ABSTRACT

WU, MIAN. Perceiving and Managing the Student Loan Debt: An Exploratory Phenomenological Study of Doctoral Students' Experiences (Under the direction of Dr. Alyssa Rockenbach).

This dissertation aims to explore how doctoral students who borrowed throughout their educational degrees perceive and manage their student loan debts. The research used a phenomenological approach to describe the lived experiences of doctoral students in dealing with their education-related loans in pursuit of their doctoral degrees. The conceptual framework guiding this study is comprised of the developmental model of financial capabilities, the theory of financial socialization, financial identity-processing styles, and the concepts of bounded rationality. This multidisciplinary conceptual framework provided the foundation to construct the interview protocols that cover various aspects of doctoral students' life, which either directly or indirectly influence their management of the student loan debt. Data were obtained from in-depth interviews with 18 participants from different disciplines at two public universities. I conducted two semi-structured interviews with each participant, and also elicited a visual image from each participant to facilitate in-depth discussion about their experiences.

With rich qualitative data, this study depicts doctoral students' experiences, thoughts, feelings, perceptions, attitudes, and behaviors towards the student loan debts that are shaped by and shaping their financial situation. Six themes emerged from the data collection. The first theme is about the general context of graduate school life, where doctoral students experience multiple stressors involving heavy workload and funding uncertainties. Within such a context, managing the student loan debt is the last priority on their mind, which is the second theme: limited capability in managing their student loan debt. As doctoral students reflect upon their borrowing decisions and their socialization with others about loan debt management, it becomes

evident that there are minimal resources available for them to manage the student loan debt actively. As such, the third theme focuses on the limited resources for doctoral students in managing their student loan debt. The fourth theme focuses on the double-edged effects of the student loans, for example, doctoral students were disappointed that the student loan debt prevented them to achieve social mobility. The fifth theme is about constrained plans because of the burden of student loan debt. The sixth theme provides counter-stories about participants who can confidently manage their student loan debt.

This study sheds light on the complex challenges for doctoral students to effectively and confidently manage their personal financial health during graduate school. In particular, there is minimal financial socialization that takes place for doctoral students while in graduate school. Such findings extend the research on graduate students' wellbeing specifically by providing doctoral students' experiences about their student loan debt management. Data illuminates that the management of student loan debt is a critical factor that interacts with doctoral students' wellbeing both during graduate school and after their graduation. Theoretically, findings inform that the assumption for the developmental model of financial capability and the model of financial socialization to work is that an individual has sufficient time and mental energy to learn about financial management from others. Practically, findings indicate that higher education institutions and student loan servicers must improve their financial counseling to their students by providing more helpful resources and frequent communication. Moreover, the study reveals that the lack of temporal and mental capacity is a significant factor that prompts some doctoral students to avoid directly managing their loan debt. Therefore, higher education institutions should also take steps to alleviate doctoral students' stress and prioritize personal financial management.

Perceiving and Managing the Student Loan Debt: An Exploratory Phenomenological Study of Doctoral Students' Experiences

by
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DEDICATION

To the 18 research participants, who shared your honest feelings and thoughts.

To the doctors and nurses, who are fighting to save our loved ones.

To Sandeep, who is my best friend and coach.

To my parents, who are always there.

To Naveen, my little love.

BIOGRAPHY

Mian (Helen) Wu was born and raised in Kunming, China. She enjoys writing, meeting and talking to people, and believes in the magic of words. She received her bachelor's degree in International Journalism at Hong Kong Baptist University with a minor in Finance. She then decided to pursue further studies in the US and received her master's degree in East Asian Studies at Duke University. Helen worked as a staff assistant to the Director of International Research at the Duke School of Nursing for a year before deciding to return to school for her doctorate in Higher Education Administration. She currently serves as a research associate for the Interfaith Diversity Experiences & Attitudes Longitudinal Survey (IDEALS) at North Carolina State University.

The entrepreneurial spirit of the College of Education at NC State drew Helen in. On the first day of recruitment weekend, the Dean of the College of Education asked prospective students, "What changes would you want to make for Higher Education today?" It was this quest that inspired Helen to see the world differently. Her research interests lie at the intersection of financial literacy, financial socialization, and the role of higher education in social stratification. She kept wondering "why" and "how" when reading news about the student loans and tried to piece together the answers from small conversations that her friends occasionally had about student loans.

Helen values creativity through interdisciplinary and intercultural collaboration and is a music and dance lover. Nowadays, she dances less because she is taking care of her 9-month-old baby, who enjoys crawling all over the place.

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CHAPTER 1: INTRODUCTION

College students are faced with a growing financial burden due to student loans as higher-education tuition increases (Akers & Chingos, 2016; Scott-Clayton, 2018). The amount of debt owed in student loans in the United States has surged in the past two decades to more than $1.3 trillion in 2016 (Federal Reserve Bank of New York, 2017), and is predicted to reach $2 trillion by 2025 (Denecke, Feaster, Okahana, Allum, & Stone, 2016). In 2014, the number of student-loan borrowers more than doubled to 42 million compared with the number of borrowers in 2000 (Looney & Yannelis, 2015). The increase in graduate tuition and federal student loan policy has led to an increase in both the number of graduate students' borrowing loans and the amount of loan debt they incur to finance their graduate studies (Belasco et al., 2014). Before 2011, graduate students could borrow subsidized federal (i.e., Stafford) loans (Baum & Mcpherson, 2011). Since 2012, graduate students were not eligible for subsidized loans, meaning that the interest started accruing from the time the loans were issued (Baum & Steele, 2018).

Between 2000 and 2008, there was a substantial increase in the average debt level of doctoral students at the point of their graduation (Belasco et al., 2014). This increase in debt is attributed to the number of students who completed professional doctorates in fields outside of medicine, such as education, psychology, science or engineering, and ministry (Belasco et al., 2014). In 2011-12, about more than half of research-focused doctoral degree recipients had debt, and two-thirds of master’s degree recipients had debt (Baum & Steele, 2018). A more recent report by the National Center for Education Statistics found that between 1999-2000 and 2015-16, the average student loan balances for borrowers who completed research doctorate degrees increased from $53,500 to $108,400 (McFarland et al., 2018). During the same period, the increase for those who completed professional doctorate is 90 percent (from $98,200 to

$186,600), and for those who completed master's degrees is 57 percent (from $42,100 to $66,000) (McFarland et al., 2018). Although the average cumulative student loan balance for students who completed research doctorate degrees ($108,400) is lower than the borrowing amount for those who completed a professional doctorate ($186,600), it is almost twice the average amount an undergraduate student borrowed ($5,460) (Baum & Steele, 2018; McFarland et al., 2018). Since some doctoral programs require the applicants to have a master's degree before enrolling in the research-focused doctoral program, and many students who enrolled in research-focused doctoral program did not complete the program, it is difficult to have an accurate estimate of the amount of research-focused doctoral students' borrowing.

Statement of the Problem

Doctoral students' challenges are manifold. First, doctoral students, like many graduate students, are more likely to have both undergraduate and graduate student loan debt (Akers & Chingos, 2016), and be more vulnerable to rising tuition and fees (Belasco et al., 2014). In particular, students' fees have risen dramatically to accommodate increased costs because many state legislators did not want to raise tuition (Flaherty, 2012; Patton, 2012a). Besides, doctoral students' stipends differ between programs and regions. A survey with more than 3,000 doctoral students' responses found that, depending on the cost of living, it can be challenging to live on graduate-student stipends (June, 2014; Kelsky, 2014). Some graduate students took hefty amounts of debt to finance their education and feel hopeless in repaying the debt (June, 2014). Furthermore, there are doctoral students with family and childcare needs that cannot be paid entirely by the Ph.D. stipend (June, 2014). Irregular expenses, including increasing student fees, taxes, car repairs, conference expenses, and medical expenses, are the most common challenges among graduate students who have limited cash flow every month to save (Roberts, 2015).

Furthermore, doctoral programs have high attrition rates (Kim & Otts, 2010). Against this background, the Council of Graduate Schools conducted seven-year research studying issues surrounding Ph.D. completion and attrition from 2004 to 2010 (Council of Graduate Schools). This project, titled "the Ph.D. Completion Project," surveyed a diverse pool of 44 private and public universities in the U.S. and Canada that produce the vast majority of Ph.D.s (Council of Graduate Schools). According to this longitudinal study, the completion rate for doctoral candidates is about 57%, with a high of 64% in Engineering and a low of 49% in Humanities (Sowel, Bell & Kirby, 2010). Financial support has significant roles in the persistence, productivity, and socialization of doctoral students (Bowen & Rudenstine, 1992; Nguyen, 2016; Strayhorn, 2010).

Challenges for doctoral students include not only finishing the program and covering necessary living expenses but also applying for a limited pool of full-time academic positions (Patton, 2012a; Patton, 2012b). Some doctoral students were admitted into graduate programs without sufficient information regarding the long-term investment returns or lack thereof (Patton, 2012a). As faculty members tended to stay in their academic roles for decades, the newly minted PhDs found themselves with fewer opportunities to become a professor (Jaeger & Dinin, 2017). 45% of all Ph.D. earners in the U.S. during the period of 2002-07 worked as postdoctoral scholars (Hoffer, Grigorian, & Hedberg, 2008). Jaeger and Dinin (2017) found that recent Ph.D. earners experienced a more extended period in one or more postdoc positions while working toward an academic position, which usually meant less pay and benefits than faculty jobs. Such "postdoc purgatory" – as Jaeger and Dinin (2017) describes it – might not be what the Ph.D. recipients have expected while entering their doctoral program.

The pressure of financial strain on doctoral students' quality of life was found in many other surveys on the wellbeing of doctoral students (Johns Hopkins University, 2013; UC Berkeley Graduate Assembly, 2014; University of California Office of the President, 2017). Lacking adequate financial resources, doctoral students may seek part-time jobs that are not relevant to their academic career and distance themselves from the department activities, indirectly impacting their academic, social, and personal life (Nguyen, 2016). Focus group discussions with graduate students from different universities in the U.S. showed that the most substantial financial stress among graduate students is their uncertainty about their future (Denecke et al., 2016). Many students struggled with higher levels of debt than they could have expected and were uncertain about their capacity to find jobs that would allow them to pay their debts (Denecke et al., 2016). Also, underrepresented minorities, part-time students, and students with dependents may have specific needs and concerns (Denecke et al., 2016).

Meanwhile, the default rates for student-loan borrowers have reached a new high in the past two decades (Looney & Yannelis, 2015). The average student in the class of 2016 who borrowed money left college with a record level of debt at $37,173 (Picchi, 2016). As of 2017, there were about 8.7 million federal student-loan borrowers who were defaulting on $154 billion (Delisle, Cooper, & Christensen, 2018). Based on the previous default trend, nearly 40% of the 2004 entry cohort may default on their student loans by 2023 (Scott-Clayton, 2018). What is unknown is the default rates for borrowers by different levels and types of degrees. So we cannot fathom the differences, if any, of default rates for undergraduate and graduate loan borrowers. Arguably, this high default trend might be due to the lack of financial resources available to student borrowers, although financial resources are not the sole factor that determines a borrowers' successful payment of the debt (Serido & Shim, 2017). Knowing which repayment options to choose and having confidence and self-efficacy are also essential factors for an individual (Serido & Shim, 2017).

The student loan repayment system is complex for borrowers to navigate (Dynarski & Kreisman, 2013). Dynarski and Kreisman (2013) suggested that instead of the *debt crisis*, there is a *repayment crisis*: even though a typical student borrower may only have a moderate amount of debt, the default rate for the types of loans offered to students is high. Default rates are generally higher among younger borrowers, which only compounds the issue further (Dynarski and Kreisman, 2013). They pointed out that the current repayment system exerts financial pressure on borrowers when their income is likely to be very low, noting that "student loans are due when borrowers have the least capacity to pay" (Dynarski & Kreisman, 2013, p.6). They explained that college graduates might need several years to settle into a job with steady (and potentially higher) pay that genuinely reflects the investment value of their college education. For doctoral students, they are faced with prolonged periods of study with relatively low pay, only a small stipend, and perhaps some scholarship or grant money. It is challenging and almost impossible for doctoral students to maintain an emergency fund, pay off student debt, and allocate investment with limited financial means on their own (Roberts, 2016). So far, limited research describes how doctoral students manage their student loans and debt. Such knowledge is critical for scholars and practitioners to understand the challenges for doctoral students' wellbeing and success, hence developing relevant theories and practices to support doctoral students to achieve their goals is important.

Studies that Have Addressed the Problem

In recent years, there is a growing number of studies focused on the problem of student loan debt, yet the majority of them focus exclusively on undergraduate students (Belascoet al., 2014). The literature on financial aid mainly revolves around the following topics: the trends in levels of borrowing and college enrollment (Akers & Chingos, 2016; Baum, 2016; Dynarski & Scott-Clayton, 2013), students' decision making (Dynarski, 2002; Dynarski & Scott-Clayton, 2006; Gandhi, 2007), the impact of loans on students from different backgrounds (Furquim, Glasener, Oster, McCall, & DesJardins, 2017; Huelsman, 2015; Scott-Clayton & Li, 2016), the impact of student loans on the labor market (Chapman, 2015; Scott-Clayton, 2016) and the housing market (Mezza, Ringo, Sherland, & Sommer, 2016), and the impact of different repayment methods from the policy-making perspective (Asher, Cheng, & Thompson, 2014; Baum, 2016; González Canché, 2017). Most of these quantitative studies describe aggregate trends and characteristics of student loan borrowers and loan amounts, but do not explore the question of how students navigate through their loan repayment plans.

Increasingly, more studies are focusing on young adults who graduated from college. The longitudinal study, "Arizona Pathways to Life Success for University Students (APLUS)," observed students through their undergraduate years and beyond graduation, using data from college students starting their freshmen year at the University of Arizona until they transitioned into their late 20s (Shim & Serido, 2014). During the third wave of APLUS longitudinal study (two years after students graduated with their bachelor's degree), students who were enrolled in graduate programs and also worked part-time, had graduate student loans (an average of $29,556) that surpassed their total undergraduate debt ($21,329). For those graduate students who were not working at all, their loan amounts in graduate programs (an average of $53,719) were more than twice as much as their undergraduate debt (an average of $22,348) (Shim & Serido, 2014). The survey also found that more than two-thirds of participants who graduated from the college were not able to achieve financial self-sufficiency two years out of school and relied on financial help from either families or spouses (Shim & Serido, 2014).

Studies examining the borrowers' loan debt experience in the long term mainly focus on the impact of the loans instead of the experience of repaying the loans and personal financial management. The impact of educational loans on individual students is mixed (Avery & Turner, 2012; Scott-Clayton, 2016; Scott-Clayton & Li, 2016; Sun & Yannelis, 2013; White House, 2016). Avery and Turner (2012) point out that substantial heterogeneity exists in student characteristics – the level of borrowing, the field of study, the enrolled program, and college – and, therefore, the return on college investment. For example, almost 60 percent of research-focused doctoral students at for-profit institutions had loans of about $100,000 or more, and the proportion of students who borrowed more than $100,000 at private nonprofit universities and public universities is much lower (15% and 8.5%, correspondingly) (Baum & Steele, 2018). Thus, the borrowing amount and repayment experiences are likely very different between these two sectors. Similarly, a report by the White House (2016) stressed that substantial variance exists among individuals. The report concludes that "many students who entered college during the recession did not receive an education that resulted in employment outcomes that allowed them to pay off the debt they incurred" (White House, 2016, p. 4). Student loan debt also had a negative implication for homeownership among young adults. Between 2008 and 2012, the homeownership rates for 30-year old individuals with student debt fell faster compared to their counterparts without educational loans (Brown & Caldwell, 2013).

The extra burden of debt might also have a negative impact on the borrower's physical and mental health (Drentea & Lavrakas, 2000; Dwyer, McCloud, & Hodson, 2012). Financial strain, in particular, has a negative effect on individuals' wellbeing (Kahn & Pearlin, 2006;

Pearlin, Aneshensel, & LeBlank, 1997; Shippee, Wilkinson & Ferraro, 2012). Financial strain is "a form of stress proliferation" that "may also affect health through multiple pathways including the erosion of persona control and mastery, loss of a supportive social relationship, family tension, and resource constraints" (Shippee et al., p. 585). Walsemann, Gee, and Gentile (2015) investigated the implications of student loans on young adults' (25 to 32-year-olds) mental health and found that student loans were negatively related to borrowers' psychological functioning. They found this negative association for both the cumulative amount of student loan debt borrowed across the course of the individual's schooling and the yearly amount of loans a student borrowed while in college.

College graduates' perceived difficulty in repaying their loan debt is highly correlated with their actual difficulty making the repayment, and this connection between the perceived difficulty and actual difficulty can result in a higher level of stress for borrowers (Shim, Serido, & Lee, 2018). Sweet, DuBois, and Stanley (2018) found that borrowers exhibited a strong emotional reaction towards the debt, including feelings such as shame and guilt. Participants in this study described that they felt stressed and were suffering from the burden of debt. The emotional and psychological pain exerted over time contributed to the detriment of their physical health and senses of self. The study by Sweet et al. (2018) sheds light on the mechanisms through which individuals' mental and physical health is impacted by debt. A critical pathway through which debt impacts health, as they concluded, might be the emotional experiences of shame.

For studies that exclusively focus on graduate students, their population samples include mostly professional students, such as physician assistant students (Stencel, 2016), nursing students (Feeg & Mancino, 2014), law-school students (Field, 2009; Sieg & Wang, 2017), MBA students (Gicheva, 2016), or master students (Morales, 2014). The review on graduate student debt (Delisle, 2014) distinguished the different characteristics of graduate student borrowing by programs but excluded research-focused doctoral program students due to limited data available. Another study found that at the majority of higher education institutions with both undergraduate and graduate borrowers, the graduate borrowers showed unexpectedly lower repayment rates than the undergraduate borrowers (Chou, Looney, & Watson. 2017). These studies, however, did not distinguish the doctoral students from the rest of graduate students who pursue master's degrees or professional degrees due to limited data available.

Limitations of Previous Research

To date, few studies explore what difficulties college graduates experience during the loan repayment process and the implications of these difficulties for their lives (Shim, Serido, & Lee, 2018). In addition, limited studies have specifically examined the experience of doctoral students with their student loan debt, which may be a stressor for their wellbeing and the successful completion of the degree. Despite the disproportionately large amounts of money borrowed by graduate students in the form of student loans, discussions concerning the quality and value in higher education almost only focus on undergraduate degrees (Delisle, 2018). There is limited research that exclusively examines doctoral students (P. Steele, personal communication, August 29, 2018). In particular, the experiences of doctoral students during repayment of student loan debt remains unknown. Student loan debt repayment does not begin until graduation. For doctoral students, their experiences with student loan debt are likely to be a mix of borrowing and repayment. Research needs to examine further the channels that doctoral students use to receive loan management skills and the effects on students' loan behavior. Since doctoral students' loan debt experiences capture many factors that relate to their financial and general wellbeing both during and after their doctoral program, an understanding of such experiences will help both policy designers and higher education scholars and practitioners to make informed improvements to the doctoral education system and financial education system.

Furthermore, many empirical studies on graduate students' borrowing trends (Baum & Steele, 2017; 2018; Belasco et al., 2014; Feeg & Mancino, 2014; Field, 2009; Morales, 2014) employed quantitative methods. This rendered the studies unable to explore the multi-directional interactions among the factors that contribute to students' financial knowledge acquisition within the campus context. For instance, Walsemann et al. (2015) admitted that their studies focused on student loans through the representation of the loan amount, but did not focus on the debt itself. They explained that in the NLSY97 sample they used, there were no reliable measures of student debt. As such, they suggested that the investigation of debt would be necessary as the association between mental health and debt might be more robust (Walsemann et al., 2015). Also, due to the small sample of students enrolled in graduate schools, they were not able to examine the association of graduate students' loan amount and their psychological wellbeing. Nevertheless, they pointed out that graduate students were a distinct population for further study as they may incur significant amounts of loans compared to undergraduate students (Walsemann et al., 2015). Therefore, this dissertation will enrich the understanding of the interactive relationship among the involved factors.

In particular, there is a lack of contextualization in studies on consumer debt. As Sweet et al. (2018) pointed out, "the felt experience of consumer debt in the everyday lives of individuals and families is largely absent" (p.2). One lingering question from their study is the degree to which these emotional experiences of student debt may be altered by entering a certain repayment status (E. Sweet, personal communication, May 30, 2018). In this light, doctoral students are particularly worthy of study as they may have to opt in or out of certain repayment statuses due to enrollment in the graduate program and as well as face different debt repayment options in general, when compared to undergraduate students (E. Sweet, personal communication, May 30, 2018).

The field of higher education organization and policy research is dominated by positivist approaches to research (Pasque & Lechuga, 2016), which are insufficient in addressing issues of educational equity and social justice across different demographics. In the existing literature, the doctoral students' comments, explanations, or viewpoints regarding debt and their loan repayment experiences are muted or entirely excluded. Meanwhile, there is limited scholarship regarding the ways that doctoral students obtain financial knowledge relevant to their personal finances, or how they utilize such knowledge in making informed financial decisions regarding loan and debt management. As Lusardi and Mitchell (2014) stated, how people obtain and utilize financial knowledge remains mostly unknown.

Purpose Statement

The aim of this study was to explore how doctoral students experience and manage their student loans and/or debts. Such understanding will help shed light on the nuances and challenges as doctoral students repay student loans and manage their financial health. This may improve the scholarly understanding of doctoral students' strategies and experiences with student loan/debt and the impact of student loan/debt on doctoral students' professional and life pursuits.

Research Question

Specifically, the following are the questions that guided this study:

- What are doctoral students' experiences with borrowing and managing student loan debt(s)?

- How do doctoral students perceive and manage their student loan debt repayments?
- What are the challenges doctoral students face in managing their student loan debt(s)?

Conceptual Framework

Qualitative research methods do not start with a theory but aim to develop a pattern of meaning in an inductive manner (Creswell, 2013). More specifically, as this research employs phenomenology as the inquiry method (which will be discussed in the following section), and the philosophy of phenomenology suspends any presuppositions that may hinder the act of describing and understanding the studied phenomena (Creswell, 2013), the role of theoretical framework in guiding the design of this research is minor. This deliberate suspension of our natural attitude and assumptions is also called *phenomenological reduction* or *epoché*, a Greek term (Sokolowski, 2000). Based on this phenomenological attitude, it is ideal if the literature review was not conducted until after the data collection and analysis, as this way researchers would not be "foreshadowed" by the literature to ask research questions or conduct data analysis with preempted assumptions (Hamill & Sinclair, 2010).

Nevertheless, a conceptual framework provides a foundational knowledge base for researchers to be situated and prepared in conducting the research. Phenomenological researchers temporarily hold their foreknowledge of the studied topic in abeyance while eliciting information from the research subjects, minimizing their influence on the participants' understanding and articulation of the phenomenon (Hamill & Sinclair, 2010). From this perspective, the conceptual framework that helps describe and analyze doctoral students' loan debt experience draws reference from the development model of financial capability (Serido, Shim & Tang, 2013). Within the conceptual framework, concepts in the theory of financial socialization (Shim, Barber, Card, Xiao, & Serido, 2010), the concepts of financial identity-processing styles (Shim, Serido, Bosch, & Tang, 2013), and concepts in bounded rationality (Simon 1982; Thaler, 2015) are also helpful in studying the phenomenon of how doctoral students experience and manage their student loan debt.

The developmental model of financial capability is "aimed at understanding the process by which young adults learn to manage their finances and prepare for a successful transition to adulthood" (Serido et al., 2013, p.293). Serido et al. (2013) brought the concept of financial capability into the field of human development by introducing the theoretical framework of the developmental model of financial capability. Within this framework, financial capability is deconstructed as a dynamic developmental task. First, changes in financial knowledge are associated with changes in an individual's self-beliefs about finances, including financial attitudes towards certain financial behaviors, perceived behavioral control, and confidence in personal financial management. Next, these changes in self-beliefs about financial matters may prompt an individual to make certain financial decisions that have an impact on their financial and overall wellbeing (Serido et al., 2013). Their empirical research suggests that financial knowledge, financial self-beliefs, and financial behavior are embedded in a dynamic process (Serido et al., 2013).

This model encompasses many aspects that may constitute the doctoral students' experience in perceiving and managing their student loan debt. Doctoral students' decisions in reacting to the student loan debt might be related to their varying life situations. Starting to live on their own, having a significant relationship, and establishing a family, doctoral students may have different life stage choices to make. This developmental model helps frame the doctoral students' perceptions and behaviors towards their student loan debt.

Next, the conceptual framework also incorporates the factors involved in the financial socialization processes (Danes, 1994). Financial socialization is defined as "the process of acquiring and developing values, attitudes, standards, norms, knowledge, and behaviors that contribute to the financial viability and individual wellbeing" (Danes, 1994, p. 28). Gudmunson, Ray, and Xiao (2016) stated that financial socialization should be viewed as a life-long process for individuals and families. Financial socialization in young adults is not only dependent on the knowledge, skills, and behaviors developed prior to higher education, but is influenced by their observations, learning, and financial choices throughout college (Cude, Danns, & Kabaci, 2016). Therefore, individuals are not only influenced by their parents and the family of origin but also interact with other influential sources of financial information and observe other people's financial behavior within various contexts across their life course (Gudmunson et al., 2016). As phenomenological research inquires the context or situation within which individuals experience the phenomena (Creswell, 2013), this theory of financial socialization helps frame the factors that may affect doctoral students' experience in managing their student loan debt.

In addition, accompanying the theory of financial socialization is the concept of financial identity-processing styles (Shim et al., 2013). The theory of financial socialization concerns the context and the process of how individuals acquire and develop financial knowledge, attitudes, and behavior, while the concept of financial identity-processing styles delves into how an individual makes sense of and acts upon their financial situation, which speaks to the research questions of this study. Based on the identity theory (Erikson, 1994) and identity-processing styles (Berzonsky, 1989), Shim et al. (2013) defined financial identity as "one's understanding and expression of who one is in relation to managing and practicing personal finance" (p.130). In their empirical study, Shim et al. (2013) found three clusters of identity groups which they label them correspondingly as Pathfinders, Followers, and Drifters. Pathfinders were able to set their own financial goals and explore the best ways to reach these goals, Followers tended to follow their parents' financial styles, and the Drifters were unable to form their personal financial style but also distanced themselves from their parents' influence (Shim et al., 2013). Their study confirmed that many forms of active learning within the financial domain promoted individuals' financial capabilities and functioned as external socialization that differentiated students' financial identity-processing styles (Shim et al., 2013). In their conclusion, they called for more informal educational activities that can positively influence young adults' financial identity development (Shim et al., 2013).

Lastly, the theory of bounded rationality in the field of behavioral economics (Thaler, 2015) also provides insights on the phenomenon under study. The theory of bounded rationality (Simon, 1982) concerns decision making and choice. The bounded rationality theory assumes that "the decision-maker wishes to attain goals and uses his or her mind as well as possible to that end" (Simon, 1982, p. 293). The key point of this theory is that an individual's rational decision-making process is constrained by the extent of knowledge and information he or she has obtained. Using a laboratory experiment based on the behavioral economics perspective, Cox, Kreisman, and Dynarski (2018) concluded that the default option of repayment plan plays an outsized role in students' choice of repayment plan when the borrowers are faced with complex information and have limited capability in utilizing the available knowledge for their financial planning. In addition, given the empirical study that rational choice cannot fully explain doctoral student's financial decision-making (Nguyen, 2016), this theory helps guide the understanding of factors that constitute the lived experience of doctoral students with student loan debt; for example, their feelings, reaction, thoughts, and responses.

Methods

This dissertation employed phenomenology as the research method. Phenomenological research aims to present the “essential invariant structure” or “essence” of the phenomenon (Creswell, 2013, p. 82). One key feature of the phenomenological research is that researchers hold in abeyance their personal values, judgment, perceptions or assumptions throughout the research process, which is also known as “*bracketing*” or “*epoché*” (Sokolowski, 2000). By doing so, the consciousness that research subjects have towards the external world, or how they articulate their experiences of the phenomena, is presented with minimal distortion. As this study aims to explore the doctoral students’ experience with debt repayment and personal loan management, how contextual factors may impact their experiences, and how such experiences interact with their doctoral experience in general, the phenomenological approach is most suitable to describe and present the “essence” of their experiences. In phenomenological studies, inquirers ask the participants two broad questions: what have the participants experienced, and what are the contexts that have influenced the participants' experience of the phenomena (Moustakas, 1994; Creswell, 2013). This method can document what constitutes the nature of the doctoral students’ experience with student loan debt.

Phenomenological studies primarily rely on interviews as data (Creswell, 2013). I conducted individual interviews with 18 doctoral students from public universities who have borrowed student loans for their undergraduate program and are also accumulating graduate student loan debt. Such individual interviews provided understanding on how they perceive their student loan debt and in what ways living with and managing student loan debt repayment shapes their doctoral experiences, including their research and career plan; interaction with peers, faculty, significant others, and family members; as well as potentially major life decisions such as marriage or childbearing.

What is more, the phenomenological attitude emphasizes the *intentionality of consciousness*, meaning that the reality of an object is always connected to an individual's consciousness (Creswell, 2013). In this vein, I asked participants to provide and explain a visual image that they think best represents their experience with student loan debt. This visual image and conversations about why they chose that image provided rich data that described their experiences in an open-ended manner.

Significance of the Study

This study aims to explore the experiences of doctoral students who have borrowed student loans to fund both their undergraduate and graduate programs, and who are still accumulating student loan debt through a phenomenological lens. It provides in-depth qualitative data to shed light on the nuances and interactive relationships among doctoral students' student loan/debt situation, the nature of loan debt repayment experience and choices, school experience, and the impact of the loan debt on their future career and life plans. This study leads to several illuminating findings for both higher education scholars and practitioners. First, doctoral students had limited knowledge when making borrowing decisions for their previous degrees, with limited advising resources for them to recognize the implications of student loan borrowing. During graduate school, doctoral students face an array of stressors, including lack of funding, overwork, and job uncertainty. Within such context, although the student loan debt is at the back of their mind, it is another hidden stressor that some of them are fearful and anxious about. Yet with minimal resources and help, most doctoral students choose to put aside the active thinking and planning when facing their student loan debt. The student loan debt has a significant influence on them in terms of pursuing life goals, such as buying a house or getting married. Nevertheless, several interviewees demonstrate confidence and knowledge in planning and implementing their repayment. Their experiences provide great insight into what factors are essential in developing doctoral students' financial capability to manage their financial health better.

The findings contribute to the limited literature that is currently available. Specifically, this study informs scholars and practitioners in higher education of the challenges and constraints doctoral students experience during the repayment period of student loans, the factors that contribute to their repayment choices, and the implications and potential social-psychological consequences of their student loan management behaviors. Hence, it will help higher education policymakers and administrators design programs that address those challenges, alleviate doctoral students' anxiety, and improve their educational experience.

In the higher education and financial aid literature, scant studies examine the lived experiences of student loan debtors who have prolonged student life in the pursuit of doctoral degrees. This study adds to the existing literature on the potential influence of student loan repayment on doctoral students' experience by including this particular student population. In addition to this, findings regarding doctoral students' financial behavior and attitudes towards loan/debt repayment and future career and life plans (such as forming a family and childbearing) help contribute to the conversation of doctoral students' attrition and success of doctoral students from a qualitative perspective. Moreover, this dissertation provides insight into the role of college and graduate school in students' long-term outcomes regarding financial capabilities.

On a practical level, the qualitative approach to inquire and observe doctoral students' experience in dealing with the loan debt repayment can help practitioners to fathom how doctoral students within a specific environment are transitioning to being independent adults in a consumer society. It can thus provide more specific contextual factors to our understanding of the student loan repayment crisis. For example, the study identifies the potential stakeholders (e.g., counseling center, the office of financial aid, university housing) that can provide support to doctoral students and suggest strategies for collaboration among these stakeholders.

Limitations and Delimitations

The dissertation has the following major limitations. First, I only interviewed research-focused doctoral students who enrolled at four-year nonprofit public institutions of higher learning. Since there are considerable differences between the borrowing experience of doctoral students from for-profit and nonprofit sectors (Baum & Steele, 2018), and the funding situation for doctoral students at the private institution may be different than public institutions, the findings cannot reflect the experience of doctoral students at for-profit and private higher education institutions. Also, a more recent study examined graduate schools with lowest rates of repayment (Delisle, 2018), and found that several large, private nonprofit and for-profit graduate institutions had low student loan repayment rates. As the scope of this research is limited to doctoral students in only two universities, the doctoral students' loan debt experience cannot be interpreted as the institutional differences, but only analyzed as individual cases.

Moreover, as I recruited interviewees from local four-year nonprofit institutions, their experiences in terms of borrowing and managing repayment of loans are related to factors such as the local cost of living. The financial budgeting and borrowing might be different compared with research-focused doctoral students living in other cities or regions. As such, the findings could only be interpreted given the specific setting and context. Because of this, the findings cannot reflect the experience of all research-focused doctoral students across different states in the U.S.

Furthermore, the majority (78%) of the participants of this study are female. This gender imbalance should also be considered when interpreting the findings. Researchers should be cognizant of the gender differences in terms of personal financial management and reactions to stress during graduate school. Such imbalance might be intertwined with the imbalance in the participants' programs, as half of the participants are from the field of education, and some other participants are from health studies such as epidemiology and nursing. Except for two participants from Math and Physics program, there are no participants from hard science or engineering programs. With such imbalance, the findings could not be generalized to the experience of all doctoral students but mainly speak to the doctoral students who enroll in the field of social science.

What is more, one of the research criteria is "Doctoral students who have taken out student loans in their own name to fund both their undergraduate and graduate studies, and are accumulating student loan debt from both their previous and current educational degrees during the doctoral program." Due to my limited understanding about the different types of student loans and how that might impact a doctoral student's borrowing situation, I did not anticipant that this criterion had its ambiguity and left out one unique borrowing case. To illustrate, during the participant recruitment process, one doctoral student who borrowed $90,000 federal subsidized student loans for her undergraduate and masters reached out to me expressing her interest in participating in this research. However, because she had not taken out any student loans to attend her doctoral program, she was not accumulating new student loan debt. Even though she shared with me that her credit card debt had increased, and the student loan debt had played a major role in her life, I could not include her in this current study. There might be more doctoral students whose borrowing situations were similar to hers and are worthy of study.

Although the findings cannot apply to all doctoral students, it is helpful to describe the shared experiences across different doctoral student populations. Everyday experiences include the perceptions and subjective feelings doctoral students have toward their student loan debt, their understanding, skills, strategies, or struggles managing the loan debt repayment during their doctoral program and the potential impacts of student loan debt on their career planning during and after their doctoral programs. This information from their experiences will help suggest higher education practitioners and policymakers improve relevant support for doctoral students.

In terms of delimitation, this study specifically focuses on the experience with doctoral students' student loan debt management. Instead of discussing the conceptualization and impact of different theoretical models, this study delves into distilling the essence of the doctoral students' feelings, thoughts, strategies, attitudes, and behaviors towards loan debt management. Questions on the definition and measurement of financial literacy are not the focus. Neither are questions that concern the decision to invest in higher education. Instead, this study focuses on how doctoral students experience loan debt repayment and personal financial management.

Clarification of Terms

As many terms that appear in this paper may have different connotations to different disciplines, I provide the following clarification to remain consistent with their meanings.

"College" refers to undergraduate programs.

"Doctoral students" refers to students who are enrolled in research-focused doctoral programs and are trained in a field of study to make an original intellectual contribution that requires the completion of a dissertation or equivalent project. These programs are different from professional doctorates such as the Doctor of Medicine (M.D.) and the Doctor of Jurisprudence degree (JD).

“Graduate students” refers to students who have already earned a bachelor’s degree, and are pursuing further graduate education, which is inclusive of master’s and doctoral degree. As in the current federal Direct Loan Program, loans made to graduate students (e.g., Direct Unsubsidized Loans, Direct Plus Loans) did not distinguish between students borrowing for master's and doctoral degrees, the available data on graduate students' borrowing is a combination of both these two groups of students. In the following chapters of this proposal, the data on graduate students' borrowing should, therefore, be carefully read as a combination for both master's and doctoral students. As more doctoral programs require an applicant to have a master's degree, the available data on the overall graduate students' borrowing is still indicative of the situation of doctoral students' borrowing.

"Financial socialization" refers to "the unconscious or conscious learning of financial knowledge, skills, attitudes, and behavior that might be expressed, practiced, and/or intentionally taught by key socialization agents" (Shim et al., 2010, pp. 2-3). These agents include but are not limited to the following: school, parents, work, cultural norms of the university, peers, faculty, and staff whom students interact in and out of class, or community members with whom students develop a relationship during the college.

“Financial literacy”: “a measure of the degree to which one understands key financial concepts and possesses the ability and confidence to manage personal finances through appropriate, short-term decision-making and sound, long-range financial planning, while mindful of life events and changing economic conditions” (Remund, 2010, p. 284). In this study, it is interchangeable with financial capability.

“Financial capability”: Financial capability refers to an individual’s capacity to effectively manage financial resources based on knowledge, skill, and access (President's Advisory Council on Financial Capability, 2010). Remund (2010) posits that financial capability was introduced as an iteration following the financial literacy concept.

Chapter Summary

To summarize, this chapter introduced the challenges many doctoral students face today, that is, the increasing borrowing of student loan debt in the midst of decreasing funding, along with other pressures during the doctoral program. In this chapter, I stated the purpose of this study, which was to explore doctoral students’ perceptions and experiences in managing their student loan debt. Next, I provided a brief review of the literature on studies on graduate students’ borrowing and introduced the conceptual framework that would guide the research. This chapter then included a brief introduction of the phenomenological approach to studying doctoral students’ experiences, followed by a discussion of the significance of the study and its limitations and delimitations.

The following chapters are organized as follows:

- Chapter 2 provides a comprehensive review of the literature and description of the conceptual framework.
- Chapter 3 details the rationale for choosing this particular qualitative research method for this study, the procedures for data collection and analysis, and the discussion on the trustworthiness of this research.
- Chapter 4 presents the findings of the study.
- And finally, chapter 5 presents the conclusions and implications of the findings.

CHAPTER 2: LITERATURE REVIEW

This chapter will provide a review of the literature on the interrelated concepts that are key to a doctoral student's loan debt experience. The first section provides a review of students' perceptions and experiences with student loan debt. The second section will delve into challenges that are specific to doctoral students, the characteristics in graduate students' borrowing, and the implication of financial stress on doctoral students' wellbeing and success. The third section provides an overview of student loan borrowing, the complicated student loan repayment system through student loan servicers, and the challenges for students to receive helpful information in navigating their loan debt repayment. The fourth section will introduce the construct of financial literacy and explain how it relates to doctoral students' personal loan management. The fifth section describes the concept of financial socialization in addressing the contributing factors to doctoral students' loan debt experience, which provide the context for understanding doctoral students' experience. The last section describes the conceptual framework for this dissertation study, which consists of the developmental model of financial capability, the financial socialization model, the concepts of financial identity-processing styles, and the theory of bounded rationality. The last section will also explain how these theories and concepts complement each other as the foundational conceptual framework to inquire about the various aspects constituting a doctoral student's loan debt experience.

Students' Perceptions and Experience with Student Loan Debt

In recent years, there is a growing amount of studies that focus on the problem of student loan debt. The literature on financial aid mainly revolves around the following topics: the trends in levels of borrowing and college enrollment (Akers & Chingos, 2016; Baum, 2016; Dynarski & Scott-Clayton, 2013), students' decision making (Dynarski, 2002; Dynarski & Scott-Clayton, 2006; Gandhi, 2007), the impact of loans on students from different backgrounds (Furquim et al., 2017; Huelsman, 2015; Scott-Clayton & Li, 2016), the impact of student loans on the labor market (Chapman, 2015; Scott-Clayton, 2016) and the housing market (Mezza et al., 2016), and the impact of different repayment methods from the policy-making perspective (Asher et al., 2014; Baum, 2016; González Canché, 2017). However, many of them focus exclusively on undergraduate students (Belasco et al., 2014) or do not distinguish the graduate student loan borrowers from undergraduate student loan borrowers. Moreover, most of these quantitative studies describe aggregate trends and characteristics of borrowers and loan amounts, leaving the questions of how students navigate through their loan repayment plans unexplored. The main unexplored questions are: what is the nature of the loan repayment process for student borrowers, and how do they perceive and experience this process? The following section describes students' lack of understanding and capability in repaying their loans.

Lack of knowledge of and confidence. Student loan borrowers had limited knowledge and capability in terms of navigating the complex loan repayment system. Through a laboratory experiment, Cox, Kreisman, and Dynarski (2018) found that borrowers choose a sub-optimal plan despite an ex-ante optimal choice. They concluded that the default option of repayment plays an outsized role in students' choice of repayment plan (Cox, Kreisman, & Dynarski, 2018). This experiment also demonstrated the impatience among college students when presented with complex loan information, which helps explain that some students might skip the required Exit Counseling, ending up not knowing the terms and repayment options when they graduate (Cox, Kreisman, & Dynarski, 2018). For students who lacked knowledge of repayment options such as income-based repayment plans and the Public Service Loan Forgiveness Program thought they needed to continue making payments through retirement age (Johnson et al., 2016).The researchers also found that some students admittedly took out loans on unrelated educational expenses such as rent and entertainment, and suggested that financial educators and policymakers need to educate students to distinguish the differences in borrowing to finance their human capital and to finance consumption (Johnson et al., 2016).

A study including students at six land grant universities found that students had limited knowledge about the details of their loans, and some relied on family members to help them navigate loan applications (Johnson, O'neill, Worthy, Lown, & Bowen, 2016). This might pose challenges for students coming from first-generation families or lower-income family backgrounds where help from their parents is limited. The study also found that students that lacked the confidence to repay loans experienced consequences that spilled into other areas of life, such as delaying marriage, homeownership, employment choices, or moving back to live with parents (Johnson et al., 2016). During the loan repayment process, borrowers' positive or negative attitudes toward the loan repayment either as a solvable challenge or an impossible task, their financial self-efficacy such as confidence play a critical role in paying off their loans (Shim, Serido, & Lee, 2018).

There is an increasing number of empirical studies that exclusively explore graduate students' experience with loan management (Belasco et al., 2014; Morales, 2014; Stencel, 2016; Field, 2009; Sieg & Wang, 2017; Gicheva, 2016). However, the samples are mostly professional students such as MBA, health professionals, or lawyers. Nevertheless, a few studies found that graduate students also lack the capability to manage loans. For example, graduate students did not consult with financial aid officers at the university but instead relied on advice from trusted family members and mentors (Morales, 2014). As such, Morales (2014) urged institutions of higher education to assume more responsibility in informing students about their financial aid options. Some of the interviewed graduate students also had not considered budgeting and planning in taking out loans (Morales, 2014). Some students took out the maximum amount of loans and delayed planning on repayment options, while others carefully calculated the amount needed to cover tuition and other expenses (Morales, 2014).

So far, scant literature specifically explored how Ph.D. students experience student loans and debt. Nguyen (2016) interviewed 35 doctoral students about how financial considerations impact their decision to pursue a doctoral program, how they make decisions that have financial implications during the doctoral program, and how these financial concerns impact their socialization opportunities. Surprisingly, deferring student loans is one of the four primary reasons that the students chose to pursue a doctoral degree (Nguyen, 2016). The other three reasons were lacking career opportunities, having a funded degree, and looking for jobs that require terminal degrees (Nguyen, 2016). Among the 35 students, twelve participants who had accumulated undergraduate debt believed that graduate enrollment would allow them to temporarily hold off making the monthly payment as they would be in deferment during graduate school instead of paying their undergraduate loan immediately (Nguyen, 2016). The sample for this study, however, was limited to programs of history, political science, and sociology, making the data less applicable in understanding the experience of doctoral students in other research programs.

In particular, for doctoral students who come from lower socioeconomic family backgrounds, they had to borrow graduate student loans to cover other monthly expenses. In Nguyen's research (2016), one doctoral student who was approaching her graduation, for example, admitted that she borrowed too much as a graduate student partially due to her lack of understanding of the amount she had taken out (Nguyen, 2016). As she described during the research interview, "I did not realize that I had $70,000 in loan debt until this year, because I was not paying enough attention to the notices I was getting from the school every year, in part because I was hiding them in drawers, so I did not have to pay attention to them" (Nguyen, 2016 p.98). As such, Nguyen cautioned that these students need to pay special attention to their loan balances to prevent heavy financial burdens that limit their financial futures.

A study including both undergraduate and graduate student loan borrowers found that they felt that their student loan was upsetting, and a variety of negative emotions came up through their expression (Johnson et al., 2016). This study was conducted through online focus groups, with participants attending higher education institutions across the United States. The majority of the respondents were females (70.5%), white (72.7%), and attending a public university (90.9%). As Johnson et al. (2016) described, “students felt worried, guilty, anxious, nervous, frustrated, uneasy, uncertain, stressed out, and so forth” (p. 190).

The researchers recommended that financial practitioners increase loan repayment awareness and online student loan resource awareness for students to alleviate their anxiety over future direct student loan payment (Johnson et al., 2016). Such online resources include the CFPB’s *Paying for College* website and *Know Before You Owe: Student Loan Project*, the New York Times online Student Loan Calculator, and *the Federal Student Aid Repayment Estimator*, et cetera. Moreover, the researchers encouraged students to explore cost reduction alternatives such as three-year college programs. Johnson et al. (2016) cautioned the importance of financial education so that students could avoid frivolous spending and start saving as early as possible during school to lower their debt. The question then arises, through which channels and whom could these students have better knowledge and capability to manage their borrowing, budgeting, and spending?

For some Ph.D. students, they regretted pursuing an academic career with daunting financial challenges and felt it was a mistake (June, 2014). Less is known about how doctoral students deal with financial challenges and navigate their financial life during their academic careers. The following section will further discuss the challenges that doctoral students face, and which might be complicated due to financial situations.

Challenges Specific to Doctoral Students

In 2018, 55,195 students received a Ph.D. degree from institutions in the U.S. (National Center for Science and Engineering Statistics, 2019). Economic, social, technological, and political forces not only have driven changes in the Ph.D. programs but also changes in the demographic characteristics of Ph.D. students that are enrolled in these programs (National Center for Science and Engineering Statistics, 2018). These changes include the increasing enrollment of female, minority, and international students, as well as reduced post-graduation academic employment opportunities, the expansion of the postdoctoral pool, and changes in the age distribution of enrolled students (National Center for Science and Engineering Statistics, 2018). Since 2002, there has been a steady annual growth of four percent for doctoral students aged 30 or younger, compared with a two percent increase for those aged 31 to 40, and a two percent decline for those aged 41 or older.

Given the increasing normalization of graduate education and more available graduate programs, along with the rising fees and expenses (Patton, 2012a), graduate students may be more vulnerable to financial challenges (Belasco et al., 2014). First, the relative monetary value of graduate school funding through grants and assistantships has continued to decline (Kim & Otts, 2010). Next, students' fees have risen dramatically, as many state legislators did not want to raise tuition too much (Flaherty, 2012; Patton, 2012a). A 1% increase in fees was associated with a 0.2% increase in graduate debt for student loan borrowers and a 0.03% increase in the probability of borrowing for non-borrowers (Belasco et al., 2014).

Graduate programs have high attrition rates (Kim & Otts, 2010). According to the Ph.D. Completion Project – a survey with a diverse pool of private and public universities producing the vast majority of Ph.Ds. by the Council of Graduate Schools, the completion rate for doctoral candidates is about 57%, with a high of 64% in Engineering and a low of 49% in Humanities (Sowel, Bell & Kirby, 2010). This study also found that financial support, mentoring/advising, and family support were the top three factors that respondents indicated were essential factors contributing to the completion of their Ph.D. program (Sowel et al., 2010). Eighty percent of the respondents expressed that financial support was the most important factor, 65% indicated mentoring/advising as the most important, and 57% chose family support (Sowel et al., 2010). Financial support has significant roles in the persistence, productivity, and socialization of doctoral students (Bowen & Rudenstine, 1992; Nguyen, 2016; Strayhorn, 2010).

While funding provides the minimum conditions for a doctoral student's degree completion, other hidden factors below the surface may have even more crucial influences, for instance, the structure of the financial support and the ways that other factors interact with that support (Sowel et al., 2010). Irregular expenses, including increasing student fees, taxes, car repairs, conference expenses, and medical expenses, are the most common challenges among graduate students who have limited cash flow every month to save (Roberts, 2015).

Doctoral students face many challenges that affect their wellbeing. Mental health, financial resources and management, career development, housing, and academic progress are among the top concerns for many graduate students today (University of California Office of the President, 2017). Admittedly, these factors may interact with each other, and together, contribute to the overall wellbeing of the doctoral students. For instance, career prospects, overall health, social support, financial confidence, and living conditions are all contributing factors towards a student's mental health (University of California Office of the President, 2017). This survey also showed the association between financial confidence and the time to complete the degree among graduate students (University of California Office of the President, 2017).

Focus group discussions with graduate students from different universities in the U.S. showed that the most substantial financial stress among graduate students is their uncertainty about their future (Denecke et al., 2016). Many students struggled with higher levels of debt than they could have expected and were uncertain about their capacity to find jobs that would allow them to pay their debts (Denecke et al., 2016). In addition, underrepresented minorities, part-time students, and students with dependents may have specific needs and concerns (Denecke et al., 2016).

Although the everyday realities of debt struggle of graduate students remain unknown to many faculty and college administrators, there has been an increasing awareness of the importance of financial education for graduate students to help them understand issues and management of debt payment in their early academic careers (Denecke et al., 2016; Patton, 2012a). Some scholars and graduate students call for more transparency in disclosing about debt and repayment options during admission, more comprehensive data on the graduate students' post-graduation career search outcomes, and potential salaries to help graduate students make informed financial decisions (Patton, 2012a). The Council of Graduate Schools also started financial literacy initiatives in many universities across the nation to improve doctoral students' financial literacy (Denecke et al., 2016). Having discussed the numerous challenges doctoral students face today, the next section provides a review of the characteristics in graduate students' borrowing.

