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Financial Literacy and Behavior in Credit Unions: An Exploration of Member Financial Literacy and Financial Behavior in the Credit Union Model

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FINANCIAL LITERACY AND BEHAVIOR IN CREDIT UNIONS: AN EXPLORATION OF MEMBER FINANCIAL LITERACY AND FINANCIAL BEHAVIOR IN THE CREDIT UNION MODEL

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DEDICATION

I dedicate this dissertation to our Heavenly Father, our Lord, Jesus Christ.

He has shown you, O mortal, what is good. And what does the Lord require of you? To act justly, and to love mercy, and to walk humbly with our God (New International Version, 1978, Micah 6:8)

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ABSTRACT

Financial literacy is economically essential and plays a critical role in an individual's overall financial capability, yet financial literacy is declining. Financial knowledge has been linked to financial behavior, with financially literate individuals displaying positive financial behaviors while those with lower financial knowledge exhibit poor financial behavior. Credit unions are member-owned financial cooperatives whose purpose is to support their membership's social and economic goals. Credit unions are well-positioned to deliver financial literacy to members (McKillop & Wilson, 2015). This study examined financial literacy and behavior among credit union members and compared the financial literacy of credit union members with results from the 2018 National Financial Capability Study. The findings indicate that credit union members answered more financial knowledge questions correctly, on average, than National Financial Capability Study respondents. The study's findings also indicate a positive correlation between self-reported financial knowledge and actual financial knowledge. Results indicate that credit union member financial literacy is associated with positive financial behavior.

Keywords: *Financial literacy, financial behavior, financial capability, credit union*

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CHAPTER 1: INTRODUCTION

Financial literacy has been studied for decades across multiple survey tools and populations (Hastings, Madrian, & Skimmyhorn, 2013; Huston, 2010). Financial literacy is defined as “the ability to do some simple calculations and knowledge of some fundamental financial concepts” (Lusardi & Mitchell, 2011, p. 510). Financial literacy’s economic importance is well documented (Kaiser, Lusardi, Menkhoff & Urban, 2020; Lusardi & Mitchell, 2014) and widely adopted as a central piece of overall financial capability (Goyal & Kumar, 2021; Lusardi, 2011; Sherraden, 2013; Xiao, 2016; Xiao, Chen, & Sun, 2015). Financial capability is “both an individual and a structural idea. It combines a person’s ability to act with their opportunity to act” (Sherraden, 2013, p. 3).

More recently, financial literacy has included an increasing focus on financial behaviors (L’Hostis et al., 2020), and many are asking whether financial literacy leads to more productive financial behaviors (Fernandes, Lynch, & Netemeyer 2014; Goyal & Kumar, 2021; Huston, 2010; Stolper & Walters, 2017) and if financial literacy could best be seen as a means to financial wellness (Huston, 2010; Yakoboski, Lusardi, & Hasler, 2019).

Vast amounts of research have been devoted to the financial literacy domain (Babiarz & Robb, 2014; Goyal & Kumar, 2021; Klapper, Lusardi, & Panos, 2013; Lusardi, 2019; Lusardi & Mitchell, 2011). However, Willis (2011, 2017) questions the overall value of financial literacy education efforts, given the true cost of financial education, coupled with the growing complexity of financial products. All the while, test based financial literacy evaluation scores are on the decline (Lin et al., 2019; Yakoboski, Lusardi & Hasler, 2020). This has highlighted the potential and significant economic loss resulting from widespread financial illiteracy (Lusardi & Tufano, 2015).

For over a century, credit unions have played a pivotal role in the financial life of U.S. households (McKillop, French, Quinn, Sobiech, & Wilson, 2020). Despite their importance in consumer finance, scholarly research on credit unions is minor compared to traditional banks (McKillop & Wilson, 2011; Rubin, Overstreet, Beling, & Rajaratnam, 2013). Credit unions are a form of a financial cooperative that is member-owned and governed. A core pillar of the credit union model is social responsibility, with a primary focus on achieving the social and economic goals of its membership (Croteau, 1963; McKillop et al., 2020; Taylor, 1971). One component of social responsibility is member financial education (McKillop & Wilson, 2015). The authors note that "activities and initiatives in financial education and literacy are essential to the dual social and economic character of credit unions in serving member needs" (p. 104). McKillop and Wilson observed that credit unions are well-positioned to deliver financial literacy to their members.

Recognizing that the purpose of credit unions is to build member financial capability and promote member economic wellbeing (Byrne, Power, McCarthy, & Ward, 2010), credit unions may be well positioned to deliver financial literacy to members (McKillop & Wilson, 2015). Thus, understanding how credit unions are capitalizing on this intended outcome that involves elements of both financial literacy and financial behavior is meaningful.

This study seeks to establish a greater understanding of financial literacy and behavior among credit union members. Given the backdrop of retirement savings shortfalls, widespread financial illiteracy, and financial consumers who lack knowledge about complex products and services (Lusardi, 2019), a better understanding of member financial literacy levels and subsequent financial behavior in credit unions could be valuable.

This chapter introduces the research study. The chapter begins by providing a statement of the problem. The study's purpose, justification, research questions, assumptions, limitations, delimitations, use of the study, a definition of key terms, theoretical framework, and a summary of the study follows.

Statement of the Problem

The financial world is becoming increasingly complex (Klapper & Lusardi, 2020; Lusardi, 2019). Given the growing complexity in the marketplace for financial products and services, consumers are struggling to save and invest (Kaiser & Menkhoff, 2017; Riitsalu & Põder, 2016). Within the past few decades, consumer financial decision-making has become significantly more perilous (Klapper & Lusardi, 2020). This is partly due to the volume and exotic style of products and services being offered by financial institutions (Fernandes et al., 2014). For example, the authors notes that baby boomers have borne the brunt of the damage from the 2007-2009 financial crisis, as they experienced hyper-complex mortgage loans, enhanced access to credit, alternative payday borrowing options, and a dramatic increase in bankruptcies (Fernandes et al., 2014).

The hazards are amplified by a combination of convoluted products and services with ease of access. For example, the investment site Robinhood has increased the availability of investing and trading for millions of individuals. At the same time, meme stocks, powered by a community of Reddit users and cryptocurrency investors, have increased substantially (Literat & van den Berg, 2019). This combination of complexity and access has spawned a community of speculators susceptible to the harsh reality that comes with their activities (Van Kerckhoven, & O'Dubhghaill, 2021).

There is recent evidence that there is a positive relationship between financial education and financial literacy (Kaiser et al., 2020). Researchers have also noted a positive relationship between financial literacy and financial behavior (Fernandes et al., 2014; Lusardi & Mitchell, 2011; Mitchell & Lusardi, 2015), with those possessing higher levels of financial literacy displaying better financial behavior including saving from each paycheck, paying off credit cards, and investing for retirement, . Klapper and Lusardi (2020) highlight that people need to be financially knowledgeable to make more informed financial decisions.

There is also growing concern that financial education alone does not translate into better financial behaviors. Researchers note the extraordinarily complex relationship between financial literacy and financial behaviors and that financial literacy does not guarantee positive financial decisions (Grable et al., 2020; Tang & Baker, 2016). For example, the U.S.'s traditional user of financial technology is a high-earning, well-educated male (Lusardi, 2019). Users of financial technology such as mobile payment apps displayed "expensive financial behaviors, such as spending more than they earn, using alternative financial services, and occasionally overdrawing their checking accounts" (Lusardi, 2019, pp. 5-6).

Researchers Lusardi and Tufano (2015) note that the argument for 'learning by experience' also fails to keep individuals from making poor financial decisions. Their research highlights a group of respondents that have the most experience with saving and borrowing while also having the highest levels of assets in the study. Despite more experience and more assets, the group reported carrying credit card balances into the next month and paying finance charges and late fees as a result.

Capuano and Ramsay (2011) suggest poor financial decision making includes a myriad of "flawed" actions including: 1) a disregard for key features of financial products before making purchasing decisions, 2) not taking time to read terms and conditions, 3) a failure to do side-by-side testing of various products and services, 4) purchasing products that are not needed, and 5) ignoring investment objectives and needs when purchasing a product or service.

There is much speculation about the root cause of consumer financial illiteracy and subsequent poor financial decision-making. Observations include the way education is delivered (Fernandes et al., 2014), the intensity of the instruction (Kaiser & Menkhoff, 2017), the size and timing of the intervention (Fernandes et al., 2014), the difficulty in assessing the impact of financial education and subsequent changes in behavior (Byrne et al., 2010), demographic impacts (Yakoboski et al., 2020), and product and service information asymmetry (McKillop et al., 2020).

It may be convenient to view financial literacy as a means to an end, with financial education leading to financial literacy, which yields better behavior (Yakoboski et al., 2019). However, financial literacy is on the decline (Lin et al., 2019; Yakoboski et al., 2020), and consumers continue to display poor financial behavior (Capuano & Ramsay, 2011; Tang & Baker, 2016), so there must be more to explore as we seek answers to the challenge of consumer financial knowledge and positive financial behaviors.

Purpose of the Study

The purpose of this exploratory study is to establish greater understanding of financial literacy and behavior among credit union members. The study is a starting place to determine if increased financial literacy and positive financial behavior can be achieved within this cooperative financial services model. Credit unions may use this study's results to gain insights into their membership and their ability to translate financial literacy into positive financial behavior. Results could prompt credit unions to expand their efforts to promote financial literacy in particular demographic areas. Moreover, credit unions could use the findings to establish just-in-time financial education linked to the financial behaviors they intend to improve (Fernandes, 2014). For researchers, this study's findings could help determine if credit unions' unique structure facilitates or enables increased levels of financial literacy and subsequent increase of positive financial behavior. For governments, examining the results could promote policy decisions aimed at expanding support for credit unions.

It is also believed that the results of this research will lead to future studies involving other state and federally chartered credit unions and further exploration into the urban and rural communities that they serve. Moreover, future studies involving credit unions with specific demographics could prove meaningful. Possible outcomes of this and future research are that consumers, academics, and governments will reconsider the unique role that credit unions play in delivering financial literacy education and shepherding consumer behavior when making financial decisions.

Justification for the Study

There is a well-documented relationship between financial literacy and financial behavior (Fernandes et al., 2014; Lusardi & Mitchell, 2011; Mitchell & Lusardi, 2015). Despite this known connection and known importance of financial literacy, financial literacy is on the decline (Lin et al., 2019; Yakoboski et al., 2020), and individuals continue to display poor financial behavior (Capuano & Ramsay, 2011; Tang & Baker, 2016). Huston (2010) notes that "other influences such as behavioral/cognitive biases, self-control problems, family, peer, economic, community, and institutional" (p. 308) may impact behaviors and, in turn, financial wellbeing. The author posits that individuals with financial knowledge may not exhibit expected behaviors or enhanced financial wellbeing because of these "other influences."

Huang, Nam, and Sherraden (2013) recognize the limitations of financial literacy alone and consider financial capability as a proper blend of consumer financial literacy and access to beneficial products and services. The authors note the necessity of the "institutional setting" (p. 2) as a key influence in nurturing an individual's financial capability and wellbeing, which Huston (2010) identified as a potential influence on positive financial behavior. One of the many institutional settings where financial literacy and behaviors are on display is in the credit union construct, an area where scholarly research has been low (Bauer, 2008; Croteau, 1963; McKillop & Wilson, 2011).

McKillop and Wilson (2015) note the importance of financial literacy strategies for individuals and that "credit unions are well placed and have the credibility to deliver such strategies" (p. 109). Credit unions are structured as not-for-profit organizations focused on their member-owners' economic and social goals (McKillop et al., 2020). They differentiate themselves from banks by focusing on members and their needs, versus maximizing profits and prioritizing shareholder returns (McKillop & Wilson, 2015). Their unique structure and focus allow credit unions to provide "many services free or below cost to assist members, for example, the provision of small loans, low-balance share accounts and financial advice and counseling" (McKillop, Ward, & Wilson, 2007, p. 37).

McKillop and Wilson (2015) note that member financial education is a core credit union principle and an extension of their social responsibility. The authors highlight that "activities and initiatives in financial education and literacy are essential to the dual social and economic character of credit unions in serving member needs" (p.104). With their member-owned cooperative structure, not-for-profit emphasis, and belief that financial education and literacy of their members is a social responsibility (Byrne et al., 2010; McKillop & Wilson, 2015), credit unions could present an opportunity to make strides towards addressing a decline in financial literacy (Lin et al., 2019) and corresponding behavior.

Research Questions

Research questions for this study include:

RQ1: How do financial literacy levels of credit union members compare with financial literacy levels of NFCS (2018) respondents?

RQ2: Does higher or lower self-reported financial knowledge correspond with actual financial knowledge as indicated on the financial literacy assessment?

RQ3: Is higher financial literacy in credit union members associated with the following positive financial behaviors? 1) Paying bills on time, 2) Staying with a budget or spending plan, 3) Paying off credit card balances in full each month, 4) Not maxing out the limit on a credit card, 5) Starting or maintaining an emergency spending account, 6) Saving money from each paycheck, 7) Contributing to a retirement account.

