respondents, 145 identified themselves as parents (26.61%), whereas 400 reported they did not have dependent children (73.39%). Among the student parents, 82 were females (56.6%) and 63 were males (43.4%). Data collected from this survey was analyzed through a factorial ANOVA in order to examine the influence of 1) parental status and major on graduate students and 2) gender and major on graduate student parents.

Findings of the Survey

Research Question 1 examined the influence of parental status (i.e., parent or non-parent) and major (i.e., STEM or non-STEM) on graduate students. The result of the analysis showed that the parental status of the graduate students has a statistically significant influence on the levels of relative autonomous motivation, stress, and satisfaction. It showed that graduate student parents have statistically higher levels of motivation, lower levels of stress, and higher levels of satisfaction than those of non-parents. The result of the analysis found no statistically significant influence of major nor interaction effect of parental status and major.

Research Question 2 sought to investigate the influence of gender (i.e., female or male) and major (i.e., STEM or non-STEM) on graduate student parents. The result showed that the levels of motivation, stress, and satisfaction of graduate student parents were not significantly affected by gender or major. In addition, there was no statistically significant influence of interaction effect of gender or major.

Conclusions

The data collected showed different results from previous studies in multiple aspects. While there is little literature focusing on student parents' motivation in learning directly, studies on adult learners suggest that older students return to graduate school with a mastery approach to the subject matter as opposed to a grade-driven performance approach (McCollum & Kajs, 2007). Similarly, in his study of adult students in graduate school, Hegarty (2011) indicates that adult learners seek academic credentials that reflect a commitment to personal improvement that can also be applied to one's chosen professional field. Whether it is personal interest or achievement in learning that drive student parents in learning, one of the primary reasons that appear to explain student parents pursuing a degree may be the desire to enhance the family welfare and their children's success (Kreischer, 2017), suggesting that student parents might have different motivation in learning compared to childless students. As expected, the result of this study showed that student parents had higher relative autonomous motivation than their counterparts. This result suggests that graduate student parents are less likely to be driven by external influences, such as praise, rewards, money, or punishment, while more prone to instructions that spark interest and curiosity.

This result also suggests that student parents concentrate more on their personal goals and interests and might thrive in a less controlled learning environment rather than a classroom where outside incentives or pressure are emphasized. Several empirical studies on motivation stressed creating a supportive environment that can increase students' intrinsic motivation (Chen & Reeve, 2015; Pearlman, 2015). Adult learners, especially those with family responsibilities, might have difficult times in learning if they are in a controlled or pressured climate in a classroom or workgroup. When they believe that they have some control over their learning, they are more likely to persist with the task. On the other hand, students with no family obligations

might also thrive in an autonomy-supportive environment; yet, providing some structures and rewards might be helpful in supporting their learning behaviors.

In terms of mental health and well-being, previous studies suggest student parents experience higher levels of stress and poor well-being due to role conflict, work overload, financial insecurity, lack of institutional support and faculty understanding. However, the findings of the current study showed difficult results from the previous research. Contrary to the prior expectation that student parents would have higher levels of stress and lower levels of satisfaction than students without children, the result of this study showed that student parents had lower levels of stress and higher levels of general life satisfaction.

This result may partially explain that student parents have developed strategic ways to accommodate their conflicting roles. For example, in their study of academic women, Wolf-Wenden and Ward (2015) found that faculty parents found joy in multiple roles despite the pressure of juggling numerous responsibilities that comes from both the institution and home. One of the participants in their study mentioned their improved ability to focus on their work by "I used to waste a lot of time, but now that I have a baby and I need to drop her off and pick up, I need to be more focused with my research and writing. I piddle a lot less than I do" (p. 26). They also pointed out that these academic parents were able to develop "creative work arrangements involving work when children are sleeping or occupied" (p. 30). Their finding is in alignment with their earlier study on women faculty (Wolf-Wenden & Ward, 2012) that women can succeed in both their faculty and family roles.