Characteristics in graduate students' borrowing. The share of advanced degree students who borrow massive levels of debt (at least $75,000) increased from 7% in 2007-08 to 15% in 2011-12 (Baum & Steele, 2018). The percentage of graduate students who borrowed more than $80,000 for both graduate and undergraduate programs increased from 7% in 2003-04 to 11% in 2007-08 (CollegeBoard). In 2011-12, this percentage increased to 11% (CollegeBoard). The average amount an advanced degree student borrowed during the academic year 2015-16 ($18,210) is more than three times the average amount an undergraduate student borrowed ($5,460) (Baum & Steele, 2018). During the same academic year, although there were only 17% of advanced degree students among all the federal student loan borrowers, they accounted for 38% of federal educational loans (Baum & Steele, 2018). However, this amount is the average borrowing of students in a variety of graduate and professional programs. Data about the amount explicitly borrowed by research-focused doctoral students during this same period is unavailable. What is known is that in 2018, 43% of doctoral recipients graduated with debt, among which 17% reported having both undergraduate and graduate debt (National Center for Science and Engineering Statistics, 2019). The mean for those with cumulated undergraduate and graduate debt is about $78,757 (National Center for Science and Engineering Statistics, 2019).

Based on the data in 2011-12, 60 percent of professional degree recipients had borrowed more than $100,000, compared with 10 percent of advanced degree students (Baum & Steele, 2018). In 2011-12, about more than half of research-focused doctoral degree recipients had debt, and two-thirds of master's degree recipients had debt (Baum & Steele, 2018). Since some doctoral programs require the applicants to have a master's degree before enrolling into the research-focused doctoral programs, and many students who enrolled in research-focused doctoral programs did not complete the program, the actual percentage of doctoral students with debt might be higher.

Although most full-time doctoral degree students' tuition is waived and have different forms of sponsorship, including institutional grant aid, fellowships, and tuition waivers cover (Baum & Steele, 2017), this does not necessarily mean that they do not incur debt. The increase in graduate tuition and federal student loan policy has led to an increase in both the number of graduate students' borrowing loans and the amount of loan debt they incur to finance their graduate studies (Belasco et al., 2014). Before 2011, graduate students could borrow subsidized federal (i.e., Stafford) loans (Baum & Mcpherson, 2011). In other words, these subsidized federal loans (maximum $8,500) did not accrue interest while a student was in school (Baum & Mcpherson, 2011). In 2011, the Budget Control Act passed by federal lawmakers eliminated the subsidy and led to a cost increase for an average graduate borrower of about $2,000 (Baum & Mcpherson, 2011). Since 2012, graduate students were not eligible for subsidized loans, meaning that the interest started accruing from the time the loans were issued (Baum & Steele, 2018).

Belasco et al. (2014) found that between 2000 and 2008, there was a substantial increase in the average debt level of doctoral students at the point of their graduation. They attributed this increase in debt to the number of students who completed professional doctorates in fields outside of medicine, such as education, psychology, science or engineering, and ministry (Belasco et al., 2014). They also noted that older, married, and part-time graduate students borrowed less, on average, for their program (Belasco et al., 2014). Among graduate student borrowers, underrepresented minorities, and students who previously borrowed funds for undergraduate programs were more likely to borrow for their graduate education (Denecke et al., 2016).

Both the borrowed amount and the required monthly payment for the loan repayment can have significant ramifications for graduate students' financial security and independence (Denecke et al., 2016). Compared with their peers without student loans, young college graduates with student loans are more likely to have more than one job and to experience financial difficulties (Cilluffo, 2017). Also, for some graduate students with children, the financial burden might be more onerous. Belasco et al. (2014) found that an additional dependent responsibility was associated with a 13% increase in graduate debt for loan borrowers. This finding resonates with studies that reflect the financial difficulties of doctoral students who are parents (Springer, Parker & Leviten-Reid, 2009).

One of the most striking findings Belasco et al. (2014) brought up was the significant, positive relationship between undergraduate debt and graduate borrowing. According to them, a one percent increase in cumulative undergraduate debt was associated with a quarter percent increase in cumulative graduate debt, and 0.04 percent increase in the borrowing probability (Belasco et al., 2014). The authors surmised that the limited financial means for students who already borrowed for undergraduate programs might have forced them to borrow more for graduate programs. However, the association between the undergraduate debt and the cumulative graduate debt indicated by the aggregate data cannot speak to each student's borrowing experience. For example, the authors also acknowledged that students who incurred relatively high levels of undergraduate debt might be more cautious about borrowing more graduate loans (Belasco et al., 2014). As such, the extent to which other individual and institutional factors impact the graduate debt growth was unclear (Belasco et al., 2014). These questions could not be untangled without in-depth interviews with students to understand the motives and driving forces behind their decision-making.

Based on the 2005 Survey of Earned Doctorates, Kim and Otts (2010) found substantial borrowing differences across different levels of degree and degree types. More specifically, compared with doctoral students in programs including engineering, physical science, and biological science, doctoral students in the social sciences and humanities were more likely to incur loans (Kim & Otts, 2010). Less than a third of STEM doctoral students rely on loans to finance for their graduate degree, while about half of social science and humanities doctoral students rely on loans (Kim & Otts, 2010). Similarly, Belasco et al. (2014) also found that doctoral students in education, humanities, and social sciences accumulated more graduate debt compared with those in STEM fields.

Compared with doctoral students in math, science, or engineering, doctoral students in education had 870% more debt and were 31% more likely to borrow (Belasco et al., 2014). According to the National Center for Science and Engineering Statistics (2019), 36% of doctoral students in education have education-related debt that is more than $30,000, compared with 30% of doctoral students in psychology and social sciences, 27% for other non-Science and Engineering fields, and 24% for doctoral students in humanities and the arts. Further, the educational field also reported the highest proportion of doctoral recipients with graduate debt among all fields in 2018 (National Center for Science and Engineering Statistics, 2019).

This might be partially related to the lack of available financial support for doctoral students in education fields. According to the National Center for Science and Engineering Statistics (2019), about half of the doctoral students in education reported that they relied on their resources as the primary sources of support. In contrast, doctoral students in other fields receive many other forms of financial support from their school or program. For example, more than a third of doctoral students in life sciences receive fellowships or grants, about 60% of doctoral students in engineering, 50% of doctoral students in physical sciences and earth sciences, and about a third of doctoral students in mathematics and computer sciences receive research assistantships (National Center for Science and Engineering Statistics, 2019). For doctoral students in humanities and arts, 40% receive teaching assistantships (National Center for Science and Engineering Statistics, 2019). As such, doctoral students from different programs may have very different funding sources and borrowing situation, which speaks to the importance of a qualitative study that delves into the situation of each doctoral student.

Regarding the impact of loans on time to degree, Kim and Otts (2010) found that doctoral students who borrowed more tended to complete their degrees in less time except for the field of social sciences. This finding was incomplete, though, as their study only included students who completed their doctoral degrees and was not able to account for the financial challenges of students who dropped out of doctoral programs (Kim & Otts, 2010). Lovitts (2001) found that many doctoral students who did not complete their program had more complicated financial reasons for their attrition. Many students who delayed their degree completion due to difficulty finding an academic position ended up incurring more debt (Patton, 2012a). Thus, there is an increasing need to understand how financial situations interact with doctoral students' pathways to their successful completion while they are still enrolled in their program.

The implication of financial stress on doctoral students' wellbeing. To better understand how financial pressure may impose adverse effects on an individual's physical and mental health, the concept of financial satisfaction and financial wellbeing will be helpful to untangle the nexus. Conceptually, financial satisfaction is defined as satisfaction with one's current financial situation (Zimmerman, 1995). Joo and Grable (2004) proposed a framework of the determinants of financial satisfaction. Within this framework, demographic and socioeconomic characteristics such as age, gender, and marital status have a direct effect on an individual's financial satisfaction. Financial stressors, financial knowledge, financial behavior, and the level of financial stress also have direct effects on financial satisfaction (Joo & Grable, 2004).

The financial situation is considered an essential part of the wellbeing model proposed by Van Praag, Frijters, and Ferrer-i-Carbonell (2000), along with housing, job, health, leisure, and environment. Several different constructs and concepts touch upon individuals' financial wellbeing. A construct that is often referred to as the basis for measurement in quantitative research is personal financial wellness, as put forward by Joo (2008). Joo (2008) contends that financial behavior cannot be assessed through one measure, and neither can financial wellness. Instead, financial wellness is "a comprehensive, multidimensional concept incorporating financial satisfaction, objective status of financial situation, financial attitudes, and behavior" (Joo, 2008, p.23).

In practice, the Consumer Financial Protection Bureau interviewed adult individuals coming from a diverse racial backgrounds and socioeconomic statuses, as well as financial professionals and proposed that consumer-derived financial wellbeing is "a state of being wherein a person can fully meet current and ongoing financial obligations, can feel secure in their financial future, and can make choices that allow enjoyment of life" (Consumer Financial Protection Bureau, 2015a, p.18). Specifically, four elements are central to both the present and the future status of an individual's financial status: daily/monthly control over finances, capacity to absorb a financial shock, ability to act and meet financial goals, and financial freedom to make lifestyle choices (Consumer Financial Protection Bureau, 2015a). Noticeably, many doctoral students are transitioning from financial dependence to independence. Although not all the above criteria may apply to these students, the criteria are nevertheless a helpful framework to develop more detailed and doctoral student-specific research questions that explore the relationship between their financial capability and loan management. The following subsections will discuss in detail the implications of financial stress on doctoral students.

Lack of financial freedom and lifestyle choices. A recent survey by the Council of Graduate Schools found that more than half (55%) of doctoral students felt stressed about their personal finances and dissatisfied with their financial situation (Denecke et al., 2016). A survey of 5,356 graduate students across ten campuses in the University of California system in 2016 found that almost two-thirds of respondents indicated that they were concerned about money recently (University of California Office of the President, 2017). In comparison with the academic master students and graduate students pursuing professional degrees, research-focused doctoral students who had advanced to candidacy were the least likely than the rest of the graduate students to report being financially confident (University of California Office of the President, 2017). Graduate students in STEM fields were more confident about finances, while respondents in the humanities showed the least financial confidence (University of California Office of the President, 2017). It remains unclear what causes such discrepancy in financial confidence, and whether this discrepancy is universal across other higher education institutions. If so, the question of what needs to be implemented to support students in programs of humanities to building their financial confidence.

On a related note, serious student loan debt has also become an obstacle for people to establish romantic relationships (Kirkham, 2018). Some individuals refuse to date with others who have a significant amount of student debt, and some individuals are worried that their potential partner will be scared away by their large loan balance (Kirkman, 2018).

Compromised quality of life. The pressure of financial strain on doctoral students' quality of life was also found in many other surveys on the wellbeing of doctoral students (Johns Hopkins University, 2013; UC Berkeley Graduate Assembly, 2014; University of California Office of the President, 2017). Lacking adequate financial resources, doctoral students may seek part-time jobs that are not relevant to their academic career and distance themselves from the department activities, indirectly impacting their academic, social, and personal life (Nguyen, 2016).

In particular, the unfunded doctoral students who relied on graduate student borrowing had significantly different experiences compared with the funded doctoral students (Nguyen, 2016). These doctoral students who relied on massive borrowing exhibited constant worries over money and finding employment opportunities, which occupied most of their time and exhausted their energy needed to develop research projects or finish course work (Nguyen, 2016). Besides, they did not have many resources to engage in socialization activities with peers (Nguyen, 2016). For students who borrowed to supplement their monthly expenses, the initial intention of borrowing to quell financial pressure might morph into loan shock or undue pressure when these students approach the end of the program (Nguyen, 2016).

Strong emotional reactions towards debt. Graduate students with student loan debt are more likely to be stressed about their financial situations and subject to borrowing private loans or accumulating credit card debt (Denecke et al., 2016). An increasing amount of epidemiological research has been examining the implications of ballooning consumer debt (including auto loans, student loans, credit card debt, et cetera.) for individuals' health (Sweet et al., 2018). Sweet et al. (2018) found that borrowers exhibited strong emotional reactions towards the debt, including feelings such as shame and guilt. Participants in this study described that they felt stressed and were suffering from the burden of debt. The emotional and psychological pain exerted over time contributed to the detriment of their physical health and sense of self (Sweet et al., 2018). One extreme case involved a participant becoming a surrogate to earn money to pay back her student loans (Sweet et al., 2018). Although this study does not exclusively focus on graduate students with student loans, it sheds light upon the mechanisms through which individuals' mental and physical health are impacted by debt. A critical pathway through which debt impacts health, as they concluded, might be the emotional experiences of shame (Sweet et al., 2018).

All in all, doctoral students who are accumulating student loan debt may have challenges securing financial resources to support their academic progress and fully engage in the research-focused doctoral program. Their perception of the student loan debt as a shame, burden, or motivation, may have a tremendous impact on how they react to their financial situations. In-depth, open-ended interviews will help understand how doctoral students perceive and manage loan debt concerning their wellbeing. Having discussed the impact of student loan debt on doctoral students' wellbeing, I will provide an overview of the context for student loan debt borrowing in the next section, for example, who is the lender, what types of loans are issued, and the student loan debt repayment system.

An Overview of Student Loan Borrowing

Currently, the vast majority of the student loan debt has been made by the federal government (Akers & Chingos, 2016; CollegeBoard). The federal government issues about 90% of existing student loans (CollegeBoard). It is essential to understand the federal lending landscape to be conscious of the context for students to make borrowing decisions. The practice of lending to students directly from the federal government does not have a long history. This section will provide a brief background of the development of the federal student loan program based on the summary of a report published by the Bipartisan Policy Center (2017). The first major federal student lending program was created in 1965 through the Higher Education Act. The program was named "the Guaranteed Student Loan (GSL) program" and was the predecessor of the Federal Family Education Loan Program (FFEL) (Bipartisan Policy Center, 2017). This was essentially a public-private partnership whereby private banks lent loans that were guaranteed by the federal government to students (Bipartisan Policy Center, 2017). In 1990, the Federal Credit Reform Act adopted a different accounting methodology and incentivized the federal government to directly lend loans to students instead of backing private banks (Bipartisan Policy Center, 2017).

The 2008 financial crisis severely impacted the private lenders' ability to supply FFEL loans as it was harder for them to raise capital in private markets (Bipartisan Policy Center, 2017). In such context, the enactment of the Ensuring Continued Access to Student Loans Act, allowed the FFEL loans formerly owned by a private lender to be purchased by the federal government, which injected liquidity in the student loan credit market (Bhaskar & Gopalan, 2009). The Health Care and Education Reconciliation Act in 2010 marked the end of issuing new FFEL loans and a full transition to federal direct loan lending (Bipartisan Policy Center, 2017).

The federal direct loan program offers funds for students to finance their college. It offers loans at lower interest rates compared to private loan offerings (Federal Student Aid, 2015). Private loans also usually require a credit check. Moreover, the federal direct loan program also claims they have the advantage of offering flexible repayment options (Federal Student Aid, 2015). *Table 1.* provides a brief description of the types of federal loans, their eligibility, and the maximum annual award. In practice, unlike loans in the private sector, federal student loans are issued to anyone without a quality check on whether the borrower can pay back in the future (Akers & Chingos, 2016).

Table 1. Types of Federal Loans.

	Eligibility	Maximum Annual Award
William D. Ford Federal Direct Loan (Direct Loan) Program		
Direct Subsidized Loans	For undergraduate students who have financial need	Up to $5,500
Direct Unsubsidized Loans	For undergraduate, graduate, and professional degree students; financial need is not required	Up to $20,500 (minus any subsidized amounts)
Direct PLUS Loans	For parents of dependent undergraduate students who are borrowing money to fund their child's education, and for graduate or professional degree students; financial need is not required	Up to the cost of attendance minus any other financial aid student receives
Federal Perkins Loans	For undergraduate, graduate, and professional degree students; eligibility depends on the student's financial need and availability of funds at the student's school. The lender is the school instead of the Department of Education. But the loan is federal student loan.	Undergraduate students: $5,500; graduate and professional degree students: $8,000
Direct Consolidation Loans	Multiple federal education loans can be consolidated (combined) into one loan. As a result, a borrower only needs to have a single monthly payment instead of multiple payments.	There is no application fee to consolidate students' federal education loans.
Federal Family Education Loan Program	Loans were made by banks or other financial institutions. This program was discontinued in June, 2010. The loans are federal student loans.	

Note: the author compiled information from Federal Student Aid's Website StudentAid.gov/resources and StudentAid.gov/grad.

The issuing of the federal loan to a student borrower is just the beginning of the lifetime of the loan. This issuing means that the clock for student loan debt management also starts ticking. During this period, until the student pays off the debt, the student borrower is put in communication with the loan servicer who is responsible for administrating students' repayment of the loan debt. This next section will provide details regarding this repayment system.

Complex student loan repayment system. The student loan repayment system is complex for borrowers to navigate (Dynarski & Kreisman, 2013). Dynarski and Kreisman (2013) suggested that instead of a debt crisis, there is a repayment crisis given that even though a typical student borrower only has a moderate amount of debt, there are high default rates on these loans typically and higher default rates among younger borrowers. They pointed out that the current repayment system exerts financial pressure on borrowers when their income is likely to be very low, as they put it, "student loans are due when borrowers have the least capacity to pay" (Dynarski & Kreisman, 2013, p.6).

Unlike undergraduate students who have annual and cumulative borrowing limits, graduate students can borrow a high volume of loans up to the cost of their attendance (Steele & Anderson, 2016). With the few limits and easier access to loans compared with undergraduate loans, along with a lack of attention to loan counseling, graduate students are more vulnerable to poor decision-making regarding their personal finances, including choices about their loans (Steele & Anderson, 2016). As Steele and Anderson (2016) explained, the rule-of-thumb in the housing finance market holds that the reasonable amount for a monthly payment is no more than 30% of gross income; such requirement or wisdom does not exist in the student loan market. In light of this, it is already challenging for graduate students to project their future income and debt repayments, given the broad spectrum of loan repayment options, it is even harder for these students to choose the suitable payment options that are to their benefits (Steele & Anderson, 2016). *Table 2.* lists the different categories of repayment plans for Federal Direct Loans.

Table 2. Categories of Direct Loan Repayment Plans.

Repayment plans	Eligibility	Notes
Traditional Repayment Plans		
Standard Repayment Plan	All borrowers	Up to 10 years of repayment. Payments are fixed amount of the minimum $50 per month.
Graduated Repayment Plan	All borrowers	Up to 10 years of repayment. Payments start out low and increase every two years. The minimum payment should be equal to monthly interest due. The maximum payment will be three times that of any other monthly payment.
Extended Repayment Plan	Borrowers who have more than $30,000 of Direct Loans or FFEL Program Loans to repay, and the loans were obtained on or after Oct 7, 1998	Up to 25 years of repayment. Monthly payments are calculated so that the loan will be paid in full in 25 years. Borrowers can choose either fixed or graduated payments.
Income-Driven Repayment Plans		
Revised Pay As You Earn Repayment (REPAYE) Plan	Direct Loan Program borrowers who have eligible loans	If a borrower hasn't repaid the loan in full after 20 years, any outstanding balance will be forgiven, although the forgiven amount may be taxable as income. The monthly payments are 10% of the discretionary income and are recalculated each year based on the borrower's updated income and family size.
Pay As You Earn Repayment (PAYE) Plan	Direct Loan Program borrowers who must be a new borrower on or after Oct. 1, 2007; who must have received a disbursement on or after Oct. 1, 2011	If a borrower hasn't repaid the loan in full after 20 or 20 years, any outstanding balance will be forgiven, although the forgiven amount may be taxable as income. The maximum monthly payments are 10% of the discretionary income, will not be more than the 10-year Standard Repayment Plan amount, and are recalculated each year based on the borrower's updated income and family size. The borrower must have a high debt relative to the income.

Table 2 (Continued).

Income-Based Repayment (IBR) Plan	Borrowers in Direct Loan Program and FFEL Program; the required payment amount must be less than what the borrower would pay under the 10-year Standard Repayment Plan.	If a borrower hasn't repaid the loan in full after 20 or 25 years, any outstanding balance will be forgiven, although the forgiven amount may be taxable as income. The monthly payments are 10% or 15% of the discretionary income, will not be more than the 10-year Standard Repayment Plan amount, and are recalculated each year based on the borrower's updated income and family size. The borrower must have a high debt relative to the income.
Income-Contingent Repayment (ICR) Plan	Borrowers in Direct Loan Program with eligible loans.	If a borrower hasn't repaid the loan in full after 25 years, any outstanding balance will be forgiven, although the forgiven amount may be taxable as income. The monthly payments are the lesser of 20% of the discretionary income, or the amount the borrower would pay on a fixed payment plan over 12 years. The monthly payment can be more than the 10-year Standard Repayment Plan amount and are recalculated each year based on the borrower's updated income and family size.

Note: the author compiled information from Federal Student Aid's Website StudentAid.gov/resources, StudentAid.gov/grad, and the information on repayment options (Federal Student Aid, 2015).

The Federal Direct Loan Servicing Program is the administration part of the Federal Direct Loan Program. It consists of multiple stakeholders: The Department of Education and its Office of Federal Student Aid, who initiates and supervises the student loans to students, the student loan servicing companies that are contracted by the Department of Education, and the financial aid professionals at higher education institutions. There is no overarching body in charge of all these stakeholders. However, since each stakeholder is critical in performing different functions in the student loan life cycle, for this study, it is named "federal direct loan servicing program." According to Levitin and Twomey (2011), the loan servicer is the entity that handles the daily management of loan accounts for each borrower. Within the current servicing program, complaints of borrowers regarding student loan servicing emerge (Consumer Financial Protection Bureau, 2015b; Government Accountability Office, 2016).

In terms of operation, the Department of Education is the lender, and payments belong to them (Federal Student Aid, 2015). In 2009, the Department of Education expanded its student loan servicing capacity and awarded four companies servicing contracts to administer an amount of $550 billion outstanding federal student loan portfolio. Before that, the Department of Education had a single direct loan servicer. Contracted servicers are responsible for collecting money from borrowers and remit the payments to the Department of Education (Powell, 2016). Under this private-public partnership, contracted servicers are responsible for "customer service, application processing, loan, and grant origination and disbursement, loan servicing and collections, system applications, and infrastructure developments, as well as administrative functions" (Federal Student Aid, 2012, p. 20). Noticeably, 85% of the administrative budget of FSA is allocated to these contracted vendors (Federal Student Aid, 2012). The next section will delve into the challenges for borrowers to navigate the complicated student loan repayment system.

Potential conflicts of interest in student loan servicing. For the student loan borrowers who are in the repayment period, instead of the lack of financial means to pay for the student loan debt, insufficient assistance from loan servicers ranked as the most challenging barrier for them to manage student loan repayment (Serido & Shim, 2017). Also, the borrowers responded that the student loan repayment systems are too complicated, and they did not possess enough knowledge about repayment options (Serido, & Shim, 2017). Borrowers express frustration and confusion regarding the management of their loans. In the worst cases, students are not able to obtain needed information regarding alternative payment plans and end up in default (Consumer Financial Protection Bureau, 2015b). Meanwhile, the amount of student debt being paid back is low.

According to a memo provided by the Department of Education in January 2017, more than half of the students from about 1,000 schools either defaulted or failed to pay down at least $1 within seven years (Fuller, 2017). Navient, the largest servicer of student loans in the nation, is under lawsuits by the attorneys general of five states – including Illinois, Pennsylvania, Washington, California, and Mississippi, and the Consumer Financial Protection Bureau due to alleged misconduct in servicing consumers (Shaak, 2019). The point of contention resides in the servicer's alleged unethical behavior in compromising borrowers' interests by providing limited information or steering them into costly and disadvantageous repayment plans (*Consumer Financial Protection Bureau v. Navient Corporation; Navient Solutions, Inc.; and Pioneer Credit Recovery, Inc.,* 2017). In the motion to dismiss the lawsuit, the student loan servicing company Navient argued that no expectation should be made that they would act in the consumer's interest (Nasiripour, 2017).

Conflict of interest inherent in the financial sector itself is an obstacle for improving consumers' financial literacy (Emmons, 2005). Even though financial services providers claim to act on behalf of their client's best interests, they are driven to maximize profits (Emmons, 2005). The accountability of student loan servicers is a significant issue that impacts many student loan borrowers (Powell, 2016). As a critical bridge between borrowers and lenders, private student loan servicers provide a wide range of services, from communicating directly with borrowers and managing their accounts and monthly payments, to managing their alternative repayment plans

(Consumer Financial Protection Bureau, 2015b). Nevertheless, the enforcement of federal standards that apply across market players in the student loan servicing industry is inconsistent (Consumer Financial Protection Bureau, 2015b). Past incidents have involved college financial aid counselors that received commissions from private loan companies to target their loan products to students (Collinge, 2009). Some student activist groups have been complaining about how loan companies keep them in the dark in terms of calculating and paying back loan interests (Collinge, 2009). As a consequence, complaints and misunderstanding from borrowers regarding student loan servicing emerge (Consumer Financial Protection Bureau, 2015b; Government Accountability Office, 2016).

Most of the time, a college student does not engage in repayment of student loans until after college graduation. Without preventative financial education during college, a new college graduate may not have the toolkits to deal with repayment of loans given other life choices such as finding a new job and moving to a new city. In the meantime, there is also no compelling interest for universities to provide holistic financial education to its students. Contrary to their students' best interests, some universities hire external default management consultants to steer their graduates into the costly repayment option of forbearance (Government Accountability Office, 2018). According to federal law, if a significant percentage of a school's graduates defaulted on their student loans within the first three years of their repayment (also known as CDR – Cohort Default Rate), these schools may not be allowed to participate in federal student aid programs (Government Accountability Office, 2018). A study by the Government Accountability Office on nine default management consultants that served more than 1,300 schools concluded that the Cohort Default Rate was not a useful oversight tool as default was not prevented but delayed when the external consultants recommended borrowers enroll in forbearance (2018).

In terms of operational cost for the loan servicer and the external consultant, switching borrowers into forbearance requires less effort and lowers costs (no supporting documentation required). Encouraging borrowers to enroll in an Income-Driven repayment plan demands more paperwork processing to validate the application (Government Accountability Office, 2018). As such, borrowers were provided with incomplete or sometimes inaccurate information from the consultants hired by their alma mater to enroll in the forbearance program (Government Accountability Office, 2018). An average borrower with $30,000 loans who could have enrolled in the income-driven repayment would end up paying an additional $6,742 (a 17% increase) if she enrolled in the forbearance for her first three years of repayment (Government Accountability Office, 2018). The tactics deployed by these external consultants include providing gift cards for students who choose to enroll in forbearance, or mails including only the application for forbearance for these borrowers (Government Accountability Office, 2018). An uninformed borrower might easily fall into the trap of these tactics and choose the repayment option that costs much more in the long run (Powell, 2018).

Given these issues regarding a lack of accountability, a House bill was introduced in 2017 to expand required loan counseling provided by institutions of higher education from an entrance and exit counseling to a first-time student loan borrower to annual counseling (H.R.1635, 2018). This bill requires institutions of higher education to provide comprehensive information regarding the borrowed loans, including terms, conditions, and granting the student loan borrowers the right to request information such as average income and employment data, and financial management resources (H.R.1635, 2018). The bill also requires exit counseling to include the summary of an outstanding loan balance, the anticipated monthly payment based on both standard and income-based repayment plans, explanations of several repayment options, and the contact information of the loan servicer (H.R.1635, 2018).

Student loan servicers themselves may also not act on behalf of the interest of their customers. In response to the Consumer Financial Protection Bureau's complaint that the student loan servicing company Navient did not inform students sufficiently about recertification for their Income-Driven Plans, Navient argued that they emailed students on time and included a hyperlink for students to use and log into their account to fetch relevant information to process recertification of the Income-Driven Repayment plans (Consumer Financial Protection Bureau v. Navient Corporation, 2017). "The only thing a borrower had to do in order to access the notice was click through to the website," as Navient stated in the motion to dismiss the lawsuit (Consumer Financial Protection Bureau v. Navient Corporation, 2017, p. 11). The question remains, why did student loan borrowers not click through their email? If students were cautioned before they graduate from their program to review their loan account, and educated enough so that they were aware of the options in loan repayment, would they manage their student loans better? These questions could be better understood by asking doctoral students who may deal with either/both undergraduate or/and graduate loans. *Table 3* includes the types and brief descriptions of the categories of loan repayment status.

Frequently, students and parent borrowers do not fully utilize the financial resources at hand. A qualitative study by Jensen (2008) found that "many undergraduate students do not read or do not comprehend the written and online information counselors provide on private loans" (p.3). She examined what roles college financial aid counselors play in undergraduate students' private loan selection by interviewing 20 financial aid counselors at four-year public and four-year private non-profit colleges and universities in the U.S. She concluded that “many students and parents do not fully grasp the differences between private and federal student loan options” (p. 95), and the current "surface" counseling practices are insufficient to help students navigate private loan offerings (Jensen, 2008). Another qualitative study of 49 students found that students are not knowledgeable about the costs and benefits of higher education, and individuals' financial situations are highly influenced by cultural and familial resources (Christie & Munro, 2003). Due to scant studies on doctoral students, it remains unknown whether doctoral students display a similar lack of understanding about their loan options, or they also do not utilize the available financial resources.

Table 3. Categories of Loan Repayment Status.

Loan repayment status	Description
Grace Period	A set period of time after a student’s graduation or leaving school before the student begins repaying the loan. Direct Subsidized and Unsubsidized loans, Subsidized and Unsubsidized Federal Stafford Loans have a six-month grace period. PLUS loans have no grace period.
Default	Failure to repay a loan. For most federal loans, a borrower will default if the borrower has not made a payment in more than 270 days. If a borrower defaulted on a federal student loan, the borrower would lose eligibility to receive federal student aid and may experience serious legal consequences.
Deferment	Deferment allows for a temporary postponement of payment on a loan under certain conditions. During deferment, interest generally does not accrue on certain types of loans (Direct Subsidized Loans, the Subsidized portion of Direct Consolidation Loans, Subsidized Federal Stafford Loans, the subsidized portion of FFEL Consolidation Loans, and Federal Perkins Loans). For all other deferred federal student loans, they continue accruing interest.
Delinquent	A delinquent loan means the loan payment is not received by the due dates. The loan remains delinquent until the borrower make up the missed payment(s), or the borrower enters deferment or forbearance which covers the delinquent period.

Table 3 (Continued).

Loan Rehabilitation	It is the process of bringing a loan out of default and removing the default notation from a borrower's credit report. A borrower must make nine voluntary, reasonable and affordable monthly payments within 20 days of the due date over a consecutive 10-month period in order to rehabilitate a Direct Loan or a FFEL Program Loan.
Forbearance	Forbearance is granted by the lender if a borrower is willing but unable to make loan payments due to financial hardships. During forbearance, a borrower's monthly loan payments are temporarily suspended or reduced. Although principal payments are postponed but interest continues to accrue. Unpaid interest that accrues during the forbearance will be capitalized (added to the principal balance), increasing the total amount a borrower owns.

Note: the author compiled information from Federal Student Aid's Website StudentAid.gov/resources and StudentAid.gov/grad.

In summary, this section provides a brief review of the literature on students' perceptions and experiences of student loan debt and the challenges in dealing with the federal loan servicers. In the next section, I will describe the concept of financial literacy and explain how this construct helps understand doctoral students' personal financial management, which includes many aspects that may shape their student loan debt experience.

Doctoral Students' Financial Literacy

Conceptualization of financial literacy. Awareness of the cost of education and loan repayment after graduation is critical for students as they make important decisions such as the selection of a field of study, a career plan, and maintaining a balance between part-time work and school (Akers & Chingos, 2014). Active and informed decision-making is critical for individuals as they pursue life goals, and it allows them to enjoy a higher level of wellbeing (Serido & Shim, 2017). The ability to evaluate the impact of their choices on their future finances and aspirations (Serido & Shim, 2017) directly connects to their state of financial literacy. In today's consumer society, financial literacy and numeracy are essential life skills for individuals to make informed decisions (Lusardi, 2008, 2012).

Financial literacy has received much attention in the past two decades (Chen & Volpe, 1998; Harrison, 2016; Huston, 2010; Hung, Parker & Yoong, 2009). Personal financial literacy refers to the "ability to read, analyze, manage, and communicate about the personal financial conditions that affect material wellbeing" (Vitt et al., 2000, p.2). Vitt et al. (2000) provide some examples of these abilities, including "the ability to discern financial choices, discuss money and financial issues without (or despite) discomfort, plan for the future and respond competently to life events that affect everyday financial decisions, including events in the general economy" (p. 2). Fox, Bartholomae, and Lee (2005) state that “financial literacy denotes one's understanding and knowledge of financial concepts and is crucial to effective consumer financial decision making” (p.195). This denotation connected the knowledge of financial concepts with effective financial decision making but did not clearly articulate the importance of effective decision making as part of the financial literacy construct.

Almost used concurrently with financial literacy is another important concept – financial capability. Financial capability refers to an individual’s capacity to effectively manage financial resources based on knowledge, skill, and access (President's Advisory Council on Financial Capability, 2010). In the National Financial Capability Study, Lusardi (2011) specifies four specific domains of financial capability: making ends meet, advance-planning, choosing and managing financial products, financial literacy and self-assessed financial skills. They found that young adults, African Americans and Hispanics, and poorly educated individuals tend to demonstrate low financial capability (Lusardi, 2011). Remund (2010) posits that financial capability was introduced as an iteration following the financial literacy concept.

There is a lack of consensus on the conceptualization and operationalization of the financial-literacy definition (Remund, 2010). Huston (2010) reviewed the literature of 71 studies on financial literacy and found that 70% of them did not include a definition of financial literacy, and 47% of the studies use interchangeably the terms "financial literacy" and "financial knowledge." Her review found that many studies did not have a clearly defined construct. In a review of literature since 2000, Remund (2010) summarized the conceptual definitions of financial literacy into five categories: "(1) knowledge of financial concepts, (2) ability to communicate about financial concepts, (3) aptitude in managing personal finances, (4) skill in making appropriate financial decisions and (5) confidence in planning effectively for future financial needs." (p.279). Hung, Parker & Yoong (2009) also reviewed the definition and measurement of financial literacy and found that many studies failed to distinguish financial literacy from related concepts such as financial education and decision-making competence. These reviews highlight the nebulous characteristics of the conceptualization of financial literacy and its operationalization in research.

Many phrases and terms are used to describe financial literacy in both scholarly and financial industry research (Remund, 2010). According to the review by Remund (2010), these confounding terms include “empowerment” (Jekwa, 2007), “credit literacy” (Lyons, Rachlis, & Scherpf, 2007), and "economic literacy" (Vitt et al., 2000). Nested within the concept of financial literacy is the notion of debt literacy, which measures individuals' knowledge of fundamental debt-related concepts (Lusardi & Tufano, 2015). Lusardi and Tufano (2015) found "strikingly low levels of debt literacy across the U.S. population" (p. 1) in their empirical research. For example, only one-third of the surveyed population seems capable of understanding the workings of credit cards in terms of interest compounding (Lusardi & Tufano, 2015). In terms of debt literacy, there is a specific association between lower levels of debt literacy and higher cost of borrowing and transactions that incur borrowing, with less knowledgeable individuals unable to judge their debt position or to report excessive debt (Lusardi & Tufano, 2015).

Despite the increasing theoretical and empirical research on the economics of education, how people obtain and utilize financial knowledge remains mostly unknown (Lusardi & Mitchell, 2014). The traditional assumption of the microeconomic model is that individuals can make rational saving and spending plans with the capacity to undertake economic calculations in financial markets; however, this does not hold for most of the population (Lusardi & Mitchell, 2014).

From this perspective, it is essential to note that many other soft-skills, such as communication and emotional skills, are underlying necessities in the concept of financial literacy. As Emmons (2005) put it, "good financial management requires an armory of emotional skills—including self-discipline, resilience to occasional financial reversals, and the ability to resist the siren calls of friends, family members, and the prevailing consumer culture of instant gratification" (p.23). Also, confidence is also another vital element in sound decision- making and was explicitly included in the concept of financial literacy in Canada (Task Force on Financial Literacy, 2011).

The concept of financial literacy was defined as "having the knowledge, skills, and confidence to make responsible financial decisions" (Task Force on Financial Literacy, 2011, p.10). By "confidence," the definition means "having the self-assurance to make important decisions" (Task Force on Financial Literacy, 2011, p.10). Hung, Parker and Yoong (2009) contend that an overarching conceptualization of financial literacy should consider financial knowledge, skills, behavior, and their mutual relationships. In this study, I find the conceptualization of financial literacy proposed by Remund (2010) to be most relevant to study the student loan debt experience of doctoral students. As Remund defines,

Financial literacy is a measure of the degree to which one understands critical financial concepts and possesses the ability and confidence to manage personal finances through appropriate, short-term decision-making and sound, long-range financial planning, while mindful of life events and changing economic conditions. (p. 284)

This definition is comprehensive enough to encompass the different factors that contribute to doctoral students' experience in perceiving and managing their loan debt in pursuit of financial wellbeing. For example, in what ways do doctoral students communicate and seek knowledge and skills during their program that benefit their personal finances, given the need to balance short-term and long-term gains? How do doctoral students receive relevant information on student loan debt repayment, and how do they act upon such information? To what extent are doctoral students confident in managing their student loan debt, and what are the factors that may contribute to their confidence?

Why financial literacy matters to doctoral students. During their graduate program, doctoral students need to continually make financial decisions that may impact the time it takes to finish their program and subsequent career choices (Denecke et al., 2016). More than a quarter of doctoral students were not confident that they could spare $1,000 to deal with a financial emergency (Denecke et al., 2016). Some strategies graduate students adopted included exploring their eligibility for food stamps, receiving food giveaways on campus, and shared living space faraway from campus to reduce costs. Graduate students face different challenges, like struggling to repair a car when it was broken down, and some challenges with the costs of childcare (Denecke et al., 2016). Suffice it to say that each doctoral student's financial situation, challenges, resources, and considerations in managing loan payment might differ dramatically from each other.

Between 2007 and 2010, the percentage of graduate degree holders receiving food stamps or other forms of aid more than doubled (Patton, 2012c). Notably, the number of people with Ph.D.'s receiving assistance grew from 9,776 to 33,655 (Patton, 2012c). Some doctoral graduate students who found low-pay adjunct jobs found themselves among the poor, which they did not seem to expect was possible (Patton, 2012c). As Denecke et al. (2016) stressed, “learning how to live within the means afforded by a regular paycheck, while minimizing loan debt, requires research, financial planning, and budgeting skills that many of these students have not yet acquired” (p.12).

Many doctoral students expressed that managing their student loan debt was the financial issue that they struggle most with (Denecke et al., 2016). What is more, challenges for doctoral students include not only paying back student loans, covering necessary living expenses, but also applying for a limited pool of full-time academic positions (Nguyen, 2016; Patton, 2012c). Even among people who successfully land an academic teaching job, 70 percent of faculties are not on a tenure track, and some of them face the challenges of raising a family or paying for their children’s education (Patton, 2012c). Some doctoral students were admitted into the graduate programs without sufficient information regarding the long-term return or lack thereof (Patton, 2012a). Graduate students reported their concerns over repaying the student loan debts after their graduation and uncertainty about post-graduation job opportunities (Denecke et al., 2016).

Doctoral students' choice of career is affected by many factors, including self-efficacy in career decision-making, perceived stress, and financial attitudes and situation (Denecke et al., 2016). As financial literacy also concerns an individual's long-term financial planning, the nature and direction of interaction between doctoral students' financial literacy and their pursuit of professional careers are not clear. Accordingly, Denecke et al., (2016) argued that institutions of higher education are responsible for providing information to all students about the cost of their degrees, options of financial support, available information about the potential career path of the degree, and help students to make informed decisions.

As previously mentioned, students with student loan debt are more likely to borrow private loans or accumulating credit card debt (Denecke et al., 2016). In terms of financial behavior towards credit card use, both undergraduate and graduate students show irresponsible behavior when they use credit cards (Norum, 2008). One reason could be that having more experience with using credit cards does not directly translate to an increase in students' motivation to carefully read the credit card advertisement disclosures (Wang, 2012). Surveys on graduate students found that graduate students used credit cards for many living expenses, ranging from clothes, groceries, textbooks to transportation (Denecke et al., 2016). Although the majority of graduate students showed healthy credit card use habits, some students with graduate debt reported potentially riskier behaviors in using credit cards (Denecke et al., 2016). For instance, the likelihood that a graduate student could pay only the minimum payment on a credit card debt is three times higher for graduate students who had taken out federal loans than those who were eligible but did not borrow the federal loans (Denecke et al., 2016). Also, students who borrowed federal loans for the graduate study were less likely to pay full payment on their credit card bill than those who were eligible but did not borrow (Denecke et al., 2016). The long-term detrimental impacts for students after their graduation may include avoidance of dealing with personal loans, a higher likelihood of student loan default, damaged credit card history, and poor mental health (Robb & Pinto, 2010).

With the scant studies on the financial literacy of doctoral students, it is more important to explore the specific individual students to understand the factors and nuances in their experiences. This provides contextual information on students' learning trajectories that lead to their financial situation. What works for the doctoral students who manage their loan repayment, and what does not work for them? What are the influencing factors that contribute to their learning and managing their finances, in particular with regard to loan debt management? Answers to these questions will provide helpful insights to support populations that are more vulnerable in managing their student loan debt. As the concept of financial socialization can help map out some learning pathways as to how doctoral students acquire and develop their financial literacy to manage their student loan debt, the next section will delve into the concept of financial socialization and its application to doctoral students' experience.

Financial Socialization of Doctoral Students

The concept of financial socialization. As discussed above, financial literacy consists of many aspects, including knowledge, behavior, and confidence. Therefore, many factors contribute to the financial literacy of young adults. Financial socialization is the process of an individual formally and informally acquiring financial knowledge, attitudes, and behaviors (Shim et al., 2010). Inadequate financial socialization is costly for both young adults and society (Ivan & Dickson, 2008). It is through financial socialization that young adults receive both formal and informal financial education and develop their financial literacy (Shim, Serido, Tang, & Card 2015).

Gudmunson, Ray, and Xiao (2016) contended that financial socialization should be viewed as a life-long process for individuals and families. They also distinguished financial socialization from other commonly used conceptual frameworks such as financial literacy and financial capability by stating that financial socialization takes full consideration of changes during human development (Gudmunson et al., 2016). Financial socialization in young adults is not only dependent on the knowledge, skills, and behaviors developed before higher education, but is influenced by their observations, learning, and financial choices (Cude et al., 2016). The influence from a variety of agents, such as peer groups and religious organizations, is not explored much in the literature of financial socialization (Gudmunson et al., 2016). From this perspective, the extent to which doctoral students gain loan repayment strategies through socialization remains unknown.

Danes (1994) included broad aspects inherent in financial literacy and defined financial socialization as "the process of acquiring and developing values, attitudes, standards, norms, knowledge, and behaviors that contribute to the financial viability and individual wellbeing" (p. 28). The definitions of both Danes (1994) and Shim et al. (2010) resonate with the general theory of socialization. According to Grusec and Hastings (2014), socialization is defined as the process whereby individuals become members of one or more social groups through assistance (p. xi). In the context of financial socialization, Gudmunson et al. (2016) pointed out that social groups that serve as contexts for individuals' financial socialization include family, peer groups, workplaces, schools, religious communities, and racial and ethnic groups. They further added that life transitions, economic cycles, and policy changes are also factors that impact an individual's financial socialization (Gudmunson et al., 2016). Many doctoral students also experience different life transitions during their doctoral program; for example, entering a relationship, getting married, having a child, buying a house, et cetera. How these life transitions interact with the doctoral students' acquiring and development of specific financial knowledge, attitudes, and confidence to manage their finances remains unexplored.

Factors contributing to students' financial socialization. Multiple factors and agents play a role in the students' financial socialization process. To name only a few: parents, financial education during college, peers, romantic partners, and socioeconomic status may all have their roles in shaping the financial socialization pathway of an individual. Thus far, the APLUS longitudinal study on young adults during and after college is the most revealing, showing the impacts of different socialization agents throughout the developmental period of young adults.

Shim et al. (2010) started the APLUS wave 1 data collection in 2008 by surveying 2,098 first-year college students of different racial and ethnic groups and found that college freshmen's financial attitudes and behavior are highly associated with their parents' behaviors. In 2010, the APLUS researchers surveyed the students again who were then in their senior year about their financial readiness (wave 2) and found that although parents still play a critical socializing role for students during the college years, cumulative education is critical to students' positive financial behaviors (Shim & Serido, 2011). While the financial role modeling from their parents also decreased, more students engaged in learning about finances compared with their freshmen year (Shim & Serido, 2011). In addition, the research found that in their senior year, male students outscored female students on the financial quiz, and were more likely than female students to engage in both formal and informal ways of learning about finances (Shim & Serido, 2011).

The APLUS researcher conducted a third wave survey two years after students graduated from the college and found that as students matured into young adults and committed to romantic relationships, their romantic partners replaced their parents' role as the top influencer for their financial behaviors (Shim & Serido, 2014). Shim and Serido (2014) also concluded that continuing financial education promoted a more successful transition into young adulthood. As doctoral students develop new relationships with peers, faculty, and staff during their program, how the nature of interactions and the context of interactions (formal or informal) shape their financial capability to manage their debt repayment and other personal financial matters remains unknown.

So far, limited empirical studies take into consideration the channels and contexts through which doctoral students develop their financial capability to manage their loan debt. Vitt et al. (2000) stress that a critical premise of research on financial literacy education should be the availability and utility of helpful information. As Shim and Serido (2011) revealed, "the value of early financial education may reside in its kindling effect, stoking interest in learning more about personal finance such that the cumulative effect of ongoing financial education improves financial knowledge and behaviors" (p.21). Financial socialization delves into the process of how students learn, find, and utilize the information from multiple sources to manage their finances. Taking student loans as an example, the lack of available information is one factor that contributes to student loan borrowers' low financial literacy.

Bucks and Pence (2008) compared the distributions of mortgage terms in the household-reported Survey of Consumer Finances to the distributions in lender-reported data and found that borrowers who might face larger loan payments due to an increase in interest rate tend to be those who are not knowledgeable about the contract terms of their loans. Moreover, their research found that borrowers' lack of knowledge is due to their difficulty in finding and processing relevant information. Although this research was not on college students specifically, it nevertheless showed that a quarter of borrowers with a college education do not know the per-period caps on their interest rates, compared with 41 percent of borrowers without a college education. Empirical research found that knowledge and discussion of repayment options and early intervention could prevent more student loan borrowers from defaulting (Consumer Financial Protection Bureau, 2015b).

Limited research on doctoral students' experiences. Thus far, scant literature examined the factors contributing to doctoral students' financial socialization. Such lack of knowledge poses more challenges for researchers to understand how doctoral students develop their financial capability in managing their student loan debt. Surveys on graduate students indicate that although many students rely on parents or family as sources of information, underrepresented minority students relied more on others from campus, such as financial aid offices, to seek financial information in dealing with their financial issues (Denecke et al., 2016). With limited financial education that caters specifically to graduate students, media became a vital source of information for them (Denecke et al., 2016). The internet, parents/family, and university financial aid officers are the top three sources that graduate students seek information from when it comes to debt management (Denecke et al., 2016). Graduate students are interested in a spectrum of non-academic financial issues that matter to their completion of the degree on time (Denecke et al., 2016). These topics include paying fees uncovered by financial aid through several installments, schedule of expected payments, and work restrictions on funding options (Denecke et al., 2016).

In addition to financial education, an individual also needs opportunities for practice to improve financial capability (Shim & Serido, 2014). One often neglected factor embedded in the financial socialization process is an individual's socioeconomic status and the financial resources the individual has at hand to practice financial management. For example, compared with students lacking resources, students with a higher income can make financial transactions such as investments, which may further increase their interest in other financial transactions due to such exposure (Luksander, Béres, Huzdik, & Németh, 2014). This difference also emerged in the APLUS study; compared with participants from a middle and higher socioeconomic status, participants from lower socioeconomic status engaged in less informal financial education (Shim & Serido, 2011). In this vein, the analysis of a doctoral student's student loan debt experience needs to take into consideration everyone's particular context because such context sets the boundary of a doctoral student's available financial socialization resources, including financial resources, knowledge, and emotional support that helps them build financial confidence.

To conclude, the financial socialization process facilitates doctoral students' emotional, attitudinal, and behavioral changes in their financial management. Understanding the underlying mechanism of this process is necessary to make sense of the factors contributing to doctoral students' financial literacy and particularly debt literacy, which is critical to their general wellness and success both in graduate school and in life. With all the concerns mentioned above about students' financial socialization, financial literacy, and financial wellbeing, the next question is, what influence does college financial education have on doctoral students' financial literacy? The next section will give an overview of financial education in some universities that are specific to doctoral students.

Financial education specific to doctoral students. In recent years, there has been more variety in available financial education programs. For example, (1) an optional personal financial session during freshmen orientation or a seminar as a University 101 course; (2) a personal finance course offered through the business department; (3) financial advice provided by financial aid counselors; (4) campus-wide events that include different topics such as debt management, loans, and career choices; (5) an established department independent from the financial aid office that offers student money management services (Alban, Britt, Durband, Johnson, & Lechter, 2014). The most successful models recommended by financial aid professionals include interactive online programs, classroom-based programs, game-based or event-based programs, and individual counseling (Alban et al., 2014). In suggesting the utilization of financial games, Alban et al. (2014) explained that people might feel stressed talking about money, whereas games could make the education less personal or intimidating by putting the topic into the third person.