Assumptions of the Study

There are several assumptions made for this research. For example, it is assumed that the person taking the assessment is the actual member. It is also assumed that the survey participants will respond to the questions without using another resource, such as an online tool, spouse, or friend. It is also believed there were no barriers to comprehending the questions being asked, such as language, vision, or general reading comprehension. It is also assumed that member responses to the question were made to the best of their ability. Finally, it is assumed that the survey response information will be forwarded by the credit union unaltered.

Limitations and Delimitations of the Study

The scope of research was narrowed by the research process. The research is designed to look specifically at financial literacy and financial behavior in credit union members. The survey was conducted on credit union members from a single multi-branch credit union in Oregon and another single multi-branch credit union in Virginia. Both organizations are state-chartered credit unions with an urban/suburban setting. Excluded from the survey were federal credit unions or credit unions headquartered in rural areas or other cooperative groups, such as a farm collective or first-nation tribe. Another limiting factor is the volume and representativeness of member responses—as not all members were asked to respond to the survey, and only a small portion of the surveys sent to members were completed and returned. It is also important to recognize that both respondents and responses to this kind of money survey are typically biased, as is the case with response, and non-response survey bias (Heerwegh & Loosveldt, 2007).

An additional limitation to this study is that it was conducted via online survey. Stanton (1998) notes the association between certain demographic variables and computer anxiety. The author notes that “greater levels of educations are associated with lower computer anxiety” (p.712). Therefore, it reasonable to state that the demographic profile of those who participated in the survey, may be unlike those who are unwilling participants.

Another limitation to this study is the use of five financial knowledge questions to gauge overall financial literacy. These questions, which cover concepts on interest rate, inflation, risk diversification, mortgage, and bond, are not exhaustive and may not measure the fullness of objective financial knowledge (Schmeiser & Seligman, 2013; Tang & Baker, 2016). Additionally, not all financial behavior was measured. Although this researcher will utilize several essential personal financial behaviors such as paying bills on time, credit card use, and retirement savings, the list was not exhaustive and therefore should be considered a limiting factor to this research.

It is also essential to note that the survey was conducted during the novel coronavirus (COVID-19) Pandemic, which originated in the Chinese city of Wuhan in December of 2019 (Mazur, Dang, & Vega, 2021). The U.S. Bureau of Labor Statistics (2020) noted the unemployment rate at 3.2% in December of 2019, and by April of 2020, unemployment rates had reached 14.2%. With infections and death rates rising, the U.S. economy declined by 4.8%, and the Dow Jones Industrial Average fell 26% in 4 days (Mazur et al., 2020).

As of June 2021, the U.S. Bureau of Labor Statistics reported an unemployment rate of 5.9%, a significant improvement from the April 2020 high of 14.2%. Notably, the Dow Jones Industrial Average had recovered all its losses, and as of July 19, 2021, is 3.43% from its all-time high (CNBC, 2021).

Finally, trends that occur during the time of the survey may impact how individuals respond to questions. For example, mortgage volume levels for Q2 2020 were double the quarterly trend for the last decade (Statista, 2021). An increase in mortgage volume could cause the responses to mortgage or interest rate questions to be more informed, resulting in more correct responses.

Use of the Study

The researcher plans to share the results of this study with the participating credit unions. Additionally, this researcher desires that the data be combined and used to create a first-of-its-kind credit union financial literacy index. The researcher hopes that more credit unions will look to participate by utilizing the survey instrument for members. Credit unions that have already participated may consider creating a regular cadence for administering the same survey in the future to compare results to the baseline. This can become an important mechanism to measure whether financial wellness efforts are positively impacting member outcomes.

If financial literacy and financial behavior continue to be a matter of concern for consumers, scholars, policymakers, and educators, this study could add to the growing body of literature on the topic and prompt other related studies. Moreover, it could introduce the credit union as a unique financial entity in which financial literacy and financial behavior can be measured and a focal point for financial intervention efforts.

Definition of Terms

In this research, there are several important terms, and each requires a clear definition drawn from relevant literature. These terms and their operational definitions are:

Financial Literacy

Lusardi and Mitchell (2011a) define financial literacy as "the ability to do some simple calculations and knowledge of some fundamental financial concepts" (p. 510).

Financial Knowledge

Huang, Nam and Sherraden (2013) note that "financial literacy and financial knowledge are often used interchangeably in research literature" (p. 4), consequently, financial literacy and financial knowledge are used interchangeably in this study.

Financial Behavior

Hasibuan, Lubis, and Altsani, (2018) define financial behavior as "how good a household or individual manages financial resources that include savings budget planning, insurance and investment. A person's financial behavior can be seen from how good he manages cash, debt, savings and other expenses" (p. 504).

Financial Wellbeing

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 is able to make choices that allow them to enjoy life" (Consumer Financial Protection Bureau, 2017, p. 6).

Financial Wellness

Financial wellness is a "state of being wherein a person has control over day-to-day, month-to-month finances; has the capacity to absorb a financial shock; is on track to meet his or her financial goals; and has the financial freedom to make choices that allow enjoying life" (Yakoboski et al., 2020, p. 15).

Financial Capability

Financial capability is "both an individual and a structural idea. It combines a person's ability to act with their opportunity to act" (Sherraden, 2013, p.3). In this definition Sherraden highlights that financial capability is a combination of what an individual does to make wise financial decisions, and the institutions (bank/broker/other) role in creating an opportunity to act (transparent products, services, and costs.) Huang, et al. note that "financial capability does not reside solely within the individual; it captures the relationship between people's internal ability and their external environments" (2013, p. 3).

Cooperative

Cooperatives are defined as “enterprises that are owned by consumers, managed democratically, and aimed at addressing the members’ needs and aspirations. Accordingly, they are based on customer ownership” (Talonen, Jussila, Saarijärvi, & Rintamäki, 2016, p. 142).

Credit Union

Credit unions are defined as “member-owned and member-governed financial organizations that aim to achieve pre-determined economic and social objectives” (McKillop et al., 2020, p. 1).

Although this list of terms and definitions is not exhaustive, the definitions make sense for the context in which they are presented. There are other definitions from the literature that could have been used. For this section of the paper, the focus is on sharing a handful of the critical terms that oftentimes have various definitions in order to operationalize them for the context for this research.

Theoretical Framework

The theoretical framework considered for this research is the consumer cooperative. Consumer cooperatives are “enterprises that are owned by consumers, managed democratically, and aimed at addressing the members’ needs and aspirations” (Talonen, et al., 2016, p. 142). Credit unions are a form of consumer cooperative that are “member-owned and member-governed financial organizations that aim to achieve pre-determined economic and social objectives” (McKillop et al., 2020, p. 1).

McKillop and Wilson (2015) note the importance of financial literacy strategies for individuals and that "credit unions are well placed and have the credibility to deliver such strategies" (p. 109). Talonen et al. (2016) recognized the importance of the customer-owner structure in providing education, while McKillop et al. (2020) noted the critical role of credit unions in reducing income inequality. Financial literacy and behavior must be explored within the cooperative model because of the potential to steward financial literacy and subsequent behavior more responsibly.

The purpose of the study is to examine member financial literacy and financial behavior within the cooperative model as displayed by credit unions.

Summary of the Introduction

The purpose of this exploratory study is to understand credit union member financial literacy and behavior. This chapter introduced the research problem, the purpose of the study, the justification for the study, the research questions, assumptions, limitations, delimitations, uses for the study, definition of key terms, and the theoretical framework.

CHAPTER 2: LITERATURE REVIEW

This chapter introduces the relevant literature that supports this study. The chapter will review previous academic literature, leading this researcher to the purpose of this exploratory study, which is to examine member financial literacy and behavior in credit unions.

History of Financial Literacy

Financial literacy is a wide-ranging topic. Lusardi and Mitchell (2011) define financial literacy as "the ability to do some simple calculations and knowledge of some fundamental financial concepts" (p. 1). The United States has a long history of promoting financial literacy and education about money. John Adams (1787) was one of the first to recognize the importance of financial literacy in citizens' lives. In a letter written to Thomas Jefferson, he wrote, "All the perplexities, confusions, and distresses in America arise, not from defects in their constitution or confederation, not from a want of honor or virtue, so much as from downright ignorance of the nature of coin, credit, and circulation."

In the 50s and 60s, the U.S. government established policy initiatives to improve an individual's financial behavior through financial education. These efforts focused on high school students taking courses related to managing household finance. Researchers noted positive effects on awareness and assets growth (Bernheim, Garrett, & Maki, 2001). Nearly 30 years ago, Noctor, Stoney, & Stradling (1992) defined the concept of financial literacy as "the ability to make informed judgments and to make effective decisions regarding the use and management of money" (p. 4). It was a pioneering definition of the term financial literacy, with the meaning later expanded upon to mean financial capability, including concepts such as "an understanding of credit, debt, budget, insurance, and all other financial dimensions" (Goyal & Kumar, 2021, p. 81).

In the mid-90s, Bernheim (1995, 1998) was one of the first researchers to recognize that financial knowledge was low in the United States. Both Moore (2003) and Mandell (2004) documented a deficit in consumer financial wisdom. Agnew and Szykmann (2005) presented strong evidence that individuals were deficient in their understanding of stocks, bonds, mutual funds, and interest rates. Despite these early findings by Bernheim and others, it did little to spur an institutional focus on financial literacy research.

Financial literacy research in the early 2000s was meager (Goyal & Kumar, 2021; Stolper & Walter, 2017). Nevertheless, the Great Recession was the impetus for a remarkable surge in financial literacy research (Goyal & Kumar, 2021; Stolper & Walter, 2017), as the dire state of household finances triggered a new interest in measuring consumer financial knowledge. Lusardi and Mitchell (2008) created a special module designed for the 2004 Health and Retirement Study (HRS). In it, they established three simple test-based questions aimed at measuring consumer financial literacy. The three questions (which became known as the Big Three) were important questions that helped researchers examine 1) why people were unsuccessful in planning for retirement and 2) how planning informed retirement saving choices.

In addition to stimulating research focused on consumer financial literacy, the Great Recession prompted policymakers to address several challenges. First, policymakers failed to enforce rules and protect consumers from financial services firms' nefarious actions—particularly mortgage lenders. Second, the recognition that consumer financial knowledge was low and low financial literacy levels are a contributing factor to poor financial decisions (Lusardi & Mitchell, 2011). As part of addressing the challenges of protecting and educating consumers, the Dodd-Frank Wall Street Reform and Consumer Protection Act was signed into law in 2010, creating widespread protection for consumers. For example, one component of the act was creating the Consumer Financial Protection Bureau (CPFB). The CPFB established the Office of Financial Education, whose primary goal was to improve consumer financial literacy (Hastings et al., 2013).

Notably, the formation of the CFPB, coupled with the founding of the Office of Financial Education, launched a movement in both consumer protection and financial education (Goyal & Kumar, 2021; Stolper & Walter, 2017). In 2012, the influential G20 endorsed multiple high-level financial literacy strategies—all the while, the volume of financial literacy literature more than doubled (Goyal & Kumar, 2021; Stolper & Walter, 2017).

Essential Terms and Concepts About Financial Literacy

Goyal and Kumar (2021) observed that financial literacy is a wide-ranging topic. Huang et al. (2013) suggest that financial literacy is synonymous with financial knowledge. While Atkinson and Messy (2012) note that financial knowledge without financial behavior is a waste.

Huston (2010) views financial knowledge as "an integral dimension of, but not equivalent to, financial literacy" (p. 307). While Lusardi and Mitchell (2011a) initially defined financial literacy as "the ability to do some simple calculation and knowledge of some fundamental concepts" (p.1), Huston (2010) suggested that financial literacy is more than simple calculations and knowledge of fundamental concepts. She notes that financial literacy involves how consumers utilize the information they have obtained.

The remaining definitions are essential to understand some of the distinctions and nuances that provide context to concepts like financial literacy, financial behavior, financial security, and financial wellbeing.

Financial wellbeing—is an expression defined as "a state of being wherein a person can fully meet current and ongoing financial obligations, can feel secure in their financial future, and is able to make choices that allow them to enjoy life" (Consumer Financial Protection Bureau, 2017, p. 6).

Financial wellness is "a state of being wherein a person has control over day-to-day, month-to-month finances; has the capacity to absorb a financial shock; is on track to meet his or her financial goals and has the financial freedom to make choices that allow enjoying life" (Yakoboski et al., 2020, p. 15).

Financial security is "the peace of mind felt when we are not worried about money" (Law, 2021, p. 1).

Financial capability "encompasses a combination of knowledge, resources, access, experience, and habits" (Lin et al., 2019, p. 2). By some, financial capability is viewed as a synonym to financial literacy (Kempson, Collard, & Moore, 2006). To be financially capable, "families must have not only financial knowledge and skills but also access to appropriate financial products and services" (Huang, et al., 2013, p. 1).

Financial behavior is defined as “how good a household or individual manages financial resources that include savings, budget, planning, insurance, and investments. A person’s financial behavior can be seen from how well he manages cash, debt, savings, and other expenses” (Hasibuan et al., 2017, p. 504).