The result of this study partly confirms the "Role Enhancement Theory" (Sieber, 1974), which argues that engaging in multiple roles can enhance wellbeing and people benefit in some way than they experience conflicts in doing so. Similarly, several studies found that student

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parents acknowledge their academic roles as beneficial because they are proving positive role models for their children (Estes, 2011; Kreischer, 2017; Moreau & Kerner, 2015) as well as emphasizing children's roles in sparking research interests (Dillon, 2012; Moreau & Kerner, 2015). Wolf-Wenden and Ward's (2006) study on faculty parents showed that time spent with children acted as a buffer for the stress felt from academic demands. A series of interviews on student parents in graduate school by Kreischer (2017) showed that some students experienced role enhancement by feeling more well-rounded or by being a positive role model for their children. In addition, some student parents felt better about themselves as they were becoming more organized and better at time management by holding dual roles. Another study found that academic parents were able to keep themselves from workaholic tendencies after having children, allowing them to feel more recharged (Ward & Wolf-Wendel, 2004). Individual growth and enhanced communication and mutual trust with research participants were also noted from student parents (Asselin, 2008; Lynn, 2008; Thomas, 2014).

These studies highlight positive aspects of being a student parent, which one role positively influence the other role by creating more resource (Kreischer, 2017; Sieber, 1974). Parenthood and graduate school may also provide benefits to graduate student parents in that these roles may buffer the stress of one another and allow students to gain new insights into their academic, parental, and professional roles (Estes, 2011; Dillon, 2012; Kreischer, 2017).

In terms of gender disparity in academe, previous studies pointed out that female students and woman scholars might experience higher levels of stress and lower levels of satisfaction. However, this study found no significant difference between female and male graduate students with dependent children, in terms of motivation, stress, and satisfaction. While the studies on graduate student fathers are scarce, one autoethnography of being a graduate student father

reveals that student fathers also struggle to find work-life balance as well as experiencing feelings of guilt by their inability to achieve either one of the roles (Dillon, 2012). Recently, the role of parenting has been changed, and more working fathers have attempted to take a larger role in caring for their children (Dillon, 2012; Duckworth & Buzzanell, 2009). Dillon acknowledges the positive aspects of being a student parent in alignment with several other student-parent studies. He recounts that the parental role provided new insights for topics of study (Dillon, 2012).

Regarding the influence of students' majors, previous studies pointed out that female students and scholars might experience higher levels of stress and lower levels of satisfaction. However, this study showed no significant difference between students in STEM and non-STEM areas, in terms of motivation, stress, and satisfaction.

It would be hasty to conclude that the higher levels of satisfaction and low levels of stress from the analysis of this study suggest that student parents experience fewer challenges from balancing multiple roles or are provided with adequate support from their institution. Although this study partly provided evidence of role enhancement in that student parents benefit from their two demanding roles, evidence suggests that student parents experience a varied level of "role enhancement" and "role conflict" simultaneously (Kreischer, 2017; Tiedje et al., 1990). Therefore, the unique challenges faced by student parents, including time constraints, guilt, anxiety, stress, financial constraint, childcare assistance, should not be neglected (L. Brown & Watson, 2010; Dillon, 2012; Dolson & Deemer, 2020; Estes, 2011; Grady et al., 2014; Kreischer, 2017; Kulp, 2020; Sallee, 2015; Springer et al., 2009).

Implications

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Graduate student parents are often neglected, and studies exclusively focusing on this group are rare. In light of the unique struggles and challenges they experience in pursuit of their goals, developing a better understanding of the experiences of student parents in graduate school is crucial for developing improved policies and resources to support student parents' success. Moreover, emphasis on creating a family-friendly environment throughout the campus would attract competent graduate students. Hence, universities and colleges must consider how to accommodate those who want to combine work and family throughout their study. Knowledge and understanding of motivational factors behind students' reasons for study can serve to assist educators in the design of education programs (Hegarty, 2011). In addition, understanding their mental health and wellbeing would be helpful in deciding practical resources and strategies for this group of students. The findings of this study suggest important implications for institutions in higher education, professors, instructors, and policymakers to provide adequate and strategic instructional support to maintain student parents' motivation in learning as well as accommodate their needs to balance academic responsibilities and family life.

First, this study emphasizes the importance of creating a supportive learning environment for student parents as well as all the other graduate students. Adult learners are intrinsically motivated to learn when they believe they have some control over their learning than they are in a controlled or pressured climate. Moreover, personalization of learning materials may be needed as adult learners deem learning important when they see the practical utility and personal meaning in what they learn (Chen, 2017).