The Council of Graduate Schools and TIAA (a financial services provider) collaborated with 34 universities in the U.S. from 2012 to 2015 on the project, *Enhancing Student Financial Education*, to develop financial literacy programs to educate students with different financial needs and goals (Denecke et al., 2016). To understand how the issues of student loan debt manifest at different institutions and how to improve engagement with students in enhancing their financial literacy, the Council of Graduate Schools conducted two graduate student surveys in 2013 and 2014 across 34 institutions in the U.S. (Denecke et al., 2016). The survey found that only about 10 percent of graduate students have received any formal financial education in high school, of which the lasting impact of such education may not be clear either (Denecke et al., 2016).

Beyond the basic programming such as credit cards and essential money management, general investing and selecting employee benefits were the topics that many doctoral students were interested in (Denecke et al., 2016). Correspondingly, there has been an increasing amount of attention for financial education that addresses the needs of graduate students. The Council of Graduate School staff developed and launched a website called GradSense (GradSense.org) in 2014 to address the full range of financial issues that graduate students face before, during, and post-graduation (Denecke et al., 2016). Graduate students could find information and debt management skills through interactive tools on the website. These tools include a debt-to-salary calculator for different levels of degree, fields of study, and occupations; compound interest calculator; advice for student loan repayment; and salary data by occupation (Denecke et al., 2016). Some universities utilized resources from the GradSense website for graduate students; for example, the University of South Florida and Florida A&M University (Denecke et al., 2016).

Currently, there is no single department or division at college campuses that exclusively focuses on financial literacy education, so sustaining programs gain their traction by involving multiple potential stakeholders, including financial aid office, academic deans and advisors, career center, and alumni offices (Alban et al., 2014). Many universities incorporate topics such as money management, retirement, and insurance options in their professional development programs for graduate students (Denecke et al., 2016). To name only a few, Mississippi State University, the University of Kentucky, Iowa State University, Cornell University, and Arkansas State University all infused financial education into their Preparing Future Faculty program (Denecke et al., 2016).

Some institutions contracted out the financial education services to third-party agencies (Alban et al., 2014; Grable, Law, & Kaus, 2012). For instance, The Ohio State University collaborated with the Scarlet and Gray Financial (SGF), a national peer financial coaching program, to provide financial wellness resources for its graduate students. For universities that have specific financial education programs, they are usually housed in a specific college such as human sciences or college of business (Grable et al., 2012). Seventy-six percent of the delivery methods of these programs include one-on-one, phone, or online counseling, in addition to group methods such as seminars and workshops (Grable et al., 2012).

Some universities have also developed their websites to educate their students. For instance, Kansas State University established SALTMoney.org (Denecke et al., 2016). Some universities also develop online financial courses for graduate students. Cornell University, for instance, developed a "Ca$h Cour$e" seminar series, and Florida A&M University taught students by combining classroom workshops and online Blackboard courses (Denecke et al., 2016).

Due to the ambiguous conceptualization and evolving operationalization of the construct of financial literacy as introduced previously, programs of financial literacy education also receive criticism for their one-size-fits-all approach (Laura, 2012). For example, Laura (2012) pointed out that standardized educational programming on financial literacy "perpetuates the false impression that men and women experience economic participation, decisions, and outcomes in the same ways" (p. 177). The APLUS study showcased that male students and female students had very different financial socialization experiences and subsequent levels of financial literacy (Shim & Serido, 2014). It is understandable, then, that the different individuals' needs in terms of financial capability make it difficult and almost impossible to provide financial literacy education that suits their different financial attitudes, knowledge, and behavior. Doctoral students have specific needs of financial information and resources beyond basic money management, such as income taxes, insurance, employee benefits, and career and salary expectations (Denecke et al., 2016). Cornell University, for instance, found that their graduate students always need information and assistance in filing their federal and state income tax returns (Denecke et al., 2016).

Bay, Catasus, and Johed (2014) pointed out that instead of identifying the lack of certain character traits such as "the ability to read and write in the language of finance and accounting" (p.36), researchers need to examine the characteristics that are embedded in the notion of financial literacy, which varies across situations. For a high school student, understanding the basics of budgeting and saving might be the component of a financial literacy test, but for a doctoral student, understanding the different components and being able to conduct cost-benefit analysis by comparing different loan repayment options is what financial literacy means for their academic level. At the University of Illinois at Urbana-Champaign, financial education workshops were provided separately for undergraduate and graduate students to offer relevant information for the students' academic level. Therefore, it is critical to step back and disentangle the construct of financial literacy by examining the situations in which individuals gain this ability. In answering the research questions regarding doctoral students' loan debt experience, I asked them how and where they obtain relevant information and support in dealing with their student loan debt.

Conceptual Framework

As this research employed phenomenology as the inquiry method, and the philosophy of phenomenology involved suspending any presuppositions that may hinder the act of describing and understanding the studied phenomena (Creswell, 2013), the role of theories in this study was minimal in terms of guiding the design and data analysis of this study. Nevertheless, the following conceptual framework guided this study by providing the blueprint to understand how doctoral students develop their financial capability to manage their student loan debt while in graduate school. In addition, this conceptual framework mapped out the relationships among and the utility of relevant theories and concepts in approaching the research questions. Because the phenomenon of students' loan debt experience cannot be understood through the theories or concepts from only one discipline or one field, this conceptual framework offered a multidisciplinary perspective to analyze the phenomenon.

The conceptual framework is comprised of the developmental model of financial capability (Serido, Shim & Tang, 2013), concepts in the theory of financial socialization (Shim et al., 2010), the concepts of financial identity-processing styles (Shim et al., 2013), and the theory of bounded rationality (Simon, 1982). The following paragraphs will provide both descriptions of these theories and how they complement each other in untangling an individual's experiences with financial matters.

First, Serido, Shim, and Tang (2013) brought the concept of financial capability into the field of Human Development by introducing the theoretical framework of the developmental model of financial capability. The developmental model of financial capability is “aimed at understanding the process by which young adults learn to manage their finances and prepare for a successful transition to adulthood” (Serido, Shim & Tang, 2013, p.293). Within this framework, financial capability is deconstructed as a dynamic developmental task: first, changes in financial knowledge are associated with changes in an individual’s self-beliefs about finances, including financial attitudes towards certain financial behaviors, perceived behavioral control, and confidence in personal financial management. Next, these changes in self-beliefs about financial matters may prompt an individual to make certain financial decisions that have an impact on their financial wellbeing and overall wellbeing (Serido, Shim & Tang, 2013). The empirical research suggests that financial knowledge, financial self-beliefs, and financial behavior are embedded in a dynamic process (Serido, Shim & Tang, 2013). This dynamic process constitutes the nature of doctoral students' experience with their student loan debt. This developmental model can help develop interview questions to ask doctoral students about where and how they learn about managing their student loan debt, and to what extent are they confident and capable of managing their loan debt repayment.

This study will incorporate elements of the financial socialization process in developing questions inquiring about the context of doctoral students' experience (Shim et al., 2010). This financial socialization model provides the reference for socioeconomic factors and their relationships in affecting students' financial wellbeing. The financial socialization processes model proposed by Shim et al. (2010) suggests that socialization agents such as parents, school, and part-time work play their unique roles in students' financial learning, which shapes their financial attitudes. The financial attitudes of students, in turn, predict their financial behaviors. This framework lends a sound perspective to understand the linkages among financial socialization agents, learning processes, attitudinal changes, and behavioral changes. As discussed previously, doctoral students face many challenges during their academic program; for example, limited financial means, uncertain career prospects, and confusing repayment information. Each individuals' experience with the loan debt might be dramatically different due to their different financial socialization resources. The financial socialization model will help develop interview questions to explore more in-depth the pathways of doctoral students acquiring financial knowledge, attitudes, and behaviors that shape their experience in managing student loan debt.

Next, accompanying the theory of financial socialization are the concepts of financial identity-processing styles (Shim et al., 2013). Based on the identity theory (Erikson, 1994) and identity-processing styles (Berzonsky, 1989), Shim et al. (2013) defined financial identity as “one’s understanding and expression of who one is in relation to managing and practicing personal finance” (p.130) and proposed three financial identity-processing styles. Individuals who actively seek different options based on personal commitments or certain beliefs regarding financial management have an informational identity style; individuals who internalize or follow upon certain financial management styles and values without critical assessment are categorized as having a normative identity style. Individuals who focus on immediate, situational rewards and choose to delay commitments by avoiding identity conflicts or making informed decisions have a diffused-avoidant identity style (Shim et al., 2013). These different identity-processing styles will help participants to reflect upon their positionality in dealing with student loans. As phenomenological research emphasizes the sense-making process of individuals (Creswell, 2013), the concepts of financial identity-process styles can help prompt students to examine how they make sense of their experience managing the student loan debt, what their beliefs about money management are, and how these beliefs may shape their actual management behaviors.

In their empirical study, Shim et al. (2013) found three corresponding clusters of identity groups, and they labeled them as Pathfinders, Followers, and Drifters to reflect the abovementioned three financial identity-processing styles. Pathfinders were able to set their own financial goals and explore the best ways to reach those goals; Followers tended to follow their parents' financial styles; and the Drifters were unable to form their personal financial style but also distanced themselves from their parents' influence (Shim et al., 2013). Pathfinders exhibited more exceptional financial capabilities than the other two categories, reported more financial self-confidence, and demonstrated more positive financial attitudes and behaviors, including budgeting, paying, saving, and investing (Shim et al., 2013). On the contrary, Drifters may suffer from a higher risk of consequences from poor financial management, such as low credit scores and high credit card debt (Shim et al., 2013). Their study confirmed that many forms of active learning functioned as external socialization that differentiated students into their financial identity-processing styles. The authors stated that this called for more informal, educational activities that can positively influence young adults' financial identity development (Shim et al., 2013).

Lastly, the theory of bounded rationality in the field of behavioral economics (Thaler, 2015) will also be utilized to ask questions regarding how doctoral students react and manage their student loan debt situation. As far as doctoral students' personal financial management of debt concerns individual behaviors and available choices during their interactions with different stimuli, the theory of bounded rationality lends a helpful lens to conceive why students make certain decisions given the boundary of their experience and knowledge. The theory of bounded rationality put forward by Simon (1982) concerns decision-making and choice. The bounded rationality theory assumes that "the decision-maker wishes to attain goals and uses his or her mind as well as possible to that end,"; yet this theory emphasizes and studies the "actual capacities of the human mind" (Simon, 1982, p. 293).

The lack of knowledge in an individual's decision-making reflects a central theme of the behavioral approach to economics: bounded rationality (Simon, 1990). In other words, an individual's rational decision-making process is constrained by the knowledge and information he or she has obtained. Admitting the limitations of "knowledge and computational capacity" in individuals' decision-making, the theory of bounded rationality plays a role in individuals' evaluation of alternatives (Simon, 1990, pp. 15-16). The limitation of knowledge and information sets the boundary of an individual's perception of choices.

Gigerenzer and Selten (2002) distinguish bounded rationality from irrationality, explaining the former as optimization of results within cognitive boundaries. In contrast, examples of irrationality in decision-making include random choice by trust in lucky numbers or abnormal behavior of mentally ill individuals (p. 15). They also address the impossibility of optimization of choices if the decision time is scarce. Drawing reference to the bounded rationality theory of Simon, Kahneman (2003) introduced two concepts that relate to the cognitive decision-making process: intuition and accessibility. Intuitions, as defined by Kahneman (2003), are "thoughts and preferences that come to mind quickly and without much reflection" (p. 697). Accessibility is "the ease (or effort) with which particular mental contents come to mind" (Kahneman, 2003, p.699). The next question is, what are the factors that affect the decision-making process involving both quick preferences and the effort to obtain appropriate mental content?

Using the behavioral economics theory, Cox, Kreisman, and Dynarski (2018) concluded that the current default option of standard repayment plan plays a crucial role for student loan borrowers to choose from when they face information complexity. For borrowers who may benefit from Income-Driven Repayment Plan instead of the Standard Repayment Plan, their choice leaning to the latter (the default option) is not because the Income-Driven Repayment Plans were not offered, but because the borrowers were not able to utilize these plans due to their limited capacity in accessing or utilizing the available information.

In understanding doctoral students’ decision-making process that involves financial considerations, Nguyen (2016) found that rational decisions do not extend to all the students. Instead, students' decision-making on borrowing raised questions about the limitations of rationality (Nguyen, 2016). While rational choice theory suggested that individuals chose an option based on the rank order of utility maximization of a comprehensive list of choices (Elster, 2015), Nguyen found that some graduate students paid little to no attention to options besides either acquiring an unreasonable amount of graduate student loans or finding second jobs that lengthened their time to degree to finance their studies (2016). Some unfunded doctoral students in social science borrowed excessively without full consideration of the modest salaries the faculty career may promise, assuming they could obtain a tenure track job (Nguyen, 2016). Their decisions to temporarily borrow may be a short-sighted choice that will impose future financial strain as the doctoral students graduate. As Nguyen (2016) described, "Unfunded participants attempted to maximize their self-interest by completing the doctoral program and joining the small percentage of doctoral degree holders among the U.S. population; however, they limited their future upward mobility by behaving irrationally through excessive student loan borrowing" (p.105).

Therefore, the theory of bounded rationality in behavioral economics will help gain a deeper understanding of the seemingly irrational choices that researchers observe. The economist Richard Thaler, also the winner of the Nobel Prize in economics in 2017, argues that "supposedly irrelevant factors" play a significant role in an individual's decision-making (Thaler, 2015, p. 9). From the decision to save the money from purchasing a latte to spend on a movie with friends, to the decision to spend 10% of their annual income on an academic conference that may or may not promise certain levels of financial return, doctoral students face insurmountable choices that they consciously or subconsciously make and have implications for their financial life. The more specific question that guides this study is: what are the factors that influence a doctoral student's perception and management of their student loan debt during their doctoral program? For example, why does a student choose to enroll in forbearance instead of deferment when encountering financial difficulties in managing monthly payment, or how does a student seek advice and help when they have questions regarding loan repayment options?

Thaler challenges the traditional assumption in economics that every individual is a rational market actor that makes optimal decisions. Instead, he stresses that perspectives from psychology and other social science disciplines help acknowledge "the existence and relevance of Humans" (Thaler, 2015, p. 7). In this vein, to identify the seemingly irrelevant factors that exist in an individual's daily life is the first step to provide recommendations for behavioral change. Next, a nudge can come into play to alter the individual's behavior. A nudge, as Thaler put it, "is any aspect of the choice architecture that alters people's behavior predictably without forbidding any options or significantly changing their economic incentives" (Thaler & Sunstein, 2008, p. 6). By "choice architecture," the author meant the organization of the context whereby people make decisions (Thaler & Sunstein, 2008).

So far, limited research explored doctoral students' strategies in navigating their financial challenges during college from a behavioral economics perspective. Applying the theory of bounded rationality and the concept of a nudge in this dissertation, I developed interview protocols to explore the factors that are seemingly irrelevant and yet might subconsciously influence a doctoral student's perception and management of loan debt repayment. Their perceptions and decision-making in managing the student loan debt may, in return, have a significant impact on their whole experience during and after their doctoral program.

Taken together, the conceptual framework draws reference to the developmental model of financial capability (Serido, 2013). The development of individuals' financial capability involves the interaction of financial attitudes, financial knowledge, and financial behavior. These three elements are influenced by individuals' financial socialization and their financial identity-processing styles. Within this conceptual framework, individuals' financial socialization and financial identity-processing styles define the boundary of their financial knowledge, which shapes their rational decision-making. Their decisions made within this bounded rationality, in return, may shape their motivations, attitudes and subsequent behaviors to seek more financial knowledge, which goes back to the financial socialization and the development of their financial identity-processing styles. As such, the constructs within the conceptual framework are interacting with each other in shaping individuals' development of financial capability. *Figure 1* demonstrates the interactions among these different factors.

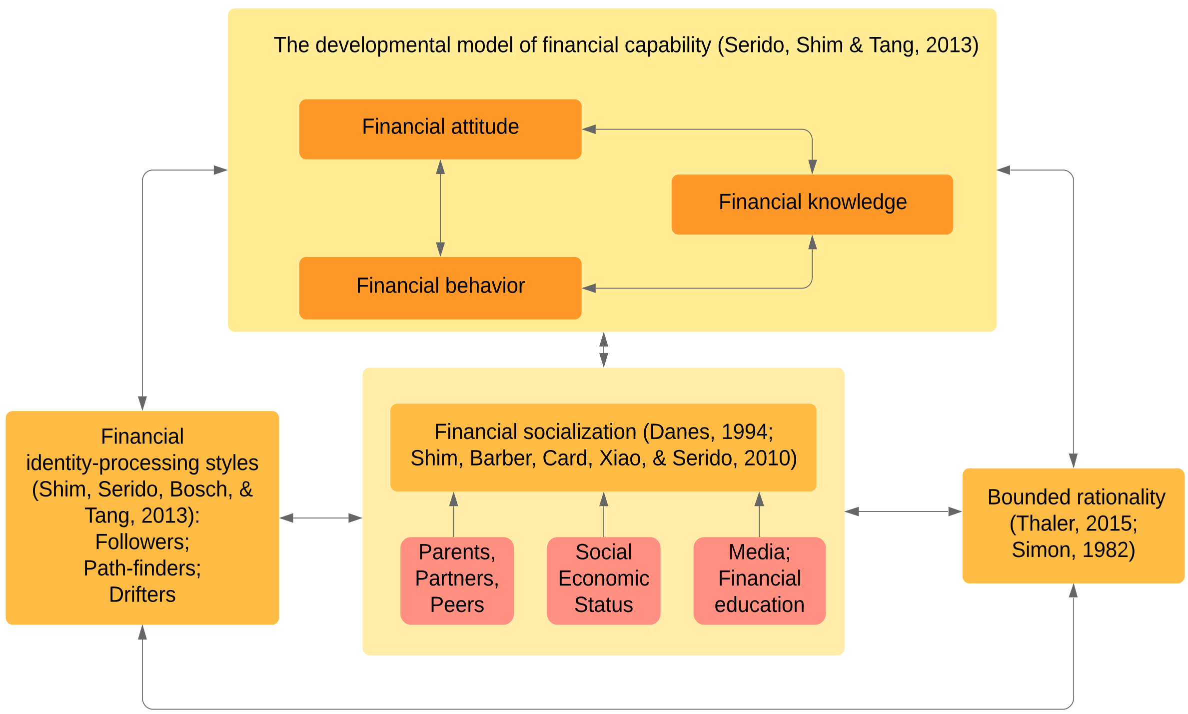

Figure 1. The Conceptual Framework.

Summary of Literature Review

In conclusion, this chapter reviewed existing empirical literature that examined the unique challenges for doctoral students to successfully manage their student loan debt while pursuing their academic program, student's perceptions and experience with student loan debt, and the characteristics of graduate students borrowing. The chapter also described the nuanced conflicts of interest among student loan servicers, schools, and students in the complicated student loan repayment system, which presents tremendous challenges to students in successfully managing their loan repayment. This review shed light upon the need to contextualize doctoral students' experience and to understand how the various aspects of their unique situation shape their experience in managing student loan debt and pursuing the doctoral program.

In terms of the conceptual framework, the developmental model of financial capabilities, the theory of financial socialization, financial identity-processing styles, and the concepts in the theory of bounded rationality complement one another in explaining the process of and the factors contributing to an individual’s reaction on financial matters that shape their unique experience. Although Hamill and Sinclair (2010) suggested that literature review in phenomenological research should not be conducted until after the data collection and analysis, to avoid the influence from preempted assumptions, these theories and concepts will be helpful to illuminate the understanding and analysis of doctoral students’ experience with loan debt and how they perceive and manage loan repayment. The next chapter will discuss the research methodology in answering the research questions.

CHAPTER 3: METHODOLOGY

Introduction

This chapter discusses the phenomenological approach employed in this study that examines the doctoral students' experience with student loan debt. As described in Chapter 1, the questions that guide the dissertation study is as follows:

- What are doctoral students' experiences with borrowing and managing student loan debt(s)?
- How do doctoral students perceive and manage their student loan debt repayments?
- What are the challenges doctoral students face in managing their student loan debt(s)?

In this chapter, I will first explain the rationale for utilizing qualitative inquiry for this study, and then the reasons for choosing a phenomenological approach. Next, I will delve into the details of sample selection for the study participants. I will describe the procedures of data analysis, followed by a section on the initial findings from a pilot study of students' experiences with student loan debt. The last two sections of this chapter will detail my role and assumptions in terms of subjectivity and positionality, including a reflection on the trustworthiness of the findings and the strategies to establish trustworthiness.

Qualitative Inquiry

Qualitative research is built upon the epistemological assumption that recognition and the creation of knowledge require a researcher to enter the field where the study participants live and work (Creswell, 2013). Researchers gather up-close information by observing and directly interacting with the interview participants (Creswell, 2014). Such contextual information allows the researcher to understand the many driving forces behind the studied phenomenon. In contrast to the positivist approach, which proposes a strict, causal effect between different variables, qualitative research holds the ontological assumption that there are multiple realities (Creswell, 2013). The methodology of qualitative research is inductive and emerging (Creswell, 2013). As this study does not aim to look for evidence to prove a hypothesis but instead seeks to understand the experiences of doctoral students perceiving and managing their student loan debt, qualitative inquiry matches both my philosophical belief in conducting educational research and the nature of the research questions. The following paragraphs provide more specific reasons for choosing qualitative inquiry as the research method.

To begin, qualitative research is conducted in the natural world and focuses on context (Marshall & Rossman, 2014). This approach accounts for the complexity of the context. It strives to draw on multiple methods to understand an issue holistically (Marshall & Rossman, 2014). Qualitative research methods surpass quantitative research methods in capturing nuances, such as an individual student's learning progress (Patton, 2015). Aimed at eliciting information that we cannot obtain from quantitative research, qualitative research seeks open-ended responses (Patton, 2015). The proposed study aims to explore the variety of factors that are related to doctoral students' experiences with student loan debt. This will be accomplished by studying their decision-making process on personal financial matters, as well as the thoughts, feelings, and reactions that drive and arise from these decisions. Qualitative research methods allow for a more in-depth analysis of the complex reality of students to fathom the various aspects surrounding their learning trajectory and experiences. For example, the dynamic between students' financial support and their interaction with faculty, peers, and family members can affect students' experiences. Limited funding, for instance, may prompt a doctoral student to seek more part-time jobs, which in return, squeezes their time to socialize with their family, peers, or professors and may impact their wellbeing. Their previous financial experiences and exposure to relevant financial information, as well as their mental health and emotional stability in dealing with challenges and seeking help, may also come into play in shaping their experiences. As such, the qualitative method is most suitable for studying the circumstances I mentioned.

Next, although theoretical development is vital in designing qualitative research, the aim of qualitative research is not to test or verify a theory (Creswell, 1994). The present study draws upon several theories in consumer finance and behavioral economics to develop research questions and is open to emerging themes in my discussion of findings. Compared with much of quantitative research studies that reduce a complex relationship into several variables and test their associations, the fundamentally interpretive approach of a qualitative research method is emergent and evolving instead of prefiguring a fixed set of assumptions and variables (Marshall & Rossman, 2014).

The field of higher education organization and policy research is dominated by positivist approaches (Pasque & Lechuga, 2016), which are insufficient in addressing issues of educational equity and social justice. The core positivist assumption holds that the effectiveness of organizations or progress will be achieved if organizational mission and ethical codes are followed (St. John, 2009). As Pasque and Lechuga (2016) critiqued, "…they (positivist approaches) fail to dismantle, deconstruct, and decolonize research practices and, in turn, the policies and programs that emanate from said research" (p.162). In the same way, I found that many positivist empirical studies were unable to capture the complex factors that contribute to students' struggles with personal finances and difficult financial experiences. Fortunately, qualitative inquiry relies on an in-depth approach to allow the participants to have their voices heard and understood, empowering, and liberating them to reconstruct social relations (Tierney, 1991).

Overall, the research questions that I intend to answer concern how doctoral students experience student loan-related issues and the factors that contribute to their experiences. A qualitative approach serves best in finding out these factors and empowering the students to articulate their experiences regarding the issue of personal finances, thus providing detailed knowledge for both scholars and practitioners to improve existing educational research and programming.

Phenomenological Inquiry as the Research Design

In terms of inquiry approaches, phenomenology is most suitable and has distinct advantages. Phenomenology, a movement that was launched in the early 20th century by philosophers such as Edmund Husserl, Martin Heidegger, and others, was later developed into a discipline and qualitative research method (Creswell, 2013). With emergent design and inductive analysis, phenomenology as a research method enables a researcher to understand the meaning of a specific issue to individuals (Creswell, 2013). The purpose of this approach is "to reduce individual experiences with a phenomenon to a description of the universal essence" (Creswell, 2013, p.76). Furthermore, through the multiple sources of data and interpretive procedures, this approach generates a holistic understanding of the underlying causes and consequences of a phenomenon (Creswell, 2013). It inquires about people’s lived experiences (Husserl, 1970), and studies the consciousness of an individual from a first-person viewpoint (Smith, 2013).

The term “phenomenology” is rooted in two Greek words *phainomenon* and *logos*, which signify the “activity of giving an account, giving a *logos*, of various phenomena, of the various ways in which things can appear” (Sokolowski, 2000, p.13). A key concept of this approach is "intentionality," which means an individual's mental or cognitive "'consciousness of' or an 'experience of' something or other" (Sokolowski, 2000, p.8) instead of practical intention. When studying research participants' intentionality towards the studied phenomena – "the convictions, doubts, suspicions, certainties, and perceptions that we examine and describe" (Sokolowski, 2000, p.48), researchers need to act as "detached observers of the passing scene or like spectators at a game" (Sokolowski, 2000, p.48), and suspend their own beliefs and judgments. This technique and process to suspend researchers' beliefs, prejudices, or perceptions in contemplating the researched topic is called "*bracketing*" (Sokolowski, 2000, p.49).

As a mathematical metaphor, bracketing "involves putting one's natural attitude to the world in 'brackets' in order to place it temporarily out of question" (Priest, 2002, p.52). In other words, researchers temporarily hold their foreknowledge of the studied topic in abeyance while eliciting information from the research subjects, minimizing their influence on the participants' understanding of the phenomenon (Hamill & Sinclair, 2010). This deliberate suspension of our natural attitude and assumptions is also called *phenomenological reduction* or *epoché*, a Greek term (Sokolowski, 2000). Based on this phenomenological attitude, it would be ideal to conduct the literature review after the data collection and analysis so that researchers would not be "foreshadowed" by the literature to ask research questions or conduct data analysis with preempted assumptions (Hamill & Sinclair, 2010).

There are two specific reasons that the current study benefits from the phenomenological lens. First, phenomenological inquiry is based on assumptions that align with the social constructivist worldview (Creswell, 2014), which entails that individuals hold subjective meanings of their experiences. Social constructivists believe that individuals develop their subjective meanings toward certain things or objects through interaction with others (Creswell, 2014). “These meanings are varied and multiple, leading the researcher to look for the complexity of views rather than narrowing meanings into a few categories or ideas” (Creswell, 2014, p.8). The current study aims to explore how doctoral students perceive and manage their student loan debt from their experiences and asks open-ended questions to allow participants to construct meanings from their experiences. Relying primarily on interviews, the phenomenological method can describe how doctoral students negotiate their subjective meanings towards repaying their student loan debt. It is impossible to account for all the factors that may directly or indirectly relate to doctoral students’ experiences in managing their loan debt repayment, not to mention the extent to which such experiences interact with their attitudes and behaviors during the pursuit of their doctoral degree. Phenomenology can thus capture the various aspects that are related to the doctoral students’ experience with their student loan debt, for example, the available information that is provided by the campus or their interactions with peers, faculty, and staff.

Additionally, the interpretive process of phenomenology requires an understanding of the "context under which the text or dialogue was being produced and to bring forth interpretations of meaning" (Laverty, 2003, p. 30). Understanding the topic of this research requires specific contextual knowledge. Only by inquiring about individuals’ context-based experiences can we better make sense of the “essence” or “invariant structure of the experience (a part of the experience that is common or consistent across the research participants)” (Johnson & Christensen, 2000, p. 317). Most previous studies focus on aggregate data of students’ debt and college access without delving into in-depth individual experiences. In this regard, the phenomenological approach perceives and describes the phenomenon “in its totality, in a fresh and open way,” and provides a complete description of “its essential constituents, variations of perceptions, thoughts, feelings, sounds, colors, and shapes" (Moustakas, 1994, p.34). Each doctoral student's experiences with student loan debt is unique due to many different contextual factors, to name only a few, their age, gender, socioeconomic status, the program of study, their life status such as being married or single, their confidence and other skills in managing their financial situation, and so forth. Accounting for these contextual differences and describing the common themes, phenomenological research design can distill the essence of research-focused doctoral students' experiences as they manage their loan debts. Asking how people from different doctoral programs experience their loan debt may inform practitioners what specific challenges doctoral students face in managing their loan debt.

My curiosity about the low financial literacy of college students propelled me to start thinking about the research questions for this study. This research aims at understanding the phenomenon of how doctoral students experience loan debt repayment and develop their financial capability. Also, the topic of this research is process-specific, and only by inquiring about students' context-based experiences can we better make sense of this multifaceted reality. The phenomenological approach distinguishes itself as "the investigator abstains from making suppositions, focuses on a specific topic freshly and naively, constructs a question or problem to guide the study, and derives findings that will provide the basis for future research and reflection" (Moustakas, 1994, p.47). As such, phenomenology can explore the intricacies of the varied aspects of context-specific social interactions without a presumptive set of variables to control. Data cannot be fully understood if they were collected from a survey. In-depth qualitative interviews with doctoral students help depict a more comprehensive picture of a complex phenomenon.

Sample Selection

Notably, one of the key features of qualitative samples is that they tend to be purposive rather than random (Miles, Huberman, & Saldana, 2014). Purposeful sampling, as the primary sampling strategy for qualitative research, selects participants who can purposefully inform the understanding of the research problem (Creswell, 2013). Many factors can play into a doctoral student's financial life and borrowing experiences, for example, the amount and stability of the student's funding sources during the doctoral program, state residential status (which determines eligibility for tuition remission in public institutions), and marital status, among other factors. Given such heterogeneity of characteristics among doctoral students, this research is likely to produce diverse perspectives on the personal loan debt experiences of doctoral students. I employed criterion sampling, one category of purposeful sampling, as the strategy to recruit participants. The following are the selection criteria.

- Doctoral students who were in their second year or above, and were currently attending a four-year public or private institution for academic research programs in the southeast area of the U.S. These programs did not include Medicine, Law, or Veterinary Medicine.
- Doctoral students who had taken out student loans in their own name to fund both their undergraduate and graduate studies and were accumulating student loan debt from both their previous and current educational degrees during the doctoral program.
- Doctoral students who were willing to discuss their experiences with student loan debt and how they manage their personal finances.

Such criterion ensures that the participants represent the population who have borrowed for both their undergraduate and graduate programs, and are still accumulating student loan debt during their doctoral program. In particular, I focus on institutions in the southeast area, as I can conduct interviews with the students face-to-face. The method of phenomenology requires the researcher to observe and describe how the interview participants relate to their experience. As such, I believe in-person interviews will prevent the loss of important information such as body language, facial expressions, and how they articulate their thoughts. In terms of the sample size, although the number of participants for a phenomenological study varies, researchers are recommended to interview about 5 to 25 people, with 10 participants as the most common number (Creswell, 2013). Initially, I planned to recruit 10 to 15 doctoral students who would meet the criterion for this study. I ended up having 18 participants, with the data collection procedure described in the following section.

Data Collection

Since phenomenological studies rely primarily on interviews as data (Creswell, 2013), the primary data collection method for this study is in-person interviews. As there exist substantial differences of borrowing among different research-focused programs (Kim & Otts, 2010), and limited knowledge about how research-focused doctoral students in different fields experience and manage their borrowing and repayment, I intended to interview doctoral students from a broad spectrum of disciplinary fields. To reach this goal, I distributed recruitment materials (including recruitment emails and flyers, see Appendix B, Appendix C, and Appendix N) through the graduate school email listserv at two universities (one private and one public) in the southeast area where I currently reside (I could not find the graduate school email listserv for the other public institution in the same area). Further, I also directly reached out to each department and colleges at the three universities and asked the graduate services coordinators in each department to send the recruitment email. To encourage potential students to participate in this study, I provided two incentives: $25 cash and a list of financial education resources that are relevant to doctoral students' management of personal finances.

This current study consists of four data collection engagements with participants: 1) email invitation and screening survey, 2) first face-to-face interview, 3) image/photo-elicitation activity, and 4) follow-up interview. First, I sent with the email invitation a brief demographic survey to recruit students who are interested in participating (see Appendix D and Appendix F). Forty-nine students emailed me with interests participating in the research. It was not until after I received several respondents' survey answers that I realized that the criterion "accumulating student loan debt from both their previous and current educational degrees during the doctoral program" was more ambiguous than I previously thought. What is more, the questions in my first demographic survey were not clear enough to elicit sufficient information to determine the eligibility of a respondent as a research participant. The following paragraphs provide a detailed explanation.

When implementing the research design, I did not ask separate questions regarding the borrowing for master's degree and doctoral degree in the demographic survey, but just had a general open-ended question asking whether they had student loan debt for the graduate degree. This caused difficulty in filtering out the participants who might not qualify for this study. The first challenge is that because the questions about graduate and undergraduate loans were open-ended where participants were asked to write in the type of loans, I received several vague written answers (e.g., "FAFSA," "Federal" or "Stafford") from which I could not determine whether their loans were subsidized or unsubsidized.

Another challenge arose as the graduate borrowing question did not distinguish between the borrowing for master and doctoral degrees. This general question caused confusion when I tried to determine the eligibility of respondents, depending on a student's borrowing situation. For example, doctoral students who only borrowed student loans for their bachelor's and master's degree(s) but did not borrow for the doctoral program could still be counted as having student loan debt for both undergraduate and graduate degrees. However, if a student only borrowed subsidized student loan debt for their undergraduate and master's degrees, they were not accumulating new debt during the doctoral programs and thus would not qualify for the study. In contrast, if a student borrowed unsubsidized loans for undergraduate and master's, and their loan status were in deferment during the doctoral program, the interest continued to accrue and was capitalized on their student loan balance when the deferment ended. As such, these students are accumulating student loan debt from both their previous and current educational degrees during the doctoral program and thus would qualify for the study.

It became more complicated to determine the eligibility because some doctoral programs did not require a previous master's degree. If a student's graduate borrowing was for such a doctoral program, and the student also met the criterion of accumulating loan debt from the undergraduate degree, then the student would qualify for the study. However, for doctoral programs that require a separate master's degree, if the student borrowed subsidized loans such as Perkins loans for the master's degree and did not borrow for their doctoral study, then the student did not qualify for the study.

In particular, this study left out one student whose borrowing situation did not meet the criteria, but her experience might be very similar to the eligible participants. During the participant recruitment process, this doctoral student who borrowed $90,000 federal subsidized student loans for her undergraduate and masters reached out to me expressing her interest in participating in this research. However, because she had not taken out any student loans to attend her doctoral program, she was not accumulating new student loan debt. Even though she shared with me that her credit card debt had increased, and the student loan debt had played a significant role in her life, I could not include her in this current study. There might be more doctoral students whose borrowing situations were similar to hers and are worthy of study.

Given these challenges, I amended the IRB protocol with an updated version of the demographic survey (see Appendix H), updated procedure explanation (see Appendix G), and an updated interview protocol with several changes (see Appendix L). Among the 49 students who expressed their interests, 23 students did not qualify for the study. I reached out to 26 respondents who met the criteria (Doctoral students who were in their second year or above and are currently attending a four-year public or private institution for academic research programs in the southeast area of the U.S. These programs do not include Medicine, Law, or Veterinary Medicine; who had taken out student loans in their own name to fund both their undergraduate and graduate studies, and were accumulating student loan debt from both their previous and current educational degrees during the doctoral program; and who were willing to discuss their experiences with student loan debt and how they manage their personal finances), and also came from diverse disciplinary fields for further interviews.

Each individual interview at the first stage lasted between 45 and 75 minutes. I asked open-ended questions through the semi-structured interview protocol (see Appendix K). The first-stage interviews started with doctoral students' overall experiences during their doctoral program and then continued to their borrowing decisions and their management of the student loan debt repayment. As phenomenological research is concerned with the context in which individuals experience the phenomenon (Creswell, 2013), the first-stage interviews hence provided the contextual background of the participants in terms of their borrowing situation and personal financial management styles.

In phenomenology, “there are no ‘mere’ appearances, and nothing is ‘just’ an appearance…things that had been declared to be merely psychological are now found to be ontological” (Sokolowski, 2000, p.15). Thus, it is equally important to consider how words, symbols, or specific topics are either present or absent as the interviewees share how they make sense of their experiences. Phenomenology compares the conscious experience to the perception of a cube, meaning that perceptions are always only partial to the whole existence, and only certain sides are visible from an individual's viewpoint (Sokolowski, 2000). Therefore, besides directly asking interviewee questions and soliciting their verbal answers, I asked participants to share one photo, sketch, or any image that they would like to produce or bring that best illustrates their experience with managing the student loan debt repayment, and how such experiences relate to their doctoral student journey in general. This image/photo-elicitation took place after the first interview with each participant. I asked them to spend about two weeks to come up with the image (either by taking a photo, creating an image on their own, or finding an image that represents their experiences), and send me the soft copy of the image/photo before the second interview. During the second interview, I asked respondents questions about the photo/image and what this meant to them (See Appendix M).

This image elicitation activity serves several purposes. First, it enriches the collected data by prompting participants to express their perceptions, both visually and verbally. Second, the visual image allows for more creative and open expression and stimulates participants to reflect upon what matters to them when experiencing the student loan debt management. Third, since the visual image was collected sometime after the first interview, this period allowed the participants to honestly reflect upon their thoughts and emotions, and clarify their ideas during the second interview.

Each second stage individual interview lasted between 30 and 60 minutes. Similar to the first-stage interview, the second interview for each participant was conducted through semi-structured interviews with open-ended questions (See Appendix M for interview protocol). The second interview mainly elicited perceptions from participants, including feelings, thoughts, and actions in managing their student loan debt, and the implications of the student loan debt for their overall wellbeing as a doctoral student. The development of the interview questions was guided by the conceptual framework reviewed in Chapter 2. Appendix A details the guiding theories and their corresponding interview questions.

Data Presentation and Analysis

One unique feature in conducting phenomenological research is to hold in abeyance the researcher's personal experiences, assumptions, values, and suppositions, which is also known as *bracketing* (Creswell, 2013). Bracketing not only helps alleviate any potential biases that researchers may unconsciously bring into the research by not acknowledging their preconceptions, but also helps researchers to keep potential emotionally challenging materials at bay (Tufford, & Newman, 2012). Nevertheless, in practice, how bracketing was carried out throughout the research process is often poorly understood (Tufford, & Newman, 2012). According to Tufford and Newman (2012), there is no consensus of when bracketing should start and end, who should conduct bracketing (the researcher, the participants, or both), and how this process should be implemented. Fischer (2009) contends that bracketing should continue throughout the entire research process of qualitative research, not only applying to the researchers' preconceptions but also their continuous engagement with the emerging findings.

In the positionality statement in Chapter 1, I described my personal experiences with managing my personal finances and why I think it is an essential topic in higher education. In Chapter 2, I summarized the potentially relevant theories and concepts in the literature review and acknowledged that the proposed conceptual framework should not bound the actual data interpretation. During the data collection, presentation, and analysis period, I took the following steps to bracket my potential biases.

First, immediately after each interview, I wrote analytical memos to take notes of my thought process of making sense of the interviewee's verbal and nonverbal language. This memoing process recorded my first impression after engagement with participants in the format of reflexive journals, and also helped me reflect on how my thoughts and presuppositions might influence the way I wrote about my engagement with the participants. In the journals, I noted my thoughts, feelings, relevant news on student loan debt that I came across during the research period, and any judgments I had toward the phenomenon. Writing a reflexive journal may help researchers to be conscious of their choices in the way they conduct the research and the way they write up their findings (Tufford, & Newman, 2012). These reflexive journals were shared with members of my dissertation committee. I hope by doing so, they can critique and ask me critical questions that help me to reflect upon how I could generate the data and present the findings in the least biased way.

Next, as phenomenological data analysis draws primarily on interview data, interviews were transcribed verbatim. Miles et al. (2014) recommend two cycles of data coding in the analysis process, described in the following paragraphs. In phenomenological data analysis, researchers first engage in *horizontalization* of the data, during which significant statements or quotes from interviewees are highlighted to describe how they experienced the phenomenon

(Moustakas, 1994). According to Miles et al. (2014), the first cycle of coding is open coding and condenses data into “prompts or triggers for deeper reflection on the data’s meanings” (p.73). As illustrated in *Table 4*, these coding methods include the following: (a) Descriptive Coding of nouns or short phrases summarizing the topic of a passage, (b) In Vivo Coding of words or phrases directly borrowed from participants' own language, (c) Process Coding that focuses on action, (d) Emotional Coding that describes interpersonal and intrapersonal emotions, (e) Value Coding concerning values and attitudes of the participants, and (f) Evaluation Coding that provides judgments from the participants regarding the worth or significance of certain programs (Saldaña, 2015).

Based on these methods and their suitability with the research questions, I employed the above six coding methods for the first cycle of coding. First, Descriptive Coding can help summarize discussions on a particular topic. Next, In Vivo Coding can record and reflect the participants’ thoughts and comments without distortion. From the phenomenological attitude, In Vivo Coding can help researchers to hold in abeyance their presumptions and let the data speak for itself, thus presenting the phenomena as they are. Also, phenomenological research holds that “consciousness is always directed towards an object” (Creswell, 2013, p.77), necessitating attention to both the subjective and objective experiences of the phenomenon. Third, Process Coding can help describe the topic when action is involved during the interview. Fourth, as the experience with loan debt may also trigger the participants’ feelings and social relations, Emotion Coding can document the individuals’ emotions in a detailed manner. In addition, this study included questions about doctoral students' values and attitudes towards particular objects, such as their educational degree, borrowing of money, Values Coding helped describe their attitudes and beliefs in this respect. Last but not least, during conversations about borrowing and repaying their loan debt, doctoral students shared their thoughts about the significance or worth of their pursuit of the degree. In this vein, Evaluation Coding helped reflect their judgments. These coding methods generated a list of significant statements that described how doctoral students were experiencing borrowing and managing their loan debts.

Table 4. Coding Methods for First Cycle of Coding.

Coding Method	Description
Descriptive Coding	Nouns or short phrases to summarize the topic of a passage
In Vivo Coding	Words or short phrases from the participant's own language
Process Coding	Gerunds to connote action
Emotion Coding	Intrapersonal and interpersonal emotions, experiences, and actions
Values Coding	Participants' values, attitudes, and beliefs
Evaluation Coding	Judgments about the merit, worth, or significance of something

Note: the table is adapted from Miles et al. (2014).

Next, phenomenological researchers group significant statements from the interviewees into "meaning units" or themes (Creswell, 2013). This resonates with the second cycle of coding - pattern coding as proposed by Miles et al. (2014), which "is a way of grouping those summaries into a smaller number of categories, themes, or constructs" (Miles et al., 2014, p. 86). Pattern codes are commonly divided into four groups: (a) Categories or themes, (b) Causes/explanations, (c) Relationships, (d) Theoretical constructs. I generated pattern codes or "meaning units" based on the initial coding summaries during this second cycle of coding.

Notably, as phenomenological researchers hold in abeyance any foreknowledge or assumptions about the topic and emphasize an open attitude towards the findings (Hamill & Sinclair, 2010), I did not use any theoretical coding during this process. Instead, I provided a textual description of "what happened" or "what the participants experienced with the phenomenon" (Creswell, 2013, p.193). Following the textual description of the experience is the "structural description" – "'how' the experience happened" (Creswell, 2013, p. 193). During this process, the researcher also includes a reflection on the context (Creswell, 2013). Accordingly, I detailed the contextual information about the doctoral students, for example, their demographic information, the program they enroll in, their learning and social environment during the doctoral program, where and how they experience the borrowing and managing the repayment.

Lastly, I incorporated both the textual and structural descriptions into a composite description (Creswell, 2013). This description detailed what the doctoral students had experienced in terms of making borrowing and repayment decisions, and how they experienced managing the student loan debt repayment while in graduate school, along with the contextual background to explain the phenomenon. At the heart of this section is a description of the "essence" of the lived experience of doctoral students who borrow and are managing the repayment of student loan/debt.

During the data analysis, I took notes within the transcripts. Notes are a useful tool because they hold "the researcher's fleeting and emergent reflections and commentary on issues that emerge during fieldwork and especially data analysis" (Miles et al., 2014, p. 94). During the note-taking process, details that need to be taken into consideration include cross-references to other materials, personal reactions to interview data, inferences, and explanations of participants' remarks (Miles et al., 2014). What was of particular help were the reflexive journals I wrote down after the interview during this process. When coding each transcript, I went back to read the journals and refresh my memories, which helped me to include the details that I might easily forget.

In terms of data interpretation and presentation, phenomenological researchers usually provide a textual description of what happened and then describe how the research subjects experience the phenomena in a structural manner, which leads to an understanding of the essence of their experience (Creswell, 2013). Accordingly, I first described what the doctoral students perceive had happened to them in terms of borrowing situation, and then asked them to describe their experiences in terms of managing the repayment and borrowing. After this, I summarized the common themes as a distillation of the essence of their experience.

During data collection and analysis, I used the software Dedoose, which is a web-based application that integrates data in multiple forms. The software supports coding analysis on imported transcripts.

Pilot Study

In 2016, I conducted a pilot study to understand students' decision-making process in taking out federal and/or private loans to finance college. The Institutional Review Board at the North Carolina State University approved interviews for this study (Protocol No. 6703, approved on March 29, 2016). I interviewed seven graduate and undergraduate students through a snowball sampling technique, with the following selection criteria:

• Either graduate or undergraduate students currently attending an institution of higher learning

• Have taken on loans to pay for their education

• Are willing to discuss the process they followed in determining to apply for loans, going through the application process, and now using the loan to pay for their education.

I requested interviews by asking friends or the interviewees directly. From April 4, 2016, to Nov 7, 2016, I conducted seven individual interviews. Two students were enrolled in a doctoral program, three were in a master’s program, and two were in an undergraduate program. Each individual interview lasted from 40 minutes to 100 minutes. Three of them were conducted in the library study rooms, two were conducted at the room reserved in the student center, and one was conducted at the office where the part-time graduate student worked on campus.

Seven interviews were transcribed verbatim. Using emergent coding and theoretical coding, I identified some of the themes and their relationships and developed the discussion based on these themes. Also, I conducted a field observation at the Free Application for Federal Student Aid (FAFSA) Assistance from the Office of Scholarships and Financial Aid on February 5th, 2016.

The analysis is based on the theory of bounded rationality. Findings included the following: a) students apply to Federal Direct Loans to finance their college program with limited knowledge and resources from institutions, loan servicing contractors, and their family; b) students show minimum concern about payback plans and mainly focus on schoolwork; c) the phenomenon of procrastination and partial naiveté of students is situated in the broader social context whereby student loan servicing contractors are unable to provide adequate customer service; and d) there is a culture of avoidance in talking about and directly dealing with student loans/debts among students. On the one hand, student loan servicing companies need to enhance their communication with student loan borrowers. On the other hand, students themselves need to be more proactive in seeking financial information. Specifically, more consultation for first-generation students and students from minority backgrounds can help them better manage their personal finances.

These findings are consistent with much literature on college students' financial literacy. Moreover, the qualitative approach allowed me to see the many factors that underlie students' low financial literacy and reaction to loans/debts. For example, students' fear of managing their debt reminds me that issues of financial literacy and socialization are as much about psychological concerns and lack of confidence as they are financial problems. Students share their complaints about loans yet are unable to seek relevant help that is effective for them to manage the loan payment. Also, students' procrastination and inertia to manage their personal finances speaks to the need for intervention programs from the university.

The current situation would be different if the university could leverage existing resources to raise students' awareness of personal financial responsibility. Even a slight alteration in students' decision-making, such as checking their loan accounts more often, would increase their attention to improve their financial wellbeing and satisfaction. The pilot study made me realize that the more urgent need for higher education institutions to enhance financial education, career counseling, and provide intervention to improve the financial literacy of students.

Nonetheless, the pilot study is constrained by its limited scope and number of interviewees in a single case. There were only two doctoral students who participated in the interview; they nevertheless had much more to share in comparison with the master and undergraduate students. This made me wonder whether how doctoral students manage their personal finances might be different from undergraduate students. The proposed study will exclusively focus on doctoral students' loan debt experience to provide a deeper understanding.

Researcher Role and Assumptions

Subjectivity. Subjectivity, according to Louis and Barton (2002), "refers to the life experiences that researchers have had as well as the social, cultural and political factors that influence an individual and how those experiences and factors contribute to biases and assumptions in the type of research that researchers choose to engage in" (p.3). From this perspective, my undergraduate training in financial journalism, especially investigative journalism, influences my approach to answer a research question. I enjoy interviewing people and learning about their life experiences. This has an enormous value to my qualitative approach, whereby I will interview participants and distill themes from the perspectives they share.

My master's degree in an interdisciplinary liberal arts program provided me with the training that inculcates holistic thinking. I was able to take courses in different disciplines: public policy, sociology, political science, and literature. Diverse perspectives lead to different research topics, which further lead to various methodologies. With this broad exposure, I gradually came to believe that researchers need to be problem-based and pragmatic, combining both theory and practice. Be it qualitative or quantitative, sociology or economics, models or theories, what matters to me, as a student who cares about social equity and justice, is this: what are the underlying causes of the social issues and phenomena we see, who is involved in the intricate causal mechanisms, and how does insight on various phenomena inform stakeholders?