Other terms surrounding the topic of financial literacy include financial fragility (Yakoboski et al., 2020), financial preparation (Fernandes et al., 2014), financial complexity (Klapper & Lusardi, 2020), and financial resilience, which data shows is closely associated with financial literacy (Lusardi et al., 2020).

Why Financial Literacy Matters

Financial literacy’s economic importance is well documented (Kaiser et al., 2020; Lusardi & Mitchell, 2017). Both in the U.S. and around the world, greater access to the capital markets (Klapper & Lusardi, 2020), the surge in financial technology, and the digitization of financial transactions have placed financial products and services on the doorstep of consumers (Goyal & Kumar, 2021; Hanson & Olson, 2018; Lusardi, 2019). While access to the capital markets has increased, so has the complexity of products and services offered by financial institutions (Fernandes et al., 2014; Goyal & Kumar, 2021; Kaiser & Menkhoff, 2017; Klapper & Lusardi, 2020; Lusardi, 2019; Stolper & Walter, 2017). Examples of complex products include student loans, mortgages, credit cards, annuities, and pension accounts (Lusardi & Mitchell, 2014)—and more recently, payday loans, pawnshops, and rent-to-own stores (Lusardi, 2019).

Personal responsibility for financial decisions is on the rise (Lusardi, 2019; Lusardi & Mitchell, 2017; McKillop et al., 2020; Ryan, Trumbull, & Tufano, 2011).

Changes to how households save for retirement have also shined a spotlight on the importance of financial literacy. In the 1970s, most households retired on a combination of Social Security and payments from an employer defined-benefit-pension plan. Today, most working Americans have a 401(k), or possibly a 403(b) plan, that is sponsored by their employer but managed by the individual (Lusardi, 2019). This has thrust workers into the role of both investment manager and financial planner—coupled with learning about the nuances of company-sponsored retirement accounts like matching, administrative fees, mutual fund expense ratios, target retirement investments options, advice fees, and vesting schedules.

The shift in responsibility for workers and retirees has yielded troubling results. In a review conducted by the U.S. Government Accountability Office (GAO), the authors note that retirement savings are low. Their study observed that 52% of U.S. households have no retirement savings and that those who had saved had saved very poorly (Jeszeck, Collins, Glickman, Hoffrey, Grover, 2015). With the current understanding that higher financial literacy levels are associated with greater retirement savings and a host of positive financial behaviors (Fernandes et al., 2014; Lusardi & Mitchell, 2011; Mitchell & Lusardi, 2015), financial literacy should matter to households and governments alike.

Financial Literacy and Implications

Financial literacy is associated with financial behavior (Fernandes et al., 2014; Kaiser et al., 2020; Lusardi & Mitchell, 2011; Mitchell & Lusardi, 2015). Those with more financial knowledge show better financial behavior, which often yields better financial outcomes (Lusardi & Mitchell, 2014). For example, financial knowledge is known to help individuals organize their finances—including planning and saving (Brounen, Koedijk, & Pownall., 2016; Lusardi, 2019; Lusardi & Mitchell, 2017). Individuals with financial knowledge are more inclined to establish emergency funds (Babiarz & Robb, 2014) in addition to being able to survive emergency expenses and handle income shocks (Hasler, Lusardi, & Oggero, 2018). Financially literate people are better at debt management and are savvier in their borrowing practices (Huston, 2012; Lusardi & Mitchell, 2014; Lusardi & Tufano, 2015). For example, financial literacy plays a crucial role in credit card debt, with financially knowledgeable consumers more likely to pay off their balances in full versus paying the minimum (Lusardi & Tufano, 2015).

Adams and Rau (2011) recognize that "Perhaps one of the most robust findings across the literature is that financial literacy [a cognitive factor…] plays a key role in financial preparation for retirement" (p. 6). The act of preparing for retirement involves saving for retirement—something done best by those who are financially literate (Clark, Morrill, & Allen, 2012; Goyal & Kumar, 2021; Lusardi, 2019; Lusardi & Mitchell, 2014; Yakoboski et al., 2020).

Those with greater financial knowledge more frequently participate in the capital markets and invest in stocks (Almenberg & Dreber, 2015; Khan, Rabbani & Kadoya, 2020; Van Rooij, Lusardi, & Alessie, 2011), a key driver of long-term retirement accumulation. Moreover, those with additional financial knowledge are more likely to have portfolios that are accurately diversified based on their age and risk tolerance, an essential aspect of managing risk and return throughout an individual's financial life (Abreau & Mendes, 2010; Lusardi, Mitchell, & Curto, 2010; Mouna & Jarboui, 2015). Finally, empirical evidence reported by Lusardi and Mitchell (2014) shows that financially literate people accumulate more wealth than those with low financial literacy.

Conversely, those with low financial knowledge face many challenges (Goyal & Kumar, 2021; Lusardi & Mitchell, 2007). For example, individuals with low financial literacy levels struggle to make sound financial decisions and find it difficult to manage personal finances (Yakoboski et al., 2020). Individuals who lack financial literacy have mortgages with higher rates and carry heavier debt loads (Lusardi, 2019).

Consumers with low financial literacy are less likely to save for retirement (Lusardi & Mitchell, 2008) and more inclined to have a loan against their 401(k) (Utkus & Young, 2011). People with low levels of financial literacy are less likely to participate in the stock market (Van Rooij et al., 2011), a key driver of long-term wealth creation (Stango & Zinman, 2009; Yoon, 2011). Those with low financial literacy levels are less likely to plan (Goyal & Kumar, 2021), another primary driver of wealth creation (Hastings et al., 2013).

Unfortunately, most consumers are financially illiterate (Klapper & Lusardi, 2019; Lin et al., 2019; Lusardi, 2019; Lusardi & Mitchell, 2017) and "A lack of financial literacy is problematic if it renders individuals unable to optimize their own welfare…" (Hastings et al., 2013). Lin et al. (2019) suggest that financial knowledge is not equally distributed. For example, financial literacy is low among young people, with less than 30% answering the Big Three financial literacy questions correctly by age 40. This is of great concern because major financial decisions such as car, home buying and retirement savings often occur before age 40 (Lusardi, 2019).

Other demographic factors such as gender and race play an essential role in financial literacy. For example, financial knowledge has been found to be low for women, particularly women aged 55 and older (Lusardi & Mitchell, 2008). Similarly, financial acuity has been found to be low amongst individuals earning less than $25,000 per year and those without a college degree—as is the same within Black and Hispanic populations (Lin et al., 2019). Byrne et al. (2010) observed that low financial knowledge levels are closely associated with financial and social exclusion. Financial illiteracy is common for the economically vulnerable—which adds to growing wealth inequality in the U.S (Stolper & Walter, 2017).

Measuring Financial Literacy

If financial literacy is viewed as beneficial (Kaiser et al., 2020), then measuring financial literacy is essential (Marcolin & Abraham, 2006). The global standard for measuring financial literacy is Lusardi and Mitchell's Big Three financial literacy questions (Hastings et al., 2013). The questions address three basic financial concepts (interest rates and compounding, inflation, and risk diversification) and are the standard-bearer for determining individuals' objective financial literacy (Hastings et al., 2013; Stolper & Walter, 2017). The Big Three questions were first adopted as a special module to the 2004 Health and Retirement Study (HRS) (Hastings et al., 2013; Stolper & Walter, 2017), where just 34% of respondents answered all three questions correctly.

The Big Three have been asked in other significant U.S. surveys, including the Survey of Consumer Finances (SCF) and the Aegon Retirement Readiness Survey (Lusardi, 2019). In 2009, Lusardi and Mitchell extended the Big Three questions in the National Financial Capability Study (NFCS). In it, they asked two more questions about mortgages and bond pricing, which expanded how financial knowledge was viewed (Stolper & Walter, 2017). The Big Three questions have been modified in other studies, as was the case with the S&P Global Financial Literacy Survey, which delivered the most comprehensive gauge of financial literacy to date (Klapper & Lusardi, 2020). Although worded slightly different, the S&P Global Financial Literacy Survey addressed four financial literacy questions that covered the same Big Three topics of inflation, risk diversification, and interest rates.

Measuring financial literacy goes beyond the above-mentioned and surveys. For example, the Jump$tart Survey of Financial Literacy addresses the financial literacy of high school seniors (Mandell, 2006), while the Consumer Financial Literacy Survey test the financial literacy of 40,000 consumers who receive services through the National Foundation for Credit Counseling (Roll & Moulton, 2019). Additionally, the National Financial Educators Council (NFEC) deploys a host of tests which includes financial literacy tests such as the Financial Foundation Decision Test as well as the National Financial Capability Survey (Murarka & Oats, 2020). Financial literacy has been studied extensively, and there have been multiple tools developed for measuring it.

Challenges to Financial Literacy

There are many challenges to financial literacy. For example, measuring financial literacy is problematic given the simplistic nature of test-based approaches (Huston, 2010). Although more challenging to administer, outcomes-based approaches could offer a more comprehensive look at the true impact of financial literacy on behavior. Hastings et al. (2013) note that “if we are interested in understanding the abilities that improve financial outcomes, we should define successful measures as those that, when changed, produce improved financial behavior” (p. 357). Examples offered by the authors include reviewing robust administrative data in 401(k) plans that look at participants who are taking advantage of company matching programs or actively refinancing debt to reduce payments and interest liability.

Researchers must balance the ability to distribute a simple survey (test-based) with their capacity to access robust administrative data (outcomes-based) and determine which approach makes the most sense. The test-based approach, which includes the Big Three, although simple, may be challenged given its inability to determine the “effect of financial literacy on the quality of individual financial decisions” (Stolper & Walter, 2017, p. 611). This was the observation made by Hastings et al. (2013) that “there is remarkably little evidence on whether this set of survey questions is the best approach, or even a superior approach, to measuring financial literacy” (2013, p. 355). Alternatively, an outcome-based approach relies on massive datasets and is more time and administratively intensive than traditional test-based approaches (Hastings et al., 2013).

Challenges to Financial Literacy Education

There have been enormous sums of money allocated to financial literacy education, and some question whether financial literacy education improves financial knowledge (Stolper & Walter, 2017) or whether the cost is worth it (Willis, 2008). Stolper and Walter observed that financial education programs intended to increase financial literacy and positive financial behavior were disappointing (2017). Mandell (2006) observed that financial education amongst high school students had little effect in cultivating financial literacy—with those participating in financial education programs no better off than students that did not participate. Xiao, Serido, and Shim (2011) note a similar phenomenon: financial education is not always a companion to objective financial knowledge.

Financial literacy education's effectiveness on marginalized populations is being challenged and poses a great test to researchers and policymakers alike (Fernandes et al., 2014; Kaiser & Menkhoff, 2017). These findings come on the heels of data that sheds light on an expanding racial wealth gap (Markley, Hafley, Allums, Holloway, & Chung, 2020). Lin et al. (2019) examined data from the 2018 NFCS. They note that "despite economic growth and declining unemployment, there are signs of persistent or widening divides between those who are prospering and those who are struggling financially — younger Americans, those without a college degree, African-Americans and those with lower incomes" (p.2).

Literature underscores the importance of financial literacy strategies and education for minority populations (Looney, 2011; Lusardi & Mitchell, 2009), yet the effect of financial education programs on financial literacy has been limited (Lusardi, Hasler, & Yakoboski, 2020; Lusardi & Mitchell, 2009). Despite a widespread institutional focus on financial education, financial literacy levels are declining (Lin et al., 2019; Yakoboski et al., 2021).

Willis is skeptical of financial literacy education (2008, 2011, 2017). Her research points to several concerns, including information asymmetry, financial complexity, and neoliberalism as primary culprits for financial education's ineffectiveness. It is difficult to determine from the literature whether she believes all financial education efforts are a waste of time or if it is "traditional conceptions of financial literacy" (2017, p. 16) that fail individuals. Regardless, Willis notes that financial education has "little chance of improving individual and collective financial wellbeing" (2017, p. 16) and that costs for establishing financial education programs far outweigh any benefit.

Another challenge posed by financial literacy education is that its perceived ineffectiveness places blame on the individual. Byrne et al. (2010) note that financial education's failure should be shared by financial service providers whose ineffective programs and products and services need improvement. The authors note that the 'blame the consumer' approach allows institutions to sidestep change. Some view efforts to improve consumer financial knowledge as a side-show that does not work (De Meza, Irlenbusch, & Reyniers, 2009; Willis, 2009, 2017), allowing institutions to avoid necessary improvements to their products and services.

Goyal and Kumar (2021) note that "people can be financially literate when they have knowledge, understanding, and skills to take care of their finances, but they cannot be called financially capable unless it is reflected in their actual behavior" (p.

81). Financial education's importance depends largely on its ability to affect financial literacy and influence healthy financial behavior (Stolper & Walter, 2017). Given the many challenges facing financial literacy education approaches, research has begun to look at behavior comprehensively. This is partly due to the absence of methods that would suitably explain the components required for successful short- and long-term financial management (Riitsalu & Poder, 2016).