Second, many students in graduate school have dependent children or choose to have a baby during their studies. Having a child can significantly influence their academic role and may negatively affect their production or timely graduation. Providing information and suggestions

about how to manage their multiple roles can be helpful. This type of information can include a strategic way to balance multiple roles (e.g., time management), community resources (e.g., financial support or community services), and campus resources (e.g., academic writing and research).

Lastly, faculty members should be aware that student parents account for a large proportion of students in graduate school, and their academic and professional life may be heavily influenced by their parental roles. Complexity and conflict may arise when professors and instructors consider these students the same as other childless graduate students. Parents' needs and increased unpredictability of life events should be taken into consideration when serving this population. Therefore, flexibility and empathy from faculty members are needed in regard to their academic roles. For example, giving options to participate in the class discussion via video conference (e.g., Zoom or Skype) might be a reasonable accommodation for a parent who has a sick child at home. At the institutional level, developing a family-friendly environment across the campus for student parents is crucial. These include 1) creating physical facilities such as accessible parking lots for pregnant students, affordable on-campus childcare centers, and lactation space for mothers 2) developing supportive policies such as childcare subsidies or financial support, and 3) developing institutional resources that are specifically tailored to the needs of graduate student parents.

Limitations

There are some limitations of the study regarding the definition of the key constructs of the study, study participants, and data collection method. First, the key construct of the study, motivation, is a general term that can be defined and be measured in various ways using different theoretical frameworks. This study, however, used Deci and Ryan's (1985) Self-Determination

Theory to assess the academic motivation of learners. Therefore, the result of this study concerning the motivation of graduate students with dependent children and those who do not have children may not be congruent with other studies using a different theoretical framework.

Second, this study adopts a self-reported questionnaire. Therefore, there is a possibility that respondents' answers on individual items might not accurately capture their true perceptions. Students who took this survey may not thoroughly understand their motivation in learning, and their level of stress and satisfaction can be affected by recent events they have experienced, including academic pressures or financial concerns.

Another limitation of the study concerns the generalizability of the sample. Participants of this study consist of graduate students in a large southeastern research institution, which may not represent all graduate students in the U.S. In addition, there exists the possibility of a voluntary selection bias in the sample; therefore, the participants who decided to take part in this survey may not have been representative of their counterparts who did not respond. In particular, student parents who volunteered their time to participate in this study may have been under less stress or time constraints than those who did not participate. Moreover, student parents who self-selected to participate in the study may place more value in their student role or be more engaged with their schooling.

A final limitation is that the analysis of the groups did not examine certain potentially influential variables that might have affected the level of motivation, stress, and satisfaction among small sample sizes among specific groups due to uneven proportions. For example, the number of children and the age of one's children can have a measurable impact on one's familial and academic life. The departmental environment and relationship with faculty members can also be influential on one's motivation and mental health. Therefore, future analysis including

these potentially influential variables may be helpful in understanding the experiences of student parents more thoroughly.

Recommendations for Future Research

First, future studies exploring potentially influential variables on students' motivating factors, mental health, and wellbeing are warranted. Influential factors, such as the number of children, the age of the youngest child, and marital/partner status should be included to further investigate graduate student parent's experiences in balancing multiple roles as a parent and a student. Examining specific strategies in balancing their roles and how these strategies affect their motivation, stress, and satisfaction might clarify the differences among the two groups. These studies could provide a deeper understanding of the experiences of student parents and explore possible resources for their success. Second, empirical and qualitative studies such as observations, focus group discussions, or interviews are needed to understand student parents on a deeper level. Even though the result of this study revealed that the student-parent group had lower levels of stress and higher levels of satisfaction than those of their counterparts, and no significant influences of gender and major were found, further investigation with diverse graduate students is needed to generalize the findings of the present study. Third, follow-up studies are needed to clarify what affected the differences in motivation, stress, and satisfaction between graduate student parents and non-parents.