Positionality. My position in conducting this dissertation and passion for financial education is related to my personal experience in lacking financial knowledge to manage my finances. Budgeting and saving, for example, were not the concepts that my parents taught me growing up. As an only child growing up in a working-class family, I was taught to study hard and to gain good test scores so that I could attend a good school, after which I would be guaranteed a promising job. It never occurred to me that personal financial management was necessary. During my master's program, I did not know that I should check my monthly bank statement until, at one point, I realized there was a bait-and-switch company withdrawing monthly fees from my checking account. This happened for more than a year, even though I did not intend to subscribe to their service.

During the first year of my first full-time job, I spent almost my entire paycheck buying groceries, handbags, and clothes and inviting friends to parties at my home. After two small car accidents in the parking lot, I had to swipe my parents' credit card to pay for the repairs for my vehicle and both of the victims'. If I had internalized the idea of saving and budgeting and developed such habits earlier, I could have made fewer mistakes, and been in a better financial situation without placing an extra burden on my parents.

When I started dating my now-husband, I began to appreciate how he managed his budget and savings through excel tables. For him, it seems natural and necessary to have such a skill. Enrolled in graduate school now, I have been confused by tax forms, insurance plans, and find it difficult to save with a limited monthly stipend. The graduate student fees each semester, in particular, were a challenge for me, and I have had to ask family for financial support.

As an international student, I tend to view my position as an outsider to the student loan application and debt repayment experience in the U.S. as a strength to my research. Although my lack of experience with the American student-loan system may require me to conduct additional research into the types of student loans and their administrative procedures, I believe that this gives me a fresh perspective. The length of my interviews with study participants may be longer as I seek to understand their perspectives, but the interviews may yield questions that might have been overlooked by a researcher that is more familiar with the American student-loan system. Thus, some unquestioned assumptions may appear questionable to me, and further examination of these assumptions might lead to different answers to the research questions. Second, having no experience with student loans allows me to be unbiased in the sense that my emotions or personal experience will not lead my judgment and questioning. Given the growing student-loan activist movement, I can ask questions that help improve the understanding of students' experience with loan and debt services.

To me, financial knowledge is an essential skill necessary for an individual to survive and thrive in a modern consumer society; without it, any education that claims itself to be an equalizer would be a piece of emperor's clothes that deceives only the person who wears it. As I continue to research, I wonder about doctoral students' experiences with their student loan debt. What are their perceptions, how are they reacting to their financial situations, and how do their reactions interact with their pursuit of the academic program? With such questions in mind, I hope the findings of this research are not conclusions, but the beginning of discussions to improve educational programming and aid doctoral students' success.

Trustworthiness

Qualitative research uses four primary criteria instead of the positivist approach of reliability and validity to determine the rigor of the research: credibility, dependability, confirmability, and transferability (Guba, 1981; Lincoln & Guba, 1985). These four criteria serve as benchmarks for the current study to ensure the trustworthiness of the research. The following four subsections will describe the research strategies to uphold its trustworthiness for each criterion.

Credibility. The credibility of qualitative research is compared with the internal validity in the positivist approach (Shenton, 2004). From a qualitative research perspective, validity refers to the degree of alignment between the researchers' accounts and the studied reality (Eisner & Peshkin, 1990). Member-checking, namely the process of sharing emergent findings and interpretations from the researcher with participants for verification, can be used as a strategy to ensure that the data analysis correctly reflects the participants' shared information (Lochmiller & Lester, 2015; Shenton, 2004).

I shared the interview transcripts and the draft of findings with all participants (except for one whose email bounced back) after the writing process so that they can help clarify understandings or misunderstandings and provide additional comments on the phenomenon. I was encouraged when some participants replied to me saying that the interviews helped them to reflect upon their experience. One participant pointed out a mistake I had recording her loan amount, and I made respective changes. One participant replied to me with additional details about his recent diagnosis of ADHD and explained that one of the traits associated with ADHD was poor financial management. He added that after reading through the findings, he did not feel misrepresented at all.

Additionally, several other doctoral students replied to me with their updates in terms of job search. One of them shared that it was an eye-opening experience for her to participate in this research. This member-checking process helped me gain clarification and more details about their experience.

Furthermore, a researcher needs to spend sufficient time engaged in the field to avoid a snapshot view of the phenomenon (Krefting, 1991; Lochmiller & Lester, 2015). As described earlier, I conducted two interviews with each participant, and there was at least a two-week window between the first and the second interview with each participant. For the second interview, I asked whether their perspectives had had any changes. This helped me assure that I had spent enough time engaged in the field.

Another common strategy to establish credibility is triangulation (Creswell, 2013). I employed the strategy of triangulation of multiple sources during data collection (Creswell,

2013) to guarantee the validity of the current study. Triangulation requires a close examination of data and location of convergences among more than three different perspectives/sources (Pierce, 2008). As this study elicited data from participants through both verbal communication and visual image representation, I looked for corroborating information that supports the convergence of themes. Equally important, as the present study engages with students from different disciplinary fields, interviews with them yielded a wide range of views. I triangulated these views against each other to depict the essence of doctoral students' experiences with loan debt and how these experiences affect their life.

Dependability. Dependability in qualitative research is similar to reliability in the positivist inquiry. Reliability is "the extent to which we can rely on the source of the data and, therefore, the data itself" (Pierce, 2008, p. 83). A useful metric to measure the extent of reliability is the consistency of data (Pierce, 2008). Likewise, dependability in qualitative research also concerns whether the findings would be consistent if the research is replicated (Krefting, 1991). Nonetheless, as the field of qualitative setting may involve unexpected and extraneous variables that complicate the studied context, consistency means the variability found in replication could be tracked and explained by identified sources (Guba, 1981). The goal of consistency is not to achieve the same findings but to replicate the same methods and explain the variability (Krefting, 1991; Shenton, 2004).

To establish dependability, I employed an audit trail throughout the research. An audit trail is developed in the form of a running document that details the data collection and analysis (Guba, 1981). In the current study, this audit trail is in the form of an array of running Google documents that included details of data collection, for example, a list of all the departments that I reached out for recruitment, interview location, interview date and time, the respondents' demographics, the materials for initial IRB application and IRB amendment. I shared this process of the data collection with my dissertation committee chair throughout the study period, and she acted as an “external auditor." Another strategy is to practice reflexivity by keeping a continuing journal to take note of retrospections (Guba, 1981). During the data collection, analysis, and writing up process, I kept a reflexive journal to note my thought process, how I interpreted the data, and my reflections about the findings.

Confirmability. Confirmability concerns the neutrality and objectivity of the qualitative inquiry (Guba, 1981). To put it differently, the question that needs to be addressed here is how the researcher can confirm that the findings are not influenced by “potential biases, motivations, interests, perspectives, and so on of the inquirer” (Guba, 1981, p. 80)? Triangulation can be one strategy to uphold the confirmability (Guba, 1981). I shared the interview audio recordings, transcripts, collected images, and my memos with members of the dissertation committee after the data collection. One member of the committee, Prof. Joanne Caye, shared with me her initial impressions upon reading several transcripts, which were very much similar to the themes I wrote in the findings chapter. This process gave me more confidence in terms of holding up confirmability. Besides, peer debriefing can help clarify research steps and reduce biases during the research process (Lochmiller & Lester, 2015). During the coding process, two fellow doctoral students at the College of Education helped me with peer-coding. One of them coded selective transcripts independently, and we compared and discussed our coding results. The other one provided me with feedback and questions after examining my coding analysis. This process helped me make sure that my analysis was sound to a third-party researcher.

What is more, “practicing reflexivity" (Guba, 1981, p. 87) helps reveal the epistemological assumptions underlying the researcher's research questions, interpretation, and presentation of the research findings. Guba (1981) mentioned that one indispensable technique is journaling. Accordingly, I kept journaling throughout the data collection, analysis, and writing process to help me reflect upon the research process, and how my worldview and epistemological assumptions interact with the implementation of the research.

Transferability and analytical generalization. Transferability is compared to external validity or generalizability in a positivist approach (Shenton, 2004). Transferability denotes the extent of fit or applicability of findings from the context of a given study to a comparable context if the contexts are similar (Krefting, 1991). To ensure transferability, readers need sufficient information regarding participants and settings to determine the extent of relevance of the findings to other settings (Salter, Hellings, Foley, & Teasell, 2008). Analytic generalization requires a researcher to discuss findings within a broader context and suggest the future direction of research based on such analysis (Salter et al., 2008). To provide detailed accounts of the contexts, researchers can utilize thick descriptions for readers to understand the various aspects of the context (Geertz, 1973).

To accumulate these thick descriptions to provide sufficient contextual information, I provided detailed accounts of the findings. I gathered information regarding students' funding sources, demographics, life situations that may have implications for their financial decisions, and materials that are related to financial education. Such rich information helped provide a complete picture of the specific context in which they construct their experiences.

Chapter Summary

In conclusion, this study utilized a qualitative phenomenological approach to inquire about the experience of doctoral students with student loan debt. This chapter first explained the rationale for using this particular qualitative approach, which would help shed light on how doctoral students develop financial capability during their program to manage their personal finances, including their student loan debt. Next, this chapter detailed the research procedures during data collection and analysis, presented the preliminary findings from the pilot study, and discussed the researcher subjectivity and positionality. Finally, I described the steps taken throughout the research to ensure the trustworthiness of the study. This description of trustworthiness focused on the four aspects of qualitative research: credibility, dependability, confirmability, and transferability. The next chapter will delve into the findings of this dissertation study.

CHAPTER 4: FINDINGS

Introduction

This chapter presents the findings of this study. Before delving into each theme, I will give a brief description of the participants' demographic characteristics. Next, findings are structured based on six overarching themes and their corresponding subthemes. The themes include: students struggle to survive during graduate school with funding and academic challenges; students exhibit limited capability in managing their student loan debt; students have limited resources available to effectively manage student loan debt; student loans are a double-edged sword; student loan debt constrains the students' future plans; and some students are confidently managing their student loan debt. Within each theme, several subthemes describe the various aspects of the doctoral student's experience.

What is worth noticing here is that although doctoral students' experiences in graduate school are difficult, the challenges described in this section can only be viewed as factors contributing to the context shaping the participants' experiences. The lives of doctoral students are complex with a variety of stressors, and finances are part of this complexity. However, experiences with the student loan debt are in and of itself a vital element that interacts with their overall experiences in graduate school. As such, the first theme presents the challenges that doctoral students face in graduate school and help readers to contextualize doctoral students' experiences. A caveat to keep in mind is that the first theme is about context rather than their particular experiences in managing student loan debt. The five themes that follow this first theme set aside the general context of graduate school and focus on the essence of their lived experiences with the student loan debt. *Table 5* presents each theme and their subthemes.

Table 5. Organization of The Six Themes.

Theme	Subtheme
Students Struggle to Survive During Graduate School	• Funding challenges • Compounding debt during the doctoral program • Compromised wellbeing from multiple stressors
Students Exhibit Limited Capability in Managing Student Loan Debt	• Limited financial knowledge • Negative financial attitudes • Limited action
Students Have Limited Resources to Manage Student Loan Debt	• "Perfunctory" financial advising from the university • Limited help from loan servicer • Limited conversation about student loan debt management • Skewed reports from media
Student Loans are a Double-edged Sword	• Regret about past uninformed borrowing decisions • Student loan debt prevents social mobility • Pandora's box of emotions makes students more isolated • Evaluating the worth of their degree
Student Loan Debt Constrains Future Plans	• Career constraint • Delayed milestone life decisions
Some Students Confidently Manage Their Student Loan Debt	• Math as an important element for personal finance • Proactively managing student loan debt • External financial management resources • Supportive relationships • Financial resources • Communication as an important skill

As *Table 5.* shows, the first theme describes doctoral students' general graduate school experiences. While pursuing the degree, doctoral students face many financial strains due to funding challenges. In addition to borrowing student loan debt, they also have many other forms of consumer debt. With both funding and academic challenges, their wellbeing was compromised because of multiple stressors. Within such a context, their capability in managing the student loan debt is very limited, which is demonstrated in three dimensions: their limited financial knowledge, their negative financial attitudes toward the student loan debt, and their limited action in debt management. Meanwhile, doctoral students have minimal resources available to effectively manage their student loan debt, which is the third theme. Doctoral students shared their challenges to obtain helpful information from the university, their loan servicer, and the media. In addition, conversations about general money management, let alone student loan debt management, rarely took place around them. The fourth theme describes the double-edged effects of student loans. On the one hand, the student loans enabled the students to pursue their educational degrees; on the other hand, they find themselves trapped by the student loan debt in terms of climbing up the social ladder. Moreover, the burden of student loan debt made them feel isolated and lonely. Some of the doctoral students also shared their evaluation of the worth of their degree when the cost of borrowing increased. The fifth theme focuses on the constraining effect of the student loan debt on doctoral students' career pursuit and milestone decisions in life. The sixth theme presents the counterstories of a few participants who showed confidence in managing their student loan debt.

Participant's Demographic Information

Although I reached out to three universities (one private and two public) to recruit participants, all 18 participants were from public universities, with ten studying at a land-grant public research university and eight from another flagship public research university. During the recruitment process, several department coordinators from the private university replied to me by stating that their program was fully funded so their doctoral students would qualify for this study. Among the 49 students who emailed me expressing their interest in participating in the study, only eight were from the private institution, and only four were qualified as having been accumulating student loan debt from college. Among them, two students were in their first year (one criterion was that "Doctoral students who were in their second year or above"), and another two eligible students were not able to participate due to their personal commitments.

Among the interviewees, there were 14 female and four male students. Seven of them explicitly mentioned that they were first-generation college students and did not have much knowledge in terms of navigating the borrowing landscape. Eleven participants were white, six participants were African American, and one participant was Asian. In terms of the program of study, nine participants were in the field of education, three participants were in the field of epidemiology, two participants were in the field of psychology, one participant was in nursing, one participant was in English literature, one participant was in math, and one participant was in physics. *Table 6* provides the descriptive information of the 18 participants.

Table 6. Descriptive Information of Participants.

Name	Program	Year	Gender	Race	Total student loan debt
Jeffrey	Education	4th	M	African-American	$50,000
Heather	Education	2nd	F	White	$50,000
Sunny	Education	2nd	F	Asian	$60,000
Fiona	Education	2nd	F	African-American	more than $77,000
John	Education	3rd	M	African-American	$130,000
Zoe	Education	2nd	F	White	$85,000
Debra	Education	2nd	F	African-American	$94,000
Susan	Education	3rd	F	White	$150,000
Carrie	Education	8th	F	White	$200,000
Maggie	English literature	6th	F	White	$30,000
Ev	Epidemiology	2nd	F	African-American	$60,000
Lauren	Epidemiology	5th	F	White	more than $150,000
Janet	Epidemiology	2nd	F	White	$49,800
Maria	Math	2nd	F	White	$22,500
Irene	Nursing	2nd	F	White	$80,000
Andy	Physics	5th	M	White	$100,000
Abigail	Psychology	3rd	F	White	$50,000
Lucas	Psychology	4th	M	African-American	$51,500

Next, all participants had been accumulating student loan debt from their undergraduate and graduate programs during their doctoral program. The total accumulated loan amount for each participant ranged from $22,500 to $200,000. Because the question about loan type in the demographic survey was open-ended, the answers received were limited by the participants' knowledge. Many participants did not remember their loan types and the exact amount for each degree. Only six of them were in active repayment of their student loan debt (five were in active repayment for the private student loan debt, and one was in active repayment on the interest of the federal loan debt). Nevertheless, most of them were able to provide the total amount they had been accumulating. *Table 7* provided details about the participants' student loan debt.

Table 7. Information about Participants' Student Loan Debt.

Name	Undergrad	Master (if)	Doctoral	Total amount
Jeffrey	federal subsidized and unsubsidized $30,000 (principal)	federal unsubsidized $10,000 for 2nd master's (principal)	federal unsubsidized	$50,000
Heather	federal subsidized/Stafford $20,000 (accumulated)	federal Grad Plus $10,000, private $20,000 (principal)		$50,000
Sunny	federal subsidized $10,000, federal unsubsidized $20,000 (accumulated)	federal unsubsidized $30,000 (principal)		$60,000
Fiona	federal subsidized $2,000 (principal)	federal unsubsidized $75,000 (principal)		more than $77,000
John	federal subsidized and unsubsidized $20,000 (accumulated)	Stafford Direct subsidized and unsubsidized $60,000 (accumulated)	Stafford Direct $40,000 to $60,000 (accumulated)	$130,000
Zoe	2 private loan and federal $75,000 (accumulated)		federal unsubsidized $10,000 (accumulated)	$85,000
Debra	federal subsidized $6,000 (principal)	federal unsubsidized $80,000 (principal)	federal unsubsidized $8,000 (principal)	$94,000

Table 7 (Continued).

Susan	CFI college loan $11,000 (accumulated)	Grad Plus and Stafford unsubsidized $80,000 (principal)	Stafford unsubsidized $40,000 (principal)	$150,000
Carrie	federal Parent Plus, subsidized and unsubsidized $50,000-65,000 (principal)	federal subsidized and unsubsidized $178,832 (accumulated)		$200,000
Maggie	subsidized	subsidized and unsubsidized	unsubsidized $12,000 (principal)	$30,000
Ev	Perkin's direct subsidized and direct unsubsidized $12,000 (principal)	Direct Plus $40,000 (principal)	Direct Plus	$60,000
Lauren	private, federal subsidized and unsubsidized federal $75,000 to $100,000 (principal)	federal unsubsidized		more than $150,000
Janet	private $7,000; federal subsidized $16,000 (principal)	federal subsidized $72,000 (principal)		$49,800
Maria	federal subsidized $14,000 (principal)		federal unsubsidized $8,500 (principal)	$22,500
Irene	consolidated $8,000 (accumulated); federal subsidized and unsubsidized $20,000 to $30,000	federal subsidized and unsubsidized $40,000 to $50,000 (principal)	private Salle Mae $3,600 (principal)	$80,000
Andy	private $15,000, subsidized $65,000 (principal)		private $7,000-8,000 (principal)	$100,000
Abigail	private $12,000, federal unsubsidized and subsidized mixed $33,000 (principal)		federal unsubsidized $5,000 (principal)	$50,000
Lucas	federal subsidized $3,000; unsubsidized $4,500 (principal)	federal unsubsidized $44,000 (accumulated)		$51,500

Students Struggle to Survive During Graduate School

Doctoral students' experience with student loan debt is part of the larger context in which they are pursuing their degrees with limited funding and time. As such, the first theme provides the contextual background that shapes their borrowing decisions and management of student loan debt. Doctoral students' challenges during graduate school are multifold. These challenges range from "below poverty level" stipends, unaffordable student fees, and funding uncertainty to administrative challenges about reimbursement for professional development. To cope with this reality, some doctoral students take on more credit card debt in addition to borrowing student loans, and some of them also take on multiple part-time jobs to gain side income.

Funding challenges. For participants with funding, the assistantship stipend seemed insufficient for most of them during graduate school. Heather, who is a non-traditional doctoral student with a mortgage, complained that although graduate school covers the tuition and insurance, the stipend is very low. "I mean it's below poverty level," she described. In order to make mortgage repayment and other bill payments, she was put "significantly in debt." She felt that even without the mortgage, she would not be able to manage to live off only her stipend. Heather also said of her income, "it's not, it's not a living wage."

Debra, whose assistantship was $13,000 a year, was on food stamps because her stipend was not enough to cover rent and other bills. She had to borrow student loans as an emergency fund to cover unexpected expenditures. In comparison, Ev was not as lucky in terms of getting food stamps to subsidize her income, "I know I could potentially apply for SNAP (Supplemental Nutrition Assistance Program) benefits, but in order to be eligible for those, I would need to be working 20 hours and technically I only work 15 hours in my job here." Ev used some of her savings for the first year and had to take loans in the second year of her doctoral program. As she put it, every month she spends more than she earns.

With limited income, more than half of the participants (Lucas, Maggie, Heather, A, Maria, Jeffrey, Lucas, Andy, Lauren, Ev) explicitly mentioned that they had to take out student loans to pay student fees during the doctoral program. Andy said that his biggest challenge when he entered the program was student fees:

> It took a lot of money to move here. That's [student fees] a really big upfront cost. I didn't really know how to handle. There have been times where like funding has changed and I've gotten incredibly stressed about making sure that I will have funding.

As a result, Andy borrowed a private loan to cover the student fees for the first three semesters of his doctoral degree. He also felt that his financial situation was difficult because he did not have any rainy-day funds.

Maria calculated that after paying student fees and taxes, she made a little less than $13,000 a year, which was not a "livable" wage. If not for her student loans, "it would literally be me wanting to live paycheck to paycheck." If there were no student fees, she would not be borrowing student loans during the doctoral program: "you have to pay it [student fees] upfront, which is the worst part. Especially like if you just came from a summer of not having any job, how do you pay that?" She also knew a lot of her peers in the math program who took part-time jobs like bartending or waitressing on the weekend to make a little extra money. She was aware that her program director was "doing everything he can to talk to people and to get us more money," but "the school is just very, very stubborn about that, and it's hard."

For those who do not have stipends due to funding absence or uncertainty, money troubles could be even tougher. For example, Lucas was stressed when he was not funded for a semester and had to figure out ways to pay for the fees and tuition. As a consequence, borrowing was almost inevitable for him. He viewed the borrowing of student loan debt to cover the lack of funding for the doctoral program as an "extra layer of roughness." He also felt that not being able to pay for the doctoral program makes the experience of the program, which was already tough, a little bit "denser."

Several more participants shared with me their stress due to funding uncertainty during the interview. For Heather, between the first and second interviews, she learned that her Teaching Assistant position was going to be cut in the following academic year, which meant that she would not have funding for the following year. This also happened to Fiona, who was not sure whether she could still have her TA-ship for the following year. For Jeffrey, he thought that he had funding for four years before enrolling in the doctoral program, only to find that the funding was guaranteed for just two years. For Susan, she did not know that she would not be funded until after she had quit her job and enrolled in the doctoral program. As a result, she had to borrow for her first-year doctoral study. For Abigail, even though it was in her contract that funding would be provided, she was not sure whether the department would have the funding for another TA position for her.

The lack of funding also meant limited professional development opportunities for some doctoral students. As Jeffrey described, "debt is always cumulative…It just makes me more hesitant to probably pursue some opportunities that I could be interested in or I would love to do, but I know that, it's kind of the needs versus want thing, right?" Similarly, Fiona also became reflective of the expenses associated with academic conferences. She felt that the lack of funding caused her to feel the tension and pressure of fighting for funding. In her doctoral program, students had to do an unpaid practicum, which made her feel that a student had to "have some kind of financial privilege to enter into that program." For Susan, who is committed to not borrowing more student loans, lack of funding meant that she had to do a cost-benefit analysis to make a decision regarding attending conferences. As she described: "is it worth it for me to go, am I presenting, do I need to be there? … I skipped our big conference this year because I wasn't presenting. I didn't feel like it was worth it for me to go this year."

For many participants, during their doctoral program, summertime is also challenging. Maria, for example, had to borrow student loans as a cushion during summer because summer funding was not guaranteed. Similarly, Abigail understood that less work led to less pay during summertime, and she felt the arrangement could have been better, "because my bills don't change just because it's summertime." For Debra, whose assistantship is nine-month, she could not take summer school to finish on time.

Another less obvious challenge for doctoral students is obtaining school reimbursement for professional conferences. According to several participants (Maggie, Irene, and Sunny), it is an unwritten rule that they have to charge costs such as plane tickets, accommodations, and registration fees to their personal credit cards first. Sometimes it can take a semester for the school or department to reimburse that money, during which the accumulated interest on their credit card will have to be paid. As Irene stated:

> Can I really save up $2,000 to do this conference with the promise of potentially getting reimbursed? Or do I put that on my credit card? And then if I put this on my credit card, it's not like it just is there and there's no interest. There's interest on that. So you're reimbursing me $2,000, but that two months that I had to wait were two months that, that accumulated interests on my credit card.

Irene felt that such an arrangement and the reality of student loan debt repayment was a constraint in submitting abstracts or attending conferences to develop her professional network.

Due to the multiple challenges described above, for all participants, borrowing student loan debt seemed an inevitable choice. Heather described that borrowing for both undergraduate and graduate degrees was unavoidable:

> I could take on the debt and get the degree, or I could not take on the debt and not get a degree. I'm a little boneheaded, so I wasn't gonna not get the degree. So, I figured deal with today what I can deal with today and then, let the rest come.

Heather was hoping to have a higher income after she graduated from the doctoral program, but when her research area changed, she said that potentially she would be making just as much as she was making before she entered the program.

For Irene, while she felt she had grown wiser and more cautious about taking out loans, it was still a struggle for her because sometimes she needed the money to live on or pay tuition. She felt that she did not know of another option. For Susan, even though she knew that she had to borrow much more loans in her master's program than college, she felt it was inevitable. For Carrie, borrowing for college, master's program, and doctoral degree seems inevitable regardless of the interest rate. She felt that she was "trained to not be thinking about that [interest]." As a result, she took all the loans offered when she was a full-time student. As she later changed her status to working full-time and studying part-time, she stopped borrowing more student loans during the dissertation stage and felt "more cognizant and way more aware and interested in the difference" because she had the financial means to choose not to take a loan.

Compounding debt during the doctoral program. Limited funding also forced doctoral students to borrow more loan debt. Many participants have consumer debt as well. For example, Maggie only borrowed federal student loans to cover student fees during her doctoral program. She was cautious and wanted to borrow only what she needed. She used her credit card to cover professional development expenses until reimbursement. When asked about the pros and cons of using a credit card, she said she simply did not have the time to meticulously plan ahead before each semester when applying for the student loans. The credit card is more convenient. Also, she felt that she always prioritized paying back credit card debt. Her explanation is very telling, “It would just require so much advanced planning…I have so many other things to think about. Like I guess if I had nothing else to do …(laughing).” For Maggie, multiple priorities prohibited planning for the future. Instead, she has a higher interest rate for part of her debt, which exerts more pressure for repayment.

After Jeffrey finished his undergraduate degree, he only had student loan debt. During his doctoral program, however, he had a car loan and credit card debt. For Ev, the second year was tough financially, and she had to manage all different bills, “I know like me and a lot of the other students that I talked to, we're living off of credit cards and things like that.” She has car loans to pay and is also accumulating credit card debt. For Carrie, she used credit cards to cover many other expenses, including moving costs for herself and family, medical visits, and a car loan. She planned to first pay off all non-student loan debt before her student loan repayment period began. As such, she also tried to plan her graduation date accordingly. Carrie was nervous that she would not be out of the immediate debt that she was in. She also did not have enough money to build up savings and have enough money for emergencies.

Multiple interviewees (Carrie, Greg, Maria, Ev, Fiona) also expressed fear of unexpected emergencies. In between her first and second year, Ev needed a major dental procedure but did not have dental insurance, so she had to borrow loans to cover the expenditure. She said, “if there are some kind of mysterious emergency, I wouldn't be able to really manage it or like it would be a lot of stress to get around."

Compromised wellbeing from multiple stressors. Doctoral students are also faced with multiple stressors, including part-time jobs, heavy workload from the doctoral program, and uncertainty in future job searches. Several participants (Lauren, Maggie, Jeffrey, Lucas, Abigail, Sunny, Irene, Zoe) shared that they had side jobs to pay for their expenses, which added stress. For instance, Maggie taught four separate classes at a nearby private university as an adjunct professor. As a non-traditional doctoral student who also supports her son's education, she has to work an enormous amount of time in order to make money.

The heavy workload from the doctoral program itself, writing and submitting papers for journals, and attending professional development opportunities such as conferences added to the full schedule of the doctoral students. Maggie felt that there was more pressure from the doctoral program as she was approaching graduation. As she described:

> I also have to do all the kind of networking things, going to conferences. I have to write my papers. I have to finish my dissertation, and put all my job documents together. So this year, in particular, it's been a frantic pace of work (laughing)… working a lot all the time, and my anxiety is pretty high.

Apart from academic pressure, future job uncertainty also plays a role in their emotional status. Multiple students (Zoe, John, Janet, A, Susan, Debra) sought tenure-track faculty positions and mentioned their fear of not finding a position. Maggie said that she had a lot of anxiety and had been recently diagnosed with irritable bowel syndrome, which is a psychosomatic issue related to stress. She said that "I'm managing my stress, but I think at the expense of my health perhaps, it is very stressful."

The adverse effect of stress during graduate school on physical wellbeing applied to many participants. When asked how the student loan debt influenced her overall wellbeing, Heather said having sinus infections at the end of each semester had become a recurring pattern for her as her immune system was weak. Before the second interview, she found out that she was not going to be funded for the following year, which “tore things apart” and wore her down. Similarly, Lauren mentioned that “the stress from all of the life issues that are tied to why I had to take out loans has done a number on my body.” She was also diagnosed with irritable bowel syndrome and suffered from stress-caused menstrual issues.

Andy, who suffered from depression and anxiety and had been to the counseling center for years, shared his perspective on the stress during the doctoral program:

> A counselor in the department once told me, and I think this resonates that grad school is an incubator for mental illness in the sense that that system is rough. Grad school is just sort of inherently a stress- and depression- and anxiety-inducing crucible. Unrelated to debt, a lot of my anxiety from grad school comes from struggling for motivation, struggling to be productive quickly and struggling to make meaningful results, struggling to keep up expectations, and things like this.

With these existing struggles, debt-related anxiety was just “a small piece of a bigger thing” for Andy. When I probed what he meant by “expectations,” he further explained that it includes both his expectations and his perceived expectations based on his peers. He offered, “I'm worried about getting stuck doing multiple postdocs, which are low paying and have moving costs and things like this…I’m also worried about getting stuck adjuncting multiple times in this like very limited contract time, low-pay scenario.” Both Andy and Heather were also diagnosed with

Attention-deficit/hyperactivity disorder (ADHD), and as Andy shared, one of the traits associated with ADHD was poor money management.

As we have seen, the participants were struggling to survive while in pursuit of their doctoral degrees. The lack of funding and the increased student fees in graduate school forced some doctoral students to borrow more student loans and accumulate more credit card debt. Together with other stressors during the graduate school, including heavy workload, part-time jobs, uncertainty in future job search, their wellbeing was at risk and several of them showed physical symptoms caused by such stress. Their struggle to continue through the doctoral program sets the context in which they manage their student loan debt, in which they exhibited very limited capability. The next section will describe their limited capability in managing the student loan debt in detail.

Students Exhibit Limited Capability in Managing Student Loan Debt

The second main theme emerging from the interviews with participants is their limited capability to manage student loan debt. Within this theme, the first subtheme is their limited financial knowledge and understanding about their own borrowing situation. The second subtheme describes their financial attitudes toward student loan debt, which includes their lack of confidence, conscious avoidance, and the feelings of resignation about their student loan debt. The third subtheme focuses on their financial behaviors, which is the limited action in managing their student loan debt. Only a few participants demonstrate a firm grasp and active management of their student loan debt. Their experience will be described separately in the sixth theme. The following subsections will describe each subtheme regarding their limited management of the student loan debt.

Limited financial knowledge. Although participants' understandings of their own borrowing situation vary, most of them do not seem to have a clear understanding of the type of the loans they borrowed, the interest rates of different types of loans, and how interest accumulates. For example, four students (Andy, Debra, Fiona, Carrie) either did not know or were confused about which organization was their federal student loan servicer. Another student (Lauren) had to log into her account to check who serviced her three private loans and federal loans. When asked about her loan servicer, Debra felt that it was quite confusing:

> That's another thing that's confusing. I took out federal loans, so the feds are my loan servicer. But that's not the case for everybody. I don't know. It's very strange. So if I feel like seeing how much debt I'm in, I've gone to the FedLoan servicing website and it says that my servicer is FedLoan, is that a servicer?

In terms of loan types, five students (Zoe, Sunny, Maggie, Heather, and Susan) were confused about the loan types they borrowed. Susan initially thought Stafford loans were subsidized and the Plus loan was unsubsidized, when in fact there are both subsidized and unsubsidized Stafford loans. She also did not know whether the student loans for her master's and doctoral degrees were subsidized or unsubsidized, nor did she remember the interest rate of the Grad Plus loan she borrowed. Similarly, when asked about the type of loans, Fiona confused the type of the loan with the name of the loan servicer:

> I think one is like, a parent loan? Or something like that. But it's still in my name so I don't know if it could be called a parent loan. It was like a Plus. One was a Plus loan, and then one, which is like a, a regular kind of, Navient loan? I could try to look it up.

For Zoe, she seemed to be savvier about private loans but could not distinguish between the federal loan types. When asked whether she borrowed subsidized or unsubsidized federal student loans for her doctoral degree, she answered "They're the more standard one. I feel bad that I don't know that. I'm not sure." She applied for federal loans, as she recalled, "I think I just assumed that would be the best circumstance and just took that rather than looking at other funding options." She thought the type that she borrowed was the basic type, when there is no "basic" type. There seemed to be a kind of misunderstanding about the federal student loan type. Nevertheless, Zoe was quite savvy in borrowing private loans for her undergraduate program. She shopped around as much as she could and called companies and asked what the best rate they could offer would be, which was sometimes lower than what was advertised.

For Janet, who seemed to be pretty knowledgeable about financial management, there are still some aspects she was unsure about. She was clear how much the original loans she borrowed for her undergraduate and master's program, how much the interest rate was, and how much the current balance was. She seemed to know the difference between deferment and forbearance. Yet she was unable to tell that part of her master's loans were unsubsidized, and whether it was in deferment or forbearance during the first interview. She remembered the loans were federally "insured" or "guaranteed" but was not sure whether they were subsidized or unsubsidized. As the interview went on, she logged into her loan account and read it closely.

Confusion also arises from the amount and the interest rates of the loan debt. When asked about the interest rates of his student loans, Jeffrey could not come up with the numbers, saying, "I honestly do not know, I could probably log in and look right now cause I think there are...they have an app and I'm (laughing) sure I probably have." Lauren could not tell me the exact amount that she borrowed originally for college either, and gave me a broad range: "I think for my undergrad, I had borrowed at least 75,000, if not 100,000." When asked about the proportion of the subsidized and unsubsidized amounts, she said she would need to log into her account. She did not remember the interest rate of the federal loans as she had been “putting it out of my mind for the past five years.” When I asked Carrie about her borrowing amount for her master’s and doctoral programs, she said that she hadn’t looked into it either. When I suggested she let me know the amount during the second interview, she felt that it would be a great idea, “I mean it will also make me have to find it (laughing). So that will benefit me in the long run.”

Participants seem to also have limited understanding of their loan status. For example, Maggie, Heather, and Carrie could only recall that they did not need to make loan repayment during the doctoral program, but they did not know whether the status was deferment or forbearance. When asked about the loan status for her undergraduate loan debt, Heather was not sure whether the interest was accruing or not. Heather described in the survey that her graduate student loan was both subsidized and unsubsidized. She borrowed it in the second year of her program, which was either 2018 or 2019. When I stated that the federal government stopped issuing subsidized graduate loans several years ago, she commented that her graduate loans might be unsubsidized and she was not entirely sure. A couple of times, she self-corrected her previous statement regarding financial specifics. When I mentioned the fact that the government stopped issuing subsidized loans for graduate students, she reacted by saying “Interesting. I haven't paid that much attention. I probably should. But I have not.”

Unlike many other interviewees, Ev was somewhat knowledgeable about her loans. In the demographic survey, she clearly indicated her loan type as Perkins, direct subsidized or unsubsidized. It was not until the latter half of the interview that she shared with me that her knowledge also came from previously defaulting. Her undergraduate loan debt went into default, which prompted her to be familiar about the differences between subsidized and unsubsidized loans. She pointed out that when she was in college, no one educated her on the differences between subsidized and unsubsidized loans.

Nevertheless, doctoral students' difficult experiences with finances do not necessarily translate into increased knowledge and confidence in managing their student loan debt. Even though Ev seemed to be more knowledgeable, she acknowledged that she was half blind to her loan debt situation. And another two students - Heather who previously filed for bankruptcy and Lauren whose student loan debt were once put in forbearance, both shared that they did not have the capacity to figure out how to manage the loan debt repayment.

Most interviewees also show limited knowledge of available repayment options. For example, Maggie was not sure whether she could still enroll in an income-based repayment program if she worked in private industry after graduation. And for Fiona, she hasn't really looked at the repayment options. As she said, "I guess in a lot of ways I've kind of tried to like just put it away." Collectively, no interviewees have concrete repayment plans, which is understandable due to the uncertainty of their future career and income.

Irene shared that she did not know the most strategic way to repay her loans and wished that she had had more financial knowledge in that regard:

> I wonder sometimes would it be better to target like when I'm making a payment, make the minimum payment that's required but then maybe target the ones that have the higher interest rate or the ones that have the higher balance. I don't know if that's wiser, or if it's wiser to target based on subsidized or unsubsidized. Or if it's wiser to just consolidate all of those federal loans into one and just make one payment.

In brief, data from the above participants demonstrates the fact that the student loan debt management is overwhelming and confusing, and the doctoral students have a serious lack of understanding of their specific borrowing situation and future repayment plans. The next section will delve into their financial attitudes towards the student loan debt.

Negative financial attitudes toward the student loan debt. In terms of participants' financial attitudes toward their student loan debt, I found that many of them lacking confidence to manage their student loan debt. Furthermore, although participants have been accumulating student loan debt from college, they seem to choose to deliberately avoid thinking about the management of their student loan debt. For some, they perceive the repayment of their student loan debt being an inevitable part in the rest of their life. Because of this inevitability, they choose to not think about the student loan debt for the time being while in the graduate program. The following three subsections will detail their financial attitudes.

Lack of confidence in student loan debt management. Participants showed a general lack of confidence in managing the specifics of their student loan debt. For instance, Lauren viewed her experience with managing the student loan debt as walking in an intricate labyrinth that seems to take seemingly forever:

> Managing the student loan debt feels like a narrow, intricate path with all of these sudden turns and you have to pay attention, or else you can easily lose track of what bank is owning your loans, what your interest rates are.

She felt the image of a labyrinth also reflected the overwhelming aspect of dealing with the loans and the feelings of the loss of control:

> I don't even know where I am in this right now (laughing). It's like being in a maze. I mean the labyrinth doesn't have walls. You can pretty much see where you're at, but you have to really think about it cause even though it's not like a maze where you can't see

> where you are, it's still very confusing…it's deceptive in a way because you feel like, I can handle this and then you're in it and you realize, oh my gosh, it's overwhelming.

For Fiona, although she understood the terminologies in managing the student loan debt, she nevertheless admitted that she would not feel like she could sit down and manage it on her own. Likewise, Irene also felt that her financial confidence and competence were quite low:

> I in general find it kind of confusing, like how exactly it works. And then at times it just feels overwhelming. And so rather than like diving a little bit deeper to understand things more clearly, I just kind of want to shut down and be like, okay, just tell me what I need to pay and just keep paying it. In some ways I feel like I'm at the mercy of the lender.

She was trying to become wiser and to become a little more astute when making financial decisions so that she can have an active role and feel more empowered. Nevertheless, she admitted that it was a slow process with "a huge learning curve."

For Carrie, when I asked her the question "how confident are you in terms of your financial knowledge in managing the student loan debt", she said that as of now, she gave it a 5 on a scale between 1-10, but by the time she graduated, she would be on a 10:

> I'm like a five. When it comes time for me to start paying it back, I'll be a 10. Right? Before I enroll or before I choose a program, I will have done my research. I will have picked the one that's best suited for me. I will fully understand what I should be paying and when, what it looks like and all of that stuff.

When asked about what she thought about the role of her knowledge of her loans in managing the payback plan, she shared the following:

> Knowing the nitty gritty will help me manage the loan repayment. Right now, I don't know any of that. When it comes back time or when it comes time for me to enroll and

> stuff, I will know all of that. … Right now, I'm like, hee (high pitch) no idea, but when I start to pay everything back, I'll be able to answer all the questions about my financial life, my status, what's going on.

Likewise, for Debra, she felt that she knew some basic financial concepts such as interest rates, principal and balance, but not enough:

> I don't know what it means to refinance a student loan. I have an idea of what it means to consolidate loans, but also I don't really know a lot about it to like be able to describe it to somebody else, um or know like the benefits and disadvantages of them. I know a lot less than I should, I think.

The participants' general lack of understanding of the specifics of their student loan debt is not surprising, as some of them also do not possess good general financial management skills. For example, participants did not seem to have a full understanding of how much student fees they had to pay until after they started the program. When asked about the amount of the student fees, Heather did not remember whether the amount she had in mind was per semester or per academic year, besides the impression that "it's an insane amount of money." When asked how confident she was in terms of her financial knowledge about managing the loan debt, she replied and laughed, "Oh not very confident at all. Not at all."

Conscious avoidance. Several participants shared that as a coping strategy during the doctoral program, they tried not to think about managing the student loan debt. For instance, Carrie had to stop thinking about paying back the money in order to focus on her studies, "I had to really stop thinking about interest and future payment of it while I was doing that for myself in order to function, really." Even though Carrie knows that the interest is accumulating, she could not afford to make the payment with different life events, such as moving and managing family responsibilities. In her scenario, it is more like a deliberate inaction:

> I'm actively choosing not to pay back my interest. Right? Like a lot of people I know pay their interest back while they're in school and work on all of that stuff, but because I just accepted it, I just compartmentalize that away and I'm like, well, I'm gonna have to pay it back anyway. Why am I gonna worry about it now?

Carrie further shared that she was in "ignorant bliss": "I'm ignoring it. I know it's coming. I'm kind of preparing my budget for it to come…Right now, that's not what I'm caring about at all." Similarly, Susan also brought up the notion of "ignorance is bliss" during the interview to describe her attitudes towards loans. For example, Susan did not think about paying back her student loans during her master's program:

> I think a lot of people just don't have the means to do that. And also it's just like kind of out of sight, out of mind a little bit. Like ignorance is bliss. So you pretend it's not there a little bit and that's how I was during my master's program. I just didn't think about it and I didn't pay any interest.

Similarly, when describing her perceptions of the loan debt, Heather chose an image in which there was a statement: "my student loans are like Bigfoot, they are big, scary, prowling around, out somewhere and I refuse to acknowledge they exist." Following is her elaboration:

> It's like they are fantasy right now because I can't see them. I don't have to, I don't feel them. I don't have to deal with them at all right now, but they're coming and when they do, I don't know what that's gonna look like.

Such conscious inaction is not uncommon. Debra also chose not to make interest payments during deferment. The original amount that Debra borrowed for her master's degree was about $80,000. With an interest rate of about 6%, her loan debt balance now is more than six figures, which means that each month, she is accumulating about $500 in interest. When asked about strategies to pay down the balance, she shared that paying $100 monthly towards the accumulating interest, it may not really make much difference. Plus, she might consider enrolling in the Public Service Loan Forgiveness Program, although she is also well aware of the fact that so far only 1% of the applicants actually was approved for the forgiveness after ten years' payment. About paying interest while in school, she explained:

> I probably should cause I know people who are paying down their interest now. It's something that I've been thinking about, but then I kind of talk myself out of it because like I'm gonna pay, what, $100 to interest a month and then by the end of the month, the interest would have increased by like $500. So it's like what's the point? Am I really paying anything down? And it's not counting towards like the Public Service thing. I don't know. I could, but I haven't.

Debra's description shows the difficult situation she faces. On one hand, she has limited financial means and is on food stamps now. She used the emergency fund from the College of Education twice. It is already hard for her to save the money towards loan interest payment. On the other hand, as she mentioned, if one day her six-figure debt could be forgiven, why bother struggling during the graduate school to pay something that seemingly would not make a dent on the debt? Debra also got annoyed when her servicer sent her email reminding her of the balance:

> There are times when it pops up in my head out of nowhere. Um, I'll get emails from servicing that will have like my balance and I'm like, why did you feel the need to even send this email to me?

Occasionally, Debra became anxious when her friends talked about student loan debt or buying homes, but she managed her anxiety by not thinking about her student loan debt:

> They're talking about buying homes and stuff and that's when I'll think about it and that's when it causes anxiety and stresses me out. But then I have to push it to the back burner because there's nothing I can do about it now, if that makes sense. I have to retrain my brain. I have to reframe it positively.

The thought of student loan debt made her feel anxious and stressed. As a coping strategy, she did not dwell on negativity and had to "move on" by not actively thinking about it. Ev echoed a similar coping strategy although she knew that student loan debt is serious:

> I have tried to avoid even looking at it, which I know is not very good (laughing)…Since I am at a school where I don't have to look at… it's like to the point where I think in my last school I had to, to submit paperwork to say that I was in school so that I wouldn't have to pay anything for a while. Here it automatically entered the system. So I don't even really have to say anything to the people who gave me the loan.

Ev felt that "a hundred dollars is not gonna make much of a difference in my situation right now." As a result, she did not know "where it [student loan debt]'s at or what's happening with it [student loan debt]." Nevertheless, occasionally she was stressed out when people asked her about the student loan debt because she knew that it was there, and "it's pretty substantial." Ev chose an image where a female student wearing a graduation cap was beneath the phrase "student loans," and her eyes were covered by a blinder. She explained her thought process as the following:

> I wouldn't say I'm completely blinded to it, to, like loans and their impacts and all of that, but it's like I had shades on, like I am not fully paying attention to everything. And like

> with the kind of like loan piece that's above the head, it's kind of like, it's always, I think that's kind of looming there, but it's not like anything that is major barrier or at like, the forefront of like what I'm doing.

Another student Andy tried to avoid thinking about the student loans: "it makes me anxious to think about it. I am avoiding it until I have to, which even though I realize it probably not a great idea, is what's happening (laughing)." Andy chose an image of a pending thunderstorm to express his feeling of "looming sense of dread" in dealing with student loan debt. He explained that he thought about his debt as a future problem that was boiling up. Even though he felt that it was fine while he was still in school, he knew that the debt repayment was coming, and he had to eventually face it.

For Irene, she had been paying for her undergraduate private student loan debt, but all other federal loans were in deferment while she was still in school. She joked that typically she just put away managing those loans and didn't even think about it, "cause it's really depressing," but when she thought about the amount of interest that was accumulating and added to the principal, she felt it quite depressing. For the private loan, she felt that because it was a smaller goal that she could actually achieve, it was better than not doing anything at all.

In terms of student loan debt management style, I found that the majority of participants' attitudes leaning towards the "Drifter" type - "I have not thought much about how to manage my student loan debt." However, only six (Maggie, Heather, Andy, Sunny, Debra, Ev) interviewees chose the "Drifter" type as their primary management style, and some others (Jeffrey, Carrie, Irene, Zoe) indicated their style was a mix of "Pathfinder" and "Drifter" (the Pathfinder type being "I am interested in money management and have actively thought about my financial goals. Currently, I am working on learning more and managing prudently to achieve these goals”). Such discrepancy in the perceived or aspired and practiced debt management style will be further discussed in Chapter 5.

For instance, Irene felt that the “Pathfinder” was her ideal goal, yet she could definitely see how the “Drifter” type also reflected her financial management style: “if I, start diving into the financial piece, sometimes it becomes so distracting and so overwhelming that it's hard to...I have to refocus and finish this program.” In reflection, she would like to be more strategic about budgeting. Similarly, for Lauren, even though she identified with the “Pathfinder” type of debt management style, she would like to see herself take some more time to do reading and research about her options and “be able to do it without, feeling really, really overwhelmed by the information out there and the level of technicality of it.” From my observation, she leaned towards the “Drifter” type of debt management style because she was still not able to prudently manage her student loan debt repayment with clear knowledge.

Similarly, Heather also felt that the “Drifter” type resonated with her style most. Heather filed for bankruptcy when she was 27. She felt that she knew what financial stress looked like and was familiar with juggling bills and uncertainty: “there comes a point for me that I have to just say I can't think about the unknowns. I can't think about any of that. I can't think about the finances.” During the graduate school, she did not have the mental and temporal resources to plan the student loan repayment:

> Theoretically and ideally I should be paying the interest on it at least, so that that doesn't compound. I haven't taken the time to figure out exactly how to do that. I wouldn't even know where to start on that and frankly I think it's gonna take a whole lot of mental and temporal resources that I just don't have at the moment. I just kind of let it go and say, all right, well it is what it is.

Likewise, although Andy felt that his financial management style as a "Drifter" had a negative influence on him, and that being proactive, informed and aware would probably be a better mindset, he did not really know how to be more proactive:

> I was trying to be proactive, there's really not much I feel like I can do. I can be aware, but then I just know that it's there. Then the other part is kind of feeding into that. I don't really know what it would mean. How, how could I be proactive other than making early payments? Third, I don't really know how I would figure that out. And what I mean by that is, I don't know.

Moreover, even though he tried to learn more, he did not have the luxury of time to afford such proactive mindset as a graduate student, because being proactive meant a lot more effort:

> I'd have to, learn, right? I'd have to figure out how to do this, [and]what I can do. And so that just takes some time and effort and, time is a luxury to the grad students, effort also (laughing). It would just take work and I just don't know where, how to fit that in, about something I'm anxious about doing and not exactly enthused about doing.

"Debtor's prison": possibility of paying the debt forever. Although several participants stated that student loan debt was not their top concern during their doctoral program, they did not shy away from using expressions implying their debt may be lifelong. For Heather, who shared that she had always been in debt, she consoled herself by saying the following:

> Worst case scenario, we don't have a debtor's prison. In the United States there is no such thing as debtor's person. So I can owe money until the day I die and I'll just owe money till the day I die.

In contrast, when Irene was searching for an image to represent how she felt about dealing with the student loan debt, she googled "debtor's prison" but ended up choosing an image of a woman walking with an invisible ball and chain. The image stood out to her in that the woman is walking with her head down, seemingly tired by what she is carrying behind her, which no one else can really see. She felt that her student loan debt was something that she was carrying that isn't always present and visible. Even for her, she was not fully aware how much debt she owed. While not always visible and present, it was something that she felt slowed her down and wore her down.