Financial Behavior

Financial behavior refers to "any human behaviors relevant to money management" (Xiao, 2008, p. 70). An individual's financial behavior can be determined based on how they treat their personal finances with positive financial behavior that includes making money, managing spending, and investing (Hasibuan et al., 2018).

In 2010, Huston began examining the relationship between financial literacy, knowledge, education, behavior, and wellbeing. In addition to the effect of financial literacy on behaviors, she notes the impact of "other influences" and includes "cultural/familial, economic conditions time preference, and behavioral biases" (p. 308) as contributing factors to consumers' financial behavior. Huston's consequential scrutiny of the interworking relationship between objective financial literacy and "other influences" helped expand how researchers view objective financial knowledge and its effect on financial behavior.

Researchers point to the "something more" or "hard to capture" aspects of personal finance that go beyond traditional test-based objective measures of financial literacy (Hastings & Mitchell, 2020; Riitsalu & Poder, 2016; Stolper & Walter, 2017).

This more contemporary understanding of financial behavior suggests that financial behavior is part of the more significant discussion surrounding financial literacy instead of the more traditional view that there is a cause-and-effect relationship between financial literacy and financial behavior. (Riitsalu & Poder, 2016).

Psychological Antecedents

Factors contributing to financial behavior include the vital role of psychological antecedents (Brown & Taylor, 2014; Tang & Baker, 2015). There is ample research that examines the impact of self-esteem on financial behavior and the relationship between them (Dare et al., 2020; Hastings & Mitchell, 2011; Tang & Baker, 2016). Tang and Baker (2016) note the strong effect of self-esteem on behaviors such as saving and investing, investing in risky assets, and credit management.

Dare et al. (2020) observe the impact of financial confidence on financial behavior. They note that "individuals with more financial confidence may be convinced of their ability to handle their financial situation…this confidence may translate into positive financial behaviors, such as working toward financial goals and managing credit" (p. 4). Asaad (2015) evaluated the effect of positive self-perception and noted the effect on financial behavior. The author observed that individuals with high objective financial literacy but low self-perception might not make the right financial management decision. Tang and Baker (2015) note that positive financial behavior requires persistence and coping, particularly in challenging economic environments. Strömbäck, Lind, Skagerlund, Västfjäll, and Tinghög, (2017) note the psychological effect of self-control and its influence on people's financial behavior.

Dare et al. (2020) highlight the impact of spending self-control and its effect on positive financial behavior.

Hastings and Mitchell (2010) tested the effect of impatience on retirement wealth and investing behavior. At the same time, they used the Big Three questions to determine objective financial literacy levels. They note that the "impatience measure strongly predicts respondents' self-reported retirement saving and health investments. Financial literacy is also associated with more retirement savings, but it is less closely associated with sensitivity to framing of investments information" (pp. 12-13).

Future orientation and attitudes about money can also affect financial behavior (Rutledge & Deshpande, 2014). Dare et al. (2020) describes that an individual's attitude about planning for the future can lead to being more hopeful about the future itself. A hopeful future-oriented mindset can result in positive financial behavior (Rutledge & Deshpande, 2014).

Subjective financial knowledge plays a vital role in consumer financial behavior (Dare et al. 2020). Literature notes the positive correlation of test-based assessments of financial knowledge and self-reported financial knowledge (Lusrdi & Mitchell, 2009). Allgood and Walstad (2013) examined the effect of objective (test-based) financial knowledge and subjective (self-assessed) financial knowledge and observed that subjective financial knowledge is more powerful in determining financial behavior than objective financial knowledge. A simple example of self-assessed financial knowledge can be found in the 2018 National Financial Capability Survey, where respondents were asked to rate their self-perceived financial knowledge. Instead of measuring financial knowledge by scoring right and wrong answers, as is the case with the objective approach, respondents score themselves based on how they feel about their own financial knowledge.

Bucher-Koenen and Lusardi (2011) note that personal desires or impulses to deal with financial transactions are connected to financial behavior. Lusardi (2019) observed that educated and high-earning males, who are typically associated with higher levels of financial literacy, show poor financial behavior when dealing with digital payments. An understanding that desires and impulses play a role in financial behavior is, in part, why Fernandes et al. (2014) highlight the importance of narrow, at the moment, interventions to halt potentially adverse outcomes as a result of acting on emotions.

Monticone (2010) notes the positive effect of wealth on financial behavior, suggesting there is more to healthy financial behaviors than objective financial knowledge. Stopler and Walter (2017) note the relationship between intelligence, superior numerical abilities, motivation to deal with personal finances, and patience as being associated with financial behavior.

Measuring Financial Behavior

Instruments have been developed to better understand and measure financial behavior. Dew and Xiao created the Financial Management Behavior Scale (FMBS) to help financial professionals and researchers measure financial management behaviors (2011). The questions included in the FMBS are derived from seven articles and reports that utilized financial management and behavior scales. A review of the articles and reports resulted in the establishment of five domains: consumption, cash flow, credit, savings and investment, and insurance. The domains were selected because they were deemed “important areas of sound financial management and behaviors” (p. 45). This type of scale is necessary given the extent to which consumers engage in financial behaviors, and the decisions a consumer makes is tethered to their overall financial wellness (Dew & Xiao, 2011). An important observation of the scale is that as scores on the FMBS responses improved, reported levels of debt declined and savings increased.

The importance of measuring consumer financial behavior is evidenced by the inclusion of financial behavior-related questions in several prominent surveys. Today, it is common for behavior-related questions to appear alongside test-based, self-assessed, and outcomes-based questions to determine overall financial wellbeing. For example, in addition to testing financial knowledge, the National Financial Capability Study (NFCS) was “designed to understand and measure a rich, connected set of perceptions, attitudes, experiences, and behaviors across a large, diverse sample in order to provide a comprehensive analysis” (Lin et al., 2019, p. 2).

The Consumer Financial Protection Bureau (CFPB) has helped to reorient and substantiate some of the thinking surrounding financial literacy. The CFPB established the Financial Well-Being Scale, which is “a subjective measure of financial perceptions” (Collins & Urban, 2020). The Financial Well-Being Scale omits financial literacy from a traditional sense and focuses on financial wellness more comprehensively, with measurable data in areas such as “financial behaviors, skills, and attitudes” (p.4).

Instead of making financial literacy the yardstick for the exclusive purpose of research and test-based results, they suggest that the goal of financial literacy education is financial wellbeing (CFPB, 2017), which is best measured by outcomes. They describe financial wellbeing “as a state of being wherein a person can fully meet current and ongoing financial obligations, can feel secure in their financial future, and is able to make choices that allow enjoyment of life” (p. 4).

The CFPB approach appears to fall in the contemporary camp of thinking on financial literacy and behavior—that financial behavior is part of and not a byproduct of financial literacy. Even those that have historically considered financial literacy as “the ability to do some simple calculations and knowledge of some fundamental financial concepts” (Lusardi & Mitchell, 2011, p.1) now refer to financial literacy as “both knowledge and financial behavior” (Lusardi, 2019, p.1), a clear sign that financial literacy research is evolving.

Financial Literacy and Behavior: Something More?

One line of research posits that individuals are either financially literate or illiterate. Those who are literate can perform simple computations such as compounding interest, and this knowledge produces positive financial behaviors. Conversely, financially illiterate individuals cannot perform simple computations and, consequently, are destined to make poor financial decisions.

Another direction of research views psychological antecedents and sometimes “hard-to-capture” demeanors (Stolper & Walter, 2017), such as being concerned with the future (Meier & Sprenger, 2010), self-esteem (Tang & Baker, 2016), patience (Hastings & Mitchell, 2010), money attitudes (Lay & Furnham, 2018), the effect of nurturance (Raghunathan, Yang, & Chandrasekaran, 2020), financial discipline (Shefrin & Thaler, 1988), confidence (Lind et al., 2020), self-control (Tang & Baker, 2016), or simply having better cognitive and numeracy ability (Hastings et al., 2013) as the drivers of positive and negative financial behaviors.

A third component used to explain financial literacy and behavior should be considered (Huang et al., 2013). The authors observed that “to be financially capable, families must have not only financial knowledge and skills, but also appropriate financial products and services” (p. 1). The authors highlight that “together, individual ability and institutional setting, shape a person’s financial capability and wellbeing” (p. 2). The researchers make a vital observation highlighting the institution’s critical role in shepherding an individual’s wellbeing through beneficial financial products and services.

Credit Unions

Credit unions are “member-owned and member-governed financial organizations that aim to achieve pre-determined economic and social objectives” (McKillop et al., 2020, p. 1). Taylor (1971) notes that “the credit union is the purest form of cooperation” (p. 213).

The volume of scholarly research on credit unions is low (Bauer, 2008; Croteau, 1963; McKillop & Wilson, 2011), which is somewhat surprising given credit unions’ extensive involvement in the financial lives of U.S. households. Credit unions play a critical role in the U.S. financial system—serving the needs of 123.7 million members from 5,133 federally insured credit unions (NCUA, 2020). Credit unions are not-for-profits and are member-owned, which makes their structure unique. Moreover, they have a long history of community advocacy, democratic controls, financial education, and social responsibility (McKillop et al., 2020). Social responsibility extends far beyond an obligation to treat others well. For many credit unions, it has traditionally meant protecting the weak and vulnerable among us (Croteau, 1963). McKillop and Wilson (2015) note that "credit unions are agitators for human and social development" (p. 213), suggesting that part of the credit union ethos is to seek opportunities to work with others and cooperate so that communities and societies at large are financially healthy.

Credit Union History

The Rochdale Society of Equitable Pioneers, a group of 28 impoverished weavers, is credited with creating the first cooperative organization in Rochdale, England, in 1844 (Fairbairn, 1994; McKillop & Wilson, 2015; Taylor, 1971). The Rochdalian Principles are a set of rules about the organization and operations of all types of cooperatives—including credit cooperatives or credit unions, as they are referred to in the United States (McKillop & Wilson, 2015). Credit unions are a unique organization, deriving their meaning from several common concepts. These ideas include: "a consumer cooperative; a micro-financial intermediary; a legal corporation; a social movement and a social philosophy" (McKillop & Wilson, 2015, p. 97).

The first urban cooperative financial institution was established in 1850 by Hermann Schulze-Delitzsch, a judge and politician. The first Schulze-Delitzsch credit cooperative failed, but his next iteration was a success, where "wealthy patrons were not allowed; the only members were working and small business people, each of whom was required to make a more substantial contribution to the bank's capital"

(Isbister, 1994, p. 33). "By 1861, there were 364 Schulze-Delitzsch credit cooperatives with nearly 49,000 members" (Guinnane, 2002).

In 1862, Friedrich Wilhelm Raiffeisen formed the first rural credit cooperative (McKillop & Wilson, 2015) and like Schulze-Delitzsch, Raiffeisen's first credit cooperative failed. He eventually succeeded by imitating much of what was done by Schulze-Delitzsch. By the 1880s, Raiffeisen had become larger than the Schulze-Delitzsch credit cooperative (Isbister, 1994). Guinnane (2020) notes that the purpose of the Raiffeisen credit cooperative was to promote Christian principles, while Schulze-Delitzsch was focused on economic self-reliance. McKillop and Wilson (2015) observed that both the Schulze-Delitzsch and Raiffeisen credit cooperative's primary focus was on supporting individuals who suffered from economic hardship.

At the beginning of the 20th Century, financial cooperatives had spread from Europe to North America. In 1901, the first credit cooperatives in North America were established in Quebec, Canada, by Alphonse Desjardins (McKillop et al., 2020; McKillop & Wilson, 2011, 2015). Desjardins was motivated to start the credit union to support individuals who had been victimized by loan sharks (McKillop & Wilson, 2015). The credit union was established based on a mix of "Catholic revulsion of usury, and the Quebec political and religious philosophy of la survivance" (McKillop & Wilson, 2011, p. 83). "The philosophy was founded on three fundamentals: the Church, the Soil and the Hearth" (McKillop & Wilson, 2015, p.98).

As the credit union movement progressed in Canada and having learned more about credit cooperatives while corresponding with European credit union leaders (McKillop & Wilson, 2011), Desjardins facilitated the creation of the first U.S. credit union in Manchester, New Hampshire, in 1908 (McKillop et al., 2020; Moody & Fite, 1984). The credit union was established for a Franco-American parish that served French-speaking immigrants (McKillop & Wilson, 2015; Moody & Fite, 1984). Desjardins helped launch the U.S. credit union movement when he passed the torch of responsibility to Pierre Jay, the leader of banks in Massachusetts, and Edward Filene, a Boston merchant, and philanthropist (McKillop et al., 2020; McKillop & Wilson, 2011, 2015).

Jay and Filene played essential roles in helping to establish the Massachusetts Credit Union Enabling act of 1909. Filene and Roy Bergengren (a Massachusetts lawyer) formed the Credit Union National Extension Bureau, which lobbied at the state and federal level—and ultimately helped pass the U.S. Federal Credit Union act in 1934 (McKillop et al., 2020; McKillop & Wilson, 2011, 2015). This legislation's importance was to consolidate much of what was known about credit union structure and capture it into law (McKillop & Wilson, 2011; Moody & Fite, 1984).