These recommendations have the potential to benefit not just student parents but all students in graduate school. Despite several universities implementing family-friendly policies and resources, these resources are often informal and enacted case-by-case. Even though formal policies and resources for student parents exist on campus, many parents are not aware of these resources due to a lack of advertisement. Moreover, unexplicit or explicit discrimination toward

student parents on campus hinders them from fully utilizing those resources. Therefore, developing family-friendly policies across the campus and department is warranted as well as communicating possible resources through campaigns to disseminate the information for increased accessibility. Further investigation of the specific resources and needs of student parents in graduate school is necessary.

Student parents are a special and important proportion of graduate students, and their number takes up a large proportion of the student population. This study takes an important step to fill the gaps in student-parent literature by highlighting their motive for attending graduate school. This research also demonstrates the importance of understanding mental health and well-being by investigating the levels of stress and satisfaction. As such, this study adds to the sparse literature on this population, extends current theories regarding motivation in adult learners, and suggests practical strategies that institutions in higher education, faculty members, and others might support student parents' success in graduate schools.

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Appendix A

The Online survey

Consent

(NOTE: DO NOT AGREE TO PARTICIPATE UNLESS AN IRB APPROVAL STAMP WITH CURRENT
DATES HAS BEEN APPLIED TO THIS DOCUMENT.)

INFORMATION LETTER
for a Research Study entitled
" Motivation, Stress, and Satisfaction of Graduate Students"

Dear students,

You are invited to participate in a research study to investigate motivation, stress, and satisfaction of
graduate students in order to explore the needs and possible resources for graduate students. The study
is being conducted by Hyeon Jean Yoo, a Ph.D. student of the Department of Educational Foundations,
Leadership, and Technology at Auburn University under the direction of Dr. David Marshall, a professor
of the Department of Educational Foundations, Leadership, and Technology at Auburn University. You
are invited to participate because you are currently enrolled as a graduate student at Auburn University.

Your participation is completely voluntary. If you decide to participate in this research study, you will be
asked to take an anonymous online survey through Qualtrics. Your total time commitment will be
approximately 10-15 minutes.

There are no anticipated risks or discomforts associated with participating in this study.

The information gathered will provide important guidance for Auburn University to enhance the learning
environment for graduate students. There will be no costs to participation or compensation. Information
collected through your participation may be used for publication or professional presentation

If you change your mind about participating, you can withdraw at any time by closing your browser window. Once you've submitted anonymous data, it cannot be withdrawn since it will be unidentifiable. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with the Department of EFLT and Auburn University.

If you have questions about this study, please contact Hyeon Jean Yoo at hjy0002@tigermail.auburn.edu.

If you have questions about your rights as a research participant, you may contact the Auburn University Office of Human Subjects Research or the Institutional Review Board by phone at (334) 844-5966 or email at irbadmin@auburn.edu.

If you decide to participate, please click the **NEXT** button below. You may print a copy of this letter to keep.

The Auburn University Institutional Review Board has approved this document for use on June 11, 2016. Protocol #18-237 EX 1806

Demographics

What is your gender?

○ Female

○ Male

What is your age?

○ 19-24

○ 25-34

○ 35-44

○ 45-54

○ 55 and older

Which race/ethnicity best describes you?

○ Native American or American Indian

○ Black or African American

○ Asian / Pacific Islander

○ Hispanic or Latino

○ White / Caucasian

○ Multiple ethnicity or other (please specify) [   ]

Which degree are you currently pursuing?

○ Master

○ Doctorate

○ Educational Specialist

What is your major area?

○ STEM fields (Science, Technology, Engineering and Mathematics)

○ Non-STEM fields

What is your marital status?

○ Single

○ Married or domestic partnership

○ Separated

○ Widowed

Do you have a dependent child?

○ Yes

○ No

How many children do you have?

○ 1

○ 2

○ 3 or more

How old is your youngest child?

○ Below 18 months

○ 18 months - 5 years

○ 5 years and older

What is your relationship to your child?

○ Mother

○ Father

○ Other (please specify) [   ]

Motivation

The following questions will help us understand your motivation for attending graduate school.

Using the scale below, indicate to what extent each of the following items presently corresponds to one of the reasons why you go to graduate school.

There is no right or wrong answer. Please select one option that best fits your situation.

What are your reasons for attending graduate school?