Carrie also pictured paying the student loan debt for the rest of her life and did not care about paying it off as early as possible. When asked whether she would like to make some payments towards the interest during the deferment, Carrie did not feel that there was such a difference given the large amount of her loan debt:

> When I look at the balance, it doesn't make enough difference for me to care about that. My entire time I'm taking out student loans, I just anticipated paying a thousand to 1200 a month for the rest of my life.

Similarly, Ev mentioned the possibility of carrying on the debt forever. “It would just be like a bill every month”, as she put it. She said that the student loan debt would be part of her financial portfolio that she managed and was not stressed about it too much. Ev saw some of her friends who had much less debt than her and already started making payments towards their student loan debt and thought it would not be realistic for her to do so, “they may have been paying, like $500 a month or whatever, which to me is a little crazy cause that's like two car payments. But the freedom of knowing that you don't owe anyone seems like a nice thing.”

As we have seen, these participants viewed the student loan debt as an unavoidable, stressful and daunting burden in the future that they might have to bear for their lifetime. As such, they chose to delay the active management of this burden for the time being while pursuing the doctoral degree. Such attitudes have shaped their behavior towards managing the student loan debt, that is, limited action. The next subsection will detail their financial behaviors in managing the student loan debt.

Limited action. Most participants show very limited active management of their student loan debt. This is manifested not only in the fact that they log in to their loan accounts infrequently and could not recall the details of their loan debt, but also the fact that they took actions after my first interview with them in managing their student loan debt.

Four participants (Heather, Jeffrey, Ev and Carrie) mentioned that they would start repaying the loan debt after the grace period ends after their graduation, when in fact that way they will have accumulated more interest from not making early payments. Janet shared that if there were anything to be changed regarding her debt management, she would have tried to pay down interest while she was in school, as her master's loan was unsubsidized and had started accumulating interest right after she borrowed the loan. She felt that she could have been more attentive and been paying it down, which would have cut down the principal considerably.

For another student Maggie, she did not log into her online account for years simply because she forgot her password, and she did not prioritize retrieving the password to check her loan account. As described in the first theme section, she was busy during the doctoral program, teaching part-time, and preparing for graduation and the job search. The management of student loan debt, therefore, had to be at the bottom of the to-do list. With the inconvenience of the password issue, she naturally chose not to do anything.

Another reason for her inaction is related to her ineligibility to enroll in Public Service Loan Forgiveness Program as a doctoral student. Maggie shared that she was enrolled in this program for one year before she started her PhD program and would like to continue to be so.

But to enroll in the Loan Forgiveness Program, she needed to be employed full time instead of being a full-time student, and so she had to discontinue this program. She wished the law could be different so that she could continue enrolling in the Loan Forgiveness Program: “I'd be seven years in at this point. I mean, it would be, it would be great, but unfortunately, you cannot do it.”

In addition, inaction might also be related to the uncertainty of job searching and policy changes in the future, which makes it hard to make any concrete future repayment plans. For several participants, they were not sure whether the Public Service Loan Forgiveness Program would continue to exist when they graduate, or if they would even qualify, considering the history of qualified applicants. Carrie, for instance, was cautious about the uncertainty:

> I'm hoping that I can get into some programs or that my job will count as public service if it does but the laws are weird and administration changes. I don't even look at the programs cause I don't want to get my hopes up and so I just ignore it until it's gonna be time for me to actually pay it.

Another student Irene also expressed her concerns about the administration of this program, “I don't know how many hoops there are to jump through. As far as forms that continually need to be filled out, how often do you have to fill out these forms, showing that you've worked…”

The abovementioned lack of temporal and mental resources to manage their debt is in contrast with Jeffrey’s experience. Jeffrey viewed his experience managing the loan debt during the doctoral program as a partially solved Rubik’s cube. He had done much research and had his repayment strategy prepared in terms of paying back the loans. Even though Jeffrey was confident, he still admitted, “I guess it still causes some anxiety and I think looking at an unsolved Rubik's cube would cause anxiety, especially for someone who didn't know how to solve it or didn't even know where to begin.”

Interestingly, many participants began to be more conscious of their borrowing after the first interview. For example, Jeffrey got more curious about the exact amount he owed: "I think last time I said I thought, I owe, like 40, but I think the number is actually up to 50 now." For Sunny, she began to think more actively about making some gradual payments towards interest during the deferment. For Irene, the interview reminded her that she did not really know exactly how much debt she had and she was more driven to know more about her loan debt:

> I really want to know exactly how much I have at the moment and like how much interest has accumulated on the ones that are in deferment and aren't subsidized. I think that kind of came to the forefront.

She went back to her budget and tried to look at which loan she was paying on right now, which made her rethink her repayment strategies.

After the first interview, Maggie looked up her debt on the FAFSA site and did the calculations for repayment; she was "shocked" at how much it would be if she wasn't employed at a state school. Similarly, Janet said that "it was just good to open up all of my accounts and review the status of my debt. It definitely got me thinking more about budgeting." For Carrie, when she was looking in her emails and her student loan information before our second interview, she was surprised that it was taken over by another company. Even after she logged in and started to get an idea of how much she owed, it was still not clear whether that was her entire amount or not, although she thought it was close. As she was looking at her account, she also murmured "I want to have opened that and looked at it 'cause I can start, you know, thinking about it when it's time to plan for it." For Abigail, the interview made her think a little bit more about how much her debt was and take action. She found a second job in between our first and second interview in addition to her RA position and temporary proctor position at her institution to start paying off her loan. As she described, “It was more in the forefront of my mind than it was before.”

In short, participants have limited capability in managing their student loan debt. Such limited capability is reflected by three dimensions. The first dimension is their limited financial knowledge about their student loan debt. The second dimension is their passive attitudes toward the student loan debt, namely, avoidance, acceptance, and feelings of resignation about the student loan debt. Such attitudes further prevent them from proactively managing their student loan debt. The third dimension is their limited action when faced with the task of debt management, which sometimes is overwhelming and confusing.

Doctoral students avoid actively thinking and managing their student loan debt for several reasons. First, many doctoral students do not have sufficient financial knowledge to confidently manage their student loan debt. Second, the thought of student loan debt causes stress during graduate school, which is already demanding and challenging. Third, they do not have sufficient financial means to pay interest while in deferment. Last, job and policy uncertainty also put their active management on hold. Nonetheless, doctoral students’ limited capability is related to the limited resources available to them to actively manage the student loan debt. The next section will discuss the third theme, namely, the limited resources regarding student loan debt management.

Students Have Limited Resources to Manage Student Loan Debt

Doctoral students have very limited resources from the university, their peers, professors, and their student loan servicers. This section will describe the lack of resources in detail.

“Perfunctory” financial advising from the university. In terms of the available debt management advice, doctoral students find that their institutions provide limited resources to help them understand and manage their student loan debt. To begin with, the financial advice from the university was “perfunctory or cursory.” As Lucas described:

> When you fill out a loan, you sign a document saying like, “Hey, this is your loan at the end of the year.” You click a box or you can do it in an electronic session on what the different loan types are….it's just one of those things like it's sort of required for the universities' end, like if you're given a student loan they should have the information, but there's no real push.

He shared that from his personal experience, he didn't really have a real drive to click on the link to learn about the relevant information because it was not mandatory. Later he added that “even if it is mandatory, you just scroll down to the bottom and click it at the end to finish.”

As such, Lucas felt that if the university raised more awareness about student loan debt or how to manage it, or “even speaking with other students who are going through the same processes” it would be helpful. Similarly, many other doctoral students (Irene, Heather, Ev, Carrie, Sunny) commented that it was very easy for them to obtain student loan debt during the loan application process. In hindsight, they wished they had received more advice before they made the borrowing decision. Heather described how easy the loan application process was:

> I love the fact that I literally just went online, looked at my account, looked at how much I was eligible for, clicked a couple buttons, which ones I wanted to take, clicked "Accept" and called it a day. I never had to do anything else. Once I signed the promissory note that was pretty much it. I love how easy that was. That also makes it super easy for me to make stupid decisions that will later come back to haunt me.

Carrie wished that there could be a mandatory check-in provided for students so that they could fully understand their borrowing situations periodically. She also hoped that there would be certain programs designed to help her understand the repayment process: “I also think it would be neat if you can enroll in a program when you start taking out loans, so you know what to expect and what the payments are actually gonna look like.” In particular, she thought one-on-one exit counseling was needed instead of Internet counseling:

> Somebody needs to sit down and talk to, “Hey, let's look at your portfolio, what your borrowing looks like, and let me answer your questions”. Because we offer so many different online systems, but we should know how to budget and manage finances. …I always use my financial aid officer as just a checkbox. Like, can I have this money? Can you sign this? And they always were a gatekeeper for me to get money. But never once did I ever think of them as a place for me to understand what I was taking out.

Next, participants shared that there were few workshops on managing student loan debt being offered by school. For instance, Sunny did not have anyone providing advice to her in managing the loan repayment:

> I went for an orientation day for the PhD program here and they gave a general spiel about financial aid and the different types of loans grad students can apply for. But it was things like I had read before. It wasn’t personalized information.

When asked what could be changed to improve her experience related to student loan debt management, Sunny felt that it was hard to know, “I'm not sure. Since there's not really any kind of support, it's kinda hard to know what good support would look like.”

Several participants expressed their wish that there should there should be more efforts to educate students before they make major decisions. For example, Debra wished her undergraduate institution could have provided more information for her, “My undergrad institution could have done a better job of preparing me for grad school as far as what funding was. I learned the hard way that there were schools that paid for their master's students to go to school." She shared the same thoughts for her master's program:

> They could have given us a little more information about smart borrowing and only borrowing what you need. I would tell someone now, if someone was asking me for advice about how much they should take, take the time to figure out the exact amount that you need before you take out money.

In hindsight, she thought there needs to be a more purposeful and engaging way to relay the message to borrowers. As she put it "you need to be mindful of what the options, or what repayment will look like."

Likewise, Fiona also stressed the importance of recognizing the implications of the long-term repayment before students sign their paperwork. As she recalled her experience:

> I remember feeling like there was nothing there for me when I was going into my master's. I remember feeling like I was all by myself trying to make decisions. I don't want to say like students shouldn't go to master's programs if they want to get a PhD, but really thinking about, for instance, do I really want to jump right into a master's or could it be that I want to have another terminal degree and I should maybe take some time off and work instead of jumping into a master's degree that's gonna put me in debt.

Fiona wished that students "should have the knowledge to be able to make decisions that won't shake their life in a significant way where they're feeling like they made one decision, they're kind of bound to that decision."

For the existing workshops on budgeting, students did not find them very helpful. For example, Ev found such workshop frustrating because the idea of a fixed monthly income stream as introduced in the workshop was not realistic for many people who actually need the financial education the most: “It’s really easy to tally up your expenses, but what your income is, when you work like an hourly job and you don't know if you're gonna have the shift next week is very different.”

Unfortunately, apart from the routine perfunctory advising and some unhelpful budgeting workshops, there were not many useful resources that doctoral students could utilize from the university to help them effectively plan their student loan debt management. For instance, Lauren started to look into loan consolidation, but it seemed too time consuming and confusing for her. She felt that she was not able to obtain help from the university:

> I'm confused and nobody I talked to seems to know how that works. I need, I need help. And I think one way our institutions fail us here is when you do like exit counseling, I mean I've got two Master's and a Bachelors, and exit counseling only tells you about like income-based repayment for federal loans. But nobody really gives you enough guidance and it's never in person. It's always very standard. Like, click, click, click, I want to sit down with a counselor for free who is not selling me something, who is compassionate, will think about my situation, tell me what my options are.

Similar to Lauren, Irene and Zoe also expressed the need of a financial counselor. Irene felt that it would be great for the university to provide a course and some resources available related to financial counseling, which could cover budgeting, planning for student loan debt repayment, and funding opportunities for travel and other professional development opportunities. As Irene mentioned:

> It would be really helpful to have a financial counselor available so that when you are kind of in a pinch you could go to that person and say, “what do I do?” or… “how do I plan for the future cause I don't have a 401k, I don't have any investments.”

Zoe specifically mentioned that this person should not be someone from a third-party company, but a staff member either at the college of education or at the university. I then probed how about the staff at the financial aid office. She did not seem to know whether they had such service. Even though there were such services provided specifically for doctoral students, there should probably be more encouragement for doctoral students to use such services. As Zoe candidly shared: “I will completely own that I have not gone out of my way in any way, shape or form to try to find that resource.”

Participants also suggested that colleges could provide some type of seminars for everyone who had student debt to guide them. Jeffrey added that some professional development seminars encouraging students to proactively seek funding at the beginning of a doctoral program could be very helpful. Maria, in a like manner, recommended that the university should offer mini workshops or seminars throughout the year “so that we have an idea of here's how you could be able to manage this and what is available for other graduate students.” She would also be interested to learn if someone had any recommendations regarding repayment strategies or updates on policy changes regarding programs such as Public Service Loan Forgiveness Program.

Limited help from loan servicer. Several participants indicated that help from their student loan servicer was very limited. For instance, Andy felt the role of the student loan servicer was not to advise him and make his financial situation secure but to ensure repayment. He did not find interactions with his private student loan servicer very helpful:

> They aren't trying to be unhelpful, but they're unhelpful. Every time I've had to call them about things, it's always a hassle to get somebody and get a straight answer about what's

> going on. There was a period where for some of these loans I had to physically get a form filled out in order to facilitate deferment…and that was always a frustrating thing.

Sometimes, student loan servicers actually cause more obstacles for students to manage their loan debt. Irene joked that she really hated dealing with her servicers. Her different loans were administered through MOHELA, FedLoan, Nelnet and Sallie Mae. She found the servicers fairly helpful when she called them asking about repayment plans, yet she also found it frustrating getting the runaround. As a result, she tended to try and avoid talking with the servicers directly unless it was something specific such as switching her repayment plan or fact-checking for payment clarification. Yet for advice or insight, she did not necessarily trust them to give her the best advice. As she reasoned, "they're not like, 'Yay, we want you to be debt free too, they are like, hey, we want you to be in debt, keep giving us more interest…' (laughing)."

Similarly, Sunny also had a frustrating experience with her servicer FedLoan Servicing when she was trying to switch her loan status into deferment. She enrolled in the Public Service Loan Forgiveness program when she was a teacher. Before that, her student loan debt was administered by the Great Lakes, which she was quite happy about. However, after enrolling in the PSLF program, her loan servicer was changed to the FedLoan Servicing, without her input. She found that "it took forever" for the FedLoan to enroll her in the deferment, although she called them multiple times. She did not understand why it would have taken the servicer so long to complete a simple technical task:

> Getting in touch with them just to do the technical stuff is kind of a pain and like, they're like, it kind of takes them forever to do that… I don't understand how hard it is cause I told them I was back in school full time and, like, I had to call them like five times before

> they put in deferment and they kept sending me a bill…After I'd try to keep calling them and messaging them and then they finally figured it out.

Because of this frustrating and “annoying” experience, Sunny hasn’t logged into her account for a while and seemed reluctant to contact her servicer again.

Navient, one of the student loan servicers, could even make students feel “traumatized”, to quote Lauren when she shared her experience. As Navient administered both her federal loan and one of the private loans that got sold to Navient, it seemed challenging for the servicer to get the right information to Lauren when she needed help. In particular, she recalled one summer when she had a very frustrating experience with the servicer:

> I couldn't afford to make payments to Sallie Mae when they were still Sallie Mae. And I said, “well, could I do forbearance,” and they said “well, you have to pay a $50 forbearance application fee and we may not even give you forbearance.” And I said, “well, the monthly payment is $50, if I can't afford my monthly payment, how can I, pay your forbearance application fee?” And they were just like, “well, we're sorry. We don't know what we can do for you. That's how it is. It's a $50 application for forbearance. And once you get it, you can only get it for so long in this much time in your life.”

Although she managed to get some money scraped together and made her payments, but she was so upset that she had to go to a therapist, “I was almost suicidal dealing with those people. It's like the wiliness of it. It makes no sense.” She felt that she couldn’t seem to communicate with the customer service person when she called them, as their responses were confusing:

> It's like being a rat in maze even just talking to a person. It was not fun. So I was just like, and then at that time, I don't know if it's changed, but you had to keep submitting tax documents. And there was some form that every time I call I got a different line of what I

> was supposed to do. And then after a number of calls about said form, I just, I was like, I'm just gonna do nothing. … I actually looked into like, can I tell the federal government to like resell my loan to a different servicer cause anything is better than Sallie Mae.

Lauren said that it was wrong that her federal loan debt was sold to the servicer (in this case Navient) without her input. After being "traumatized" by Sallie Mae (now Navient), she hasn't called the servicer for more than five years, as she simply does not want to deal with them.

Because participants in this study had borrowed student loans for different degrees, many of them had different servicers over the years, which made the management of their loan debt more confusing and challenging for them. For example, Carrie tried logging in to her student loan account and read previous emails from student loan servicers to figure out how much she owed. She was surprised that another company took her student loan. While she was navigating her student loan account, she struggled to find all the information, "I literally can't tell what is owed from where."

Limited conversation about student loan debt management. Surprisingly, although the interviewed doctoral students seem to be financially and emotionally burdened with student loans, they do not talk much about student loan debt or managing money in general with their peers, friends or professors beyond occasional joking or complaining. Jeffrey felt that while student loans have become normal for many people, it is "one of the last things that's talked about." He could not figure out why he did not talk much about loan debt with his friends and partner, even though he felt that "certainly talking would be a lot better instead of just agonizing individually." He explained, "I think it's because people are afraid that… their student loan debt is huge. I guess, especially with a partner. Right? It's like one of the last things you talk about, right, before thinking about marriage or something." Nevertheless, he acknowledged that "if it were talked about earlier and sooner, we could try to relieve some of the negative stigma around student loans." Similarly, Andy talked about the student loan debt with his peers casually, but it was not something that they dive deep into.

Doctoral students also had very limited conversations about their student loan debt with their advisors and other professors. For instance, Andy felt it awkward to talk about funding with his advisors:

> We have this culture of we're already kind of avoiding talking about money with people, like our peers and then my advisor since they're in the sort of very formal position. An advisor relationship is sort of complicated and it just doesn't even feel appropriate to really discuss it more than, hey, I need funding. Right? I don't think I would, and my advisors don't really talk about it.

For Irene, unless she brought up finances, her advisors and professors weren't very aware of her student loan debt. She brought up her student loan debt with her advisors sometimes because she thought they should be aware of it and thus be understanding of her decisions that had financial implications during the doctoral program. Irene suspected that this lack of understanding might be a generational or class difference which gave her professors a hard time fully grasping the impact of student loan debt. She described them asking, "'Why on earth do you want to try and work 20 to 30 hours a week in addition to being a full-time student?' Then it's like, 'well, because I need to (laughing).'"

Abigail mentioned similar lack of understanding from her faculty because they did not have the same issues: "they probably could pay for their education when they went to school. Like it was a long time ago so it was a lot cheaper or they had scholarships that covered everything." Nevertheless, she felt that the more junior faculty were a little more sympathetic towards student loan debt and they understood that “you have to do whatever you can to pay towards those.” Lauren, however, received unsympathetic responses from one of her advisors:

> I told him about my loans and my need to work. They're just very unsympathetic and kind of cold and just kind of like “why are you telling me this?” And you're just like “hello, like, I'm a human being.”

Most participants also do not share their concerns about the student loan debt with their family either. For instance, Debra thought it was culturally taboo, especially among the Black community: “there've been times when I have been broke as hell and I won't ask for help because you don't talk about money. If you can avoid it, you don't ask for money.” When asked what could be done to improve her experience managing student loan debt during her doctoral program, she hoped to learn from others, “I would be interested to know how other doc students are able to live on stipends and still make payments each month. That would be good to know---to hear that it's possible and see how people are doing it.”

Irene said that student loan debt was kind of an invisible chain that “a lot of people have potentially and are carrying with them, but that they don't really talk about.” As a result, she felt “what we see on the outside is maybe someone who looks weary and tired and we don't necessarily know what's, what's going on behind that.” Relatedly, Debra brought up the issue of stigma around public assistance, and there should be more honest conversations:

> There needs to be a more real conversation about what it looks like for particularly students of color who are still able to get everything done academically and they're able to perform at work but when they go home, they still have to rely on public assistance or, loan, federal loans, or their family members who may or may not be already struggling

> themselves just to be able to afford to go, go and get something to eat, or go to the conference … There needs to be a more honest conversation about what that looks like.

Nevertheless, not all participants completely avoided conversations about student loan debt. For instance, Zoe discussed the loan debt repayment with her romantic partner. She also talked about the student loan debt with her friends which was a bonding experience for them.

Many interviewees shared they use Google when they have questions regarding loan management. The Federal Student Aid website is also one resource for them. Nevertheless, Fiona did not find neither the FSA website nor her loan servicer helpful. It wasn't until she talked to a financial adviser at a bank that she was able to get helpful information regarding repayment decisions, such as calculating the accumulated interest during the deferment period.

Another common perception was that many doctoral students think other peers are generally more financially resourceful than they really are. Janet tried to manage the debt herself and shared that probably not many people really knew that she had all the debt. What I found revealing was that even though Janet, Lauren, and Ev were all from the Epidemiology program, and initially there were more students from that program who emailed me about their interests in this study but did not qualify, each of them seemed to have the perception that she was the only person dealing with the student loan debt. For example, Janet did not know if any of her classmates had debt: “None of them seem to ever bring that up. So I don't know. I think even all the ones with master's, I think most of them, either had funding or their parents paid for it. I don't think many of them have debt.” As a result, she felt that the student loan debt narrowed down whom she related to. Janet felt that most people she knew had wealthier parents and the student loan debt was “a big discordant thing for people to understand.” Similarly, Maggie felt her peers had parents that help them financially. And for Heather, when asked why student loan debt was never a topic among her colleagues, she had the impression that it was just her problem and everybody else was more resourceful than her.

Zoe did not come from a low-income family and still had to borrow loans for her college and graduate school, yet she encountered tense conversations with some friends who seemed to automatically assume that she did not have any student loans. Zoe's sharing echoed the comments that Maggie and Heather made when they thought their peers were more financially resourceful and would not experience similar stress about debt. It seems individuals view their peers in a biased way that discourages open conversations about managing their student loan debt.

In summary, there is a stigma around talking about money in general, let alone the discussion about the student loan debt among the participants. They have limited conversations about student loan debt with their peers, advisors, friends, and family. Such perception of money management as a taboo topic might hinder conversations from happening that could potentially provide resources for doctoral students to manage their student loan debt.

Skewed reports from media. As student loan debt is a hot issue that frequently appears in headlines and political debates, I asked participants for their perspectives on media reports on student loan debt. Janet felt that to some extent the media reports reflected her experience in describing the effect of student loan debt on people's major life decisions saying, "they talk a lot about how it's like forcing people to put off things like buying homes, having children, investing, saving for retirement. And I definitely feel all of that."

For Andy, although he felt that many articles describing student loan debt were objective, he did not see any that specifically focused on doctoral students' debt situation:

> I don't think there's a lot of media press coverage about PhD students and employment and debt. And I find that strange. There's a lot about law and med school, which are graduate professional schools. Those articles don't quite resonate with me cause I know it's different.

Similarly, there were also many participants who expressed that news reports did not relate to their situations in the sense that such reports were mostly about undergraduate students.

Lauren avoided reading them because they sensationalize the experience and shame students with many loans, "you read the comments under those articles and it's all the shaming. People are like, 'oh, that person shouldn't have been so dumb.'" She found reading the news on student loan debt "frankly too upsetting." And when she read that the first wave of applicants who applied for Public Service Loan Forgiveness program and made payment for ten years did not end up having success, she felt angry:

> I don't have the capacity to read some of these things without getting really upset… because it makes me feel despair. They just stir you up and they sensationalize, which makes me feel ashamed or weird…seeing other people act like it's such a big deal just makes me feel bad about myself. I don't want to think of myself that way, so I avoid things that make an image of me like that, but I might internalize.

Zoe thought that the media portrayed the student loan crisis as unsolvable and only talked about the harm and negative consequences without policy solutions:

> The reality is that currently we have a system of borrowing and we need a humane repayment option, a way that people can pay it back. But I think this like characterizing it as a crisis that's unsolvable is really irresponsible in the media.

She felt that there could be more discussions on repayment options or forgiveness options for people with student loan debt and also options to make college more affordable. She pointed out that the preventative options “are often characterized as these like very expensive interventions or they're not covered at all.” Zoe learned about the humane repayment option from Susan Dynarski, a public policy scholar whose research focuses on the impact of financial aid. In particular, she personally felt like the interest rate was “pretty distasteful”:

> We shouldn't be financing really anything using student loan interest that, that, um, that it's societally and our best interests to invest in, in higher education. And so that should be, we shouldn't be profiting or funding things based on student loan interest.

For Abigail, successful stories of paying off student loan debt did not resonate with her experience:

> When I read the articles, how they do it is generally, they move in with their parents and they don't pay rent and they don't pay bills and they just pay as much as they can towards these loans. And that will never be a reality for most people. They also found like dream jobs and side hustles in addition to that. And it's like, okay, that's not realistic for me.

As described above, the doctoral students not only did not find media reports helpful in providing them with useful information managing the student loan debt, but the lack of relevant news stories and over-sensational articles made them avoid reading the news.

In brief, doctoral students have very few resources at hand that can help them to effectively manage the student loan debt. The limited financial advising provided by the university is cursory, and the unhelpful service from the student loan servicer sometimes even discourages doctoral students to seek for help. What is more, the cultural norm of treating topics about money and debt management as a taboo also means the lack of space for doctoral students to discuss how to manage their student loan debt. Last, the general media reports about student loan debt sometimes are over-sensational and do not specifically focus on doctoral students, which also makes participants feel the news resources are unhelpful and unrelatable. The next theme will further present participants' perceptions of the student loan debt while in graduate school.

Student Loans are a Double-edged Sword

Another outstanding theme is the significant impact that student loan debt has on doctoral students' experiences in graduate school, financially, socially, and mentally. When many participants relied on the student loans to obtain their educational degrees and hoped to climb up the social ladder via education, they seemed to be disillusioned by the fact that the burden of student loan debt kept them where they were. In coping with this burden, they tried to accept the reality through the way of resignation, yet deep inside, they had this resentment about the lack of social mobility and the fact that they were trapped by the very vehicle that helped them to gain the educational degrees. They shared their deep regret about previous borrowing decisions, their frustration about realizing social mobility, mixed emotions towards the fact that they had to accumulate student loans for their degrees, and their evaluation on the worth of their degree.

Regret about past uninformed borrowing decisions. The interviews show that many doctoral students borrowed student loans for previous degrees with very limited financial knowledge and few resources. When asked what factors influenced her borrowing decision for the undergraduate program, Debra replied by saying "I didn't know what I was doing." She shared that she chose her college based on which one offered loans. She did not know that the financial aid was student loans until her mom noticed that in her offer after the fact. Neither did she know that her interest accumulates daily until after she had taken out her student loans for her master program:

> I called them a couple days after I started my grad (master's) program and I went and checked my loan balance and I saw that after only a few days my balance was increasing, and I called to ask them what was going on. That's when I learned that interest accumulates daily.

When asked what factors influenced her borrowing of $80,000 unsubsidized loans for her master's degree, Debra answered immediately "Stupid, stupid, stupid decisions." As she did not want to live at home during the first year of her master's program, she took out loans to pay her rent. In hindsight, she regretted this decision: "that kind of set me up for failure, as far as like borrowing. And I could have just stayed at home. I easily could have lived at home." She felt that her master's borrowing was more reckless and "there was no purpose behind it."

Similarly, Irene borrowed between $40,000 to $50,000 federal loans for her master's degree in a private institution. It was the first time that she had borrowed for living expenses as well as tuition and fees, as even though she was working three part-time jobs, the income was not enough. I sensed the regret she had: "looking back now, I think, oh my gosh, I wish I had made maybe some smarter choices or decisions." When I asked Irene what she would change if she did it again, she said that she would like to work full-time and study part-time. She would have tried to work for an organization full-time and obtain tuition reimbursement for the part-time master's degree.

Most participants (Sunny, Jeffrey, Heather, John, Irene, Debra, Andy, Fiona, Carrie, Ev, Zoe, Janet, Susan, Abigail) shared that they did not compare the interest rates and understand what they were borrowing. For these participants, they felt that they were not financially knowledgeable to make informed borrowing decisions for previous degrees. As Susan recalled, “the loan process was so foreign to me. It wasn't anything I had done before.” For both her master’s and undergraduate degree, she borrowed through Federal Student Aid and did not compare the interest rates of federal loans with any other type of loans:

> I just think in this country we don't have great financial literacy in general. I didn't know that you should go to a bank and ask about loan interest rates. I just didn't know. This information came with my acceptance letter, said, ‘Oh, do you need money for this? Here's how you get it.’ And so that's what I did.

Likewise, when reflecting upon the decision to borrow for her undergraduate degree, Sunny also candidly said that “I don't think I, it was much of a decision as all, as much of just automatic acceptance.”

Furthermore, many participants did not fully think about the ramifications of paying back the student loan when making previous borrowing decisions. For instance, when asked about borrowing for her undergraduate degree, Heather immediately answered without any hesitation that it was a dumb decision:

> At the time I had zero financial literacy at all. I really didn't know what I was doing. I was coming out of high school at 18, I had no idea what budgeting was, or how to manage my money or what debt looked like, or how long it would take to pay off debt.

Heather did not know what to expect from borrowing loans, and as she described, “I also frankly didn't know what kind of job I was gonna get and I didn't know how much money I would make. So that decision was just kind of, was completely uninformed, frankly.”

As a result of this lack of knowledge and awareness of the borrowing consequences, several participants (Fiona, Debra, Susan, Janet, Carrie, John, Zoe, Lucas, Jeffrey) borrowed the maximum amount allowed for their previous degrees and wished that they could have borrowed less. For Fiona, the bulk of her student loan debt is from her master’s degree. She borrowed the maximum amount that she could borrow every semester during the master’s program because her mom told her to “take it all.” Likewise, Jeffrey felt that he had a “childish mentality” when borrowing money for the undergraduate program: “there's probably a couple thousand that I probably could have declined at the time because I didn't need it. … But I did it anyway just because they offered it to me. Who am I to say no. Right?” Janet, who paid downs some of her loans during her job before the doctoral program, felt that the enormity of the debt was intimidating, and discipline was needed to pay it back. She wished that she borrowed less for her master’s degree:

> I know more now how burdensome they were and how I should, probably, should try to avoid taking out so much. But I just didn't know how to deal with at that time. So it's definitely made me think that people should have more information and better options for paying for undergraduate and master's programs.

Nevertheless, many participants (Zoe, Susan, Lauren, Janet, John, Jeffrey, Andy)’ knowledge of borrowing increased with age and they were also more cautious borrowing student loans during the doctoral program. For example, when comparing the undergraduate and doctoral programs, Zoe felt that her undergraduate borrowing decisions were no brainers whereas her consideration to borrow for the doctorate degree was based on cost benefit calculation, “I thought much more deeply about taking loans for a doctorate than I did for an undergrad.” In hindsight, Andy felt that his borrowing strategies had matured in the doctoral program, “I was trying to be much more careful and conservative and trying to not borrow more than I needed, and not have to borrow, if I could.”

As described above, many participants regretted their decision to borrow excessive amounts for their undergraduate and/or master's programs. Not only did they accept what was offered without full consideration, but they were also not fully informed of the long-term implications of such borrowing decisions. In reflection, they all expressed the wish to have had more financial knowledge and done more research when making borrowing decisions.

First generation students lacking resources. One recurring subtheme related to their previous uninformed decisions is that many interviewees were first-generation college students. Among the 18 interviewees, seven explicitly mentioned that they were first generation students during interviews. While reflecting on the differences in borrowing for the doctoral program and their previous degrees, they shared that the previous uninformed decisions were to a large extent related to being first-generation college students. As a result, during the doctoral program, they felt trapped with the student loan debt. For instance, Sunny chose the image of Ariel in the movie Little Mermaid signing on the contract to express her feelings toward the accumulating student loan debt while in the doctoral program:

> Ariel was like kind of naive at the beginning and she just, signed that contract for her, her voice to get her legs. And I was thinking, as a, entering undergraduate studies as a first-generation college student. I think, I was just like, okay great, I'll be able to go to college so I'll just sign, all the paperwork I had to sign and take out the loans. …

Sunny did not really have the knowledge as well as "maybe someone with more experience to be able to tell me like more about how to think about the loans." As a result, she felt that "now I just kind of feel like I'm stuck with it because I can't, I have to, I have to keep paying them back until they're paid off."

While during the doctoral program, Abigail had to work extra and save more to pay for a private student loan because of an uninformed borrowing decision her mom made while she was in college. Coming from a low-income background, Abigail felt “the decision was more I want to go to college and I asked to do whatever it takes to get there.” When she had to borrow student loans for her junior and senior year, her mom, who helped her to borrow from private lender Sallie Mae, did not fully research the different interest rates, and borrowed a high interest rate (about 11%) private loan for her third year. Fortunately, Abigail was more knowledgeable later, and borrowed a private loan with a lower interest rate to fund her fourth year.

For both her undergraduate and graduate programs, Abigail was not informed upfront of the cost of the program. She even felt that the college was “manipulatively unclear” and “sneaky” in tuition arrangement. She received a Pell Grant when she was admitted to a liberal arts college. Before her enrollment, she was not informed that the Pell grant was only for the first two years of her undergraduate program. Although the net price calculator was there, but she was not informed of the full cost for her third and fourth year. It looked like she would receive more money to go to this school compared with others. As she recounted:

> No one had sat down and explained to me that they would use my Pell grant, not spread out amongst the four years, but they would compile it onto the two years. So it looked like more money was being given to me so they could have made the option to spread it to the four years…

Each time, she had to resort to loans since her family also did not have the means to support her. She shared that her parents filed for bankruptcy when they divorced, and they were the counterexample for her in terms of effective money management:

> They had never thought about how we were gonna pay for college until I was like right there and they just expected me to deal with it and I wish they would have been able to at least help me in some ways because they, even if I visited home during breaks, would charge me rent. So I had no support from them at all.

Similarly, Lauren, who had accumulated more than $150,000 in student loan debt during the doctoral program, shared that she had to use some of her student loans to support her family during undergraduate program when they had a financial crisis. As she recounted, “I would go to financial aid and they would be like, ‘well why don't you just have your parents take out a loan to help you.’ And I'm like, my parents went bankrupt and they can't get credit cards, let alone educational loan for me.” She took out private loans for five classes she took every summer because she wanted to finish sooner. In hindsight, she felt that such decisions could have been different and attributed some of her decisions to being a first-generation college student. In particular, Lauren challenged the assumption that everyone knows everything about the loans:

> The fact that so many students I know who are working class background are taking these things [loans] out, it, and then blamed for it as if we just weren't miraculously bright enough to automatically know how everything, everywhere works. Like do you have any idea, nobody would be able to sleep if we had to learn all this stuff while going like, no.

Throughout her graduate programs, nobody has helped her in terms of managing the student loan debt, as “nobody knows what to do.”

Another two participants, Andy and Jeffrey, shared that their families did not have experiences in borrowing for education, nor could their parents provide advice on how to manage the student loan debt during the doctoral program. In contrast to other doctoral students from the same institution, Andy did not know that borrowing federal loans for graduate degrees was an option, “no one had ever told me that was an option. I don't know anyone who does that. And I didn't think there were subsidized federal loans for doctoral programs.” Nor did he know of any resources for specifically managing repayment. He vaguely knew there were organizations that educate people about managing loan repayment, but did not know exact ones:

> I have to find some. Worst case scenario, I'm assuming that I could always talk to somebody like an accountant… somebody who's in the field of finances and loans either through my bank or something to get some advice.

In conclusion, for the participants who are first-generation college students, while in the doctoral program, they either have to rely on their own to pay for the accumulating debt or put the student loan debt in deferment. They view their current student loan debt situation as shaped by their previous uneducated borrowing decisions, which were made with the lack of monetary and/or informational resources from their family. Because the lack of financial education during college and graduate school is a structural barrier for all students, these first-generation college students were not able to obtain financial education and become financially knowledgeable even after receiving college and graduate school education. This finding speaks to the importance of financial education for these students, which will be further discussed in Chapter 5.

Student loan debt prevents social mobility. For the interview participants, student loans are a means to achieve their career aspirations. However, it also tarnishes their sense of achievement. There is a juxtaposition of the graduate school as a vehicle to social mobility with student loans that prevent social mobility. Many students felt trapped by the student loan debt, which was the very tool they relied on to be able to obtain their degrees. At the heart of their sharing is their critique of the equity and social mobility issue regarding student loan debt.

To illustrate, Maggie felt that although having a degree is a personal asset, which could increase her "standard of living, job satisfaction, overall life satisfaction", but "it is also an immediate burden upon acquiring it." For Irene, who said she earned prestige by having master's and doctoral degrees, but at the same time felt she was trapped because she could not afford the prestige that she appeared to have, which cast a doubt on the notion of social mobility: "you wonder, am I really moving any forward, any farther ahead than where I started?"

Similarly, even with a higher income now and working in a job that she loved doing, Carrie had a false sense of wealth and socioeconomic status because of the student loan debt:

> Everyone talks about how college education is a vehicle for changing your socioeconomic status. And I think it does so in a perceived way, but not a real way. I make enough money now, just because I also just got this great job as a result of my education and experience. So I now have my dream job. But the salary they gave me is really $15,000 less because I have to pay my student loans.

With a monthly student loan payment, Carrie could only save slowly, "instead of it looking like I have this high socioeconomic status that I'm taxed at, I have this lower one cause of student loans. So that's tricky." At the same time, she knew that if she didn't take out student loans, she wouldn't have gone to college. When she was able to find her dream job and be successful, she felt trapped by the debt for the rest of her life:

> The system in the U.S. is really set up to keep poor people poor. And even in getting our mobility through education and the tools we need, we're still not able to achieve the high level of financial status because we still have to pay all this money back.

As Carrie described, school is a tool for people from low socioeconomic status to move up the social ladder, but student loan debt makes them stuck where they are.

In particular, Zoe, who was a teacher before entering the doctoral program, experienced frustration related to teacher pay:

> Sometimes I have some anger or resentment around my student loans. I was a teacher and I got a degree and a master's degree so that I could do something that I think is, I genuinely believe it's really helpful to society. And I had this, this burden that I didn't see my peers necessarily having either because they had help from their parents or because they picked a different job.

As doctoral students talked about their individual stories and experiences in managing the student loan debt, they also shared their criticism about the educational system as a whole. The core of such criticism is the lack of social mobility for the unprivileged, who thought student loan debt would help them achieve social mobility. For instance, Lauren felt student loans were unavoidable to move up the social ladder, but "the built-in classism" caused much anguish: "It's just like one, really big sick cosmic joke." As Lauren grew older and had more experience with the loan servicer, she also understood better "the contextual factors and the class issues" that were embedded in the student loan system. She viewed the issue of student loans as a social class issue and part of "the class warfare that is happening in this country and the systematic oppression of, of people that are not [privileged]."

Such sentiment was also shared by Fiona, who felt chained down to student loan debt whereas this experience may not be applicable to white men "because of systems of advantage." Fiona felt she had a lot of potential to offer, but she was chained to the debt. Often times, conversations around student loan debt that Fiona had with her peers is a critique of the "larger system that functions to benefit those who have socioeconomic capital and privilege":

> Those processes, even if unintentional, have functioned to keep others down… It doesn't feel like social economic freedom or whatever the words that people try to use to justify social mobility exists.

Fiona commented that social mobility might not be realistic for children coming from lower socioeconomic status, because not only these children do not have the monetary resources, but they also may not have the knowledge of money management when making borrowing decisions. As she explained, she did not anticipate the outcome of borrowing student loan debt until she was already trapped:

> At least at the higher education level, and it's the notion that if you can obtain those things, you can then be free in that way. But then even through trying to obtain those things, it's like you have to already have that capital. I feel like those of us who don't have that capital don't know that until we participate in those processes.

She shared the notion of "social closure" and felt that the current system continued to "keep out the people who don't have that socioeconomic capital."

Similar to Fiona, Debra thought that the education system "was not intended for people of color," but "was created for the advancement of white people." As a result, she felt that people without enough social capital would find it difficult to navigate the system:

> When there are certain systemic barriers that are in place, that have been in place to make sure that you do not have the access, that's when it's meant to exclude you… even if you navigate one barrier, you take five steps and you're going to run into another …it is ingrained in the fabric of this country.

For these participants, student loan debt did not help them move up the social ladder, but may cause more undue pressure in the long run. To illustrate, Maria chose an image in which

“Game of Loans” were written on a college graduation cap. She alluded the image to the show “Game of Thrones” and felt that the game of student loans was cruel in similar sense:

> It's you either win it and you can pay it off at the end of the, at the end of however many years, 10, 20 years or you don't do, you don't manage yourself well and you can end up losing a lot of things.

Maria’s description hints that the reality of managing the student loan debt is more brutal than it seems to be. For some borrowers, either they can pay the debt off or they are trapped by it for a lifetime.

Pandora’s box of emotions makes students more isolated. Student loan debt opened Pandora’s Box of emotions for doctoral students, including fatigue, loneliness, hope, resentment, grief, shame, fear, and anxiety. This plethora of emotions put them more isolated socially. For example, Lucas chose the image of treading water to describe how he feels. In the image, a man barely keeps his face above the water and calls for help with his two hands up. Lucas shared:

> My head is just above the water so I can breathe, but I am struggling to get air. Though one cannot see what's occurring under the water, I imagine a lot of legwork and kicking to keep the current position; this also aligns with my current efforts in school and managing debt. He is also alone, with no one in sight but he is calling out for help.

He explained that there were a variety of emotions conveyed by this image:

> Struggle, pain, fatigue, loneliness, fighting spirit, and hope. Hope, though it doesn't seem like much is presented in the picture, is also shining through because he isn't under the water yet. I'm not consumed completely by my debt, so I know there is hope to become free of it, alone or with help!

Like Lucas, Susan shared her feelings of being hopeful even though the student loan debt seems daunting. She chose an image of a ladder to a tunnel to reflect her feelings:

> When you look at your statement and you see the big number, how much you owe, it feels like you're like in a hole a little bit. I feel like now at this point I can kind of see the way out of that hole, but I realize, so I see that ladder, I see the way out.

Although the number of the debt seemed scary and she felt a little bit trapped, she was hopeful that she was able to pay the debt off one day.

For many participants, student loans also brought more stress. For Abigail, she was still paying for one private student loan with a variable interest rate (11.2% at the interview) during the doctoral program, which means she had to tightly budget her expenses: “It was really stressful because I had so many other things I needed to pay for that. It felt like even 50 extra dollars was something that I really couldn't afford.” Nonetheless, Abigail also admitted that she was lucky as her employed partner could “pick up a little bit of the slack or the tightness.” She chose an image of a person holding several big rocks while trying to climb uphill to reflect her experience dealing with the student loan debt, “I'm always carrying them and sometimes I'm turning around and trying to push them up the hill and like trying to get rid of them.” As such, student loan debt caused more stress, especially knowing she had to get a job immediately after graduate school, “Like there's not an option for me to like sit around and like wait for a position that I would rather have, I'm going to have to take whatever I need to take.”

Likewise, when reflecting her experience managing debt, Carrie drew an illustration of a line that diagonally crosses the paper that represents uphill climbs to change one’s socioeconomic status. While she was trying to climb to the upper middle class, she was also pushing a giant boulder up the hill like Sisyphus. She described that the boulder was her student loan debt, "instead of being a rock, it accumulates weight, like a snowball as I'm pushing it up."

In particular, student loan debt brought up a mix of both gratitude and resentment for some participants. Carrie's reaction to the reality of trapped in the debt was a mix of "acceptance", "resentment" and "resignation." She described her mixed feelings: "It [the student loan debt]'s the burden that I have to bear for changing my status. There's a little bit of resentment there and there's also some feelings of resignation."

In a similar manner, Zoe felt that her progress was slowed down because of loan debt, but was also grateful for the experiences and many credentials that she obtained with the help of the loans. On one hand, Zoe is trying to manage her emotions about student loan debt, and on the other hand, she noted that her acceptance of loan debt was also a survival mechanism:

> I am surviving student loans and dealing with student loan debt, but I think talking about policy gets my brain turning. Like it doesn't have to be that way. And I certainly wouldn't want to characterize my emotions around student loan debt as particularly accepting of this as the best answer, holistically, societally. I deal with it in a way that allows me to get through my day and live my life.

Zoe accepted her student loan debt because she did not have any ability to change it currently, but she did not necessarily accept the system:

> Underneath deep down, with that resentment, is this just irritation that it's not a good system. I can recognize a really flawed and broken system. I don't want my acceptance of my own conditions to be like in any way an endorsement of a really broken system.

In Lauren's words, such conflicting feelings of gratitude and anger was like the Stockholm syndrome: "where you feel attached to your abuser and they give you small kindnesses and so you are so grateful, but they are also exploiting you." She was grateful that she could take out the student loans to go to school, but she was angry that she ever had to:

> I've got like Stockholm Syndrome for the people that are giving me loans. Like, "thank you, thank you, I need to go to school. Thank you for the small grace period. Thank you for the lower interest rate. Thank you. Thank you". But I shouldn't have to deal with this.

She had to manage her resentment and grief without showing it to her friends, which could be exhausting and isolating:

> Now on my net worth is less than it was before I went to college. Back when I work two part-time minimum wage jobs, I was worth more. My net worth was actually positive. Now my net worth is in the six figures negative and I'm now begging these same upper-class people for work so that I can pay back these loans that are, a lot of them are going to these big bank owners so that their executives can live luxurious life. I'm angry and when you're angry you're not exactly in the mood to make friends.

As she put it, such anger also put her more "inwardly focused and upset and stressed."

The feelings of loneliness and anxiety are also due to the lack of understanding from other people. Doctoral students seemed to be afraid of being chastised by others when it came to their student loan debt. Andy felt that there was very little sympathy towards student debt scenarios, especially from older generations whose college experience was different, "this idea of boomers say[ing], no, you can work your way through college. It's not really a plausible thing anymore. But that sort of mindset still sticks around." For him, having student loan debt is a mixture of stress, anxiety, fear and shame:

> I'm worried about, especially those early years where I'm trying to figure out, get settled down in academia, …possibly moving and changing jobs frequently. I'm worried about

money in those situations and how it's gonna affect how I can repay my loans. I also feel a bit of shame because even though I believe that it's unavoidable that I had gotten the situation, I also feel ashamed cause I feel like I shouldn't be in that situation.

Similarly, Lauren at times felt ashamed and was cautious in selecting friends who would not judge her. She jokingly said that the student loan debt affected her "whole way of being":

> I've been much more isolated as a result of knowing that. I've got more than $250,000 of student loan debt and people might judge me. So I'm very guarded. And I choose my friends very carefully and I choose people who I know are not gonna judge me…it definitely has affected me socially.

As described above, doctoral students exhibited a plethora of mixed emotions burdened with the student loan debt. Even though some of them shared that they were hopeful about paying off their student loan debt, they also candidly shared their mixed emotions of anxiety, gratitude, stress, shame, fear, and resentment. In other words, the burden of student loan debt caused more emotional burdens for them, and made them more isolated socially.

Evaluating the worth of their degree. The reality of facing the burden of student loan debt seems to be something that many doctoral students did not fully expect before enrolling in the program. The changing job market makes it challenging for them to find a well-paying job that they had hoped for before undertaking the PhD route. Having realized that the job prospects for her field were really small, Maggie was not sure whether the borrowing was worthwhile:

> It makes me nervous about the amount of debt that I have now as compared to in the past when I got my masters, I had a job and I was just trying to get paid more, you know? I still will get paid more even as an adjunct or lecturer than I would without a PhD.

Likewise, Heather shared the same sentiment when thinking about borrowing more to continue enrolling in the program for the following academic year: “so the question becomes where is the point of diminishing returns where it's just not worth continuing on.” As she had started and had accrued some debt already, it seemed pretty pointless not to finish. As she reasoned: “because that would mean I just put myself into debt for nothing. It’s a precarious balance.” And because of the federal and private loans that she had already accumulated, she felt that it all the more important to obtain the doctoral degree:

> No matter what else happens if I graduate, they're not taking away my PhD, I still have the PhD. If I lose my house or I can't make the loan payments or I have to cut back on everything else or I end up in bankruptcy again, I'll still have the PhD…That's always gonna be a marketable resource…The ultimate question has to be, is that enough? Is that feasible? Is that enough of a reason for me to keep going? If the answer is yes and so far it has been … I just let it go and say I'm gonna do what I have to do right now and that's all I can think about is right now.

On one hand, Heather seemed to be willing to invest everything in order to achieve her doctoral degree, even at the expense of losing the house or going into bankruptcy again. In hindsight, I also wonder whether it is sort of a rationalization to console herself that it was worth continuing the program, so that her previous investment (quitting a full-time job and borrowing student loan debt) was not all for nothing. On the other hand, Heather seemed to be worried about the potential return on such investment and mentioned “constant tension” about whether a PhD would provide a healthy return on her investment. In comparison, Susan seemed more decisive when thinking about borrowing more loans. She tried to do a cost benefit analysis of continuing in the program, and as she said, “I'm happy to continue as long as I have funding but I'm not willing to take on more loans to continue.”

In contrast with the previous students’ sharing, Lucas seemed to be more confident and at ease about his student loan debt. An interesting analogy he brought up is sunk cost fallacy when asked how student loan debt influence his decision-makings throughout the doctoral program. Basically, sunk cost fallacy happens when an individual continues engaging in certain behavior due to their previous investment of resources, such as time and money (Arkes & Blumer, 1985). Lucas, for instance, shared his thought process of borrowing:

> If I have to take out a loan to pay for it [the PhD], then so be it and I am now taking out the loan. I'll just go forward from here. If I'm gonna do it, I might as well do everything that I possibly can in the program regardless of what is gonna cost me in the end.