Credit Union Pillars

McKillop et al. (2020) note that there are four core pillars of the credit union. These core principles, which set credit unions apart from their banking counterparts, include self-help, identity, democracy, and cooperation among cooperatives. Self-help refers to the idea that cooperatives are member-owned and member-managed organizations that focus on accomplishing their members' financial and social goals (McKillop et al., 2020). Identity refers to a common bond amongst members. This common bond often refers to an area or region—and even a household bond (Croteau, 1963). These are commonly known as community credit unions. A common bond may also be recognized through being part of a trade organization, occupations type, or the military, as with the Navy Federal Credit Union—where all members "identify" with the U.S. Navy. The democratic nature of the credit union is essential so that each person has equal sway on the membership and its needs. Individuals with a significant financial relationship with the credit union should have no more influence than individuals with a small car loan (McKillop et al., 2020; Rubin et al., 2013). The democratic structure enables credit unions to nurture economic empowerment to credit union members and community members at large (McKillop & Wilson, 2015). Finally, the notion that cooperatives should help cooperatives is necessary as smaller credit unions band together and have shared services agreements and network alliances (McKillop et al., 2020; McKillop & Wilson, 2015).

The Distinctiveness of Credit Unions

There are several key attributes of credit unions that separate them from other financial service entities. One unique aspect of the credit union model is that they operate as a not-for-profit (Croteau, 1963; McKillop et al., 2020; McKillop, Ward, & Wilson, 2007; McKillop & Wilson, 2015, 2011; Taylor, 1971). While this status means that credit unions in the United States are not taxed on profits, it also speaks directly to the mission and purpose of the financial institution. Having no profit motive allows credit unions to pour all available resources back into their membership's financial and social goals (Croteau, 1963). For example, redistributed net income from credit union services is used to lower loan rates and increase deposit rates—or possibly create or improve services to members (McKillop & Wilson, 2015). Croteau (1963) notes that credit unions are a "pure" form of cooperative “possessing a non-profit character” (p. 6). The author implies that being a non-profit is not just about tax code but rather an ethos surrounding all aspects of the credit union efforts for members and their community.

This non-profit spirit was best seen during the financial crisis, which lasted from 2007-2009. While profit-driven shareholder-owned banks restricted credit to households, non-profit credit unions continued to extend credit to their members (McKillop et al., 2020). McKillop and Wilson (2015) note that “This philanthropic type of behavior, which cannot be expected from profit-maximizing banks, perhaps justifies the tax-exempt privileges that credit unions often receive” (2015, p. 103).

Social responsibility is another core attribute of the credit union which separates them from their for-profit financial peers (Croteau, 1963; McKillop et al., 2020; McKillop & Wilson, 2015, 2011; Taylor, 1971). The social goals are that of the member-owners, who are typically households (Croteau,1963; Taylor, 1971). Social values, which are an extension of the credit union’s social responsibility, allow for a myriad of social objectives contingent upon the member interests (Croteau, 1963). At Navy Federal Credit Union, member-owners may consider extending discounted loans to military combat veterans who are returning home from deployment. Conversely, Providence Federal Credit Union, which serves a community associated with Providence Health Systems, may establish scholarships for members' children or offer car loan incentives for young employees so they can drive to work.

For most credit unions, "a vision of social justice extends both to individual members and to the larger community in which they work and reside" (McKillop & Wilson, 2015). Social justice initiatives are foundational to credit unions. Individual credit unions have established programs to integrate community members into more conventional financial services and fight against predatory money lenders and other high-cost financing sources such as pawnshops, payday lenders, and check-cashing companies (Byrne et al., 2010). Examples of cooperatives and social justice efforts include Robert Owen and other cooperative owners, who agreed to limit their investment capital returns and return profits to the community. Desjardins started his credit union to minimize predatory lenders' negative impact on community members, while Schulze-Delitzsch focused on its members' financial self-sufficiency (McKillop et al., 2020). McKillop and Wilson (2015) observed that credit unions are "agitators for human and social development" (p. 109) and focus on the socially disadvantaged. Moreover, Taylor (1971) points to the credit union's role in providing social interaction for its members. Importantly, McKillop and Wilson (2015) posit that "one aspect of social responsibility is that of financial education, a core cooperative principle in its own right" (p.109).

Credit Unions and Financial Wellness

Member financial wellness is an ideology of the credit union model (Croteau, 1963). The unique member-owner model allows for financial wellness to be a reality in the credit union construct where the credit union's needs are subordinate to members' needs. Simultaneously, a symbiotic relationship exists between members and the institution as member financial success generates success for the credit union.

Byrne et al. (2010) note the opportunity to promote financial inclusion and financial capability within the credit union model. They underscore the sensitive nature of credit unions' original goal of financial inclusion—"particularly within the context of economic recession, which is likely to stimulate demand for financial capability enhancing measures" (p.3.) The authors emphasize members' interests, the promotion of budgets, and wise use of credit should be promoted, which helps to heighten member financial capability.

Financial capability and wellness in credit unions includes products and services to sustain members and programs aimed at rehabilitating households with financial challenges (Croteau, 1963). The author notes the benefit of financial counseling and highlights that it could be a "costly and time-consuming undertaking. Still, it may be considered worthwhile in light of the household needs of credit union members" (p. 7).

A lack of profit motive and incentive to put member needs ahead of the institution itself provides a tremendous opportunity to execute on financial wellness objectives. McKillop, Ward, and Wilson (2007) suggest that "Credit unions may provide many services free or below cost to assist members, for example, the provision of small loans, low-balance share accounts and financial advice and counseling" (p. 37). This focus could promote financial inclusion and substantially benefit marginalized members excluded from mainstream financial services (McKillop & Wilson, 2015).

To promote financial capability with the end goal of financial wellness, credit unions must put member needs above their own (McKillop & Wilson, 2015). The authors observe that credit union members require competitive products and services, including low-cost access to capital and as high a return on invested capital as possible. In stark contrast to credit unions are commercial banks that "aim to maximize profits and prioritize the welfare of owners over customers" (p. 80).

Credit Unions Lose their Focus

Despite the benefits of financial cooperatives, Croteau (1963) reminds credit unions not to become like banks and put profits ahead of members. He notes that "to pursue profit maximization and to neglect the other services which a credit union may offer could make the financial objectives of the credit union an end in itself and could lead to a goal of continually expanding and strengthening the credit union to the neglect of the personal goals of its members" (p. 8). McKillop and Wilson (2015) observe that despite credit unions' unique structure, they are susceptible to the same human desires to build and grow, which comes in conflict with the social goals of its members and the philosophical objectives of the households. To combat this potential conflict, the modern credit union must maintain the members' central place in governance and oversight of the social objectives of the credit union. The researchers observe that "This has been somewhat diluted as credit unions have developed into professionally managed multi-product financial organizations" (p.109).

Byrne et al. (2010) highlight the credit union's purpose as the "promotion of financial wellbeing of their members, and building financial capability is central to this" (p. 68). However, the authors question that if the true resolve of a credit union is wellbeing through financial capability, then "why are credit unions not playing a bigger role in this area" (p. 68). The authors speculate that credit unions' services may be too generic, while McKillop and Wilson (2015) point to the ineffectiveness in promoting financial education because efforts have lacked scale and focus.

Summary of the Literature

Research has shown that financial illiteracy is a global challenge. Some of the modern implications have escalated in importance due to the growing responsibility placed on consumers to manage their personal finances. The literature points to a generational transition of how households save for retirement—with the previous generation supported by defined benefit pension plans and a consistent annuity payment after retirement. In short, employers bore the responsibility of managing individuals' retirement funding and distribution. Conversely, retirement savers today shoulder the responsibility of retirement saving within the context of a financial plan that they are ill-equipped to manage. Moreover, the research points to growing access to financial products and services coupled with an amplification of the complexity brought about by the proliferation of the internet and product and service digitization.

The literature points to evidence that financial literacy plays a vital role in downstream financial behavior. The research suggests that this line of thinking views financial behavior as a byproduct of financial literacy—implying that more financial knowledge equals better financial behavior. However, there is no consensus on this view, and even some dismiss financial literacy efforts altogether. As such, research has begun to take a wide-ranging look at behavior, which is partly due to the absence of methods that would suitably and neatly explain the components required for successful short and long-term financial wellbeing.

Research highlights the unique structure of member-owned financial cooperatives. The literature notes their philanthropic ethos, which is afforded to them by their non-profit structure. Notably, the research identifies financial literacy and financial wellness as core credit union principles. The literature notes that credit union research has been negligible. There is a void of literature focused on measuring financial literacy and financial behaviors exclusively within credit union membership. The goal of this research project includes: (1) an examination of financial literacy levels of credit union members, (2) determining if self-reported financial knowledge corresponds with actual financial knowledge, and (3) an understanding of whether financial literacy levels in credit union members affect financial behavior.

CHAPTER 3: METHODS

This chapter describes the methods and procedures that the researcher utilized to answer the research questions offered in Chapter I of this study. This exploratory study aims to examine the financial literacy and financial behavior of credit union members.

Much is known about financial literacy and financial behavior. The previous research on financial literacy and behavior helped establish a host of clear terms and definitions while providing the framework for this study. At the same time, scholarly research on credit unions is minor compared to traditional banks (McKillop & Wilson, 2011; Rubin et al., 2013). Although the topic of this study is not new, the context for the study is what resulted in the establishment of research questions versus a directional hypothesis.

The results of this project and the clarity that is gained may provide a meaningful extension of previous research on financial literacy and behavior while exploring the credit union domain.

Research Design and Rationale

The research design involved the construction of a financial literacy and financial behavior survey instrument, collection of primary data within the memberships of two community credit unions, the development of a set of research questions aimed at exploring the nature of financial literacy and financial behavior within the credit union population, and an analysis of the data to answer the research questions. The purpose of utilizing primary data collection through a constructed survey was to explore the nature of credit union members' financial literacy and general financial behavior. Moreover, a survey design allowed for efficient and targeted information gathering about member financial knowledge (objective), self-perceived financial knowledge (subjective), and member behavior.

Participants and Sample

As identified and discussed in Chapter 1, the purpose of this study is to learn more about the financial literacy levels and financial behaviors of credit union members. The rationale for this study is that previous research on financial literacy and behavior in the credit union domain appears underexplored (Bauer, 2008; Croteau, 1963; McKillop & Wilson, 2011), and the credit union context provides a unique corporate structure for examination (McKillop et al., 2020). Credit unions play a significant role in the U.S. financial system and serve the financial needs of 123.7 million members from 5,133 federally insured credit unions (NCUA, 2020). It is the credit unions' focus on investing in their members, including financial education, and low-cost credit products that can be transformative. At the same time, it is the credit unions' not-for-profit status and member-owned structure that helps enable their focus and product offering.

The selection of a target population and sampling technique was decided in accordance with the purpose of obtaining foundational information rather than generalizing to a larger population. The sample for this survey is members of two different credit unions: one on the west coast and another on the east coast of the United States. Having data from credit unions from two different parts of the country allows for more diversity in sample responses. Additionally, the researcher can analyze the financial literacy of the sample not only with the overall population but also using state-level data from the National Financial Capability Study.

To collect the data and answer the research questions, the researcher used a convenience sampling method. This researcher has selected two geographically diverse credit unions—one credit union from Oregon and Virginia. The credit union from Oregon has 85,000 members covering 10 branches throughout the state (NCUA, 2020). The Virginia credit union serves 312,000 members across 21 locations (NCUA, 2020). One rationale for selecting the credit unions was data availability, as each credit union was willing to participate in this research as well as resourcing with staff to submit the instrument to their members.

Another reason for surveying populations in Oregon and Virginia is the size, geography, and member diversity. Notably, the Big Five questions, which include the Big Three (Hastings et al., 2013), and the financial literacy self-assessment, were included in the National Financial Capability Study (Lin et al., 2019). The NFCS includes responses state-by-state, which allowed for credit union member survey responses from Oregon and Virginia to be compared against a larger sample from the same geography that is not restricted to credit union members.

The initial stage of the process involved a random sampling of members that were 18 years or older and had an active checking account.

Development of the Instrument

Previous literature provided the framework for the construction of the survey instrument and as a resource for questions. The first five questions focused on objective (test-based) measures of financial literacy. One question was asked as a means of examining subjective (self-assessed) financial literacy. Seven questions were tested to scrutinize member financial behaviors. The instrument concluded with four demographic questions targeted at race, gender, location, and employment status.

Financial Literacy: Test-Based

Hung, Parker and Yoong (2009) and Tang and Baker (2016) note the extensive use of test-based approaches. Test-based approaches are a common method for measuring financial literacy (Hastings et al., 2013). Therefore, collecting data via survey and including test-based questions from mainstream assessment tools made good sense (Hastings et al., 2013; Parker, Yoong, Bruin de Bruin, Willis, 2012; Van Rooij et al., 2011). The first five questions of the study (APPENDIX A) mirror the same five questions that make up the Big Five financial literacy questions (Hastings et al., 2013). These questions focused on objective test-based measures of financial literacy. The questions have been asked every three years since 2009 (most recently in 2018) in the National Financial Literacy Survey (NFCS).