	Does not correspond at all	Corresponds a little	Corresponds moderately	Corresponds a lot	Corresponds exactly
Because with only an undergraduate degree, I would not find a high-paying job later on.	○	○	○	○	○
Because I experience pleasure and satisfaction while learning new things.	○	○	○	○	○

	Does not correspond at all	Corresponds a little	Corresponds moderately	Corresponds a lot	Corresponds exactly
Because I think that graduate education will help me better prepare for the career I have chosen.	O	O	O	O	O
For the intense feelings I experience when I am communicating my own ideas to others.	O	O	O	O	O
Honestly, I don't know; I really feel that I am wasting myself in my studies.	O	O	O	O	O
For the pleasure I experience while surpassing myself in my studies.	O	O	O	O	O
To prove to myself that I am capable of completing my graduate degree.	O	O	O	O	O
In order to obtain a more prestigious job later on.	O	O	O	O	O
For the pleasure I experience when I discover new things never seen before.	O	O	O	O	O
Because eventually it will enable me to enter the job market in a field that I like.	O	O	O	O	O

What are your reasons for attending graduate school?

	Does not correspond at all	Corresponds a little	Corresponds moderately	Corresponds a lot	Corresponds exactly
For the pleasure that I experience when I read interesting authors.	O	O	O	O	O

	Does not correspond at all	Corresponds a little	Corresponds moderately	Corresponds a lot	Corresponds exactly
I once had good reasons for going to graduate school; however, now I wonder whether I should continue.	O	O	O	O	O
For the pleasure that I experience while I am surpassing myself in one of my personal accomplishments.	O	O	O	O	O
Because of the fact that when I succeed in graduate school I feel important.	O	O	O	O	O
Because I want to have "the good life" later on.	O	O	O	O	O
For the pleasure that I experience in broadening my knowledge about subjects which appeal to me.	O	O	O	O	O
Because this will help me make a better choice regarding my career orientation.	O	O	O	O	O
For the pleasure that I experience when I feel completely absorbed by what certain authors have writeen.	O	O	O	O	O
I can't see why I go to graduate school and frankly, I couldn't care less.	O	O	O	O	O

What are your reasons for attending graduate school?

	Does not correspond at all	Corresponds a little	Corresponds moderately	Corresponds a lot	Corresponds exactly

	Does not correspond at all	Corresponds a little	Corresponds moderately	Corresponds a lot	Corresponds exactly
For the satisfaction I feel when I am in the process of accomplishing difficult academic activities.	O	O	O	O	O
To show myself that I am an intelligent person.	O	O	O	O	O
In order to have a better salary later on.	O	O	O	O	O
Because my studies allow me to continue to learn about many things that interest me.	O	O	O	O	O
Because I believe that a few additional years of education will improve my competence as a worker.	O	O	O	O	O
For the "high" feeling that I experience while reading about various interesting subjects.	O	O	O	O	O
I don't know; I can't understand what I am doing in school.	O	O	O	O	O
Because graduate school allows me to experience a personal satisfaction in my request for excellence in my studies.	O	O	O	O	O
Because I want to show myself that I can succeed in my studies.	O	O	O	O	O

Satisfaction

The following questions ask about the satisfaction of your life. Please respond to each question using the scale below. Please answer open and honestly, there are no right or wrong answers.

The questions below ask about your overall satisfaction.

	Strongly disagree	Disagree	Slightly disagree	Neither agree or disagree	Slightly agree	Agree	Strongly agree
In most ways my life is close to my ideal	O	O	O	O	O	O	O
The conditions of my life are excellent.	O	O	O	O	O	O	O
I am satisfied with my life.	O	O	O	O	O	O	O
So far I have gotten the important things I want for my life.	O	O	O	O	O	O	O
I am generally pleased with my life I lead.	O	O	O	O	O	O	O

The questions below pertain to satisfaction of your current "immediate" family, not your "extended" family.

	Strongly disagree	Disagree	Slightly disagree	Neither agree or disagree	Slightly agree	Agree	Strongly agree
In most ways my family life is close to my ideal.	O	O	O	O	O	O	O
The conditions of my family life are excellent.	O	O	O	O	O	O	O
I am satisfied with my family life.	O	O	O	O	O	O	O
So far I have gotten important things I want from my family life.	O	O	O	O	O	O	O
I am generally pleased with the quality of my family life.	O	O	O	O	O	O	O

The questions below pertain to satisfaction of your current graduate school.