On the whole, student loans are a double-edged sword for the interviewed participants. On one hand, they had to rely on borrowing student loans to be able to obtain their educational degrees, in the hope that their education would move them up the social ladder. On the other hand, the student loan debt prevented this social mobility happening because they found themselves trapped by the student loan debt, financially, emotionally and socially.

For their previous uninformed borrowing decisions, they felt a deep regret and wished that they could have been more financially knowledgeable and just borrowed what they needed. While in graduate school, the burden of student loan debt added extra stress on them in that the student loan debt made them feel more isolated. The more they felt they were alone in bearing this burden, the more reluctant they were in openly talking about their situation. In evaluating the worth of their doctoral degree, some of them took into consideration the amount of student loan debt that they already had taken and tried to conduct cost benefit analysis, while others did not really care for the borrowing cost. The next section will discuss the fifth theme regarding the constraint that student loan debt exerts on doctoral students' future plans.

Student Loan Debt Constrains Future Plans

One emergent theme is that doctoral students found that the student loan debt constrained their future plans, including career choices, marriage and childbearing decisions, and the ability to purchase a house. As Lauren described:

> You're saddling these young people with all of this debt and then all of this shame that goes with it in some of the rhetoric. And then they can't have children. They can't save money for a house payment, they can't get a car loan...it's just dehumanizing and wrong to tell people to deny them the realization of their potential.

The following sections will present the findings in detail.

Career constraint due to student loan debt. Interviews show that doctoral students' career plans are constrained because of the student loan debt. For some participants, these constraints mean the prioritization of jobs that provide financial security over other potential choices, including entrepreneurship, missionary work, post-doc or tenure-track positions, and other relatively low-income jobs in a field that they would have chosen otherwise.

For some participants, student loan debt forced them to consider certain industry jobs instead of seeking a tenure-track job or work in public education. Lauren felt that having a low-paying job such as postdoc is a luxury, "I owe six figure student loan debt. I don't have the luxury of doing a postdoc…I will not work for $50,000 a year unless I absolutely cannot make better, period. At this point I can't." Moreover, because she accumulated much private student loan debt and there was no income-based repayment for the private student loans, she could not choose to enroll in the Public Service Loan Forgiveness program.

Other students expressed that they also had to consider realistically, and practically which job could sustain them financially to repay the student loan debt. As Fiona stated: “I now feel like I have to double down on thinking about whether it's putting money in my pocket and how much money it's putting in my pocket.” For Irene, who is a second-year doctoral student in nursing, she felt that student debt had held her back in pursuing the medical missionary work that she wanted to do internationally, since such work required more individual fund-raising. As she shared, “[my debt] has definitely interfered or held me back, limited my abilities, I feel like to do that to the extent that I would like it to.”

For other students, student loan debt shaped their research focus. For example, Janet specifically chose health disparities as her research focus, mainly because of the government approved repayment plan that is designed specifically for health researchers conducting research on health disparities. She learned of this repayment plan from her previous colleagues who were helped by their employers to enroll in such plan. While in graduate school, she did not have exposure to resources as such.

In addition, the burden of student loan debt had a delaying effect on pursuit of entrepreneurship. After having contract and part-time employment during his doctoral program, Lucas got a good sense of working in different sizes of organizations and with different people and departments and wanted to start out his own business. But he thought one of the most profound obstacles for reaching that goal would be student loan debt. He planned to work in private industry to reach financial stability before taking on risky adventures of starting his own company. As he shared:

> I don't mind waiting long term because I know that it'll be more beneficial. I would rather get out, financial stability, be calm, get everything situated and then go make a jump

somewhere that might be a little bit more tumultuous like starting my own business. Rather than jumping off a sinking ship to another sinking ship, drown and floating somewhere else.

In particular, the recent news about the Public Service Loan Forgiveness Program had caused some uncertainty among some participants because they were not sure whether they would qualify for the forgiveness if they enrolled in the program. In response to the news that only about 1% applicants qualified for the forgiveness, Jeffrey commented it blew his mind "cause I thought if you made all your payments and you worked in this kind of, type of place, it shouldn't be an issue. But apparently there are a lot of issues". As a result, even though he would love to find a job in the public sector and contribute the skills he learned, private industry might be more appealing given the financial consideration, given the low likelihood of success of the Public Service Loan Forgiveness Program. As he reasoned:

> There's no benefits of having any portion of my loans discharged in a reasonable, a reasonable amount of time. … some people say you sell your soul to the private sector, like, maybe I'll do that because looking at the overall cost benefit or whatever.

Similarly, Debra felt anxious that the Public Service Loan Forgiveness program may not exist after she graduates:

> One of the strategies that I used to cope with how much debt that I was in was the Public Service Loan Forgiveness program. And now every day it's like, is that even going to be around when I'm done with this and ready to be consistently paying back my loans. There's a lot of anxiety associated with having to pay that money back and what impact is going to have on other life decisions and opportunities.

Susan felt that even if loan forgiveness was not possible, there should be at least some discussion among politicians and policy makers to introduce certain programs to alleviate borrowers' burden, "because it really is holding back the entire generation of people from truly participating in the economy."

Delayed milestone life decisions. Student loan debt also had a huge impact on doctoral students plan for future life decisions, including marriage, childrearing, purchasing a house, and retirement. For instance, Jeffrey said that student loan debt was "certainly a part of every major decision." As he stated:

> Just thinking about marriage, it's like, I don't want to take on anyone else's student loan, student loan debt and I don't want it and I wouldn't want somebody to take on mine. So I think before I even get to that, I think we would have to have a long conversation, this is real (laughing). … even other big life decisions like having a child, I'm like, can't afford one. [Or] buying a house, right?

Several participants brought up the influence of student loan debt on their considerations of marriage. Such influences are manifested in an array of ways. For example, the burden of student loan debt made Ev think about prenuptial agreements. She reasoned, "most recently the people that I dated had upwards of $200,000 in debt from school... I wouldn't necessarily want to be responsible for them if for instance, we ended up separating." For Zoe, who had a romantic partner who was willing to help her financially to pay off the student loan debt, she shared that they did not reach consensus about marriage decisions in some aspects, and having the student loan debt absolutely played a significant impact on the decision not to get married:

> We've made other decisions around marriage and to hold off getting married indefinitely for other reasons, but I would rank my student loan debt as a contributing factor, relatively high on the list in some of those decisions and conversations.

As Zoe planned to continue enrolling in the income-based repayment plan after graduating from her doctoral program, getting married would disqualify her from enrolling in this program, because their combined income would be much higher. For Carrie, she preferred to research whether or not her partner would have to assume her student loan debt if they got married and she passed away, if so, that would made her not get married, because “I wouldn't want anyone to have to pay that back but me.”

Participants also thought about the impact of the student loan debt on their future family planning. For instance, Debra, she shared her plan to have a family and children at the beginning of our first interview, “I would like to have a family, I would like to get married, I would like to have children. So that's definitely something that I think about at least once a day (laughing).” But having the student loan debt made her wonder what her future relationship would look like. In Lauren words, the student loan debt’s impact was almost like a eugenic measure:

> I might not have kids, which is devastating, but I don’t think any responsible person who could say, I’m gonna make payments of $3,000 a month for my loans and try to have children. Who can do that? Who in their right mind would intentionally put themselves in that situation? It’s like a eugenics type thing (laughing). Like on the grand scale it's we know all those dumb people that took out loans. Now they're not gonna get to reproduce and it's now only those upper-class people who didn't go into debt will reprodu(ce).

The burden of student loan debt also delayed participants’ thought of buying a house. In our first interview, Susan shared that she and her husband had just got approval for a house mortgage. But during the second interview, she said that they decided to stay at their current place instead of buying a larger home given the financial reality. The current mortgage is much more manageable compared with the bigger house. She mentioned that repaying the student loan debt would impact their financial life for a long time.

Carrie joked that she had a mortgage on her brain which prevented her from having a mortgage on a house. For Sunny, it is difficult for her to save a down payment to purchase a house. She explained, “I'm not planning on being in a doctoral program for like seven years, so I can't afford to put a whole bunch of money into a house that I might only stay for like two years.” John felt that student loan debt was a hindrance on his plans regarding travel, moving, and having a second child.

The student loan debt also made students worry about their long-term plans including retirement. As Abigail described:

> I've been concerned that I'll never be able to buy a house because I'm just kind of like swamped with debt and I don't know how I'm gonna save if I'm constantly paying towards the debt, or things like saving up for retirement.

To summarize, the student loan debt constrains the doctoral students’ future plans. As described above, such constraints played out differently depending on each doctoral student’s borrowing situation and professional interest. Moreover, student loan debt also had a significant delaying effect on participants’ plan to make milestone life choices such as marriage, purchasing houses, having children, and saving for retirement. The next section will present the counter stories of several doctoral students who confidently manage their student loan debt.

Some Students Confidently Manage Their Student Loan Debt

Despite the fact that most of the interviewees were feeling stressed and anxious about paying back student loan debt, seven participants (Maria, Zoe, Susan, Abigail, Lucas, John, and Jeffrey) showed a relatively higher levels of confidence in managing student loan debt repayment. For them, student loan debt is more of a propeller instead of a stressor to concentrate on study and finish the program in a timely manner.

Math as an important element for personal finance. Among the 18 interviewees, only Maria, Lucas, John, and Jeffrey demonstrated a solid grasp of financial planning and loan repayment strategies. In particular, Jeffrey shared that he had researched loan consolidation, repayment plans, and credit scores. He said that his confidence in financial management might be related to his math background, since he was not intimidated by the numbers. This seems to be a critical factor. The developmental capability of personal financial management can include many different subsets of skills, and math and the confidence in managing numbers might be one of them. As Jeffrey, who had done a lot of research, reasoned, “I'm very, very confident and I know a lot of people might not be. I think that's probably having a lot to do with my math background. So I'm not afraid of numbers and percentages and different things like that.” In hindsight, Jeffrey, who is now teaching College Algebra Class wished that he could have borrowed less for college due to the long-term consequence of compound interest:

> If I would've really had a deep understanding of like how those interest rates work and how whatever much interest is accumulated, it gets back into the principal of your loan. … that's kind of scary and daunting to think about. If I were to truly understand conceptually, how that worked back then maybe I would've been like I don't want to take out a lot because that means that's gonna be more, I have to pay over time.

Similarly, Maria, a second-year doctoral student from the Math program stood out among most interviewees in terms of her financial knowledge and confidence in managing her student loans. She shared that she pulled out a whole spreadsheet planning her financial budgeting and expenses before enrolling in the doctoral program. Perhaps this is because Maria is enrolled in a math program, perhaps her personality and capability in managing numbers brings her into the math program. There seems to be something in her that made her both successful in studying math and managing her personal finances.

She was confident that she was borrowing and managing the student loan debt strategically. It makes me ponder whether financial management skills might differ by program of study. If the problem-solving skills that engineering or math student utilize are different, or the way they conceptualize and strategize solutions are different than students trained in liberal arts or social science, what might be the disadvantages and advantages for students of different programs when it comes to personal financial management?

Proactively managing student loan debt. Participants who were confident in managing their student loan debt were also those who were proactively managing the loan debt. For example, Maria returned some of the loans that were mistakenly issued to her during college. As she recalls, her undergraduate institution set its online system up in the way that students automatically received however much loan the federal government calculated and lent to them. She discovered this mistake and brought it up to her school, which made the school realize that it was a technical error and subsequently cancel the automatic acceptance.

Although she closely read the promissory notes and learned of the two types of loans (subsidized and unsubsidized) through the online course that university provided before issuing the loans, she did not fully grasp the differences between them until she called her financial aid office to return some of the loans. This makes me wonder how effective these mandatory online courses were for undergraduate students to truly understand what they were borrowing. In contrast to most interviewees who accepted however much that was given to them, Maria clearly knew what loan type and how much she was borrowing. She said that sometimes her friends would also call her to ask questions about student loans.

Among all the interviewees, Maria was also thinking about returning some student loans she borrowed during the doctoral program. As she was anticipating her funding to improve in the summer with a potential internship offer, she thought she could return some money that she wouldn't need. Interestingly, she was also among the few that said that student loan debt did not impact much of her progress or relationship with peers. She did not seem to be stressed or anxious about managing the debt. When asked about the impact of the student loan debt for her long-term plan, she viewed it positively, which is different than most other interviewees. She felt that the experience of borrowing and managing the student loan debt made her less scared and more confident in managing other debts in the future such as mortgage.

External financial management resources. Interviews show that external resources stoked participants' interests in money management. These resources include financial shows and financial management classes at church. For instance, Jeffrey's interest in personal finance was sparked by the Suze Orman show, which was "entertaining" as he commented. He also read her book for financial knowledge. Likewise, John and his wife, who had paid off their credit card loan debt and focused on paying off his wife's student loan debt during the time of the interview, were confident about the goal of reaching financial freedom. He shared that this was because they watched the Dave Ramsey show a lot:

> Before getting or hearing about him, we viewed student loans as an unattainable goal that you had to continuously pay on. We just felt like people would pay the minimum and move on, but he kind of phrases it as like, that debt is like a slave or you're a slave to the debt. So we want to kind of make sure we have that financial freedom.

They learned about the snowball strategy from the Dave Ramsey show, and developed a clear repayment strategy: to enroll in his repayment plan as income-based while paying more on his wife's student loan debt first. They searched information from Dave Ramsey's website and connected with a financial advisor through the website to discuss retirement plan. For John, he felt that his knowledge of managing personal finances helped him significantly:

> Just knowing that it's possible to pay off the loan. Having that mindset that it can be done and seeing that balance decrease certainly helps… my wife has done an incredible job of creating a timeline of when we should be debt free. I think creating that timeline, it just having that visualization and realization that if we, you know, pay this certain amount, then ultimately we can have no student loan debt, is excellent.

During the second interview, John reflected that having the first interview discussion also made him feel positive about paying back the loan debt. There are many factors contributing to such optimism. He explained that taking the Dave Ramsey class, setting up a budget, having a system managing repayment, setting an attainable goal, and being able to measure their progress toward paying off that goal are all reasons that help him to feel optimistic. Specifically, he tried to take out less student loan money during the doctoral program and not spend it frivolously. As he said, he had financial self-control to make sure he only borrowed what was needed.

John chose two images to reflect his experience dealing with the student loan debt. The first one is a cheetah chasing a gazelle. He thought of this picture based on the gazelle-like intensity that Dave Ramsey talked about when repaying debt. He and his wife had been trying to save and putting more money into their student loan debt. The second image is the travel destination of Bora Bora, where they planned to visit once the student loan debt is paid off. John felt he and his wife were paying the debt at a good pace, as fast as the running gazelle, to eventually escape the cheetah. Although John felt that he had anger toward his student loans, he felt hopeful with a realistic plan "knowing that we can get away from the leopard or we can escape our student loan debt if we just keep kind of paying with that intensity, we don't have to stop and let it consume us."

For Irene, she took a financial advising class through her church. There she learned of repayment strategies by targeting debt based on interest rates or higher balances. She also talked with her brother who had student loans about plans to become more financially secure by setting up an emergency fund. She also learned of the frugal lifestyle from her friends, which to some extent also influenced her consumption choices. She felt these conversations around general personal financial management made her more intentional in paying off the debt.

Supportive relationships. Furthermore, relationships also play a vital role when some participants talked about their student loan debt management. For instance, John felt that he gained more confidence in managing his student loan debt seeing his wife navigating the student loan repayment. They also plan their repayment strategy together to reach financial freedom. Each month, they discuss their budget plan and progress towards paying of the debt: "we have a goal every quarter and we kind of talk about that monthly how close we are to hitting that goal."

Zoe, Susan, and Abigail had privilege which provided them some cushion in the sense that they had outside resources such as partners' income or inheritance that could help them occasionally. In addition, they also had the emotional support from their partners. When asked whether having student loan debts impact her career goals, Zoe did not feel that they had an impact but admitted the following:

> I should say probably now I have a partner who doesn't work in academia and so I do recognize some privilege and having our family, where it's just the two of us, but we can rely solely on his income. It is important to me that I contribute but should there be a gap in my employment we would be okay. I recognize my concerns around finances would be much more severe if I didn't have sort of that safety net and cushion.

As her living expenses were partially covered by her partner, Zoe could sometimes overpay on her private student loan debt. In terms of her future plans, Zoe was also more flexible in terms of choosing job sectors because she had “the privilege of a safety net” in her romantic partner.

For another participant Susan, relationship means a different perspective about being financially knowledgeable. Susan got married during the doctoral program and found out that she was pregnant a few days before the interview, having a new family member affected her perspective about the future. She felt her relationship status helped her to be more financially knowledgeable and she was not taking out loans unnecessarily anymore: “Because of getting married and starting a life with somebody, we've had to start thinking about what are our shared financial goals and what that means for each of us.”

Susan also stressed the importance of having someone more knowledgeable to help her:

> I need to have good people on my team. I need to be able to call a financial advisor or somebody who knows what they're doing. My husband also works in finance, so he has some backgrounds, so that's helpful to have around too.

In particular, she mentioned that her financial advisor gave her more helpful advice in managing the loan repayment plan:

> I do have financial advisor now who I can always ask questions. I've been, one of the big things that we talked about when I first got the inheritance is how much of my loans to pay back. He helps me think through like interest rates versus term lengths versus all of those things that are hard for me to understand. I do feel better equipped now to reach beyond just the information that gets sent to me.

She felt that even though everybody around her would say "you need to pay down the student loans," her financial advisor was most helpful giving her specifics in terms of how much she should pay towards this loan considering interest rates.

Financial resources. Interestingly, higher financial literacy also seems to be related to financial resources because students had more opportunities to talk about how to make use of the resources. For instance, Susan felt that she was more confident in her financial knowledge after having an inheritance:

> I feel like I understand, I have greater financial literacy since I received the inheritance just because I had to start meeting with financial planners and things, who helped me understand a lot more, a lot of things that I didn't understand, but I still don't feel confident in my financial ability and my financial literacy.

She received a small inheritance that helped her to pay off the undergraduate student loan debt during the first year of her doctoral degree. After that, she kept making payments on the interest of the rest of her student loan debt even thought her loans were in deferment. Also, she learned more about retirement that she "never knew or understood before," different types of investment after talking with financial planners, and how interest works.

For another participant Abigail, when her partner offered to pay off her high interest student loan first and she could repay him with a lower interest rate later, she started realizing that she could be making a difference in the loan debt if she started making payments during her doctoral program. Abigail hadn't really thought about how she was going to pay off the private loan, and let it sit there and paid the interest every month. When her partner offered to pay for her, she began to actively think about what strategy she should have:

> I think he just helped me like talk through what I was going, what my plan is going to be. When he was offering to pay for it, like pay the loan and I pay him back, I had to come up with a strategy of how much money I could reasonably put towards it to pay him. I ended up just applying that strategy just to paying the loan itself.

As such, the more financial resources offered by her partner provided Abigail an opportunity to reflect and deliberate on her repayment strategy.

Communication as an important skill. Last, communication is an important skill that facilitate participants to seek helpful information when needed. To illustrate, Maria is actively seeking financial resources from her loan servicer. Unlike the media reports and contrary to other interviewees' experience, Maria had positive interaction with her student loan servicer Navient. Whenever she had questions, she directly called her servicer. Before her enrollment in the doctoral program while working, she even successfully requested the servicer put her on deferment one month earlier because she could not afford to make the payment. She joked that she did not understand why people did not call when they needed assistance: "I need to call the provider or the lender because people tend to like to look things up on the Internet and not talk to people and I don't know why they don't want to talk to each other."

This is very different from several interviewees both in pilot study and in this current research who shared that they were just frustrated and tried to avoid conversations with the loan servicer. Maria was a strong and confident communicator, knew what she wanted to achieve, and seemed good at managing her emotions. While student loan debt can be a hanging cloud haunting some students, she simply views the management of loan repayment as a problem to solve. For example, when she was not sure whether the interest was still compounding for her loans during deferment, she called her servicer and asked specifically for relevant information. After she knew that the interest was compounding, she also thought about making at least the interest payments during the deferment. Similarly, Abigail shared that when she had different sources of information and she could not figure out which one was correct, she was always vocal and contacted the financial aid office at her institution to solve her problem. And for Susan, she shared that she was not shy seeking help: “I feel comfortable asking people for advice or finding experts who know more than I do.”

In brief, various factors contribute to several participants’ effective and active management of student loan debt. These factors include competency in math, proactive management, external financial management resources, supportive relationships, financial resources that present learning opportunities, and strong communication skills to seek help.

Conclusion

To conclude, this chapter presented the findings of the study in six main themes: students struggle to survive during graduate school with funding and academic challenges; students exhibit limited capability in managing their student loan debt; students have limited resources available to effectively manage student loan debt; student loans are a double-edged sword; student loan debt constrains the students’ future plans; and some students are confidently managing their student loan debt.

For research participants, their graduate school experience is burdened with the lack of funding, stressful academic work and sometimes part-time work. As such, the student loan debt was not the priority but something looming in their mind. Many participants demonstrated very similar behaviors in terms of managing the student loan debt, that is, not managing the student loan debt while the debt was on deferment. Partially this was related to the fact that there are limited resources at hand for them to effectively manage the student loan debt.

In terms of their perception towards the student loan debt, doctoral participants had a variety of perceptions. They all shared their regret about previous borrowing decisions. While in graduate school, the burden of student loan debt made them more anxious and isolated. On one hand, they were grateful for the student loans to help them achieve their educational goals, on the other hand, there was a sense of deep-seated anger and anxiety towards the fact that they had to be bounded by the debt when it came to their future life choices such as marriage, child-bearing and buying homes. Nevertheless, there were also some participants who actively managed and planned their student loan debt repayment. Several factors contributed to their confidence in managing the student loan debt, for example, math skills, relationships, and communication skills.

CHAPTER 5: IMPLICATIONS AND CONCLUSIONS

This chapter discusses the implications and conclusions from the study. The first section is a summary of the findings in answering the research questions. The second section discusses the implications for theory. The third section focuses on the implications for educational policy and practice. The fourth section provides recommendations for future research and is followed by the conclusion of the chapter.

Discussion of the Findings

This current research utilized a phenomenological approach to answer the following research questions:

- What are doctoral students' experiences with borrowing and managing student loan debt(s)?
- How do doctoral students perceive and manage their student loan debt repayments?
- What are the challenges doctoral students face in managing their student loan debt(s)?

This study included 18 doctoral students from public universities. These participants have accumulated student loan debt from both undergraduate and graduate programs. Interviews with them yielded rich qualitative findings that help answer the above research questions.

Students expressed regret but were still unknowledgeable. To start, most doctoral students expressed their regret about the uninformed decisions they made when borrowing more than needed for their previous educational degrees. This finding is congruent with several studies where graduate students borrowed the maximum amount and had limited knowledge (Johnson et al., 2016; Morales, 2014; Nguyen 2016). They shared their lack of full understanding of the long-term implications and consequences of borrowing and a lack of informational resources from the university. As such, they all expressed their wish to have been more financially knowledgeable and wished that the university could have provided them more education on loans. In comparison, their borrowing decisions for the doctoral degree was more cautious as they only borrowed what they needed instead of what was offered. Still, they were not clear about the amount they had accumulated in total, the types of the student loan they had been borrowing, and the repayment plans for the future.

This qualitative finding enriches the quantitative study conducted by Belasco et al. (2014), where there was a significant positive relationship between undergraduate and graduate borrowing. In their study, they conjectured that students who relied on undergraduate loans may have limited financial means and so they had to borrow more for their graduate programs. However, they also suspected that students might have become more cautious about borrowing more graduate loans after having accumulated much undergraduate loan debt. This current study provides data that substantiates both conjectures. For some students, they indeed became more cautious of borrowing for their doctoral degree, yet for other students who simply did not have the financial means, they had to continue borrowing whatever amount that they needed in order to finish the program. Such differences were dependent upon each individual's financial situation.

What is surprising from the current study is that, although the participants seemed to judge themselves harshly for making the previous uneducated decisions by borrowing too much, few had improved their knowledge and understanding of their student loans. Several reasons might explain this seemingly contradictory finding. First, the regret that the participants shared was about borrowing more than they needed for their previous degrees. As a remedy, they tried to borrow less for their doctoral program. Furthermore, based on the previous research finding that deferring student loans was one of the four primary reasons that doctoral students chose to pursue a doctoral degree (Nguyen, 2016), it may be that for some doctoral students, they intentionally delayed the active management of their student loans by enrolling in the doctoral program. Third, most of them pointed out the lack of sufficient advice from the university or education from their family for their previous uninformed borrowing decisions. Such lack of informational resources did not change while they were in the doctoral program, so they might not possess the tool to improve their financial knowledge.

On this note, this study contributed to the literature by highlighting the importance of financial socialization for doctoral students. As we have seen, there is limited financial socialization taking place for doctoral students while in graduate school. Almost no real conversations are happening at graduate school, either formally through school education, or informally through discussions with peers or advisors. This provides evidence to the study by Morales (2014) that found that graduate students did not consult with financial aid officers at the university. As much as the participants would like to become more financially knowledgeable, without the external socialization agents such as parents or educational actors, their understanding and capability in managing their student loan debt during the doctoral program did not differ much compared with their previous selves. This also speaks to the reality that financial literacy cannot be developed without financial socialization (Shim, Serido, Tang, & Card 2015).

Another explanation for their limited capability in managing student loan debt might also be related to their attitudes toward the loan debt. In the context of tight funding during graduate school, intense and stressful academic work, and uncertain career prospects, most doctoral students' attitudes toward their student loan debt is conscious or deliberate avoidance. Many participants' view of the student loan debt as an overwhelming burden that they would bear for their lifetime inhibited them from proactively managing their student loans. Such finding lends support to previous research that borrowers' attitudes toward the loan repayment either as an unsolvable challenge or an impossible task and their confidence play a critical role during their loan repayment process (Shim, Serido, & Lee, 2018). What is more, this study illuminates how doctoral students' financial attitudes influence their financial behavior towards loan repayment, that is, the lack of confidence and fear for repaying the loan debt forever lead borrowers to deliberately or consciously avoid managing with their student loan debt while in school.

Half of the participants were in education and most were women. In this current study, although participants were from different programs, including math, nursing, and physics, the majority of them were from the fields outside of science and engineering. For example, half of the participants were in education, and three participants were in epidemiology. These participants had been accumulating a large amount of student loan debt since their undergraduate program. This finding substantiates the quantitative survey that found that doctoral students in education, humanities, and social sciences accumulated more graduate debt compared with those in STEM fields (Belasco et al. 2014). This finding is also congruent with the recent data from the National Center for Science and Engineering Statistics (2018) that the educational field reported the highest proportion of doctoral recipients with graduate debt among all fields. The qualitative data extends the quantitative data as gathered previously and lends support to the fact that there is limited funding for the field of education. This study, therefore, delves into the doctoral students' experiences in the programs of education, epidemiology, humanities, and social science. These doctoral students' experiences share similarities with the findings from Nguyen's (2016) research, where participants were from programs of history, political science, and sociology.

What is more, the majority of the participants in this current study were female (14 out of 18). Although not intentionally targeted at recruiting female students, this study did draw more female participants. Several reasons might contribute to the higher number of female participants in the current study.

First, more female students were in the program of education, epidemiology or social science. Because these programs tended to be least funded, based on the research criterion that students had to accumulate both graduate and undergraduate student loan debt, the students who met this criterion might be from the fields of education and social science, who might mostly be female students.

Next, male students are more likely than female students to engage in financial socialization during college and had higher financial literacy than female students (Shim & Serido, 2011; Shim & Serido, 2014). It is likely that because male students engage in more financial socialization during college and potentially even after the college, they might therefore have higher financial literacy and are better in managing their personal finances compared with female students. In the present study, many female students expressed that they borrowed much more student loans than they needed for their previous degrees. Maggie and Heather, for example, were not even sure whether it was worthwhile to continue borrowing student loans to pursue their doctoral degree. In a similar scenario, a male student who would like to pursue a doctoral degree and was financially knowledgeable may have done the cost benefit analysis of borrowing and choose not to apply for the doctoral degree and borrow student loans. In other words, there might be fewer eligible male participants for the current study who accumulated both graduate and undergraduate student loan debt.

It might also be possible that male students were not open to discussing their experiences and feelings. Similar to the study by Johnson et al. (2016), the majority of the respondents were females and were attending public universities. Therefore, the findings may be more accurate in revealing female doctoral students' experiences at public universities.

Emotional and mental wellbeing interacted with debt management. This study demonstrates that doctoral students' emotional and mental wellbeing interacted with their student loan debt management. In previous studies, the burden of debt had a negative impact on on the borrower's physical and mental health (Drentea & Lavrakas, 2000; Dwyer, McCloud, & Hodson, 2012). Specifically, student loans were negatively related to borrowers' psychological functioning (Walsemann, Gee, & Gentile, 2015). Findings from this study lend support to this negative relationship between student loan debt and borrowers' mental wellbeing. What is more important, this study underlines an array of positive and negative emotions that are related to the burden of student loan debt and how such emotions might inhibit their effective student loan debt management. While the participants were grateful for the student loans that provided the financial resources to be able to obtain educational degrees, they were angry, if not resentful, about the fact that they were saddled with a large amount of the debt that was at odds with their initial expectations. Many of them chose to defer not only the repayment for the student loan debt but also the active planning of the repayment. Such mental and actional deferment is a result of a mix of fear, anxiety, stress, and anger about their student loan debt.

Such a finding expands the previous study that student loan debt impacted borrowers' health through the emotional experiences of shame (Sweet et al., 2018). What is new from this study is that there are more subtle and conflicting emotional reactions that are shaping doctoral students' experiences. There are more emotional experiences that are impacting borrowers' health, for example, anger, fear, frustration, and exhaustion. This study contributes to the existing literature by revealing the mechanism through which doctoral students' emotions impact their management of the student loan debt. That is, their mixture of emotions, including fear, anger, shame, and gratitude, make them inwardly focused and isolated. Because of such feelings of isolation and loneliness, they chose not to actively seek out help when they are in need of help managing their student loan debt or even deliberately avoid talking about money matters with others. The counter stories presented in the last theme demonstrated that when doctoral students had emotional support from their romantic partners, they were more active and confident in managing their student loan debt. In this vein, the findings illuminate the vital role of emotional wellbeing in sound student loan debt management.

The finding also extends the previous research that found both graduate and undergraduate student loan borrowers had a variety of negative emotions (Johnson et al., 2016). For instance, some doctoral students seem to be at ease with their previous emotions of shame; rather, they had a better understanding of the socioeconomic context that forced them to take out the student loans and exhibited a different perspective that questioned social mobility and social inclusion, which will be discussed in the next subsection. Furthermore, this study illuminates that some students' effort to manage their negative emotions – acceptance, conscious avoidance, or resignation – were counterproductive in managing their student loan debt. For example, Debra shared she had to reframe her perspective to think positively, in order not to be impacted by her negative emotions. She chose not to worry about her student loan debt while in graduate school and was annoyed by her student loan servicer which kept sending her emails. Similar to her, several doctoral students shared that they were anxious to think about their student loan debt, so they tried to avoid the task until they had to. Such conscious avoidance might temporarily protect the doctoral students from negative emotions exerted by the student loan debt, but in the long run, the cost of such inaction might exert more financial and emotional pain.

Students cast doubt on social mobility. It is evident from the current study that the doctoral students who had to rely on student loans for all of their educational degrees were those who lacked resources most. Several participants were first-generation college students and shared that they had nobody in the family to help them navigate the borrowing landscape and manage their student loan debt. This finding is congruent with the finding from the APLUS study that participants from lower socioeconomic status engaged in less informal financial education (Shim & Serido, 2011). Some participants either filed for bankruptcy or their parents filed for bankruptcy. Some participants were previously put on forbearance.

For these participants, it was not difficult for them to obtain the student loans when they were applying for college and graduate programs. However, they lacked the resources to make informed borrowing decisions and manage the loan repayment after the borrowing occurred. Many of these participants shared that they had to rely on student loans to cover their living expenses such as rent, or even support their family. This finding is consistent with the study that found students took out loans on expenses unrelated to education (Johnson et al., 2016). For these participants who also wished that they borrowed less for their previous degrees, the cost of borrowing was significant, both financially and emotionally.

The findings suggest that these participants who treated education as a vehicle of social mobility were disillusioned by the reality that their socioeconomic status did not change after bearing the burden of the student loan debt. On this note, this study substantiates the conclusion that Nguyen (2016) drew in his study that some doctoral students limited their upward mobility in the future by excessive student loan borrowing. What is more, their life situation was constrained by the student loan debt. In the previous study, students who lacked the confidence to repay loans experienced consequences that spilled into other areas of life, for example, delaying marriage, homeownership, employment choices, or moving back to live with parents (Johnson et al., 2016). The current study substantiates this finding by demonstrating the delaying effect of student loans on doctoral students' life decisions.

Johnson et al. (2016) cautioned about the importance of financial education so that students could avoid frivolous spending and start saving as early as possible during school to lower their debt. In particular, Johnson et al. (2016) recommended that students be educated to distinguish the differences in borrowing to finance their human capital and to finance consumption. This study contributes to the previous literature by highlighting the importance of financial education along with student loan lending. If a student is not educated enough to borrow student loans prudently and effectively manage the loan repayment, the detrimental effect of uninformed borrowing decisions and poor debt management to borrowers in the long term may outweigh the beneficial effect of helping students to obtain an education degree. In other words, student loans can be a vehicle for individuals to realize social mobility if only there is also sufficient financial education taking place to help borrowers understand and utilize this tool.

Participants' disappointment was also related to the uncertainty of job prospects. Multiple students expressed their concern to land a job that would help them pay back the student loan debt in a timely manner, and fear that they had to bear the student loan debt forever. This finding is consistent with the previous studies that graduate students were concerned over the uncertainty of job opportunities and repaying the student loan debt after their graduation (Denecke et al., 2016; Nguyen, 2016; Patton, 2012c). While in graduate school, the participants had to skip certain professional development opportunities due to the burden of the student loan debt. This might indicate that they did not possess the similar opportunities for success during the doctoral program as their well-off peers. In brief, the participants who relied on student loans to pursue educational opportunities found themselves also trapped by this very vehicle that helped them to obtain their education.

Students face multifold challenges in debt management. Doctoral students face multifold challenges that prohibit them from proactively and successfully managing their student loan debt. First, doctoral students lack financial means to sustain their living during the graduate school, let alone making student loan payment. Due to the increasing student fees and the lack of funding, some doctoral students chose to work extra hours, which was both mentally and physically demanding for them to stay healthy and productive. For other doctoral students, the lack of funding during the graduate school prompted them to borrow more and accumulate more student loan debt, which in return caused anxiety and prompted them to work more for compensation.

Several participants (Abigail, Lucas, Jeffrey, Carrie, Susan, Irene) shared their feelings of fatigue, pain, and exhaustion. Other participants (Lauren, Maggie, Heather, Andy) shared that they had stress-related physical and mental health issues. Such a finding provides evidence to the previous survey by the Council of Graduate Schools (Denecke et al., 2016), which found that more than half of doctoral students felt stressed about their personal finances. Participants also shared that they found it difficult to cope with emergencies such as a car breakdown or an unexpected dental procedure; such findings speak to the study by Roberts (2015) that graduate students with limited cashflow every month faced many common challenges, including irregular expenses. This finding also contributes to the literature by providing empirical support that financial strain has a particular negative effect on individuals' wellbeing (Kahn & Pearlin, 2006; Pearlin, Aneshensel, & LeBlank, 1997; Shippee, Wilkinson & Ferraro, 2012). As Shippee et al. (2012) posits, financial strain is "a form of stress proliferation" that "may also affect health through multiple pathways including the erosion of persona control and mastery, loss of a supportive social relationship, family tension, and resource constraints" (p. 585). As observed from this study, financial strain caused different stressors on doctoral students' physical, emotional, and mental wellbeing.

Second, the previous studies found that graduate students were concerned over the uncertainty of job opportunities and repaying the student loan debt after their graduation (Denecke et al., 2016; Nguyen, 2016; Patton, 2012c). In current study, multiple students expressed their concern to land a job that would help them pay back the student loan debt in a timely manner and feared that they had to bear the student loan debt forever. This finding is consistent with the previous studies. What is more, the current study illuminates that participants' uncertainty of job prospects was related to their conscious avoidance in managing their student loan debt. Because it is not feasible for participants to predict their future income given the dim job prospects, it is difficult for these doctoral students to realistically plan their loan repayment for the future. Meanwhile, the policy uncertainty regarding the Public Service Loan Forgiveness program also made them anxious about planning their debt repayment.

Moreover, structural challenges also exist that pose funding challenges to doctoral students. For example, a public university requiring doctoral students to pay the increased student fees upfront for the upcoming semester forced them to borrow student loans. Also, many doctoral students' stipend was only 9-month, and they had to rely on student loans for the summertime, or they had to seek a part-time job instead of taking courses in summer to finish their degree on time. Further, doctoral students had to put charges for professional development opportunities such as conferences on their personal credit card and accumulate more consumer debt due to the time lapse in school reimbursement. These challenges reflect the observation by (Sowel et al., 2010) that the structure of the financial support and how this structure interacts with other factors have more crucial influences on doctoral students' degree completion.

Fourth, the cultural taboo of talking about money matters adds an extra layer of pressure for doctoral students who need help. Participants shared that sometimes they felt ashamed for their debt. In addition, because thinking about student loans brought them more anxiety, they chose not to bring it up with others. Jeffrey, for instance, was afraid to disclose his debt amount with his partner for fear that his partner might be scared away. In the previous study, graduate students relied on media as their vital source of information; the internet, parents/family, and university financial aid officers are the top three sources that graduate students seek information from when it comes to debt management (Denecke et al., 2016). Different than the previous finding, this study found that some doctoral students actually tried to avoid reading news media because the news report oversensationalize and were not relevant enough to provide helpful information. Most of them searched the Internet for relevant information. They relied on their parents/family when making borrowing decisions for their previous educational degrees but not necessarily for the doctoral degree. None of them shared that they sought help from the financial aid offices.

Relatedly, there was a lack of designated time and space for doctoral students to concentrate on student loan debt management. A couple of doctoral students expressed that even though they would like to pay attention to their student loans, it would take much mental and temporal resources for them to be able to focus on and research about the student loan debt management. They expressed the wish to have somebody help them walk through best practices in loan debt management, including understanding the repayment process and develop repayment strategies.

In brief, doctoral students were faced with an array of stressors during graduate school, which made the management of the student loan debt last worry for them because they had much more immediate concerns. This study lends support to the previous survey that mental health, financial resources and management, career development, and academic progress are among the top concerns for many graduate students (University of California Office of the President, 2017). Taken together, these challenges also interact with their capability to manage student loan debt.

Implications for Theory

Having discussed the findings of this study in the context of the literature, this section will discuss the theoretical implications.

Confidence and other soft skills are important for financial literacy. Financial literacy measures the degree of individuals' understanding of critical financial concepts and their ability and confidence to manage personal finances, including planning and decision making that are short-term and long-term (Remund, 2010). In general, the findings of this study echo the literature on college students’ lack of financial knowledge when borrowing and managing their student loan debt (Cox, Kreisman, & Dynarski, 2018; Johnson et al., 2016; Morales, 2014; Nguyen 2016). Doctoral students' lack of understanding about their student loan debt and repayment options, lack of confidence in managing the student loan debt and respond to emergencies, and the lack of willingness to talk about debt management indicate that their financial literacy is lower than ideal.

Specifically, confidence was a vital element in sound decision-making (Task Force on Financial Literacy, 2011). The present study coincides with this conceptualization and found that most doctoral students lack confidence in managing their student loan debt repayment. They were afraid of directly dealing with the task of managing their loan repayment because this task caused them stress and anxiety. To repeat an earlier point, several participants shared their thoughts that they would be in debt forever and so they would delay the task of managing the repayment until after they graduate from the doctoral program. To some extent, such an attitude of avoidance reflected their lack of confidence in paying the student loan debt off, which prevented them from seeking opportunities to develop their financial literacy and proactively planning the repayment early on.

Next, findings from this study indicate that financial literacy and debt literacy should be further distinguished and understood theoretically. The popular concept of financial literacy concerns personal financial management in general. The management of student loan debt, however, should be understood in and of itself due to its uniqueness. As the findings illuminated, mixed emotional reactions, including fear, shame, frustration, and anger towards the student loan debt could be a vital factor that inhibits students from actively managing their student loan debt. Specifically, many participants in the current study had been accumulating a large amount of student loan debt that was well above the national average. For these doctoral students, the influence of emotions might be more significant compared to those without this much amount of debt. To this end, the conceptualization and operationalization of the two constructs, financial literacy and debt literacy, should be studied and developed with distinctions to inform practice.

Built upon the concept of financial literacy, financial capability refers to an individual's capacity to effectively manage financial resources based on knowledge, skill, and access (President's Advisory Council on Financial Capability, 2010). In particular, Lusardi (2011) specifies four specific domains of financial capability: making ends meet, advance-planning, choosing and managing financial products, financial literacy, and self-assessed financial skills. Although Remund (2010) contends that financial capability is an iteration following the concept of financial literacy, this study found that more factors are not necessarily essential elements of financial literacy but may influence how an individual gains financial literacy. For example, these factors include an individual's communication skills to obtain relevant information, their attitudes toward student loans, practical problem-solving skills such as using Excel software, and their relationships with others that may influence their perspective about and management of the student loan debt.

In particular, the findings revealed the vital role of many soft skills, such as emotional skills, in managing personal finances (Emmons, 2005). According to Emmons (2005), financial capability requires an array of emotional skills, "including self-discipline, resilience to occasional financial reversals, and the ability to resist the siren calls of friends, family members, and the prevailing consumer culture of instant gratification" (p. 23). The data from this study extended the scope of these soft skills. The sharing of the participants who managed their student loan debt well indicates that successful debt management need more soft skills. To name only a few, these soft skills include strong communication skills to seek information that may be hard to obtain, stress management, and the patience to spend sufficient time and energy in student loan debt management without feeling frustrated by this task. To illustrate, Maria joked herself that she was a big caller and was never afraid of calling her student loan servicer when she needed help. In comparison, Sunny was frustrated calling their student loan servicer and tried to avoid calling them afterwards. Although there are only a few participants who demonstrated their confidence and goal setting in managing the student loan debt, their characteristics are nevertheless beneficial in illuminating the necessary qualities that an individual needs to possess in successfully managing their repayment. One example is John, who had monthly discussions with his wife about loan repayment and sought external resources on debt management.

This study found that the first step to engage in student loan debt management is the willingness to engage in honest conversations about money matters without feeling ashamed. The conceptualization of financial capability should include this open attitude. For example, Debra shared that there should be more honest conversation about issues such as public assistance. In the present study, participants were honestly sharing their experiences, thoughts, and feelings about the student loan debt with me. They were not afraid to share their vulnerability with me. When I asked them with whom they discussed the student loan debt management, many of them shared that they rarely had such conversations.

I surmise that the process of data anonymization and the nature of the research being explorative instead of judgmental provided a safe space for them to reflect upon their experiences. As presented in the findings, several participants (Jeffrey, Janet, Carrie, Maggie, Irene, Abigail) logged into their student loan debt account either during or after the interview to check their borrowing situation, called their student loan servicer about repayment options, or sought a part-time job after the first interview with them. Other participants (Irene, Sunny) shared that the interviews prompted them to reflect more about their student loan debt management and bring it to the forefront of their mind. As such, the conceptualization of financial capability and financial literacy should incorporate another domain, that is, the openness to discuss money matters. The next subsection will specifically discuss the implication of the findings for the developmental model of financial capabilities.

Context matters for the developmental model of financial capability. The theoretical framework of the developmental model of financial capabilities deconstructs financial capability as a dynamic developmental task that involves the interaction among financial knowledge, financial self-beliefs, and financial behavior (Serido, Shim & Tang, 2013). To put it differently, changes in financial knowledge are associated with individuals' financial attitudes and confidence in managing their personal finances. Such changes in an individual's self-beliefs about finances may prompt them to change their financial behaviors, which then has an impact on their financial wellbeing (Serido, Shim & Tang, 2013).

Data from this study reflect the nature of this dynamic developmental process. First, because the interview questions ask the participants about their borrowing considerations for both their previous and current degrees, their reflection on previous borrowing decisions showed an increasing amount of knowledge about just borrowing what was needed instead of wanted. With this attitude, they became more cautious about borrowing student loan debt during their doctoral program.

Still, for many participants, they had little financial knowledge in managing their student loan debt, including the knowledge of different student loan types, loan repayment status, and choices such as loan consolidation and loan refinancing. Neither did they have a clear understanding of their own student loan situation, including the interest rates of their student loans and the accumulated amount. They admitted their lack of knowledge and expressed that they were not confident in managing the loan debt repayment. Because of such lack of knowledge, some of them also shared their perception that they would be paying the student loan debt for their lifetime. In short, their low levels of financial knowledge were associated with their low levels of confidence in managing their student loan debt. Such low levels of confidence, again, made them feel fearful and anxious thinking about managing the student loan debt. Subsequently, their financial behavior towards student loan debt management was conscious or deliberate avoidance.

The findings substantiate this theoretical framework by showing that several participants expressed that the interview with them prompted them to be curious about their student loan debt situation. Probably because the interview protocol included questions that ask them about their financial knowledge regarding the student loan types, repayment strategies, and loan repayment status, they were informed of the potential choices that they might not have thought before. With the new financial knowledge obtained from the first interview itself, they became curious about their own finances. Subsequently, they changed their financial behavior. For instance, after the first interview, Maggie called her student loan servicer to learn more about repayment options, and Jeffrey went back to his student loan debt account to view his total amount.

However, the findings also indicate that some scenarios could not be explained through this theoretical framework. In other words, the interaction among the financial knowledge, financial self-beliefs, and financial behaviors may not sustain due to other reasons. To illustrate, one outstanding finding is that context comes out as the first theme—the context bounds doctoral students' general emotional and physical wellbeing. Contextual factors, for example, limited funding and enormous academic and part-time work, inevitably influence the developmental process of their financial capabilities. Because the doctoral students were faced with multiple stressors while in graduate school, even though they may have obtained specific financial knowledge, or they would like to see their financial behaviors changed, they did not have the time and energy to manage their student loan debt and had to defer the action of managing the loan debt.

Furthermore, several doctoral students shared that they had anxiety and stress-related physical issues, mental health issues, or ADHD, and managing student loans only caused them more anxiety. Therefore, the condition that this theoretical framework works relies on the assumption that an individual has sufficient time, energy, learning capabilities, and is mentally stable. In short, the theoretical development of the developmental model of financial capabilities should first take into account the context of an individual's living situation and learning capabilities.

Financial socialization is the key to develop financial capability. The model of financial socialization processes (Shim et al., 2010) suggests that an individual informally and formally acquires financial knowledge, financial attitudes, and financial behaviors from socialization agents that contribute to their financial wellbeing. Some examples of financial socialization agents are parents, financial education from school, media, peers, religious communities, and romantic partners (Gudmunson et al., 2016).

In order to better understand different individuals' financial socialization processes, the concepts of the financial identity-processing styles (Shim et al., 2013) were introduced to identify an individual's perception of who they are regarding personal financial management. Shim et al. (2013) proposed three financial identity-processing styles. The first style is the informational identity style, whereby a committed individual actively seeks different options based on personal financial beliefs. The second style is a normative identity style whereby an individual internalizes or follows upon certain financial management styles. The third style is a diffused-avoidant identity style whereby an individual focuses on immediate rewards by either delaying making committed choices or making uninformed decisions. In their empirical study, people identifying with these financial identity-processing styles were labeled as Pathfinders, Followers, and Drifters, respectively.

The findings from the current study coincide with the model of financial socialization in the following aspects. First, seven students shared that they were first-generation college students, and so they did not have many financial educational resources from their families to make sound borrowing decisions. For example, Fiona shared that she listened to her mother's advice to borrow whatever amount of federal student loans that were offered for her master's degree without paying attention to the interest rate. She later regretted this decision and wished she had borrowed less. However, for these first-generation college students, they did not share the concerns about their student loan debt with other people or seek relevant information from other sources while in graduate school, which seemed to indicate that their parents might still play an essential role in their financial role modeling. However, none of these students chose the second type "Follower" when asked about how they describe their financial management styles. Instead, some of them chose the first type "Pathfinder" and more chose the third type “Drifter." This finding is congruent with the APLUS study, where the financial role modeling from parents decreased as students grew older (Shim & Serido, 2011).

Another intriguing finding is that even though some students (Lauren, Fiona, Janet) chose their financial identity-processing style as the Pathfinder, they did not seem to be able to possess the capability of finding relevant information about their student loan debt. Especially for Lauren, she mentioned that she found it overwhelming, and she needed somebody's help. One explanation might be that the Pathfinder style is the type that they aspired to be ideally, but in practice, their financial identity-processing style might still be Drifter type. Nevertheless, this study did not intend to use questionnaires to measure which style a participant demonstrated but mainly utilized the concepts of financial identity-processing styles to invite participants sharing their perceptions. Such incongruence might be the differences in the perceived financial identity-processing style and the practiced financial identity-processing style.

Next, several participants who were more confident in managing their student loan debt also shared the relationship piece when I asked them about their conversations about loans with others. For example, Abigail did not actively think about the strategies to pay off her private student loan debt until she had a conversation with her partner, who helped her to walk through the scenarios. John and his wife planned the repayment for their student loan together and strategically paid off his wife's debt first. They had monthly discussions about their progress and the next steps. For another participant Susan who just found herself pregnant, the arrival of the baby in the future added a new perspective to her and made her more eager to be financially knowledgeable. These examples resonate with the finding from the previous study that as students matured and committed to romantic relationships, the influence from their romantic partners for their financial behaviors outweighs that of their parents (Shim & Serido, 2014).