Lusardi and Mitchell's Big Three questions (which are part of the Big Five questions) are the international standard for measuring objective financial literacy (Hastings et al., 2013). The Big Three questions were first added to the 2004 Health and Retirement Survey (Lusardi & Mitchell, 2007). The questions have been tested in other surveys, including a survey of state employees of Nebraska, the Dutch DNB Household Survey, the Italian Household Survey on Income and Wealth, a pilot study of participants in Mexico's privatized Social Security plan, as well as inclusion in a study of entrepreneurs in Sri Lanka (Lusardi, 2008). The three primary questions test basic knowledge on compound interest, real rates of return, and risk diversification. The three questions are as follows:

- Suppose you had $100 in a savings account and the interest rate was 2 percent per year. After 5 years, how much do you think you would have in the account if you left the money to grow: more than $102, exactly $102, less than $102, don't know, refused.
- Imagine that the interest rate on your savings account was 1 percent per year and inflation was 2 percent per year. After 1 year, would you be able to buy more than, exactly the same as, or less than today with the money in this account: more than today, exactly the same as today, less than today, don't know, refused?
- Do you think that the following statement is true or false? "Buying a single company stock usually provides a safer return than a stock mutual fund."

Over the past fifteen years, the Big Three have served as the foundational questions in surveys created to measure financial literacy worldwide. For example, the questions were added to the U.S. National Longitudinal Survey of Youth (Lusardi & Mitchell, 2017), the Survey of Consumer Finances, and private sector surveys such as the Aegon Retirement Readiness Survey (2018), as well as surveys conducted in Netherlands, Japan, Germany, Chile, Mexico, Indonesia, and India, to name a few (Hastings et al., 2013). Global surveys note that overall, consumers are financially illiterate, and despite efforts to curb the issue, financial illiteracy is persistent (Lin et al., 2019; Yakoboski et al., 2021).

In 2009, the Big Three questions were added to two existing questions from the NFCS. These five combined questions have become known as the Big Five (Hastings et al., 2013) and have been asked every three years since 2009 (most recently in 2018). The two NFCS questions measure respondent's understanding of mortgages and bond pricing. The two additional questions are as follows:

- Do you think that the following statement is true or false: A 15-year mortgage typically requires higher monthly payments than a 30-year mortgage, but the total interest over the life of the loan will be less?
- If interest rates rise, what will typically happen to bond prices: they will rise, they will fall, they will stay the same, there is no relationship, don't know, refused?

Financial Literacy Self-Assessment

The second gauge of financial literacy that has been utilized in the literature measures self-assessed financial literacy (Lin et al., 2019; Hastings et al., 2013). Self-assessed financial literacy has been found to have a positive correlation with objective-based financial knowledge (Allgood & Walstad, 2016; Hung et al., 2009; Lusardi & Mitchell, 2007; Lusardi & Tufano, 2015).

Lusardi and Tufano (2015) note that asking a question about 'overall financial knowledge' is essential when placed alongside objective questions which measure specific financial knowledge. Pairing a broad, self-reported measure of financial knowledge alongside narrower, objective-based measures allows for the evaluation and comparison of answers, which helps determine if respondents know how much they know. This is essential given Hastings et al.'s (2013) observation that there is a persistent gap between self-assessed measures of financial literacy and test-based financial literacy.

While there are various questions to determine self-reported financial literacy, this researcher utilized a question from Lusardi and Mitchell (2014), which is also included in Lusardi and Tufano (2015), as well as the NFCS instrument (2018). The self-reported financial literacy question is:

- On a scale from 1 to 7, where 1 means very low and 7 means very high, how would you assess your overall financial knowledge?

Financial Behavior

The ultimate goal of financial literacy is to produce positive financial behaviors. Robb and Woodyard (2011) note six financial best practices they consider positive financial behaviors. Positive financial behavior includes: 1) having an emergency fund, 2) obtaining a credit report, 3) no overdrafts, 4) credit card payoff, 5) retirement saving, and 6) risk management (p. 64).

Financial education and literacy have been the aim of scholars, policymakers, and educators since the U.S. financial crisis. However, financial literacy has been viewed as a subtle means to an end. Financial literacy is deemed critical because of its believed relationship with financial behaviors. To simplify this argument, the more financially literate an individual is, the more positive their financial behaviors. Despite widespread efforts to increase financial literacy, financial knowledge is declining (Lin et al., 2019; Yakoboski et al., 2021). The persistent nature of financial illiteracy has caused some to determine that aspects of personal finance go beyond objective test-based measures of financial literacy. Researchers note the vital role of self-esteem, self-confidence, impatience, and other psychological antecedents—and their relationship to action and outcomes. As such, this researcher determined it was essential to gauge members' financial behaviors and their objective and subjective financial literacy.

The survey instrument asked respondents about their financial behavior. The survey includes seven questions reflecting respondents’ financial behavior in paying bills, staying on budget, paying off credit cards, limiting out credit card balances, emergency funds, saving money, and investing for retirement. The questions intended to evaluate financial behavior are from the Dew and Xiao’s Financial Management Behavior Scale (2011). These behavioral-related financial questions are imagined to address standard personal financial management practices, and the categories are used by other studies to evaluate personal financial behavior (Dew & Xiao, 2011; Hilgert, Hogarth, & Beverly, 2003; Robb & Woodyard, 2011) (APENDIX A).

The seven questions are concentrated on financial behaviors associated with the kinds of financial activity that transpire in a credit union. The seven questions are as follows:

- Please indicate how often you have paid all of your bills on time in the past six months: never, seldom, sometimes, often, always?
- Please indicate how often you have stayed within your budget or spending plan in the past six months: never, seldom, sometimes, often, always?

- Please indicate how often you have paid off credit card balances in full each month in the past six months: never, seldom, sometimes, often, always?
- Please indicate how often you have maxed out the limit on one or more credit cards in the past six months: never, seldom, sometimes, often, always?
- Please indicate how often you began or maintained an emergency savings fund in the past six months: never, seldom, sometimes, often, always?
- Please indicate how often you have saved money from every paycheck in the past six months: never seldom, sometimes, often, always?
- Please indicate how often you have contributed money to a retirement account in the past six months: never, seldom, sometimes, often, always?

Demographic Questions

There are four demographic questions included in the survey instrument. Race plays an essential role in financial literacy. One question asking about race is included because previous work has noted low levels of financial literacy amongst minority populations—particularly individuals who identify as Black and Hispanic (Lin et al., 2019). One question is asked about the respondent's zip code to determine if there are demographics within particular zip codes with higher (or lower) financial literacy. Gathering zip code information can provide clues into member financial knowledge in urban, suburban, and rural communities.

Gender is also a factor in financial literacy, with previous research noting that women have lower financial knowledge (Lusardi & Mitchell, 2008). Gaining insights into whether a similar challenge exists in the credit union environment could be beneficial.

A single question on employment status is included in the survey. Financial acuity is low amongst individuals with no or low income, the unemployed, and students (Lin et al., 2019). Byrne et al. (2010) note that low financial knowledge levels are closely associated with financial and social exclusion. Financial illiteracy is common for the economically vulnerable—which adds to growing wealth inequality in the U.S (Stolper & Walter, 2017).

The demographic questions in the survey are as follows:

- How would you describe your race: Black/African American, Hispanic, Caucasian/White, Asian, Other (please specify)?
- What is your zip code?
- How would you best describe your gender: Male, Female, "Other" was included as an option for the survey conducted at the Oregon credit union, and "non-binary" was included as an option for the Virginia credit union.
- How would you best describe your employment: Employed, Not Employed, Retired, Student?

Research Questions

As was mentioned in Chapter one, three research are included in this study: (1) How do financial literacy levels of credit union members compare with financial literacy levels of NFCS (2018) respondents? (2) Does higher (lower) self-reported financial knowledge correspond with actual financial knowledge as indicated on the literacy assessment? (3) Is higher financial literacy in credit union members associated with the following positive financial behaviors? a) Paying bills on time, b) Staying with a budget or spending plan, c) Paying off credit card balances in full each month, d) Not maxing out the limit on a credit card, e) Starting or maintaining an emergency spending account, f) Saving money from each paycheck, g) Contributing to a retirement account?

Below, the research questions are stated, and the corresponding survey questions that helped answer the research question are outlined.

Research Question 1

How do financial literacy levels of credit union members compare with financial literacy levels of NFCS (2018) respondents?

The financial literacy of credit union members was measured with five questions in the instrument (see Table 1). Each question includes a multiple-choice response. To answer this question, a series of independent two sample *t*-tests were conducted. The independent sample *t*-test is appropriate to conduct when research aims to compare two groups on a continuous dependent variable (Gerald, 2018). In these analyses, the groups being compared were the credit union and NFCS respondents. The dependent variable was the number of financial literacy questions the respondents answered correctly. For each comparison, normality, skewness, and kurtosis was tested. Additionally, a Levene's test and Welch's *t*-test were operated.

Table 1

Financial Literacy Questions

Item #
1. Suppose you had $100 in a savings account and the interest rate was 2% per year. After 5 years, how much money do you think you would have in the account if you left the money to grow?
2. Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?
3. Buying a single company's stock usually provides a safer return than a stock mutual fund?
4. If interest rates rise, what will typically happen to bond prices?
5. A 15-year mortgage typically requires higher monthly payments than a 30-year mortgage, but the total interest paid over the life of the loan will be less.

Research Question 2

Does higher (lower) self-reported financial knowledge correspond with actual financial knowledge as indicated on the literacy assessment?

To compare self-reported financial knowledge with actual financial knowledge, the researcher compared survey responses from question six (see Table 2) with responses to survey questions one through five (see Table 1). To answer this question, a Pearson correlation analysis was conducted on the credit union sample. A Pearson correlation is appropriate to perform when the research goal is to examine if a relationship exists between two continuous variables (Schober, Boer, & Schwarte, 2018).

Table 2

Self-Assessed Financial Literacy Versus Actual Financial Literacy

Item #
6. On a scale from 1 to 7, where 1 means very low and 7 means high, how would you assess your overall financial knowledge?

Research Question 3

Is higher financial literacy in credit union members associated with the following positive financial behaviors? 1) Paying bills on time, 2) Staying with a budget or spending plan, 3) Paying off credit card balances in full each month, 4) Not maxing out the limit on a credit card, 5) Starting or maintaining an emergency spending account, 6) Saving money from each paycheck, 7) Contributing to a retirement account?

To determine if higher financial literacy is associated with certain positive financial behaviors, a Spearman correlation analysis was conducted on the credit union sample. Spearman correlations are appropriate to perform when the research aims to determine if there are relationships between variables that are "nonnormally continuous data, for ordinal data, or data with relevant outliers" (Schober et al., 2018, p. 1763).

Table 3

Financial Literacy and Behavior

Item #
7. Please indicate how often you have paid all of your bills on time in the past six months.
8. Please indicate how often you have stayed within your budget or spending plan in the past six months.
9. Please indicate how often you have paid off credit card balance(s) in full each month, in the past six months.
10. Please indicate how often you have maxed out the limit on one or more credit cards in the past six months.
11. Please indicate how often you began or maintained an emergency savings fund, in the past six months.
12. Please indicate how often you have saved money from every paycheck, in the past six months.
13. Please indicate how often you have contributed money in a retirement account, in the past six months.

Explanation of Procedures

Each credit union (Oregon and Virginia) expressed interest in participating in the member financial literacy and behavior survey. Upon acceptance of this research proposal, each credit union selected was emailed the survey instrument (APPENDIX A). The survey tool was administered using SurveyMonkey to both solicit and collect survey responses.

The survey was sent to a random sample of credit union members that are 18 years of age or older. The survey included an introductory email from the CEO communicating that their participation is voluntary and that responses will be kept anonymous. Members had two weeks to respond to the survey and received two reminder emails soliciting their response. Once the survey was closed, the data was exported from SurveyMonkey into Microsoft Excel and sent to the researcher.

It is noted that each of the credit unions has an extensive history of conducting member surveys. However, neither has tested membership on their financial knowledge nor examined financial literacy utilizing the Big Five survey questions.

Protection of Human Subjects

Before conducting the study, an application was made to the Institutional Review Board (IRB) of George Fox University for approval since the research involves human subjects. Potential respondents in the study were asked to complete a questionnaire that tests their financial knowledge, asks for a self-assessment of their financial knowledge, requests responses to how they behave with their finances and requests demographic information. All data was collected and analyzed without identifying the member, and no names were requested on the survey. Access to the survey responses were given to each credit union, the chair of the dissertation committee, and the Principal Investigator.

The purpose of the research survey and its voluntary nature were explained on the survey instrument's first page. In the cover letter, members were informed that their responses would remain confidential and that the survey is for research purposes. By completing the survey, members acknowledged their voluntary agreement to participate in the study and consent for the results to be used in data analysis. Respondents were allowed to comment about the survey to the researcher via email. Members completing the survey with questions about the survey tool were also given contact information for their respective credit unions.