	Strongly disagree	Disagree	Slightly disagree	Neither agree or disagree	Slightly agree	Agree	Strongly agree
The education I get at school is great.	O	O	O	O	O	O	O

	Strongly disagree	Disagree	Slightly disagree	Neither agree or disagree	Slightly agree	Agree	Strongly agree
I like or respect other students at school.	O	O	O	O	O	O	O
I am satisfied with my classes.	O	O	O	O	O	O	O
So far I have learned the important things I wanted at school.	O	O	O	O	O	O	O
I am generally pleased with the quality of my teachers.	O	O	O	O	O	O	O

Stress

The questions below ask about your feelings and thoughts during the last month. In each case, you will be asked to indicate how often you felt or thought a certain way.

Please respond to each question using the scale below. Please answer open and honestly, there are no right or wrong answers.

In the last month, how often have you....

	Never	Almost never	Sometimes	Fairly often	Very often
been upset because of something that happened unexpectedly?	O	O	O	O	O
felt that you were unable to control the important things in your life?	O	O	O	O	O
felt nervous and stressed?	O	O	O	O	O
dealt successfully with irritating life hassles?	O	O	O	O	O
felt that you were effectively coping with important changes that were occuring in your life?	O	O	O	O	O

	Never	Almost never	Sometimes	Fairly often	Very often
felt confident about your ability to handle your personal problems?	O	O	O	O	O
felt that things were going your way?	O	O	O	O	O

In the last month, how often have you....

	Never	Almost never	Sometimes	Fairly often	Very often
found that you could not cope with all the things that you had to do?	O	O	O	O	O
been able to control irritations in your life?	O	O	O	O	O
felt that you were on top of things?	O	O	O	O	O
been angered because of things that happened that were outside of your control?	O	O	O	O	O
found yourself thinking about things that you have to accomplish?	O	O	O	O	O
been able to control the way you spend your time?	O	O	O	O	O
felt difficulties were piling up so high that you could not overcome them?	O	O	O	O	O

We appreciate your participation! Please click NEXT to submit your answer.

Powered by Qualtrics

Appendix B

Information Letter of the Online Survey for this Study

AUBURN UNIVERSITY

COLLEGE OF EDUCATION

EDUCATIONAL FOUNDATIONS, LEADERSHIP AND TECHNOLOGY

(NOTE: DO NOT AGREE TO PARTICIPATE UNLESS IRB APPROVAL INFORMATION WITH CURRENT DATES HAS BEEN ADDED TO THIS DOCUMENT.)

INFORMATION LETTER
" Motivation, Stress, and Satisfaction of Graduate Students "

You are invited to participate in a research study to investigate *motivation, stress, and satisfaction of graduate students* in order to explore the needs and possible resources for graduate students. The study is being conducted by Hyeon Jean Yoo, a Ph.D. student of the Department of Educational Foundations, Leadership, and Technology at Auburn University under the direction of Dr. David Marshall, a professor of the Department of Educational Foundations, Leadership, and Technology at Auburn University. You are invited to participate because you are currently enrolled as a **graduate student** at Auburn University.

Your participation is completely voluntary. If you decide to participate in this research study, you will be asked to take an anonymous online survey through Qualtrics. Your total time commitment will be approximately 10-15 minutes.

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If you have questions about your rights as a research participant, you may contact the Auburn University Office of Human Subjects Research or the Institutional Review Board by phone (334) 844-5966 or email at irbadmin@auburn.edu.

4036 Haley Center, Auburn, AL 36849-5221; Telephone: 334-844-4460: Fax: 334-844-3072

www.auburn.edu

AUBURN UNIVERSITY

COLLEGE OF EDUCATION

EDUCATIONAL FOUNDATIONS, LEADERSHIP AND TECHNOLOGY

HAVING READ THE INFORMATION ABOVE, YOU MUST DECIDE IF YOU
WANT TO PARTICIPATE IN THIS RESEARCH PROJECT. IF YOU DECIDE TO
PARTICIPATE, PLEASE CLICK ON THE LINK BELOW.
YOU MAY PRINT A COPY OF THIS LETTER TO KEEP.