Furthermore, findings of this study illuminate that apart from the fact that doctoral students coming from lower socioeconomic family backgrounds lack monetary resources, they do not have the similar resources to practice and develop their financial capability in order to improve their financial wellbeing. As Shim & Serido (2014) argued, the socioeconomic status and the financial resources influence an individual's opportunities to learn and practice financial management. In this study, the participants who were more resourceful, either through having an inheritance or having a partner who were more resourceful, had more opportunities to talk about how to manage their finances and plan their student loan debt repayment. Such findings also substantiate the study that interests in financial management are stoked by higher income (Luksander et al., 2014).

What is more important, the study finds that most doctoral students have few meaningful conversations with their peers, professors, or family about their student loan debt management. The occasional complaints or commiseration about the student loan debt is not helpful but just adds to the stress that they already face. They shared that there were no workshops or seminars from the professional development opportunities at their school that focuses specifically on student loan debt management. The role of the financial aid office in helping them to manage their student loan debt was also minimal.

Moreover, the student loan servicer provides minimal resources for students to make informed borrowing choices. Several students expressed their frustration with their student loan servicer, which lends support to the literature that insufficient assistance from loan servicers was a challenging barrier for students to manage student loan repayment (Serido & Shim, 2017). Often, students gain financial knowledge after the fact. For example, Ev became familiar with loan status terminologies because she had the default experience. Other examples are students who wished that they had borrowed much less for their previous degrees.

Because the availability and utility of helpful information are critical for an individual to develop financial literacy and capability (Vitt et al., 2000), such lack of available and helpful information from a variety of potentially important sources poses challenges for students to engage in meaningful financial socialization during the graduate school. Without available and helpful information or advice, their financial learning comes at a cost that may cause lifetime ramifications on their financial health.

What makes doctoral students' management of their student loan debt unique and difficult is that their emotional and physical wellbeing is also going through various challenges during the doctoral program. Several participants shared that their physical wellbeing is affected by their stress, which comes from different sources, including part-time jobs, uncertain job prospects, high expectations from the doctoral program, et cetera. As a consequence, they do not have the mental and temporal capacity to deal with student loan debt. Even though they try to put the thought of student loan debt aside, at the back of their mind, they nevertheless feel stressed and anxious about the looming reality of the student loan debt.

Adding to these stressors is the isolating effect of the student loan debt. As Lauren shared, the student loan debt made her feel more inwardly focused, angry, and guarded when meeting people. As we have seen, many doctoral students are burdened with a variety of mixed emotions, including shame, fear, anxiety, and stress. The reinforcement of these factors upon each other can significantly inhibit a doctoral student's general socialization during graduate school, let alone financial socialization. This finding suggests that the model of financial socialization processes also has specific conditions to meet. For instance, the individual's overall physical and mental wellbeing is not at risk of other factors, and they are willing to engage in financial socialization without feeling isolated.

Intuition and accessibility can determine the extent of knowledge. The theory of bounded rationality (Simon 1982, Thaler 2015) proposes that individuals' decision making is bounded by the extent of knowledge that they can obtain. It is very telling from the findings that because of the limited knowledge the doctoral students were provided during their previous programs, they made the borrowing decisions that they wished to change in hindsight. It is not that their borrowing decisions were irrational, but due to the lack of sufficient information and knowledge to help them realize the long-term borrowing consequence, they made decisions that they now wish would be different. For those doctoral students who choose to avoid managing their student loan debt actively, it is also not because that they are irrational, and they do not want to look at their balances, but because they are already very stressed and overworked but still with limited financial resources. Under such circumstances, to protect their mental health by not always worrying about the debt is a rational choice for them to stay healthy and get through the program.

The findings also illustrate the two factors involved in cognitive decision-making that were developed based on the theory of bounded rationality, namely, intuition and accessibility (Kahneman 2003). Intuition means the spontaneous thoughts and preferences coming to mind, and accessibility refers to the effort one needs to exert in constructing the mental content (Kahneman, 2003). Several participants' expressions that they simply do not have the mental capacity to deal with details of the loan debt demonstrates that personal financial management and debt management, in particular, is mentally demanding, and the students' perceptions of their experiences and decision-making are mostly intuition-based. On the one hand, the doctoral students clearly articulated their feelings of anger and views on social mobility issues that seem to be marginal to the very task of student loan debt management. On the other hand, when asked about the specifics of their student loan debt, they candidly shared that they had little understanding of their loan debt situation. It is, therefore, reasonable to argue that the nature of student loan debt management is complex and requires more effort to perform this task mentally.

In contrast, when it comes to the critique on issues such as social mobility, doctoral students could naturally express their spontaneous thoughts and feelings about the student loan debt without much effort.

On this note, the findings raise a theoretical question as to what extent the accessibility and intuition of a mental task may influence the degree that an individual makes a rational decision. To illustrate, several doctoral students shared that they learned the hard way that they should have borrowed prudently for their education degree. However, they were overwhelmed by the daunting task of debt management while in graduate school. Even though rationally speaking, they would like to pay attention to learn more about how to manage their student loan debt, they chose to behave irrationally by displaying a mindset of wishful thinking or delaying the management of the student loan debt.

Carrie, for instance, meticulously drew an illustration of her point of view on student loan debt failing to be a vehicle for social mobility. This demonstrates that intuition-wise, she was quite capable of sharing her spontaneous thoughts and emotions. However, she chose to delay the task of managing student loan debt because she was too busy. She wished that there would be some programs at school that could help her understand what her repayment would look like. This shows that accessibility-wise, this mental task of dealing with the student loan debt, was challenging for her. As such, even though all the information and knowledge about the student loan debt was available through her student loan debt account and the website of Federal Student Aid, she chose not to look at them for the time being, which was typical among the participants.

Similar to Carrie, many participants' spontaneous reactions to the student loan debt was anxiety, anger and frustration, their subsequent preference to protect their emotional wellbeing was deliberate avoidance, or as they put it: "ignorance is bliss." However, all participants expressed the wish to have somebody help them in managing the specifics of their student loan debt, which demonstrates that in terms of accessibility, managing the student loan debt demands a lot of effort that doctoral students were not yet capable of. Such a finding illuminates that intuition and accessibility affect an individual's rational decision-making by occupying one's mental capacity to extend the boundary of knowledge. The "supposed irrelevant factor," as proposed by Thaler (2015), in this context, falls under the realm of mental resources. Because an individual's mental capacity is not unlimited, if intuition-based thought processes mostly occupy their mind, their accessibility-based mental capacity is likely less, leaving them the less mental capacity to deal with complex tasks.

Less is known about how emotions play a role in an individual's cognitive decision-making by influencing the intuition. According to Kahneman (2003), intuition refers to spontaneous thoughts and preferences, which is not the same as emotions. In the present study, doctoral students expressed an armory of emotions related to student loan debt. These emotions inevitably influence their spontaneous thoughts and preferences when discussing their experiences with student loan debt. Based on this finding, the conceptualization of the factors influencing an individual's cognitive decision-making should take into consideration of the role of emotions.

Relatedly, findings also demonstrate the critical role of default choice in shaping borrowers' choices (Cox, Kreisman, & Dynarski, 2018). For example, some doctoral students mentioned that they borrowed the "basic" type of the federal loans without further investigation of which type of loans they borrowed; many doctoral students chose to automatically enroll in deferment because that was a common practice: as long as a student enrolled in school, they did not need to make the loan repayment on federal loans. Due to the lack of knowledge, the participants relied on the default choice because that seemed to be the rational choice.

The conceptual framework could be further developed as a model. This study highlights that to understand students' debt management experience, a multidisciplinary body of knowledge is needed to analyze the complex mental and cognitive activities behind their perceptions and decisions. The conceptual framework that is comprised of the developmental model of financial capabilities, the theory of financial socialization, financial identity-processing styles, and the concepts of bounded rationality could be further developed as a specific model to study doctoral students' development of financial capability. As *Figure 2* illustrates, there are several new elements in this model compared with the conceptual framework.

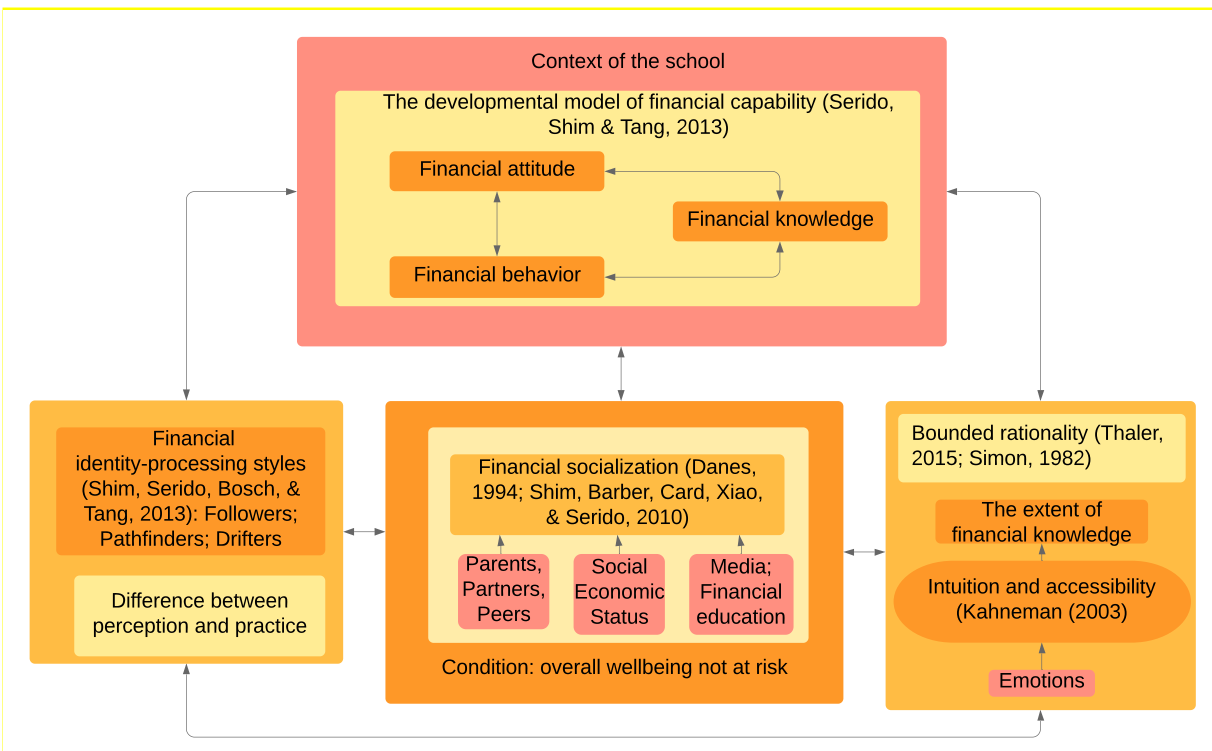

Figure 2. The Model of Doctoral Students' Development of Financial Capability

First, the developmental model of financial capability cannot be separated from the context of graduate school. Across interviews with participants, it became evident that doctoral students faced multiple stressors during graduate school, ranging from funding pressure to academic pressure. Doctoral students' management of their student loan debt is situated within this overall context, which leaves them little time and mental space to focus on financial management. Even though some of them would like to see their debt management improved, they did not have the time and energy to develop their financial capability during graduate school.

Second, the condition for the theory of financial socialization to hold is that individuals' emotional, physical, and mental wellbeing are not at risk so that they are partaking in financial socialization activities. As several participants shared, the positive and negative emotions induced by the student loan debt made them more feel isolated. They were already exhausted managing the miscellaneous tasks in graduate school, both physically and emotionally, which prohibited them from openly socializing with others. Moreover, beyond casually joking about their student loan debt, some participants did not actively seek out help or partake in conversations focusing on the student loan debt management for fear of judgment. Only several participants (John, Lucas, Maria, Zoe, Susan, Abigail), who shared that they were confident or had emotional support from their partners, were more proactive in engaging in debt management.

Third, in considering individuals' financial identity-processing styles, a difference exists between the perceived and the practiced style; the former is, to a large extent, influenced by individuals' financial attitudes, and the latter has practical implications for their financial behaviors. Because this study did not include questions to specifically measure their practiced financial identity-processing style but only elicited their own impression, their identification of the financial identity-processing style might not reflect their practiced style. Moreover, some participants shared that they aspired to manage their student loan debt with the Pathfinder style, while in reality, their student loan debt management style was a mix of Pathfinder and Drifter.

Last, individuals' emotions may interact with their intuition and accessibility, two factors in their mental capacity that define the extent of their knowledge and rational decision-making. As illustrated in the study, doctoral students showed a variety of negative and positive emotions around the student loan debt. Some of them honestly shared that they had to manage their anger and frustration about the lack of social mobility due to the student loan debt in order to function normally while in graduate school. For them, such mixed emotions might lead to the spontaneous thoughts of fear and resentment, and the spontaneous reaction was to avoid the debt management because it caused more emotional pain and was also mentally demanding.

Implications for Policy and Practice

Having discussed the theoretical implications, this section will focus on the implications of the findings for policy and practice.

Policy level. In terms of policy level, several implications, including administrative, legislative, and regulatory recommendations, will be discussed in the following subsections.

Incorporating quizzes in loan counseling. First, the findings demonstrate the very nature of managing student loan debt as complex, overwhelming, and difficult for doctoral students. There are a variety of obstacles for doctoral students when they try to seek helpful information. What is more, many participants made uninformed borrowing decisions without fully comprehending what they were borrowing and the long-term consequence of the compounding interests. It is evident from the study that even though the Federal Study Aid website includes all the facts about different student loan products, related terminologies, different repayment options, and relevant policies, participants did not seem to have a clear understanding of the specifics of their student loan debt.

In particular, the online loan application process and exit interview are more formalities rather than essential checkpoints. Many participants commented on how easy it was to obtain the student loan debt almost without any considerations. Even though in formality, they were required to read the relevant information about the student loans, in practice, there was no real push or incentive for them to read through the online materials in detail. As a consequence, they knew little about what they had borrowed in terms of the loan types, the loan interests, and the accumulated total amount. To change this situation, Federal Student Aid could develop an educational material and online quiz to test borrowers' understanding before issuing student loans. Such quiz can include questions that range from the types of different federal student loans, the differences among these types in terms of interest rates, or whether the student loan accrues interest while in school or not, to scenario analysis that asks students to calculate the amount they would be accumulating throughout a specific period. Making such a quiz mandatory will require students to learn to make informed borrowing decisions. In a like manner, the existing exit-counseling when a student is about to graduate should also incorporate the elements of quizzes or tests to make sure that students truly digested the materials about student loans and could apply such knowledge to their borrowing situation.

Revising the default option for the in-school period. One notable finding is that among the interviewed participants who are actively repaying their student loan debt, they are repaying the private student loan debt due to reasons such as a high-interest rate, or the fact that the debt cannot be deferred. For federal student loans that can be deferred, all doctoral students choose to defer the payment without recognizing the implications of the accumulation of interests. It would be a different scenario if the doctoral students were aware of how much they would eventually be paying off and still chose to defer the payment while in school, in comparison to the current scenario where they did not know the long-term consequence, and they chose to defer the repayment as an avoidance. On this note, I wonder whether the default choice of deferring payment while in school is a beneficial choice for doctoral students in the long run.

In particular, for participants with large loan balances such as Maggie and Debra, who would like to enroll in Public Service Loan Forgiveness Program and have their loans forgiven earlier than later, they are not qualified to enroll in this program, because the current policy stipulates that only a full-time employee is eligible (Public service loan forgiveness, 2018). Because many doctoral programs take about five years or even more, these students have to wait longer until after graduation to start repayment, which may have significant impact on their other life decisions. Federal Student Aid could consider changing the default choice to income-driven repayment while in school so that borrowers could start planning and acting earlier about their repayment. This default choice would not force students who lack resources to start repayment earlier, because they could opt out the default choice and enroll in deferment or forbearance. Many participants showed an attitude of “out of sight, out of mind” towards their student loans because the default option was deferment. Therefore, revising the default option to income-driven repayment plan would at least give them an opportunity to start thinking and repaying their student loans early and potentially having the loans forgiven.

Relatedly, the fact that doctoral students cannot enroll in an income-driven repayment plan because they are not qualified as full-time employees is also the practical hurdle that inhibits them from planning and making repayment earlier in their career. If a doctoral student starts repayment through an income-driven program earlier during the doctoral program, the amount of accumulated interest and mental stress would be significantly reduced when they graduate, and their career choices and future life plans such as marriage or home purchase would not be severely impacted. For this purpose, Federal Student Aid should update existing repayment options for doctoral students by adding the choice of income-driven repayment.

Reoffering subsidized federal loans to graduate students. The Budget Control Act in 2011 stopped offering subsidized federal loans for graduate students, which led to an average increase in the cost of about $2,000 for graduate borrowers (Baum & Mcpherson, 2011). For many participants in this study who have been accumulating above average student loan debt amount from all of their degrees, the increasing cost of unsubsidized federal loans over time is even higher. Several of them shared that even making a payment while in graduate school would not make much difference given the large amount of balance in debt. Zoe, for instance, expressed her frustration over the high interest rate of the unsubsidized loans and hoped that there would be more humane options. To alleviate the financial pressure for doctoral students, the Department of Education should consider reoffering the subsidized student loans for graduate students.

Enacting relevant bills into law. There should be concerted efforts to help students make informed borrowing decisions. This means that the information disclosure regarding the total cost of the degree and the terms and conditions of the loans needs to be clear enough for students to comprehend so that they can make sound borrowing decisions rather than merely a formality. Regarding the cost of the degree, there are several bills introduced to help students better estimate and compare college costs. For example, one Senate Bill 888 (2019) titled "Understanding the True Cost of College Act," aims to provide standard terminology and format for financial aid award offers so that borrowers could fully understand what they were borrowing. Senate Bill 889 (2019), titled "Net Price Calculator Improvement Act," aims to create a website for students to compare the estimated net price for different institutions. Another House Bill 4587 (2019), “Truth in Tuition Act," aims to mandate all institutions to provide admitted students with an estimate of multi-year net costs after the awarding of all financial aid. Currently, these bills are just being introduced and have not been passed by the legislature and enacted into law. Data from the current study lend support to these bills that are currently being discussed. As such, these bills must receive support and be enacted into law so that efforts to help students better understand the cost of their education become mandatory.

In terms of students’ understanding of the terms and conditions of student loans, the bipartisan house bill 4193 (2019) titled "Student Loan Disclosure Transparency Act" requires that students be provided disclosure, including loan details such as estimated monthly payment amount and estimated total cost of the loan over its lifetime. Moreover, this bill also requires the student loan servicer to provide more frequent disclosures to students including more helpful information such as the accrued interest of in the loan's lifetime, and the accrued interest since the last statement. A few other bills are also introduced to improve the disclosure of student loans for borrowers, for instance, the House Bill 1161 (2019) “Student Loan Disclosure Modernization Act," and the Senate Bill 887 (2019) “Know Before You Owe Federal Student Loan Act." Again, the present study shows that when participants borrowed student loans for their previous degrees, they had limited knowledge of the student loan details, their student loan servicer(s), and the estimated total cost of the loans. While pursuing the doctoral degree, these students were also not clear about the accrued interest over time and the total amount they had been accumulating. In addition, several participants expressed frustration in obtaining helpful information from their servicers when they were in need of help. Hence, this study provides data that support the rationale of these introduced bills and recommend that these bills be discussed and enacted into law.

Another bill that should be enacted to mandate the provision of more frequent and specific financial counseling by higher education institutions is the House Bill 2129 (2019) titled "Empowering Students Through Enhanced Financial Counseling Act." This bill proposes that higher education institutions should provide students annual counseling regarding their student loans or Pell Grants instead of only one-time entrance counseling requirement as of now. This bill should be passed sooner than later to imitate nation-wide changes regarding the financial counseling provided by higher education institutions.

Improving the administration of the PSLF program. Almost all doctoral students expressed their interest in enrolling in the Public Service Loan Forgiveness program (PSLF). Nevertheless, they are not confident about the success of being qualified, given the news reports of the limited number of applicants ended up having the loan forgiven. Some students with large amounts of student loan debt seem to have ambivalent attitudes towards the Public Service Loan Forgiveness. On the one hand, they seem to count on enrolling in the Public Service Loan Forgiveness program after they graduate. On the other hand, the policy uncertainty and the limited applicants who qualified for this program gave them second thoughts about this route and more anxiety. For instance, Debra explicitly mentioned that the reason she was trying to console herself of accumulating massive amounts of student loan debt is the hope of loan forgiveness. As such, this implies that external factors such as the arrangement of the loan forgiveness program are likely a significant factor influencing doctoral students' student loan debt repayment strategy.

Therefore, Federal Student Aid should inform the students of the current policy situation and clarify the requirement for students to fulfill in order to have their loans forgiven in the future. In practice, this communication could be handled by the student loan servicer that administers the student's loan debt. Because student loan servicers have the emails and students' loan information already, they could reach out to students by providing the detailed information and requirement of the Public Service Loan Forgiveness program. In this way, borrowers would not be misguided and if they found out that they did not qualify they could decide whether to participate in this program.

Free choice of a student loan servicer. Currently, students have limited knowledge as to why and how particular student loan servicer is responsible for administering their student loan debt. They also have no choice of servicer. This is not conducive to the free-market competition of the different student loan servicers to improve their performance and provide quality service. In other words, student loan borrowers are at the mercy of their servicer once their loan debt is assigned to a specific servicer. This adds an extra layer of frustration to students who sometimes choose to avoid seeking help. Hence, student loan borrowers should have the freedom to choose which loan servicer they would like to administer their student loan debt. To achieve this goal, the Office of Federal Student Aid should revise the current policy by allowing student loan borrowers to choose their loan servicer.

In practice, there are several steps to be taken before students can freely choose their student loan servicer. As of now, each contracted student loan servicer maintains their own website, proprietary software, and communication protocol with borrowers (Campbell, 2019). As a result, the Office of Federal Student Aid does not have access to the servicers' back-end information of borrowers' accounts; meanwhile, when one contract terminates with one servicer, the transfer of millions of borrower accounts can create disruptions and lead to potential errors (Campbell, 2019).

To improve this situation, the Office of Federal Student Aid has launched the Next Gen Federal Student Aid initiative and is consolidating multiple websites into a single digital platform (Federal Student Aid, 2019). As this platform matures, the administration of borrowers' account by different servicers would be on a same platform and allow for smooth transfer of borrowers' accounts should borrowers choose to change their servicers. Because the new practice means that the servicers need to increase operational cost in the short term to improve their customer service and they may even lose a contract due to poor performance, the changes proposed by the Office of Federal Student Aid were met with protests and lawsuits from servicers (Campbell, 2019). Nevertheless, such protests and lawsuits were denied and settled, so the consolidated website is still moving forward (Campbell, 2019).

In addition, the Department of Education should publicize the results of a performance review of all the contracted servicers periodically on the Federal Student Aid website. Such a review should include the evaluation of the efficiency and quality of customer service of different servicers, so that students can make comparisons and then make a decision.

Some student loan servicers' irresponsible customer service not only is not helpful for students but causes extra hardship for them to seek helpful information. Currently, there is a house bill 3519 (2019) titled "Better Service to Borrowers Act" introduced to develop a standard manual to guide student loan servicers to provide quality service. Similar regulations should be established to set an industry standard to provide satisfactory customer service. For instance, because the Consumer Financial Protection Bureau also receives much feedback from student loan borrowers about their servicers, the Department of Education should collaborate with the Consumer Financial Protection Bureau to set up the standard for customer service. Based on this standard, the Department of Education could periodically evaluate each servicer's performance and end contracts with any servicer whose customer service is notably below average.

Institutional level. On the institutional level, many offices at higher education institutions could take measures to help doctoral students face the challenges in managing their student loan debt. For example, the financial aid offices, the departments, the graduate school, the counseling centers, and the graduate student association could all collaborate on programming for doctoral students to develop their financial capability. This section will discuss the recommendations for these offices to work collectively to promote doctoral students' capability in managing their personal finances.

Providing more financial counseling. The interview findings reveal a severe lack of counseling on student loan debt management or personal financial management counseling provided by higher education institutions. Almost all participants did not receive any meaningful information informing them of the long-term implications of the borrowing when they borrowed student loan debt for the previous degrees. As a consequence, many of the participants expressed their wish to have somebody walk through the details with them. Moreover, doctoral students also feel a lack of understanding and support from their professors and advisors in terms of seeking part-time jobs to make ends meet.

To address these concerns, financial aid offices in public institutions could collaborate with community non-profit financial education organizations and offer programs that are specifically suited for doctoral students. The financial aid offices could also leverage their relationship with the designated bank for the university and ask them to provide workshops for doctoral students. Moreover, many free resources are provided by the national non-profit organizations that develop free educational resources, such as the Global Financial Literacy

Excellence Center based at the George Washington University. The financial aid offices could direct doctoral students to its educational resources or collaborate with institutions as such to develop training materials that specifically target doctoral students' needs.

Relatedly, many participants were not clear how much student loan debt they had been accumulating and were not keen in proactively seeking out such information from their own student loan account. They chose to enroll in deferment partially because that was the default option and they did not need to worry about their student loans. If financial aid offices could provide educational materials on the different consequences between repaying student loan earlier and deferring the loan repayment, students might take different actions and start repayment earlier. For instance, such educational resources could be a visual display of different scenarios of repayment period. In that case, students might realize that if they start repaying the loans earlier, even with just a small amount every month, the accumulated interest and possible interest capitalization would be significantly lower in the long run, thus reducing their total repayment burden.

The findings indicate that even a financially savvy adult may still not be entirely clear about their student loan debt. Debt literacy is, therefore, not necessarily only about personal finances but involves more fact-checking. Since the policy on federal student loans continuously changes, for example, changes happened to the types of direct federal loans that were issued to undergraduate and graduate students, it is more critical for a graduate student to understand the implications of these changes on their personal finances. Therefore, financial aid offices should continuously update students regarding policy changes.

Across interviews with the participants, it became evident that participants showed an "out of sight, out of mind" mentality that was detrimental to their long-term financial health.

Hence, financial aid offices could increase communication with doctoral students. To prevent information overload for doctoral students, financial aid offices could collaborate with the Graduate School, each department, or the graduate student association to send out relevant information. Because these organizations already established frequent email communication with doctoral students, financial aid offices could take advantage of these platforms and add relevant information in the newsletters these organization periodically sends out to doctoral students. Such communications can cover various topics including updates on student loan policies and reminders for students to check with their student loan servicers about their loan situation. Moreover, in each of such emails, the financial aid office could include only one piece of financial knowledge, for example, what is the difference between student loan consolidation and refinance. Such periodical communication will not need extra funding or personnel but will help doctoral students develop the habit of periodically paying attention to their personal finances and also gradually gain financial knowledge to manage their debt.

Last, participants shared that they were overwhelmed at the graduate school with many immediate concerns and did not have the time to learn about student loan debt management. Given this challenge, the financial aid office can provide more flexible counseling. For example, virtual drop-in hours can save the doctoral students from commuting in person to the office and also allow the doctoral students' autonomy to determine when they would like to seek counseling based on their busy schedule.

Incorporating financial education in general education. This study found that most doctoral students lack the financial capability to face and manage the challenges arising from managing the repayment of their student loan debt. As we have seen, almost all doctoral students regretted their borrowing decisions for their undergraduate and/or master's degrees, which speaks to the lack of sufficient financial education during their early college years. This finding speaks to many scholars' recommendation that higher education institutions should assume the responsibility to inform their students about the cost of their degree, available funding options, and possible career paths (Denecke et al., 2016; Johnson et al. 2016; Morales, 2014; Patton, 2012a).

As observed from this study, the consequences of participants' uninformed borrowing decisions spill into their mental and physical wellbeing in graduate school, and even into their life decisions. Financial education during early college years would be preventative and help students to make informed borrowing decisions. Especially for participants who were first-generation college students, they did not have any resources from their family to navigate the borrowing and repayment landscape but to rely on the financial aid offices at universities. Because parents/family are the first agents of influence during an individual's financial socialization process (Shim et al., 2010), for participants who are first-generation college students, they did not have much positive influence from their family to navigate the borrowing landscape. While in school, there are structural barriers of the lack of financial education for them, which made them more vulnerable in making borrowing decisions.

This reality asks a fundamental question regarding what kind of skills higher education institutions would like to inculcate the students with, and how higher education could play a role in helping those particular lacking resources to have more advancement opportunities. If higher education shoulders the responsibly to provide individuals with the learning opportunity to maximize their potential and be successful in today's world, then practical skills and knowledge of money management should be an essential element in higher education curriculum.

In practice, higher education institutions could develop a course that specifically focuses on personal financial education and designate this course as a required course within the general education curriculum. Such courses could be taught by faculty from the department of finance or department of family science who possess the relevant expertise. Ideally, institutions should require their students to take such courses in their freshmen year so that they can be prepared early on during their college and prevent potential mistakes that they would later regret. The effect of such reform might take a long time to be observed, but it is at least the first vital step to take.

In addition, as doctoral students have multiple debt portfolios, managing student loan debt is one of the financial portfolios that interacts with their other financial situations. In other words, the status of the student loan debt amount, repayment status, and strategies are shaped by their financial situation, including other borrowing decisions, and are also shaping their long-term financial situation. Their management of the student loan debt could not be separated from the overall management of their personal finances. Therefore, it is more important to educate and empower students themselves so that they are proactive and capable of navigating the borrowing landscape. Therefore, higher education institutions should provide educational courses for doctoral students to develop their capability in managing their personal finances. Again, such a course could be provided by faculty from the business school, or even outsourced to other online courses such as Coursera that also provides free online courses on personal financial education. Each department of the doctoral program could incorporate such a financial education course as their graduation requirement and adopt a satisfactory or unsatisfactory grading policy. For doctoral students who completed the outsourced online course, they just need to provide the certificate of course completion as a proof to satisfy such requirement.

If such a course is provided voluntarily, chances are the doctoral students who need the education most and are most stressed about their loan debt would choose not to enroll in such course because they already did not have much free time and mental energy. As such, making such course mandatory will allow doctoral students who already possess much about financial management to spend the least time to pass the test and meet the requirement, and encourage the doctoral students who need the financial education most to spend more time to learn about personal financial management.

In this current study, for participants who shared that they were already stressed with many priorities during the graduate school, they were anxious to think about their student loan debt and did not know where to start in terms of learning the specifics and planning the repayment. As Heather described, she could not think about the "unknown" of the finances because it was too mentally demanding for her. At the same time, many of them expressed their wish to have somebody help them because managing the student loan debt was too complicated and overwhelming. A key finding is that the stress and anxiety induced by their student loan debt, and the subsequent negative emotions such as shame and fear, spilled into other aspects of their life, which made them more isolated and exhausted. In other words, the financial stress had a significant impact on their overall wellbeing during the graduate school. In this vein, prioritizing financial learning will help doctoral students gain relevant knowledge and information to confidently manage their personal finances, thus alleviating their financial stress, and therefore improving their mental wellbeing.

As the findings show, a challenge that doctoral students face is that they did not have the time to pay attention to their personal finances. If personal financial education were mandated as part of their doctoral program requirement, they would prioritize this learning task. Findings from this study demonstrate that doctoral students who were actively looking for information and resources in managing their student loan debt also showed confidence in loan repayment. Whereas participants who did not know about the specifics of their student loan debt and chose to deliberately delay this task of debt management seemed to be more anxious and exhausted. For these participants, much of their emotional burden about the student loan debt were related to their limited knowledge and limited help from others because the unknown seemed to be intimidating. Therefore, prioritizing a structured financial learning opportunity will help them focus their energy on actual learning instead of worrying about the unknown.

Opponents might argue that such education is unrelated to the area of study of their program, but as data shows, doctoral students from a variety of different programs had limited capability and were stressed about their student loan debt. It is, therefore, all the more essential to provide such educational support and require commitments to making time for financial learning. Such mandatory education will motivate doctoral students to engage in financial education and be prepared to manage their student loan debt after they graduate.

Infusing personal financial education in co-curricular space. Many participants shared that while in graduate school, there were no relevant and helpful professional development opportunities that specifically tackled student loan debt management. Therefore, the professional development opportunities at both the graduate school level and college level should prioritize personal financial and debt management for needed students by including personal financial education in co-curricular programs.

If resources allow, such provision should be face-to-face professional workshops that are provided by personnel with financial management expertise. If resources do not allow, the graduate school and each department could develop and provide more peer-to-peer financial education programs. For instance, the findings indicate that some doctoral students are competent and confident at managing their personal finances. These students could be selected as ambassadors for personal financial education and share their personal stories with their peers through channels of blog, webinars, or panel discussions. Another example of peer-to-peer modeling is to connect current students with program alumni volunteers who are willing to share their repayment experiences. Current doctoral students could be connected to alumni volunteers on a one-to-one basis for a semester or an academic year, during which they have periodical virtual meetings. This way, the current doctoral students feel most connected and receive the most relevant information.

In addition, the findings show that some doctoral students enrolled in their doctoral programs without a full understanding of the total cost of their program, including the increasing student fees. As such, the communication between the graduate program and their prospective students should include a clarification that states the estimated cost for each year of the program to help prospective students make an informed choice. Recruitment programs should also cover the financial cost of the doctoral program. For doctoral students who are already enrolled, the orientation program could include specifically the introduction of personal financial management or debt management.

Also, for many participants (Fiona, John, Ev, Zoe, Debra, Susan, Janet, Irene, Lucas), the bulk of their student loan debt was from their master's program. In hindsight, they wished that they could have borrowed less for their master's degree. For instance, Debra shared that she learned belatedly that some schools paid their students to finish their master's degree. Therefore, universities could provide more funding information for undergraduate students who would like to pursue a master's degree. Such funding information could be a list of regional and national scholarships on master's degree, a list of master programs that offer funding, or the list of databases that students could search for graduate funding information.

In this study, more female doctoral students and first-generation college students shared their lack of knowledge and confidence in managing their student loan debt. Therefore, personal financial management could be incorporated into programs that are specifically catered to these demographics. For example, women's centers at universities could devote resources to develop programs such as symposium or panels on topics related to personal finance. Current programs for first-generation students, such as TRIO, could utilize the free financial education resources and include them in their programming for the first-generation students. Moreover, similar programs as TRIO could be designed specifically for doctoral students who are first-generation college students so that they could receive extra support while they were in graduate school.

Last but not least, this research finds that in doctoral students' daily life, conversations about student loan debt and money are generally taboo topics. The stigma around student loan debt adds to the shame they have and prevents them from actively seeking helpful information from their peers, advisors, and family members. Therefore, the graduate school and graduate student association could start a campaign on managing personal finances to remove the invisible pressure that doctoral students have to bear from such stigma. Such a campaign could be a week of programming that is designed specifically for doctoral students in April, which is the National Financial Literacy Month. Programming could leverage resources from the local bank or non-profit financial education organization, faculty teaching personal financial management, and financial aid offices. Such efforts will help foster an institutional culture of having honest conversations about money management among doctoral students.

Structural improvement on funding options. When doctoral students have an honest conversation about their student loan debt, they also express their anger surrounding the issue of lack of social mobility, and the solidified social stratification. Many departments admit doctoral students without providing any or sufficient funding throughout their program, forcing doctoral students lacking external financial help such as family to rely on borrowing student loan debt to complete their degrees. This, in the long-term, solidifies the social stratification whereby the students coming from lower socioeconomic classes will bear more financial burden in their life instead of realizing social mobility. Universities and colleges could collaborate with their alumni donors to provide more scholarship or assistantship opportunities for doctoral students demonstrating financial needs.

Participants in the current study are all from public institutions that have increased student fees. Almost all doctoral students have to borrow student loans during their doctoral programs to pay for student fees. During the member checking process, I learned from Maggie that the public university she studied at stopped charging student fees, thanks to which she did not borrow more student loans. Public higher education institutions could consider allowing students to pay the student fees through installments throughout the academic year without interest charges on those installments. This change in funding structure would not exert much financial pressure on doctoral students at the beginning of each semester.

This study also reveals that the lack of funding is sometimes a result of structural barriers that could be resolved by the institutional-level policy change. For example, some doctoral students have to borrow student loan debt to cover summer months due to a lack of funding. It is, therefore, necessary for the departments that have resources to guarantee 12-month funding for doctoral students so that they will not be stressed when summertime comes. For the department that cannot provide such resources, they can try to connect doctoral students to paid internship opportunities so that during the summer, their students would still have cash flow coming in. However, not every department may be able to connect their students to a paid internship opportunity. In such scenario, departments could come up with creative solutions. For example, to flatten out the 9-month funding to 12-month might be helpful for students to plan and budget their monthly spending accordingly. Another example is to connect students with those internship opportunities that even though students are unpaid, they are offered accommodation and food stipend in summer. Furthermore, the reimbursement procedure for professional development requires students lacking monetary resources to borrow credit card loan debt in addition to the student loan debt, which puts more stress on their financial situation. Departments should accelerate the reimbursement procedure so that doctoral students do not need to accumulate extra credit card interests or pay doctoral students upfront for their funded professional development opportunities.

Designing a holistic wellbeing model for graduate students. This study shows that managing the student loan debt is an often neglected but critical piece in the overall wellbeing of doctoral students. Participants candidly shared that the student loan debt was intimidating and caused them anxiety and stress, and their coping method was to avoid thinking about it. Often, students with mental health concerns have different stressors that reinforce each other, with financial stress being one of them. This vicious cycle was not previously addressed in the literature on doctoral students' wellbeing. The current generic mental health counseling for doctoral students was not specific enough to help them alleviate the mental burden and fear in dealing with student loan debt management.

For this purpose, higher education institutions should incorporate financial wellbeing in addressing the holistic wellbeing of doctoral students. In practice, this means that there should be more communication and collaboration among the counseling center, the financial aid office, and each department and their faculties. For example, if a faculty member or a department found that a doctoral student's performance or mental status was worrisome, they could first reach out to the student and recommend the counseling center to the doctoral student. The counseling staff could help students to identify different sources of stress during the counseling session. If the source of stress came from financial burden and the counseling staff did not have the expertise to help students alleviate the financial stress, they should refer the students to the financial aid office to seek specific help in managing their personal finances. Meanwhile, in their email communication to the doctoral students who have student loan debt, the financial aid offices could also include the information about the counseling center and the programs they offer for students.

In particular, as shown in the study, both Andy and Heather shared that they were diagnosed with ADHD, and one trait of ADHD was poor financial management. Hence, for doctoral students with ADHD, the student health center should collaborate with the financial aid office to specifically provide proper support for these students to manage their financial wellbeing better.

Relatedly, participants shared multiple stresses that occupy their minds during graduate school, including uncertainty about the future job search and lack of time amid different work commitments. As such, higher education institutions must take steps to alleviate these stresses so that doctoral students are in a better mental and physical status to pay attention to and manage their student loan debt. In practice, the graduate school, each department, and the graduate student association should provide career development opportunities for doctoral students to explore different career possibilities, or provide workshops on time management to alleviate doctoral students' stress.

Last but not the least, faculties and doctoral students' advisors, in particular, should raise their awareness regarding their students' loan debt situation. The office of faculty development could design faculty training for faculty members. Such training could include materials on having honest and constructive conversations with their students regarding personal financial management and resources at the university on personal financial management. In faculty members' periodical meetings with their doctoral advisees, they should cover the aspect of financial wellbeing and direct students to the relevant resources when needed.

Individual level. As discussed above, a lot of challenges doctoral students face in managing their student loan debt are structural barriers. Nevertheless, doctoral students could take steps to overcome the challenges they face while managing their student loan debt in graduate school. Following are some individual-level recommendations.

Be mindful about borrowing student loans. Many participants shared that they borrowed what was offered for their previous degrees and wished that they borrowed only what was needed. They also did not pay attention to the details of the loans when applying loans through online application. Students should be mindful when making borrowing decisions by reading in detail the relevant information provided by the lender. To be a mindful borrower means that a student needs to understand the terminologies that are included in the relevant documents and the different loan types. Students could utilize the website of the Office of Federal Student Aid (https://studentaid.gov/) to learn about different federal student loan products, options of different repayment plans, requirement and eligibility for different repayment status.

Frequently check student loan debt account. Across interviews with participants, it became evident that doctoral students rarely checked their student loan debt account. Some of them were not clear about their accumulated debt amount, others were not clear about which company was their student loan servicer. To proactively manage the student loan debt, doctoral students need to first log into their own account and understand their borrowing situation. From there, they might have questions or confusions and could reach out to their student loan servicer for help. Relatedly, students should pay attention to each email sent out by their student loan servicer to understand their borrowing status and protentional actions that they need to take.

Pay attention to mental wellbeing and seek help when needed. This study demonstrated that doctoral students faced multiple stressors during graduate school that affected their physical and mental wellbeing. Furthermore, the burden of student loan debt also exerted more emotional pain for them, including the feelings of loneliness, isolation, exhaustion, fear, and shame, which in turn prevented them from openly talking about their situation and seeking help to manage their student loan debt. Because emotional and mental wellbeing interact with the management of the student loan debt, doctoral students should seek counseling help and find channels to alleviate the pressures they face.

Engage in conversations about money managing. One finding from this study is that stigma exists for doctoral students to talk about money management in general. They shared that there was no avenue for them to talk about student loan debt management, or related money issues, such as public assistance. Many participants expressed that the interviews with them helped them to reflect upon their experiences and brought the management of the student loan debt to the front of their mind, some of them took action to check their borrowing situation and inquire about repayment options. This observation implies that conversations are helpful tools for doctoral students to bring their attention on their student loan debt and reflect upon their financial behaviors, which will very much likely prompt behavioral changes to actively manage the student loan debt.

Future Research Directions

The findings of this study shed light on the essence of doctoral students' experience with student loan debt during their doctoral program. Students display a mix of emotions, including stress, anxiety, fear, and frustration, that prevents them from managing their student loan debt actively. What is worse, such reactions can even prompt them to actively avoid thinking about and planning their student loan debt repayment. In this light, I recommend that future research could explore the following aspects.

First, since this study includes only doctoral students who have borrowed student loan debt throughout their different degree programs, the findings speak to the needs of students who have minimal financial resources. This group of students, however, may not be representative of the larger population of doctoral students who may have borrowed only for one or two degrees. The implications and recommendations from the current study, therefore, may only apply to a small portion of doctoral students who are financially least resourceful. Hence, future studies could loosen the participant criterion by including doctoral students who borrowed for only one or two degrees instead of all degrees. Their experience of debt management might differ from the findings of this study but speak to the more substantial proportion of doctoral students.

Second, most students who were willing to participate in this study were from two local public institutions. In contrast, only a few students from one local private institution responded to the invitation, and no one ended up participating in the interview, rendering the findings only representative of doctoral students' experience from the two public universities. Future studies should explore the experience of doctoral students at private universities. The doctoral students at the private institutions were likely provided with more financial resources. To illustrate, during the study period, the private university that I intended to recruit participants from changed their policy to fund all doctoral students with a 12-month stipend. In addition, during the recruitment process, several department coordinators emailed me and explained that their doctoral programs were fully funded. As a result, fewer students contacted me with an interest in participating in this study.

Such a finding indicates that overall there were fewer eligible doctoral students for this study at the private institution. In other words, fewer doctoral students at the private institution have borrowed both for their undergraduate and graduate programs. Questions remain as to whether the doctoral students at the private institution were more financially resourceful to begin so that they did not need to borrow for their previous degrees and the doctoral degree, or whether they were better funded during the doctoral program because of the resources at the private institution. Answers to these questions would help provide information that is potentially related to the stress level of doctoral students while at graduate school, both financially and mentally.

On this note, the findings of this study indicate that context in graduate school plays a vital role in shaping doctoral students' development of financial capability. It is likely that the overall financial socialization environment and other elements such as the proper financial and mental support at the private institution, might be different. Thus, the context at the private institution in which doctoral students manage their student loan debt would be different. Future research on doctoral students' loan experiences at private institutions may provide data that confirms or challenges the current findings, shedding light on the common challenges the doctoral students face across institutions when managing their student loan debt. Contrasting and comparing the doctoral students' experience managing their student loan debt at public and private universities would also likely yield more specific information on institutional differences in shaping doctoral students' experiences. Higher education institutions could then tackle the corresponding institutional factors to improve doctoral students' experiences.

Third, the respondents who participated in this study were mostly from programs such as social science and education. Their ways of thinking and approach to dealing with the student loan debt might be different from students in other programs such as computer science or engineering due to the differences in skills that are taught and trained by these programs. For example, students from engineering or math programs might be more comfortable at using a spreadsheet and its math functions to map out their financial planning.

Therefore, future studies should consider including doctoral students from programs of engineering and science to illuminate their experience in managing student loan debt. Again, comparing and contrasting the doctoral students' experiences from different programs might shed light on the potential differences in doctoral students' development of financial capability by their area of study. Such findings will inform practice as to what should be the essential skills that all doctoral students need to learn in order to manage their personal finances successfully.

Fourth, in terms of the sample size, typical phenomenological studies entail interviewing about 5 to 25 people, with 10 subjects being the most common (Creswell, 2013). Initially, I intended to recruit 15 doctoral students, with many doctoral students expressing their interest in participating. To avoid participant attrition, I ended up including 18 participants in the current study. During the data analysis process, I reached data saturation when I finished analyzing about 10 to 12 participants' transcripts. Some of the participants shared very similar thoughts and feelings, and even the same word choices of expression during the interview. A similar study in the future might limit the number of participants or strive to expand the variety of disciplines and fields represented.

As Laura (2012) pointed out, men and women did not “experience economic participation, decisions, and outcomes in the same ways" (p. 177). What is more, female students' financial socialization experiences are quite different from male students during college, and their levels of financial literacy are also lower than male students after college years (Shim & Serido, 2014). This study reveals that the female students’ attitudes toward and experiences with the student loan debt might also be related with the expected income after their doctoral program. To illustrate, the expected pay after students graduate from the program of education or social science might not be dramatically higher than their previous income. As such, the burden of student loans might be heavier and the prospect of repaying the debt in a timely manner or even the possibility of paying off the student loan debt might look dim in their perspective. With such diminished return of the doctoral degree and increasing cost of the borrowing, several students (Maggie, Heather, Carrie, Debra, Ev, Sunny, Fiona, Debra) felt more frustrated about the extra burden of the student loan debt and exhibited lower confidence for loan repayment. In comparison, for a male student in a doctoral program that promises much higher salary post-graduation, such as computer science, the student might have more confidence to pay back the student loan debt and not be overwhelmed by it.

Therefore, students’ experiences with the student loan debt might not be the same due to differences in gender and the program of study, which are also intertwined. Even though data saturation was achieved when the number of participants was about 10 to 12, that was because the majority of the participants were female. It is important to extend the study in the future to include more male participants to understand their financial socialization experience and the channels they develop their financial literacy. Such differences may inform changes in practice so that support is more specifically addressed to help female students develop their financial capability.

Fifth, this study only focuses on the voices of doctoral students through the lens of phenomenology. Their description of the external factors that shape their experiences is based on their perceptions. Such perception is of critical value to gain insight into their emotional status, motives, and psychological reasons that define the essence of their experience in dealing with the student loan debt. However, such perception falls short when I want to understand the external factors that shape the context of their graduate student life because the perceived reality is still different than reality. For example, how do faculty and university administration view the burden of student loan debt on doctoral students and how do they support the doctoral students? The findings of the current study show how doctoral students experience debt, but how are university personnel (mental health counselor, financial aid counselor, faculty advisors, et cetera.) approaching and helping the doctoral students? Hence, future research could use other research methods, such as case study, to gain perspectives from multiple stakeholders of this issue and identify the challenges and problems in supporting doctoral students' debt management holistically.

Sixth, the findings of this study offer a snapshot of doctoral students' experience before they graduate from their programs. Because financial socialization is a life-long process (Gudmunson, Ray & Xiao, 2016), some doctoral students' perceptions regarding their student loan debt might change after their graduation, just as how their perception changed in comparison with their borrowing experience for their previous undergraduate degrees. Future research could study participants' potential change of financial attitudes, knowledge, and behaviors using a longitudinal research design. Such a study may provide insights into what preventative measures could be taken while they are still enrolled in the program.

Lastly, my experiences in implementing the research design and learning about the ambiguity of the criteria in selecting participants made me realize even more how little I knew about the specifics of student loan types and how complicated a borrower's borrowing situation could be. Therefore, higher education scholars must collaborate with scholars in the field of consumer science, behavioral economics, and finances in studying the topics pertaining to students' debt-related behaviors. Such interdisciplinary research will likely inform previously unexplored areas.

Conclusion

To conclude, this phenomenological study found that management of student loan debt or managing personal finance was often neglected by doctoral students who were least resourceful and had to rely on student loans throughout their educational degrees. Such negligence was caused by a variety of internal and external factors, for example, personal emotions, the lack of available educational resources on loan debt management from the university, their family and their peers, and the already stressful graduate school experience. Moreover, most of the interviewed doctoral students showed strong emotional reactions toward the burden of the student loan debt and chose to consciously avoid the effective planning of their student loan debt repayment.

In their perception, their student loan debt was daunting, and managing the student loan debt was a formidable task that they would deal with after they graduate. In reality, their overall wellbeing was compromised by an array of stressors. To name only a few, these stressors include the lack of monetary resources, the feelings of isolation and not understood by others, and the exhaustion from overworking to gain extra income. Although some of these stressors were directly or indirectly related to their student loan debt, most doctoral students were not motivated to deal with this real stressor. Together with limited help from the university, student loan servicer, and their peers and family member, there was minimal financial socialization happening while in graduate school.

Theoretically, such findings lend support to the critical role of financial socialization in an individual's development of financial capability. Practically, such data speak to need for change in national and institutional policies and practices to provide opportunities of financial socialization for doctoral students. These opportunities could include more frequent and effective counseling provided by higher education institutions and student loan servicers, required financial management courses, and workshops that specifically focus on student loan debt management. Specifically, there is a need to foster an institutional culture that encourages doctoral students to openly talk about money problems and remove the stigma around student loan debt.