The potential risks for subjects participating in this financial literacy and behavior study are that some subjects may feel anxious or uncomfortable completing one or all of the questions. Some subjects may be uneasy about the confidentiality or privacy of their responses despite it being communicated that the survey was private and voluntary. The researcher is not aware of any physical risk to subjects, given that the survey was conducted online via email. The data collection tool did not increase risks for subjects more than minimally beyond ordinary risks of daily life.

Discussion of Instrument Validity

The research questions asked within the instrument have been widely utilized, either in whole or part, and tested for reliability (Dew & Xiao, 2011; Knoll & Houts, 2012; Robb & Woodyard, 2011). However, this researcher recognizes that an instrument consisting of questions that have been validated in other survey instruments does not imply that the instrument is reliable.

To assess the financial literacy of members, this researcher selected the Big 5 questions made popular by researchers Lusardi and Mitchell (2008) and included a self-assessed financial literacy question as seen in Lusardi and Tufano (2009). In 2011, Robb and Woodyard utilized the NFCS (2009) data and asked the Big 5 questions to test financial knowledge and four questions aimed at assessing self-assessed financial literacy.

Alternatively, Knoll and Houts (2012) evaluated four financial literacy assessments between 2006 and 2009. The assessments were each part of a dataset provided by RAND's American Life Panel (ALP). The authors tested the reliability of Lusardi and Mitchells (wave 5) survey, which included thirteen questions (including the Big 5 and self-assessed financial literacy).

Dew and Xiao (2011) provide a comprehensive analysis of their Financial Management Behavior Scale (FMBS). In it, they note a Cronbach's Alpha of .81 for the full FMBS, while subscales representing investments, insurance, cash management, and credit showed Cronbach Alpha's between .78 and .57, indicating some items that made up the subscales "did not hang together well" (p. 49). Moreover, the authors conducted a validity analysis for both face validity and content validity. In both face and content validity, their expert panel "agreed that the FMBS items appeared to measure what it purported to measure" (p. 50). Although only a subset of the Dew and Xiao scale is utilized, the questions cover standard consumer financial-management practices such as paying bills, budgeting, credit cards, spending, saving, retirement contributions. (Hilgert et al., 2003; Tang & Baker, 2016; Xiao, Ahn, Serido, & Shim, 2014).

Data Analysis

Data was screened before any analysis was conducted. The researcher used Microsoft Excel to identify incomplete survey responses. Incomplete answers of any kind were excluded. The researcher worked with the dissertation committee to determine which statistical treatments were necessary to answer the research questions for this study, as indicated above in the Research Question section.

Summary of Methodology

The purpose of this exploratory study is to examine financial literacy and behavior in credit union members. This chapter describes the sample selection and data source, the development of the survey instrument, relevant research questions, procedures used, human subject protection, instrument validity, and data analysis methods that were used. The strength of this study is that it is exploratory in nature. The research looks to add to the existing body of knowledge on financial literacy and behavior, where the credit union context that is being examined is underexplored.

CHAPTER 4: RESULTS

The purpose of this study is to establish a greater understanding of financial literacy and behavior among credit union members. Three research questions were addressed in this study: (1) How do financial literacy levels of credit union members compare with financial literacy levels of NFCS (2018) respondents? (2) Does higher (lower) self-reported financial knowledge correspond with actual financial knowledge as indicated on the literacy assessment? (3) Is higher financial literacy in credit union members associated with the following positive financial behaviors? a) Paying bills on time, b) Staying with a budget or spending plan, c) Paying off credit card balances in full each month, d) Not maxing out the limit on a credit card, e) Starting or maintaining an emergency spending account, f) Saving money from each paycheck, g) Contributing to a retirement account?

This chapter presents and discusses the results of the analysis conducted, which addresses the research questions. To start, descriptive statistics of the samples are presented, followed by the results of the analysis for each research question. This chapter concludes with a summary of the findings from the analysis.

Descriptive Statistics

A total of 1111 responses from two credit unions: (1) ORCU (n = 523) and (2) VACU (n = 588), were included in the analyses. Responses from the National Financial Capability Study (NFCS) (n = 27091) were also included in the analyses. The demographic variables of the NFCS and credit union samples are presented in Table 4.

Table 4

Demographic Characteristics of NFCS and Credit Union Samples

	NFCS		NFCS		NFCS		NFCS		CU		CU		CU	
	National		OR and VA		OR		VA		OR and VA		OR		VA	
Variable	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Race														
White	17224	64	1314	75	987	79	327	64	809	73	472	90	337	57
Black	3239	12	116	7	21	2	95	19	195	18	7	1	188	32
Hispanic	4334	16	174	10	133	11	41	8	43	4	16	3	27	5
Asian	1598	6	95	5	61	5	33	7	14	1	10	2	4	1
Other	696	3	61	3	48	4	14	3	18	2	18	3	0	0
Missing	0	0	0	0	0	0	0	0	32	3	0	0	32	5
Gender														
Male	11956	44	848	48	606	49	242	48	443	40	207	40	236	40
Female	15135	56	912	52	644	52	268	53	655	59	310	59	345	59
Other	0	0	0	0	0	0	0	0	13	1	6	1	7	1
Missing	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Employment														
Employed	15190	56	932	53	654	52	278	55	749	67	321	61	428	73
Not Employed	4875	18	340	19	239	19	101	20	73	7	50	10	23	4
Retired	6116	23	416	24	309	25	107	21	264	24	146	28	118	20
Student	910	3	72	4	48	4	24	5	25	2	6	1	19	3

The "CU OR and VA" data include the combined responses from two credit unions in Oregon and Virginia. The pooled Oregon and Virginia credit union data reflect a White (73%), Female (59%), and Employed (67%) member. However, the Virginia respondents were noticeably more diverse (40%), with (32%) of the overall respondents Black. The "NFCS OR and VA" are combined data from Oregon and Virginia NFCS respondents. The merged Oregon and Virginia NFCS data reflects a White (75%), Female (52%), and Employed (53%). The visible difference between the "CU OR and VA" and "NFCS OR and VA" is the employment level of respondents. CU respondents were more likely to be employed (67%) versus NFCS respondents (53%).

Research Question 1

Research Question 1: How do financial literacy levels of credit union members compare with financial literacy levels of NFCS (2018) respondents? To answer this question, a series of independent two-sample *t*-tests were conducted. The independent sample *t*-test is appropriate to conduct when research aims to compare two groups on a continuous dependent variable (Gerald, 2018). In these analyses, the groups being compared were the credit union and NFCS respondents. The dependent variable was the number of financial literacy questions the respondents answered correctly.

First, the complete credit union sample was compared to the total NFCS sample. It is essential to test for normality when choosing between parametric and non-parametric tests (Gerald, 2018). Normality was tested using a Kolmogorov-Smirnov (KS) test, which works best when the sample size exceeds 50 (Pallant, 2020). The KS test was significant ($p < .001$), indicating that the data distribution was significantly different from normal. However, skewness (-0.27) and kurtosis (-0.89) values were within normal limits (Byrne, 2010; George & Mallery, 2010; Westfall & Henning, 2013), and the *t*-test is robust towards divergence from normality, especially with large sample sizes (Das & Imon, 2016), so the analysis was continued.

Levene's test is a common way to test for equality of variance and is the default in SPSS (Delacre, Lakens, & Leys, 2017). As such, a Levene's test was utilized to test the equality of variance. Levene's test results were significant ($p < .001$), demonstrating that the variance was significantly different between the two groups. Therefore, the Welch *t*-test was interpreted, as this version of the *t*-test does not assume equal variances (Delacre et al., 2017). The results of the *t*-test were significant, $t(1256.04) = 20.68$, $p < .001$, $d = 0.52$, indicating that credit union respondents answered more questions correctly on average ($M = 3.57$, $SD = 1.20$) compared to NFCS respondents ($M = 2.80$, $SD = 1.50$). Table 5 displays the statistical comparison of the two groups.

Table 5

Number of Correct Answers for Credit Union and NFCS Respondents

Group	*n*	Mean	Std. Deviation	Std. Error Mean	Sig.
Credit Union	1111	3.57	1.20	0.04	< .001
NFCS	27091	2.80	1.50	0.01	

Next, the full credit union sample was compared to the NFCS sample respondents from Oregon and Virginia. The KS test of normality was significant ($p < .001$), indicating that the distribution of the data was significantly different from normal. However, skewness (-0.49) and kurtosis (-0.66) values were within normal limits (Byrne, 2010; George & Mallery, 2010; Westfall & Henning, 2013). Levene's test results were significant ($p < .001$), indicating that the variance was significantly different between the two groups. Therefore, the Welch *t*-test was interpreted. The results of the *t*-test were significant, $t(2708.76) = 15.36$, $p < .001$, $d = 0.56$, indicating that credit union respondents answered more questions correctly on average ($M = 3.57$, $SD = 1.20$) compared to NFCS respondents from Oregon and Virginia ($M = 2.79$, $SD = 1.49$). Table 6 displays the statistical comparison of the two groups.

Table 6

Number of Correct Answers for Credit Union and NFCS Respondents (OR and VA Only)

Group	*n*	Mean	Std. Deviation	Std. Error Mean	Sig.
Credit Union	1111	3.57	1.20	0.04	< .001
NFCS	1760	2.79	1.49	0.04	

Finally, the ORCU and VACU samples were compared separately to the corresponding NFCS samples from Oregon and Virginia. The KS tests of normality were significant (p-values < .001), indicating that the distribution of the data was significantly different from normal. However, skewness and kurtosis values were within normal limits (Byrne, 2010; George & Mallery, 2010; Westfall & Henning, 2013). The results of Levene's tests were significant (p-values < .001), indicating that the variance was significantly different between the two groups. Therefore, the Welch t-test was interpreted. The results of the t-test comparing ORCU respondents and NFCS respondents from Oregon were significant, $t(1291.09) = 14.41$, $p < .001$, $d = 0.67$. The results of the t-test comparing VACU respondents and NFCS respondents from Virginia were significant, $t(986.95) = 9.07$, $p < .001$, $d = 0.56$. These results indicate that, within each state, credit union respondents answered more questions correctly on average compared to NFCS respondents. Table 7 displays the statistical comparison of the two groups for each state.

Table 7

Number of Correct Answers for Credit Union and NFCS Respondents by State

Group	*n*	Mean	Std. Deviation	Std. Error Mean	Sig.
ORCU	523	3.79	1.11	0.05	< .001
Oregon NFCS	1250	2.87	1.48	0.04	
VACU	588	3.38	1.24	0.05	< .001
Virginia NFCS	510	2.61	1.51	0.07	

Research Question 2

Research Question 2: Does higher (lower) self-reported financial knowledge correspond with actual financial knowledge as indicated on the literacy assessment? A Pearson correlation analysis was conducted on the credit union and NFCS samples to answer this question. A Pearson correlation is appropriate to perform when the research goal is to examine if a relationship exists between two continuous variables (Schober, et al., 2018). In this analysis, respondents' self-reported financial knowledge was correlated with the number of financial literacy questions they answered correctly. Table 8 displays the correlation coefficients for each sample. All correlation coefficients were positive and significant, (all p-values < .001), indicating that respondents who rated themselves as more knowledgeable tended to answer more financial knowledge questions correctly. The correlation coefficients in the credit union sample (ranging from .42 to .43) were markedly greater than the correlation coefficients in the NFCS samples (ranging from .23 to .27), indicating that the relationship between self-reported financial knowledge and actual financial knowledge was stronger in the credit union samples.

Table 8

Pearson Correlations Between Self-Reported Financial Knowledge and Number of Correct Answers

Sample	*r*	Sig.
Credit Union All	.42	< .001
ORCU	.43	<. 001
VACU	.42	<. 001
NFCS All	.27	< .001
NFCS Oregon and Virginia	.23	< .001
NFCS Oregon	.23	< .001
NFCS Virginia	.23	< .001

Research Question 3

Research Question 3: Is higher financial literacy in credit union members associated with the following positive financial behaviors? a) Paying bills on time, b) Staying with a budget or spending plan, c) Paying off credit card balances in full each month, d) Not maxing out the limit on a credit card, e) Starting or maintaining an emergency spending account, f) Saving money from each paycheck, g) Contributing to a retirement account? To answer this question, a Spearman correlation analysis was conducted on the credit union sample.

Spearman correlations are appropriate to perform when the research aims to determine if there are relationships between variables that are "nonnormally continuous data, for ordinal data, or data with relevant outliers" (Schober et al., 2018, p. 1763). In this analysis, the independent variable was the number of financial literacy questions the respondents answered correctly. The dependent variables are the respondents' ratings of how regularly they engaged in certain financial behaviors (i.e., paying bills on time, staying with a budget or spending plan, paying off credit card balances in full each month, maxing out the limit on a credit card, starting or maintaining an emergency spending account, saving money from each paycheck, and contributing to a retirement account).