Hyeon Jean Yoo	05/01/2018
Investigator	Date

The Auburn University Institutional Review Board has approved this document for use from _____ to _____. Protocol #_____

LINK TO SURVEY : https://auburn.qualtrics.com/jfe/form/SV_cCk32hNoJvk4pfv

4036 Haley Center, Auburn, AL 36849-5221; Telephone: 334-844-4460; Fax: 334-844-3072

www.auburn.edu

Add this approval information in sentence form to your electronic information letter!

The Auburn University Institutional Review Board has approved this Document for use from 06/11/2018 to ---
Protocol # 18-237 EX 1806

Appendix C

Initial E-mail Invitation

Initial E-mail Invitation

Dear AU students,

My name is Hyeon Jean Yoo. I am a PhD student in the Department of Educational Foundations, Leadership, and Technology at Auburn University. I would like to invite you to participate in my research study to investigate motivation, stress, and satisfaction of graduate students in order to explore the needs and possible resources for graduate students. You are invited to participate because you are currently enrolled as a graduate student at Auburn University.

Your participation is completely voluntary. If you decide to participate in this research study, you will be asked to take an anonymous online survey through Qualtrics. Your total time commitment will be approximately 10-15 minutes.

The information gathered will provide important guidance for Auburn University to enhance the learning environment for graduate students. There will be no costs to participation or compensation. No personally identifiable information will be associated with your responses. Information collected through your participation may be used for publication or professional presentation. If you decide to participate, please click the website link below to go to the survey website.

Survey Link: https://auburn.qualtrics.com/jfe/form/SV_cCk32hNoJvk4pfv

If you decide not to participate your survey, your decision will not jeopardize your future relations with the Department of EFLT and Auburn University.

Attached is a copy of the participant "information letter" for your review; you may print a copy for your records. If you have any questions about this survey, please contact me at hjy0002@tigermail.auburn.edu.

I appreciate your time and consideration in completing this survey.

Sincerely,

Hyeon Jean Yoo
Principal Investigator
Ph.D. Student
Educational Foundations, Leadership, and Technology
Auburn University

Dr. David Marshall
Faculty Advisor
Assistant Professor
Educational Foundations, Leadership, and Technology Auburn University

Appendix D

Approved Email from Office of Research Compliance of Auburn University

Approval, Exempt Protocol #18-237 EX 1806

IRB Administration <irbadmin@auburn.edu>

Tue 6/12/2018 10:29 AM

To: Hyeon Jean Yoo <hjy0002@tigermail.auburn.edu>
Cc: David Marshall <dtm0023@auburn.edu>

📎 2 attachments (3 MB)
Investigators Responsibilities rev 1-2011.docx; Yoo 18-237 EX 1806 Revisions 1.pdf;

Use IRBsubmit@auburn.edu for protocol-related submissions and IRBadmin@auburn.edu for questions and information.
The IRB only accepts forms posted at https://cws.auburn.edu/vpr/compliance/humansubjects/?Forms and submitted electronically.

Dear Hyeon,

Your protocol entitled "Motivation, stress, and satisfaction of graduate students" has been approved by the IRB as "Exempt" under federal regulation 45 CFR 46.101(b)(2).

Official notice:
This e-mail serves as official notice that your protocol has been approved. A formal approval letter will not be sent unless you notify us that you need one. By accepting this approval, you also accept your responsibilities associated with this approval. Details of your responsibilities are attached. Please print and retain.

Electronic Information Letter:
A copy of your approved protocol is attached. However you still need *to add the following IRB approval information to your information letter(s):* "**The Auburn University Institutional Review Board has approved this document for use on June 11, 2016. Protocol #18-237 EX 1806**"

You must use the updated document(s) to consent participants. *Please forward the actual electronic letter(s) with a live link so that we may print a final copy for our files.*

When you have completed all research activities, have no plans to collect additional data and have destroyed all identifiable information as approved by the IRB, please notify this office via e-mail. A final report is no longer required for Exempt protocols.

If you have any questions, please let us know.
Best wishes for success with your research!

IRB Admin
Office of Research Compliance
115 Ramsay Hall
Auburn University, AL 36849
334-844-5966