Moreover, this study also indicates that the condition for the developmental model of financial capability and the model of financial socialization to work is the assumption that an individual has sufficient time and mental capability to deal with the task of financial learning. Therefore, efforts should be taken first to alleviate doctoral students' mental burdens caused by various stressors during graduate school. In practice, graduate school and each department should identify these stressors and take steps to provide better support for doctoral students.

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APPENDICES

Appendix A: Interview Questions Guided by Their Corresponding Theories

Theories	Interview questions
The developmental model of financial capability (Serido, Shim & Tang, 2013)	First interview: 5. In the Qualtrics survey form you filled in, I learned that you had (or did not have)__XX assistantship/fellowship to fund your graduate program, and that you borrowed [type] of student loans to fund both your undergraduate and graduate study, a. If you remember, could you give me a rough estimate of how much you have accumulated from the undergraduate loan(s) you borrowed? It is totally fine if you prefer not sharing this information. We shall skip this question and proceed to the next question if you feel uncomfortable answering this question. b. Could you tell me a little bit what factors influenced your decision to borrow this (these) type (s) of loans for your undergraduate program? In other words, why did you choose to borrow ___ (type of loan). Probe: a) How did you determine the amount of student loans you borrowed? b) How did you compare the interest rate of ___ (type of loan) with other types of loans and make the decision? 6. If you remember, how much loan debt in a rough estimate have you been accumulating from the graduate loan(s) that you borrowed? It is totally fine if you prefer not sharing this information. We shall skip this question and proceed to the next question if you feel uncomfortable answering this question. Probe: a. Could you tell me a little bit what factors influenced your decision to borrow this (these) type (s) of loans for your graduate program? In other words, why did you choose to borrow ___ (type of loan). b. How did you compare the interest rate of ___ (type of loan) with other types of loans and make the decision? c. In what ways are your considerations similar or different when you made the borrowing decisions for your undergraduate program, master (if applicable), and doctoral program? 8. If there was anything that could be changed regarding your borrowing decision(s), what would that be?

	10. Choose either question a. or b. based on the student's response in the screening questionnaire a. In the Qualtrics form, you indicated that you were actively paying back your student loans now, for the following questions, I am going to ask you about your repayment of the student loans. • When did you begin repaying your loan debt? • You indicate that you were in ____repayment plan, why did you choose this particular repayment plan instead of others? • Currently how does your monthly student loan payment influence your overall financial planning and budgeting? • Have you experienced difficulty in repaying the loans, what strategies did you try to deal with the situation? b. In the Qualtrics form, you indicated that you were not in active repayment of your student loans, for the following questions, I am going to ask you about how you plan to repay the student loans. • When do you plan to start repaying your loans? • What is your plan in terms of repaying the loan debt (e.g. which repayment plan, how much monthly payment, and how long the pay-off period)? • To what extent are you confident in sticking to this plan? 11. Could you share with me what your plan is in terms of paying back the student loan(s)? Do you have any particular strategy? 13. To what extent do you think your knowledge about student loans helps or does not help you manage the loan repayment, and why? Could you give me an example? Second interview: 3. How have your perceptions and experiences with student loan debt in the doctoral program changed compared with that of your undergraduate program and/or master program? 8 d. If there are anything that could be done to improve your doctoral experience in relation to student loan debt management, what would that be? 9 b. To what extent does the student loan debt have an impact on your life plans for the future (such as getting married, living situation, buying a home, choosing a specific job/industry sector)?

Financial socialization (Danes, 1994; Shim, Barber, Card, Xiao, & Serido, 2010)	First interview: 12. How confident are you in terms of your financial knowledge about managing the student loan debt? For example, the knowledge could be from knowing the differences and relationships among principle, interest, and capitalization of loans, to knowing the differences among forbearance, deferment and default of loans. Probe: a. If you have difficulties in managing the repayment, where do you try to find out relevant information or resources? (for example, online, newspaper, magazine, blog.) a) If yes, do you ______(seek financial education through channels such as podcast and blogs) on a frequent basis? b. Are there any people or financial educational resources that have been helpful for you in managing the student loan debt? Why are they helpful/not helpful? 14. How comfortable do you feel in dealing with your loan servicer? Could you walk me through a time when you had a phone call or conversation with your loan servicer? Second interview: 6. Do you share any concerns you have about your student loan debt with your friends, family or partner? Could you give me an example? Probe: a. Has anyone else helped you in managing the loan debt (e.g. parents, family members)? b. How helpful do you think their support is? c. Did they give you any suggestions about how to repay? If so, what are their suggestions, and what do you think of their suggestions? 8c. In what aspects do you think the student loan debt you have impact your relationships with other people in your life, including your parents, your significant other if any, your friends, colleagues, professor? Could you give me some examples? 9. We have talked about the different ways that the student loan debt has an impact on your graduate study and social relationships. In what aspects do you think the student loan debt you have impact your life in general? Probe: a. What do conversations that you had about student loans with others usually look like? Could you give me an example?

	10. The news media has been full of headlines and reports about the student loan debt in the nation, to what extent do you think the media reports resonate with your experience or not reflect your experience?
Financial identity-processing styles (Shim, Serido, Bosch, & Tang, 2013).	First interview: 15. For this question, I am going to give you a note card on which there are different styles of money management. After reading them, could you describe which of the following style resonates with you the most and the least? (Hand out the note card) a. I am interested in money management and have actively thought about my financial goals. Currently, I am working on learning more and managing prudently to achieve these goals. b. I have not thought much about how to manage my student loan repayment. I am currently focusing on my academic pursuits and will worry about paying back the loans after I find a job. c. I have been following my parents' money management style. They had much weight in helping me make the decision to borrow. d. None of the above. 16. Could you explain to me a little bit why you chose the above answers, and give me some examples? Probe: a. To what extent do you think your financial management style influences your management of the student loan debt? b. What aspects would you like to see changed in your financial management style to help you successfully manage the student loan debt repayment?
The theory of bounded rationality (Thaler, 2015; Simon, 1982)	1. Could you share with me what your plan is in terms of paying back the student loan(s)? Do you have any particular strategy? 2. How confident are you in terms of your financial knowledge about managing the student loan debt? For example, the knowledge could be from knowing the differences and relationships among principle, interest, and capitalization of loans, to knowing the differences among forbearance, deferment and default of loans. Probe: a. If you have difficulties in managing the repayment, where do you try to find out relevant information or resources? (for example, online, newspaper, magazine, blog.)

	b. If yes, do you ______(seek financial education through channels such as podcast and blogs) on a frequent basis? c. Are there any people or financial educational resources that have been helpful for you in managing the student loan debt? Why are they helpful/not helpful? Second interview: 5. What do you think are the challenges that might prevent you from paying back the student loan debt successfully? 7. Have you considered consolidating your loans? Probe: a. Could you share with me your thought process as to why you consider or not consider the loan consolidation? b. Do you consider seeking Public Service Loan Forgiveness (PSLF)? If so, which repayment plan do you seek to take and why? (Revised Pay As You Earn Repayment (REPAYE) Plan; Pay As You Earn Repayment (PAYE) Plan; Income-Based Repayment (IBR) Plan; Income-Contingent Repayment (ICR) Plan) 8 b. In what ways does the student loan debt impact your decision makings throughout the doctoral program? (For example, how you engage with your peers, how you plan and implement your doctoral research, and how do you choose professional development opportunities like conferences to attend.) Feel free to share anything that you can think of.

Appendix B: Recruitment Email to Graduate School

From: Mian Wu (mwu11@ncsu.edu)
To: [GRADUATE SCHOOL CONTACT]
Subject: Seeking participants for a study of doctoral students' student loan debt experience

Dear [NAME OF THE CONTACT]:

[PERSONALIZED GREETING]

I am Mian (Helen) Wu, a doctoral candidate in the Higher Education program at College of Education at North Carolina State University. I am writing to ask for your assistance to recruit participants at [university name] for the dissertation research I am conducting on doctoral students' experience with their student loan debt.

This research aims to understand how doctoral students perceive and manage their undergraduate and graduate student loan debt during their doctoral program, and in what ways having the student loan debt may influence their decision makings throughout their doctoral journey. Such an understanding will provide important knowledge to inform higher education scholars, practitioners, and policy makers seeking to improve doctoral students' experience and wellbeing.

Specifically, I am looking for doctoral students who are in their second year or above and are currently attending your university for academic research programs. These programs do not include Medicine, Law, or Veterinary Medicine. The students must have taken out student loans in their own name to fund both their undergraduate and graduate studies, and are accumulating student loan debt from both their previous and current educational degrees during the doctoral program.

This study is approved by the Institutional Review Board from my institution, North Carolina State University. I shall send you a copy of the approval letter upon your request.

Would you kindly send the following recruitment information to the doctoral students at [UNIVERSITY NAME]?

> **Seeking participants for a research on doctoral students' experience with student loan debt**
>
> Are you a doctoral student who is in your second year or above and are currently attending your university for academic research programs? Have you taken out student loans in your own name to fund both your undergraduate and graduate studies? If so, you might be eligible for a study on doctoral students' experience in managing their student loan debt. The study will involve a 5-minute online questionnaire, two individual interviews with the researcher and sharing a visual image of your choice. By the end of the study, you will receive a $25 cash and a list of financial education resources that are relevant to doctoral students' management of personal finances. Your sharing may help scholars and practitioners in higher education to

develop better understanding and practices in supporting doctoral student's wellbeing and success.

If you would like to participate, please contact Mian (Helen) Wu, doctoral candidate in Higher Education at North Carolina State University, at mwu11@ncsu.edu.

If you think of any students who meet the research criteria and are interested in participating in this study, please feel free to share this information directly with them. I also attached here the recruitment flyer for your reference.

Many thanks in advance for your consideration, and any help you may provide!

Sincerely,
Mian (Helen) Wu
Doctoral candidate,
Higher Education, North Carolina State University

Appendix C: Recruitment Email to Department Contact

From: Mian Wu (mwu11@ncsu.edu)
To: [DEPARTMENT CONTACT]
Subject: Seeking participants for a study of doctoral students' student loan debt experience

Dear [NAME OF THE CONTACT]:

[PERSONALIZED GREETING]

I am Mian (Helen) Wu, a doctoral candidate in the Higher Education program at College of Education at North Carolina State University. I am writing to ask for your assistance to recruit participants at your department for the dissertation research I am conducting on doctoral students' experience with their student loan debt.

This research aims to understand how doctoral students perceive and manage their undergraduate and graduate student loan debt during their doctoral program, and in what ways having the student loan debt may influence their decision makings throughout their doctoral journey. Such an understanding will provide important knowledge to inform higher education scholars, practitioners, and policy makers seeking to improve doctoral students' experience and wellbeing.

Specifically, I am looking for doctoral students who are in their second year or above and are currently attending your university for academic research programs. These programs do not include Medicine, Law, or Veterinary Medicine. The students must have taken out student loans in their own name to fund both their undergraduate and graduate studies, and are accumulating student loan debt from both their previous and current educational degrees during the doctoral program.

This study is approved by the Institutional Review Board from my institution, North Carolina State University. I shall send you a copy of the approval letter upon your request.

Would you kindly send the following recruitment information to the doctoral students at your department?

> **Seeking participants for a research on doctoral students' experience with student loan debt**
>
> Are you a doctoral student who is in your second year or above and are currently attending your university for academic research programs? Have you taken out student loans in your own name to fund both your undergraduate and graduate studies? If so, you might be eligible for a study on doctoral students' experience in managing their student loan debt. The study will involve a 5-minute online questionnaire, two individual interviews with the researcher and sharing a visual image of your choice. By the end of the study, you will receive a $25 cash and a list of financial education resources that are relevant to doctoral students' management of personal finances. Your sharing may help scholars and practitioners in higher education to

develop better understanding and practices in supporting doctoral student's wellbeing and success.

If you would like to participate, please contact Mian (Helen) Wu, doctoral candidate in Higher Education at North Carolina State University, at mwu11@ncsu.edu.

If you think of any students who meet the research criteria and are interested in participating in this study, please feel free to share this information directly with them. I also attached here the recruitment flyer for your reference.

Many thanks in advance for your consideration, and any help you may provide!

Sincerely,
Mian (Helen) Wu
Doctoral candidate,
Higher Education, North Carolina State University

Appendix D: Email to Interested Participants

From: Mian Wu (mwu11@ncsu.edu)
To: [INTERESTED PARTICIPANT]
Subject: Doctoral students' experience with student loan debt – demographic survey

Dear [NAME OF THE PARTICIPANT]:

[PERSONALIZED GREETING]

Thank you for your interest in participating in the research study on doctoral students' experience with student loan debt. I am Mian (Helen) Wu, a doctoral candidate in the Higher Education program at College of Education at North Carolina State University.

Please complete a short demographic survey [insert link] before [insert date] so that I can make sure that you are eligible for participation in the study. If you are included in this study, I shall follow up with you to set up an interview in the next two weeks.

Many thanks!

Sincerely,
Mian (Helen) Wu
Doctoral candidate,
Higher Education, North Carolina State University

Appendix E: Consent Form

North Carolina State University
INFORMED CONSENT FORM for RESEARCH

Title of Study: Perceiving and Managing the Student Loan Debt: A Phenomenological Study on Doctoral Students' Experience
Principal Investigator: Mian Wu

Faculty Sponsor (if applicable): Alyssa Rockenbach

What are some general things you should know about research studies?
You are being asked to take part in a research study. Your participation in this study is voluntary. You have the right to be a part of this study, to choose not to participate or to stop participating at any time without penalty. The purpose of this research study is to gain a better understanding of how doctoral students experience and manage their student loans and/or debts.

You are not guaranteed any personal benefits from being in a study. Research studies also may pose risks to those who participate. In this consent form you will find specific details about the research in which you are being asked to participate. If you do not understand something in this form it is your right to ask the researcher for clarification or more information. A copy of this consent form will be provided to you. If at any time you have questions about your participation, do not hesitate to contact the researcher(s) named above or the NC State IRB office as noted below.

What is the purpose of this study?
The purpose of the study is to describe and understand doctoral students' experiences with borrowing and managing student loan debt(s). Such understanding will help shed light on the nuances and challenges that doctoral students face in repaying student loans and manage their financial health for policymakers and higher education practitioners. This may improve the scholarly understanding of doctoral students' strategies and experiences with student loan debt and the impact of student loan debt on doctoral students' professional and life pursuits.

Am I eligible to be a participant in this study?
In order to be a participant in this study you must

- Be a doctoral student who is in your second year or above, and are currently attending a four-year public or private institution for academic research programs in the southeast area of the U.S. These programs do not include Medicine, Law, or Veterinary Medicine.
- Have taken out student loans in your own name to fund both your undergraduate and graduate studies, and are accumulating student loan debt from both your previous and current educational degrees during the doctoral program.
- Be willing to discuss your experiences with student loan debt and how you manage your personal finances.

What will happen if you take part in the study?
If you agree to participate in this study, you will be asked to participate in a 5-minute screening survey, an in-person or online interview (E.g. Skype, Facetime, etc.) about your experience in managing your student loan debt, producing or choosing an image that represents such experience, and a follow-up in-person or online interview. Each individual interview will take 45 to 75 minutes of your time. If you choose to be interviewed face to face, the interviews will be conducted in the library study rooms. The interviews will be audio recorded for transcription and analysis, and the visual image will be collected.

Data will be downloaded and stored on secure servers at North Carolina State University. I will work to make sure that no one sees your data without approval. But, because we are using the Internet, there is a chance that someone could access your responses without permission. In some cases, this information could be used to identify you.

Risks and Benefits
There are minimal risks associated with participation in this research. Risks of participation in this study are no greater than those encountered in day-to-day life. We expect that participants will directly benefit from the opportunity to reflect on their own personal financial management in managing their student loan debt. The insights study participants provide will also be of indirect benefit to the extent that they inform the work of higher education scholars, practitioners, and policy makers seeking to improve doctoral students' experience and wellbeing.

Confidentiality
The information in the study records will be kept confidential to the full extent allowed by law. Data will be stored securely on an NC State managed computer. No reference will be made in oral or written reports which could link you to the study. Individual data with individually identifiable details removed may be made available to the public as required by some journal and funding agency data sharing policies.

- Efforts will be made to keep your study-related information confidential. However, there may be circumstances where this information must be released. For example, personal information regarding your participation in this study may be disclosed if required by state law.
- To help maximize the benefits of your participation in this project, by further contributing to the field of higher education and our community, your de-identified data will be stored for future research and may be shared with other people.

Compensation
For participating in this study you will receive $25 cash compensation, and a list of financial education resources that are relevant to doctoral students' management of personal finances. You will receive the compensation no matter your level of participation throughout the process as long as you stay until the end of the second interview session.

Participant rights
You may refuse to participate in this study without penalty or loss of benefits to which you are otherwise entitled. If you are a student or employee at the university that you are currently enrolled in, your decision will not affect your grades or employment status. If you choose to

participate in the study, you may discontinue participation at any time without penalty or loss of benefits. By signing this form, you do not give up any personal legal rights you may have as a participant in this study

What if you have questions about this study?
If you have questions at any time about the study itself or the procedures implemented in this study, you may contact the researcher, Mian Wu, at mwu11@ncsu.edu, or 919-813-8017.

What if you have questions about your rights as a research participant?
If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact the NC State IRB Office via email at irb-director@ncsu.edu or via phone at 1.919.515.4514. You can also find out more information about research, why you would or would not want to be in research, questions to ask as a research participant, and more information about your rights by going to this website: http://go.ncsu.edu/research-participant

Consent To Participate
"I have read and understand the above information. I have received a copy of this form. I agree to participate in this study with the understanding that I may choose not to participate or to stop participating at any time without penalty or loss of benefits to which I am otherwise entitled."

Click Yes_______________________________________ Date _________________

Click No____________________________________ Date _________________

Appendix F: A Demographic Survey for Participant Screening

Please fill in the following:
First Name:
Last Name:
Email:

1. Institution Name:
2. Graduate program:
3. What is your gender identity: a. Man, b. Non-binary/genderqueer, c. Woman, d. A gender not listed here (please specify) [text entry], e. Prefer not to respond
4. Race/ethnicity:
5. When did you enter the doctoral program (please include month and year):
6. Are you a part-time student or full-time student?
7. Are you an in-state or our-of-state student?
8. Are you an international student?
9. What is your relationship status: a. Single, b. Married, c. Divorced, d. In a committed relationship, e. It's complicated [text entry]
10. Do you have any dependent? If so, how many dependents do you have?
11. How would you describe your financial situation during the doctoral program?
    a. Excellent, b. Very good c. Good d. Poor e. The worst
    b. Is there anyone who is helping you financially during the doctoral program? If yes, please describe [text entry]
12. Do you have any undergraduate student loan debt in your own name?
    a. If yes, which type(s) of loan(s) did you borrow? [text entry]
13. Do you currently have any graduate student loan debt in your own name?
    a. If yes, which type(s) of loan(s) have you borrowed? [text entry]
14. Is your doctoral program fully funded?
    a. Yes

If yes, select one of the following sources that matches your funding (check all that apply).

i. Fellowship
ii. 12 month teaching/research assistantship
iii. 9 month teaching/research assistantship
iv. 12 month graduate assistantship at a university office
v. 9 month graduate assistantship at a university office
vi. Not applicable (please describe)_____________

b. No

If no, please describe how you fund your doctoral program _________

15. Are you actively making payments towards any of your student loan debt now?
    a. If yes, which repayment plan have you chosen?
        i. Traditional Repayment Plans
            1. Standard Repayment Plan
            2. Graduated Repayment Plan
            3. Extended Repayment Plan
        ii. Income-Driven Repayment Plans
            1. Revised Pay As You Earn Repayment (REPAYE) Plan
            2. Pay As You Earn Repayment (PAYE) Plan

3. Income-Based Repayment (IBR) Plan
4. Income-Contingent Repayment (ICR) Plan

ii. I don't know/remember

b. If no, please explain _____(text entry)

Appendix G: IRB Amendment summary and justification

Two questions in the demographic screening survey and one question in the interview protocol will be revised to elicit more specific information from interested participants. In the previous survey, participants were asked to write in the type of loans they borrowed for the undergraduate and graduate programs. As a result, I have received several vague written answers from which I could not determine whether they are eligible for the study.

Based on the screening criterion "Doctoral students who have taken out student loans in their own name to fund both their undergraduate and graduate studies, and are accumulating student loan debt from both their previous and current educational degrees during the doctoral program", there are several borrowing situations for potential participants. For example, a student who borrowed unsubsidized student loans for undergraduate and master's degree qualify for the study as in effect they are still accumulating student loan debt during the doctoral program. But some written answers are vague as just "FAFSA", "Federal" or "Stafford", from which I could not tell whether the loan debt is accruing interest. Therefore, I changed the question type from written text to multiple answers and added another follow-up question about their repayment status to determine whether the loan debt is accruing interest.

In addition, the graduate borrowing question in the previous survey did not distinguish between the borrowing for master's and doctoral degrees. If a student answered that he/she borrowed for the graduate degree, I could not tell whether this borrowing was for the doctoral program or the master's or both. This matters because some doctoral programs do not require a previous master's degree. If a student's graduate borrowing is for such doctoral program and the student also meets the criterion of accumulating loan debt from the undergraduate degree, then the student qualifies for the study. But for doctoral programs that require a separate master's degree, if the student borrowed subsidized loans such as Perkins loans for the master's degree and did not borrow for their doctoral study, then the student does not qualify for the study. The previous screening survey, however, was not able to elicit such specific information. I split the question for graduate borrowing into two separate questions (one for master's and one for doctoral), changed the question type from written text to multiple choice, and added a follow-up repayment status question to determine whether the master's degree is still accruing interest.

Since I will already have their loan repayment status information from the screening survey, I updated one interview question in the first interview protocol accordingly.

For interested students who already completed the Qualtrics survey, since changing the question type will delete or alter previously gathered survey data for the existing project, I will not ask them to fill out the survey again by updating the existing survey. Instead, I plan to send them a screening clarification survey link including only the revised questions. For any future students who are interested to participate, I shall set up an amended survey in Qualtrics separately and send them the link of this amended screening survey.

Appendix H: Revised Demographic Survey for Participant Screening

Please fill in the following:
First Name:
Last Name:
Email:

1. Institution Name:
2. Graduate program:
3. What is your gender identity: a. Man, b. Non-binary/genderqueer, c. Woman, d. A gender not listed here (please specify) [text entry], e. Prefer not to respond
4. Race/ethnicity:
5. When did you enter the doctoral program (please include month and year):
6. Are you a part-time student or full-time student?
7. Are you an in-state or our-of-state student?
8. Are you an international student?
9. What is your relationship status: a. Single, b. Married, c. Divorced, d. In a committed relationship, e. It's complicated [text entry]
10. Do you have any dependent? If so, how many dependents do you have?
11. How would you describe your financial situation during the doctoral program?
    c. Excellent, b. Very good c. Good d. Poor e. The worst
    d. Is there anyone who is helping you financially during the doctoral program? If yes, please describe [text entry]

12. Do you have any undergraduate student loan debt in your own name?
    a. If yes, which type(s) of loan(s) did you borrow? (Check all that apply)
        a) Direct Unsubsidized (also called Unsubsidized Stafford Loan)
        b) Direct Subsidized (also called Subsidized Stafford Loan)
        c) Federal Perkins
        d) Private
        e) None of the above, please describe [text entry]
    b. Which repayment status is your undergraduate student loan debt now?
        i. grace period
        ii. default
        iii. deferment
        iv. delinquent
        v. loan rehabilitation
        vi. forbearance
        vii. None of the above, please describe [text entry]
13. Did you take out student loan(s) to fund a separate master's degree before entering the current doctoral program?
    a. If yes, which type of loan did you borrow for your master's degree? (Check all that apply)
        a) Direct Unsubsidized (also called Unsubsidized Stafford Loan)
        b) Direct Subsidized (also called Subsidized Stafford Loan)
        c) Grad PLUS loan (also called Direct PLUS loan)
        d) Federal Perkins

e) Private
f) None of the above, please describe [text entry]

b. Which repayment status is your master's student loan debt now?
a) grace period
b) default
c) deferment
d) delinquent
e) loan rehabilitation
f) forbearance
g) None of the above, please describe [text entry]

14. Do you currently have any student loan debt for your doctoral program in your own name?
    a. If yes, which type(s) of loan(s) have you borrowed?
        a) Direct Unsubsidized (also called Unsubsidized Stafford Loan)
        b) Direct Subsidized (also called Subsidized Stafford Loan)
        c) Grad PLUS loan
        d) Federal Perkins
        e) Private
        f) None of the above, please describe [text entry]
    b. Which repayment status is your doctoral student loan debt now?
        a) grace period
        b) default
        c) deferment
        d) delinquent
        e) loan rehabilitation
        f) forbearance
        g) None of the above, please describe [text entry]

15. Is your doctoral program fully funded?
    a. Yes

If yes, select one of the following sources that matches your funding (check all that apply).

i. Fellowship
ii. 12 month teaching/research assistantship
iii. 9 month teaching/research assistantship
iv. 12 month graduate assistantship at a university office
v. 9 month graduate assistantship at a university office
vi. Not applicable (please describe)_____________

b. No

If no, please describe how you fund your doctoral program _________

16. Are you actively making payments towards any of your student loan debt now?
    a. If yes, which repayment plan have you chosen?
        i. Traditional Repayment Plans
            1. Standard Repayment Plan
            2. Graduated Repayment Plan
            3. Extended Repayment Plan
        ii. Income-Driven Repayment Plans

1. Revised Pay As You Earn Repayment (REPAYE) Plan
2. Pay As You Earn Repayment (PAYE) Plan
3. Income-Based Repayment (IBR) Plan
4. Income-Contingent Repayment (ICR) Plan

ii. I don’t know/remember

c. If no, please explain _____(text entry)

Appendix I: Email to Participants Seeking Clarification

Follow-up email for participants whose answers to the previous screening link are insufficient to determine whether they are eligible for the study

From: Mian Wu (mwu11@ncsu.edu)
To: [INTERESTED PARTICIPANT]
Subject: Seeking further clarification for the study on student loan debt experience

Dear [NAME OF THE PARTICIPANT]:

Thank you for filling out the demographic survey earlier!

From the written answers you provided, I was not able to determine whether you were eligible for the study. This is a fault on me as I did not design the question appropriately to elicit sufficient information. Would you kindly fill out this clarification follow-up survey [insert link] to allow me to determine your eligibility in this study? It will take you no more than one minute to fill in the information.

Sorry for the inconvenience, and again, I appreciate your great support!

Many thanks!

Sincerely,
Mian (Helen) Wu
Doctoral candidate,
Higher Education, North Carolina State University

Appendix J: Follow-up Screening Survey Seeking Clarification

Screening survey seeking for further clarification from interested students who already filled the survey, but whose previous answers were vague.

Please fill in the following:
First Name:
Last Name:
Email:

1. Do you have any undergraduate student loan debt in your own name?
    a. If yes, which type(s) of loan(s) did you borrow? (Check all that apply)
        f) Direct Unsubsidized (also called Unsubsidized Stafford Loan)
        g) Direct Subsidized (also called Subsidized Stafford Loan)
        h) Federal Perkins
        i) Private
        j) None of the above, please describe [text entry]
    b. Which repayment status is your undergraduate student loan debt now?
        i. grace period
        ii. default
        iii. deferment
        iv. delinquent
        v. loan rehabilitation
        vi. forbearance
        vii. None of the above, please describe [text entry]
2. Did you take out student loan(s) to fund a separate master's degree before entering the current doctoral program?
    b. If yes, which type of loan did you borrow for your master's degree? (Check all that apply)
        h) Direct Unsubsidized (also called Unsubsidized Stafford Loan)
        i) Direct Subsidized (also called Subsidized Stafford Loan)
        j) Grad PLUS loan (also called Direct PLUS loan)
        k) Federal Perkins
        l) Private
        m) None of the above, please describe [text entry]
    c. Which repayment status is your master's student loan debt now?
        a) grace period
        b) default
        c) deferment
        d) delinquent
        e) loan rehabilitation
        f) forbearance
        g) None of the above, please describe [text entry]
3. Do you currently have any student loan debt for your doctoral program in your own name?
    a. If yes, which type(s) of loan(s) have you borrowed?
        h) Direct Unsubsidized (also called Unsubsidized Stafford Loan)

i) Direct Subsidized (also called Subsidized Stafford Loan)
j) Grad PLUS loan
k) Federal Perkins
l) Private
m) None of the above, please describe [text entry]

c. Which repayment status is your doctoral student loan debt now?
   a) grace period
   b) default
   c) deferment
   d) delinquent
   e) loan rehabilitation
   f) forbearance
   g) None of the above, please describe [text entry]

Appendix K: Interview Protocol for the First Interview

Pre-interview script:

Thank you for taking your time to participate in this interview. Before we start, I would like to give you a brief background on this research. This study aims to understand how doctoral students perceive and manage their student loan debt. The essential question that I am trying to answer by conducting this study is "what are doctoral students' experiences with borrowing and managing student loan debt(s)? I hope that findings will help shed light on the nuances and challenges in facilitating doctoral students to repay student loans and manage their financial health for policy makers and higher education practitioners.

Next, talking about money and asking about debt is frequently a sensitive subject in American culture. This interview will include questions about your borrowing decisions, how you perceive and manage your student loan debt, and how the student loan debt might influence your other life choices. You may find some of the questions difficult to answer because the subject is personal. If during the interview, you have any questions that you would like to skip, you want to stop the interview, or bring up anything that you think is relevant to your experience with student loans/debts, please feel free to do so. To prevent others from learning your identity, we will use a pseudonym for you in this interview. Do you have a name you would like me to call you during this interview?

Do you have any questions about this process? *Answer any questions if there are.* Now lets' get started.

Interview questions
Section 1: The experience in the doctoral program

1. First, could you tell me a little bit about yourself in terms of what your research program is, where you are at the doctoral program, and how you see yourself progressing in the program?

2. What made you decide to attend this doctoral program at this university?

3. In the Qualtrics survey, you described that your financial situation during the doctoral program is [insert the answer], could you elaborate on why you chose this answer?

Probe: What are the rewarding and challenging moments in managing your personal finances as you are pursuing your doctoral degree now?

4. What are your short-term and long-term plans after graduating from the _____ program?

Probe:
   a. How do you feel now in terms of working towards these goals?
   b. To what extent does your student loan debt have an impact on you working towards those goals?

Section 2: Borrowing the student loan debt

5. In the Qualtrics survey form you filled in, I learned that you had (or did not have)__XX assistantship/fellowship to fund your graduate program, and that you borrowed [type] of student loans to fund both your undergraduate and graduate study,

   a. If you remember, could you give me a rough estimate of how much **you have accumulated** from the undergraduate loan(s) you borrowed? It is totally fine if you prefer not sharing this information. We shall skip this question and proceed to the next question if you feel uncomfortable answering this question.

   b. Could you tell me a little bit what factors influenced your decision to borrow this (these) type (s) of loans for your undergraduate program? In other words, why did you choose to borrow ___ (type of loan).

Probe:

a. How did you determine the amount of student loans you borrowed?
b. How did you compare the interest rate of ___ (type of loan) with other types of loans and make the decision?

6. If you remember, how much loan debt in a rough estimate **have you been accumulating** from the graduate loan(s) that you borrowed? It is totally fine if you prefer not sharing this information. We shall skip this question and proceed to the next question if you feel uncomfortable answering this question.

Probe:

   a. Could you tell me a little bit what factors influenced your decision to borrow this (these) type (s) of loans for your graduate program? In other words, why did you choose to borrow ___ (type of loan).
   b. How did you compare the interest rate of ___ (type of loan) with other types of loans and make the decision?
   c. In what ways are your considerations similar or different when you made the borrowing decisions for your undergraduate program, master (if applicable), and doctoral program?

7. In what ways did the financial resources from your graduate program help or not help you in pursuing your doctoral program?

8. If there was anything that could be changed regarding your borrowing decision(s), what would that be?

Section 3: Repaying the student loan debt

9. As of now, what is the repayment status of your student loan debt? (grace period, default, deferment, delinquent, loan rehabilitation, forbearance.) If you are not sure which status your loan is in or you are uncomfortable with sharing, that is totally fine.

Probe:

   a. How does this loan repayment status (loan debt if repayment status not known) impact your overall financial budgeting during the doctoral program?

10. Choose either question a. or b. based on the student's response in the screening questionnaire
    a. In the Qualtrics form, you indicated that you were actively paying back your student loans now, for the following questions, I am going to ask you about your repayment of the student loans.
        - When did you begin repaying your loan debt?
        - You indicate that you were in ____repayment plan, why did you choose this particular repayment plan instead of others?
        - Currently how does your monthly student loan payment influence your overall financial planning and budgeting?
        - Have you experienced difficulty in repaying the loans, what strategies did you try to deal with the situation?

    b. In the Qualtrics form, you indicated that you were not in active repayment of your student loans, for the following questions, I am going to ask you about how you plan to repay the student loans.
        - When do you plan to start repaying your loans?
        - What is your plan in terms of repaying the loan debt (e.g. which repayment plan, how much monthly payment, and how long the pay-off period)?
        - To what extent are you confident in sticking to this plan?

11. Could you share with me what your plan is in terms of paying back the student loan(s)? Do you have any particular strategy?

12. How confident are you in terms of your financial knowledge about managing the student loan debt? For example, the knowledge could be from knowing the differences and relationships among principle, interest, and capitalization of loans, to knowing the differences among forbearance, deferment and default of loans.

Probe:
    a. If you have difficulties in managing the repayment, where do you try to find out relevant information or resources? (for example, online, newspaper, magazine, blog.)
        i. If yes, do you ______(seek financial education through channels such as podcast and blogs) on a frequent basis?
    b. Are there any people or financial educational resources that have been helpful for you in managing the student loan debt? Why are they helpful/not helpful?

13. To what extent do you think your knowledge about student loans helps or does not help you manage the loan repayment, and why? Could you give me an example?

14. How comfortable do you feel in dealing with your loan servicer? Could you walk me through a time when you had a phone call or conversation with your loan servicer?

15. For this question, I am going to give you a note card on which there are different styles of money management. After reading them, could you describe which of the following style resonates with you the most and the least? (Hand out the note card)

e. I am interested in money management and have actively thought about my financial goals. Currently, I am working on learning more and managing prudently to achieve these goals.
f. I have not thought much about how to manage my student loan repayment. I am currently focusing on my academic pursuits and will worry about paying back the loans after I find a job.
g. I have been following my parents' money management style. They had much weight in helping me make the decision to borrow.
h. None of the above.

16. Could you explain to me a little bit why you chose the above answers, and give me some examples?

Probe:

a. To what extent do you think your financial management style influences your management of the student loan debt?
b. What aspects would you like to see changed in your financial management style to help you successfully manage the student loan debt repayment?

Thank you so much for sharing your thoughts and comments regarding your borrowing decisions and repayment plans. We are going to talk more about your experience in managing the student loan debt repayment more for the second interview. Before now and the next time we meet, I ask you to come up with a visual image that you think most represent your experience in dealing with the student loan debt - anything that seems to fit with how you feel or think about your student loan debt. This image could be a photo you take, an illustration you design using any software, a sketch by hand, or any images you come across elsewhere, online, magazine, newspaper, an album cover, or a movie poster. Make sure to email me the soft copy of the image before the next interview. You may scan or take a picture of the image and send it to me if it is a physical image. During our next interview, I will ask you to describe why you choose this image to represent your experience, and how you make sense of the experience. What matters is what the image means to you, not the picture itself. Does that sound good to you? Let me know if you have any questions? If not, thank you again, and look forward to our next interview!

Appendix L: Revised Interview Protocol for the First Interview

Pre-interview script:

Thank you for taking your time to participate in this interview. Before we start, I would like to give you a brief background on this research. This study aims to understand how doctoral students perceive and manage their student loan debt. The essential question that I am trying to answer by conducting this study is "what are doctoral students' experiences with borrowing and managing student loan debt(s)? I hope that findings will help shed light on the nuances and challenges in facilitating doctoral students to repay student loans and manage their financial health for policy makers and higher education practitioners.

Next, talking about money and asking about debt is frequently a sensitive subject in American culture. This interview will include questions about your borrowing decisions, how you perceive and manage your student loan debt, and how the student loan debt might influence your other life choices. You may find some of the questions difficult to answer because the subject is personal. If during the interview, you have any questions that you would like to skip, you want to stop the interview, or bring up anything that you think is relevant to your experience with student loans/debts, please feel free to do so. To prevent others from learning your identity, we will use a pseudonym for you in this interview. Do you have a name you would like me to call you during this interview?

Do you have any questions about this process? *Answer any questions if there are.* Now lets' get started.

Interview questions
Section 1: The experience in the doctoral program

1. First, could you tell me a little bit about yourself in terms of what your research program is, where you are at the doctoral program, and how you see yourself progressing in the program?

2. What made you decide to attend this doctoral program at this university?

3. In the Qualtrics survey, you described that your financial situation during the doctoral program is [insert the answer], could you elaborate on why you chose this answer?

Probe: What are the rewarding and challenging moments in managing your personal finances as you are pursuing your doctoral degree now?

4. What are your short-term and long-term plans after graduating from the _____ program?

Probe:
   a. How do you feel now in terms of working towards these goals?
   b. To what extent does your student loan debt have an impact on you working towards those goals?

Section 2: Borrowing the student loan debt

5. In the Qualtrics survey form you filled in, I learned that you had (or did not have)__XX assistantship/fellowship to fund your graduate program, and that you borrowed [type] of student loans to fund both your undergraduate and graduate study,

    a. If you remember, could you give me a rough estimate of how much **you have accumulated** from the undergraduate loan(s) you borrowed? It is totally fine if you prefer not sharing this information. We shall skip this question and proceed to the next question if you feel uncomfortable answering this question.

    b. Could you tell me a little bit what factors influenced your decision to borrow this (these) type (s) of loans for your undergraduate program? In other words, why did you choose to borrow ___ (type of loan).

Probe:

c. How did you determine the amount of student loans you borrowed?
d. How did you compare the interest rate of ___ (type of loan) with other types of loans and make the decision?

6. If you remember, how much loan debt in a rough estimate **have you been accumulating** from the graduate loan(s) that you borrowed? It is totally fine if you prefer not sharing this information. We shall skip this question and proceed to the next question if you feel uncomfortable answering this question.

Probe:

    a. Could you tell me a little bit what factors influenced your decision to borrow this (these) type (s) of loans for your graduate program? In other words, why did you choose to borrow ___ (type of loan).
    b. How did you compare the interest rate of ___ (type of loan) with other types of loans and make the decision?
    c. In what ways are your considerations similar or different when you made the borrowing decisions for your undergraduate program, master (if applicable), and doctoral program?

7. In what ways did the financial resources from your graduate program help or not help you in pursuing your doctoral program?

8. If there was anything that could be changed regarding your borrowing decision(s), what would that be?

Section 3: Repaying the student loan debt

9. In the Qualtrics survey, you shared that your student loan debt for the ___ (undergraduate/master/doctoral program) is in _____[insert corresponding repayment status]. How does this loan repayment status (loan debt if repayment status not known) impact your overall financial budgeting during the doctoral program?

10. Choose either question a. or b. based on the student's response in the screening questionnaire
    a. In the Qualtrics form, you indicated that you were actively paying back your student loans now, for the following questions, I am going to ask you about your repayment of the student loans.
        - When did you begin repaying your loan debt?
        - You indicate that you were in ____repayment plan, why did you choose this particular repayment plan instead of others?
        - Currently how does your monthly student loan payment influence your overall financial planning and budgeting?
        - Have you experienced difficulty in repaying the loans, what strategies did you try to deal with the situation?

    b. In the Qualtrics form, you indicated that you were not in active repayment of your student loans, for the following questions, I am going to ask you about how you plan to repay the student loans.
        - When do you plan to start repaying your loans?
        - What is your plan in terms of repaying the loan debt (e.g. which repayment plan, how much monthly payment, and how long the pay-off period)?
        - To what extent are you confident in sticking to this plan?

11. Could you share with me what your plan is in terms of paying back the student loan(s)? Do you have any particular strategy?

12. How confident are you in terms of your financial knowledge about managing the student loan debt? For example, the knowledge could be from knowing the differences and relationships among principle, interest, and capitalization of loans, to knowing the differences among forbearance, deferment and default of loans.

Probe:

a. If you have difficulties in managing the repayment, where do you try to find out relevant information or resources? (for example, online, newspaper, magazine, blog.)
    i. If yes, do you ______(seek financial education through channels such as podcast and blogs) on a frequent basis?
b. Are there any people or financial educational resources that have been helpful for you in managing the student loan debt? Why are they helpful/not helpful?

13. To what extent do you think your knowledge about student loans helps or does not help you manage the loan repayment, and why? Could you give me an example?

14. How comfortable do you feel in dealing with your loan servicer? Could you walk me through a time when you had a phone call or conversation with your loan servicer?

15. For this question, I am going to give you a note card on which there are different styles of money management. After reading them, could you describe which of the following style resonates with you the most and the least? (Hand out the note card)

i. I am interested in money management and have actively thought about my financial goals. Currently, I am working on learning more and managing prudently to achieve these goals.
j. I have not thought much about how to manage my student loan repayment. I am currently focusing on my academic pursuits and will worry about paying back the loans after I find a job.
k. I have been following my parents' money management style. They had much weight in helping me make the decision to borrow.
l. None of the above.

16. Could you explain to me a little bit why you chose the above answers, and give me some examples?

Probe:

a. To what extent do you think your financial management style influences your management of the student loan debt?
b. What aspects would you like to see changed in your financial management style to help you successfully manage the student loan debt repayment?

Thank you so much for sharing your thoughts and comments regarding your borrowing decisions and repayment plans. We are going to talk more about your experience in managing the student loan debt repayment more for the second interview. Before now and the next time we meet, I ask you to come up with a visual image that you think most represent your experience in dealing with the student loan debt - anything that seems to fit with how you feel or think about your student loan debt. This image could be a photo you take, an illustration you design using any software, a sketch by hand, or any images you come across elsewhere, online, magazine, newspaper, an album cover, or a movie poster. Make sure to email me the soft copy of the image before the next interview. You may scan or take a picture of the image and send it to me if it is a physical image. During our next interview, I will ask you to describe why you choose this image to represent your experience, and how you make sense of the experience. What matters is what the image means to you, not the picture itself. Does that sound good to you? Let me know if you have any questions? If not, thank you again, and look forward to our next interview!

Appendix M: Interview Protocol for the Second Interview

Pre-interview script:

Thank you for bringing the image for our interview today. During today's interview, we will start with some discussions about the image that represent your experience, and I will continue asking you some open-ended questions regarding your experiences with the student loan debt management during the doctoral program. These questions will mainly cover your perceptions, including your feelings and thoughts in managing the student loan debt.

Do you have any questions about this process? *Answer any questions if there are.* Now lets' get started.

Section 1: Perception (feelings, thoughts, reactions, etc.)

1. I would like to know whether you may have had any further reflections after our first interview and before today. When you thought the first conversation we had a couple of weeks ago, were there any feelings and thoughts that came up for you?

2. You chose ______ (describing the image), could you explain a little bit to me why you chose this image? Could you share with me the thought process of how you came up with this specific image?

Probe:

   a. In what ways do you think it represents your experience with managing the student loan debt you have?
   b. How does the image reflect the feelings and emotions that come to your mind?

3. How have your perceptions and experiences with student loan debt in the doctoral program changed compared with that of your undergraduate program and/or master program?

4. In what ways do you think having the student loan debt influences your overall wellbeing during the doctoral program? Could you give me some examples?

5. What do you think are the challenges that might prevent you from paying back the student loan debt successfully?

Probe:

   a. Do you have any other side-hustles to help you pay back the loans? If so, what are those side-hustles, and how are these experiences (having part-time jobs) influencing your experience pursuing the doctoral degree?

6. Do you share any concerns you have about your student loan debt with your friends, family or partner? Could you give me an example?

Probe:

d. Has anyone else helped you in managing the loan debt (e.g. parents, family members)?
e. How helpful do you think their support is?
f. Did they give you any suggestions about how to repay? If so, what are their suggestions, and what do you think of their suggestions?

7. Have you considered consolidating your loans?

Probe:

   a. Could you share with me your thought process as to why you consider or not consider the loan consolidation?
   b. Do you consider seeking Public Service Loan Forgiveness (PSLF)? If so, which repayment plan do you seek to take and why? (Revised Pay As You Earn Repayment (REPAYE) Plan; Pay As You Earn Repayment (PAYE) Plan; Income-Based Repayment (IBR) Plan; Income-Contingent Repayment (ICR) Plan)

Section 2: the overall influence of the debt on the doctoral program and life choices

8. In what aspects do you think the student loans debt you have impact your doctoral program at XX University?

Probe:

   a. In what ways do you think your student loan debt have an influence on your progress and success of the doctoral program? Does it make you work extra hard to finish your doctoral program in a timely manner, or do you feel it is an extra layer of challenge that prohibits you from graduating on time?
   b. In what ways does the student loan debt impact your decision makings throughout the doctoral program? (For example, how you engage with your peers, how you plan and implement your doctoral research, and how do you choose professional development opportunities like conferences to attend.) Feel free to share anything that you can think of.
   c. In what aspects do you think the student loan debt you have impact your relationships with other people in your life, including your parents, your significant other if any, your friends, colleagues, professor? Could you give me some examples?
   d. If there are anything that could be done to improve your doctoral experience in relation to student loan debt management, what would that be?

9. We have talked about the different ways that the student loan debt has an impact on your graduate study and social relationships. In what aspects do you think the student loan debt you have impact your life in general?

Probe:

   a. What do conversations that you had about student loans with others usually look like? Could you give me an example?
   b. To what extent does the student loan debt have an impact on your life plans for the future (such as getting married, living situation, buying a home, choosing a specific job/industry sector)?

10. The news media has been full of headlines and reports about the student loan debt in the nation, to what extent do you think the media reports resonate with your experience or not reflect your experience?
11. The above questions are all the questions that I have prepared, is there anything that you would like to add that I was not able to ask earlier? Any thoughts or comments that come from our earlier conversations?

Appendix N: Recruitment Flyer

What is your experience with borrowing and managing student loan debt?

Have your voice heard by participating in the research:

Perceiving and Managing the Student Loan Debt:
A Phenomenological Study on Doctoral Students' Experience

North Carolina State University, Department of Higher Education
PhD Candidate Mian (Helen) Wu

The insights you provide will be of great importance to inform the work of higher education scholars, practitioners, and policy makers seeking to improve doctoral students' experience and wellbeing!

You will gain

- **An opportunity to reflect on your own personal financial management in managing your student loan debt**
- **$25 cash compensation**
- **A list of financial education resources that are relevant to doctoral students' management of personal finances.**

You are eligible to as a participant if you

- Are a doctoral student who is in your second year or above, and is currently attending a four-year public or private institution for academic research programs in the southeast area of the U.S. These programs do not include Medicine, Law, or Veterinary Medicine.
- Have taken out student loans in your own name to fund both your undergraduate and graduate studies, and are accumulating student loan debt from both your previous and current educational degrees during the doctoral program.

You will be asked to

- Conduct a 5-minute screening survey followed up by two interviews (in-person or online) with the researcher.

If you have any questions or are interested in participating, please contact:
Mian (Helen) Wu at or Email: mwu11@ncsu.edu

Doctoral Students' Loan Debt Experience
Email: mwu11@ncsu.edu

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Appendix O: List of Financial Management Resources

Websites and Blogs

- Personal Finance for PhDs

As its name indicates, this is the most relevant blog I find that deal with doctoral students' budget, saving and investing, paying off debt, and figuring out the taxes. I have been listening to each episode of the podcast, which features doctoral students' stories managing their personal finances, such as negotiating PhD funding offers. Emily also offers webinars on filing tax returns during tax season.

- Student Debt Crisis

This organization provides online webinars from time to time. I found the webinars most helpful in addressing specific questions and updating policy changes.

- The College Investor

It is positioned as an investing and personal finance blog for millennials. There are a variety of topics and practical tips covered by this blog, for example, strategies to get student loan forgiveness, "how to re-certify your income for income driven repayment" "A young investor's guide to ETFs", etc.

- Napkin finance:

On this website, each financial concept is visually explained and illustrated on a napkin-size page. Topics cover insurance, stocks, debt, student loans, crowdfunding, estate planning, and even bitcoin. It also has interesting videos to watch too.

- Student loan hero

This website has more specific blogs on managing student loan repayment and practical tools such as financial calculators. For example, some repayment strategies.

They also suggest some free courses on personal finances:
https://studentloanhero.com/featured/free-personal-finance-courses-2019/?utm_source=weeklydigest&utm_medium=email&utm_campaign=slh-20190228weeklydigest&utm_content=ba-general

- Sisters for Financial Independence

This blog includes more personal financial advice specifically for women to gain financial independence.

- iGrad.com

It is a multimedia website that covers a range of financial topics, including repaying student loans, savings, retirement, insurance, etc. There are also financial calculators that you may find useful.

- PeerFinance101

This blog includes stories about debt, investing and peer to peer lending.

Apps

- Money management: Even
  This app helps with automatic saving and budgeting

- Apps that are loan specific: https://www.usnews.com/education/blogs/student-loan-ranger/articles/2019-03-27/7-apps-that-can-help-you-pay-off-student-loans

- General personal finance apps: https://www.kiplinger.com/slideshow/saving/T007-S014-8-great-personal-finance-apps-for-fun-and-more/index.html

Books

- The Year of Less: How I Stopped Shopping, Gave Away My Belongings, and Discovered Life Is Worth More Than Anything You Can Buy in a Store

- The Millennial Money Fix: What You Need to Know About Budgeting, Debt, and Finding Financial Freedom

- Get Money: Live the Life You Want, Not Just the Life You Can Afford

- Financial Freedom by Grant Sabatier of Millennial Money

Other online tools

- Federal Income Tax Calculator: https://smartasset.com/taxes/income-taxes

- Online comparisons of financial products: https://www.magnifymoney.com/