The results show that financial knowledge is positively associated with paying bills on time, staying with a budget or spending plan, paying off credit card balances in full each month, starting or maintaining an emergency spending account, saving money from each paycheck, and contributing to a retirement account. When respondents answered more financial literacy questions correctly, it was more common for them to display positive financial behavior. The findings show that financial knowledge was negatively correlated with maxing out the limit on a credit card, indicating that respondents who correctly answered more financial literacy questions were less likely to max out their credit card. Not maxing out a credit card is a positive financial behavior. Table 9 displays the results of the Spearman correlations.

Table 9

Spearman Correlations Between Number of Correct Answers and Financial Behaviors

Dependent Variable	Correlation (ρ) with Number of Correct Answers	*P*
Paying bills	.22	< .001
Spending plan	.18	< .001
Paying off credit cards	.24	< .001
Maxing credit cards	-.21	< .001
Emergency fund	.26	< .001
Saving each paycheck	.23	< .001
Retirement contribution	.15	< .001

Exploratory Analysis

A multiple linear regression analysis was conducted on the credit union sample to determine if demographic characteristics were associated with financial knowledge.

Multiple linear regression is appropriate to perform when the research aims to determine if multiple independent variables (predictors) are related to a continuous dependent variable (Tranmer & Elliot, 2008). In this analysis, the independent variables were race, gender, and employment status. The categorical variables were dummy-coded for the analysis. For race, "White" served as the reference category; for gender, "male" served as the reference category; and for employment status, "employed" served as the reference category. The dependent variable was the number of financial literacy questions the respondents answered correctly.

The regression model predicting financial knowledge was significant, $F(9, 1065) = 20.37$, $p < .001$, $R^2 = .15$. The results represented that together, the demographic variables explained a significant amount of variance (15%) in financial literacy. Table 10 displays the results for the individual regression coefficients. Race was associated with financial literacy such that Black ($B = -0.93$, $p < .001$) and Hispanic ($B = -0.83$, $p < .001$) respondents tended to answer fewer financial literacy questions correctly when compared to White respondents. Gender was correlated with financial knowledge such that women ($B = -0.38$, $p < .001$) are apt to answer fewer financial literacy questions correctly than men. Employment status was related to financial knowledge. Respondents who were not employed ($B = -0.30$, $p = .028$) typically answered fewer financial literacy questions correctly than respondents who were employed.

Table 10

Coefficients for Regression with Demographic Characteristics Predicting Knowledge

					95% CI		
Variable	*B*	Std. Error	Beta	Sig.	Lower	Upper	VIF
Race: Black	-0.93	0.09	-0.30	< .001	-1.10	-0.75	1.06
Race: Hispanic	-0.83	0.17	-0.14	< .001	-1.17	-0.49	1.02
Race: Asian	0.14	0.30	0.01	.634	-0.44	0.72	1.01
Race: Other	0.01	0.26	0.00	.969	-0.50	0.52	1.01
Gender: Female	-0.38	0.07	-0.16	< .001	-0.52	-0.25	1.03
Gender: Other	0.47	0.45	0.03	.293	-0.41	1.36	1.01
Status: Not employed	-0.30	0.14	-0.06	.028	-0.57	-0.03	1.04
Status: Retired	-0.10	0.08	-0.04	.222	-0.25	0.06	1.06
Status: Student	-0.42	0.24	-0.05	.080	-0.88	0.05	1.01

Summary

Independent sample *t*-tests were conducted to examine how the financial literacy of credit union members compared to the NFCS. The results showed that, on average, credit union members answered more financial literacy questions correctly when compared to NFCS respondents at a statistically significant level. A Pearson correlation was conducted to determine if self-reported financial knowledge was associated with actual financial knowledge. The results showed that self-reported knowledge was positively associated with actual financial knowledge at a statistically significant level. A Spearman correlation analysis was conducted to determine if financial knowledge was associated with positive financial behaviors among credit union members. The results showed that financial knowledge was positively related to paying bills on time, staying with a budget or spending plan, paying off credit card balances in full each month, starting or maintaining an emergency spending account, saving money from each paycheck, and contributing to a retirement account. Financial knowledge was negatively correlated with maxing out the limit on a credit card, thus indicating positive financial behavior. Each of these results was at a statistically significant level. Finally, a multiple linear regression was conducted to determine if demographic characteristics were associated with financial knowledge among credit union members. The results showed that Black and Hispanic respondents tended to have lower financial knowledge than White respondents ($p < .001$), female respondents tended to have lower financial knowledge than male respondents ($p < .001$), and not employed respondents tended to have lower financial knowledge than employed respondents ($p = .028$).

CHAPTER 5:

DISCUSSION, IMPLICATIONS, RECOMMENDATIONS, AND CONCLUSION

The purpose of this study is to establish a greater understanding of financial literacy and behavior among credit union members. Three research questions are addressed in this study: (1) How do financial literacy levels of credit union members compare with financial literacy levels of NFCS (2018) respondents? (2) Does higher (lower) self-reported financial knowledge correspond with actual financial knowledge as indicated on the literacy assessment? (3) Is higher financial literacy in credit union members associated with the following positive financial behaviors? a) Paying bills on time, b) Staying with a budget or spending plan, c) Paying off credit card balances in full each month, d) Not maxing out the limit on a credit card, e) Starting or maintaining an emergency spending account, f) Saving money from each paycheck, g) Contributing to a retirement account?

This chapter will discuss this study's findings, which were analyzed in the previous chapter. Additional topics that will be addressed in this chapter include the study's implications, the researcher's recommendations, and a conclusion based on the study results.

Data were gathered from a sample of credit union members (n = 1111) drawn from two credit unions headquartered in Oregon and Virginia. A survey instrument was designed and emailed to credit union members to assess test-based financial literacy, self-assessed financial literacy, and financial behaviors.

Research question one examined financial literacy among credit union members and compared the results to the National Financial Capability Study (NFCS) (n = 27091).

The findings from this comparison indicate that credit union members answered more test-based financial literacy questions correctly than the national sample from NFCS. Additionally, when comparing the credit union member responses to a reduced NFCS sample representing only the states of Oregon and Virginia, the results also indicate higher mean scores for credit union members. Similarly, comparing the sample of Oregon responses to the NFCS Oregon results indicates that credit union members answered more test-based financial literacy questions correctly. Finally, when comparing the Virginia credit union responses to the NFCS Virginia results, the analysis again illustrates that Virginia credit union members answer more questions correctly on average when compared to NFCS Virginia respondents.

Research question two explored the relationship between self-reported financial literacy (subjective) and test-based financial literacy (objective). The results indicate that self-reported financial literacy is positively correlated with the number of financial literacy questions a credit union member answered correctly. In other words, members who self-reported greater financial literacy also tended to answer more test-based financial literacy questions correctly.

Research question three results demonstrate that financial knowledge is positively associated with certain financial behaviors, including paying bills on time, staying with a budget or spending plan, paying off credit card balances in full each month, starting or maintaining an emergency spending account, not maxing out credit cards, saving money from each paycheck, and contributing to a retirement account. When respondents answered more financial literacy questions correctly, they tended to display positive financial behavior.

Financial literacy is economically essential (Kaiser et al., 2020). Both in the U.S. and around the world, there is growing access to the capital markets, given the surge in financial technologies and the digitization of financial transactions (Klapper & Lusardi, 2020). At the same time, financial products have become increasingly complex, while consumers bear a greater responsibility for managing their own finances. The findings from this study show that credit union members score better on test-based financial literacy survey questions than NFCS respondents. This study's findings are significant given the lift in scores that occurred in the credit union. Despite this critical finding, credit unions remain an underexplored domain (McKillop & Wilson, 2011).

Self-assessed financial literacy has been positively correlated with objective-based financial knowledge (Allgood & Walstad, 2016; Hung et al., 2009; Lusardi & Mitchell, 2007; Lusardi & Tufano, 2015). The results of this credit union member financial knowledge study indicate a significant positive relationship between self-reported financial literacy and actual financial literacy. Respondents who rated themselves as more financially knowledgeable tended to answer more financial knowledge questions correctly. These findings are essential given it implies that instead of asking credit union members to answer five test-based financial literacy questions to determine their financial knowledge, a credit union could simply ask its members to rate their own financial knowledge and rely on this response as an accurate inference of their objective financial knowledge.

Financial literacy contributes to financial behavior, with more financially knowledgeable individuals displaying greater positive financial behaviors (Behrman, Mitchell, Soo, & Bravo, 2012). This study affirms Behrman et al. within the credit union domain, as members with higher mean scores on a test-based financial literacy exam consistently displayed greater positive financial behaviors. These results highlight the essential nature of financial knowledge; greater financial knowledge is most valuable not because someone can answer more questions correctly but because greater financial knowledge typically equates to more positive financial behaviors. Some have questioned whether financial knowledge leads to better financial behavior (Fernandes et al., 2014; Goyal & Kumar, 2021; Huston, 2010; Stolper & Walters, 2017). However, this study's results indicate a significant relationship between the financial literacy and financial behavior of credit union members.

An additional analysis was conducted on race, gender, and employment status. The results indicated that these demographic variables explained a significant amount of the variance in financial literacy. The results are important given they reiterate the unfortunate results from other studies: women, minorities, and not employed respondents display lower levels of financial knowledge (Calcagno, Alperovych, & Quas, 2020: Lusardi et al., 2020).

Implications

The following section provides possible implications for individuals, governments, researchers, and credit unions. This researcher will also comment on the results within the context of the stakeholders as a cohort.

Individuals.

For individuals, this research may warrant a second look at credit unions as a proper place to manage their finances, given that a primary focus within credit unions is on financial wellness and stewarding financial education. Although a causal relationship is not suggested by these findings, the emphasis on financial education activities and initiatives within credit unions may explain why credit union members answered more financial knowledge questions correctly than respondents in the NFCS.

Financial knowledge is an important factor for individuals saving for retirement. Adams and Rau (2011) recognize that "Perhaps one of the most robust findings across the literature is that financial literacy (a cognitive factor…) plays a key role in financial preparation for retirement" (p. 6). The act of preparing for retirement involves saving for retirement—something done best by those who are financially literate (Clark et al., 2012; Goyal & Kumar, 2021; Lusardi, 2019; Lusardi & Mitchell, 2014; Yakoboski et al., 2020). If preparing for retirement is done best by those who are financially literate, and financial literacy levels are shown to be elevated in the credit union environment, then individuals could benefit from the credit union structure; if the credit union has an appropriate mix of products and services to meet the retirement needs of their members.

Greater financial literacy among credit union members is associated with more positive financial behaviors. The goal of a household is not only about obtaining financial knowledge, but it is more of a means to an end, with good money behaviors that lead to a state of financial well-being being the critical end. Consequently, individuals may benefit from knowing that the purpose of credit unions is to build member financial capability and promote member economic well-being (Bryne et al., 2010) and that credit unions appear to be delivering on that purpose (McKillop & Wilson, 2015).

With an understanding that the purpose of credit unions is to promote member financial capability and economic well-being, members should consider becoming more involved in their credit union, and work to promote the benefits of credit unions. Because of the unique member-owner structure, members can have a meaningful impact on the credit union's direction and work to impact the local economy.

The credit union structure, coupled with member involvement and community advocacy, could answer some of the challenges posed by Willis (2017). In her address, she notes that financial literacy alone is an inadequate remedy to “improve the financial well-being of individuals and society” (p. 16). Willis notes that the goal of financial education is to “foster financially-informed citizens, who have the capacity for civic engagement that can create citizen-informed economic policies and financial regulation” (p. 16). Willis seemingly describes the credit union model without calling it by name: (1) financially informed citizens, (2) who have a capacity for civic engagement. Individual involvement in credit unions, which extends into the communities in which they reside, could have a lasting impact.

McKillop et al. (2020) note that the mission of the credit union is to “maximize the welfare of stakeholders that are located in the local community” (p. 7). With engaged individual members, credit unions can fill the gap in providing necessary loans to low-income individuals and financial education to marginalized communities and schools. As an example, a focus on promoting financial education, financial literacy, and positive financial behavior in schools may help younger generations achieve better financial outcomes while also increasing overall credit union membership. This could prove essential given that schools no longer prioritize teaching financial education.

Government Policy Makers.

For governments, the findings from this research could be utilized in several ways. Comparing the results from the combined credit union sample and the OR/VA

NFCS data shows credit union members score 28% higher than the NFCS sample on the test-based financial literacy questions. This finding is critical because of financial literacy's association with financial behavior (Kaiser et al., 2020), positive financial outcomes (Lusardi & Mitchell, 2014), planning, saving, and debt management (Lusardi, 2019; Lusardi & Tufano, 2015). The government may mobilize these findings to justify the continued support of credit unions.

It has been observed that workers with low financial literacy spend six hours of worktime per week on personal financial issues—compared with one hour per week for the financially literate (TIAA, 2020). Improving employee output through financial education may serve the needs of both corporations and the government. For companies, offering workplace financial education services may improve employee productivity. This, in turn, can improve a company's contribution to the broader economy—something governments monitor regularly and publish results of GDP quarterly.

It may also be worth the government's time to imagine how credit unions could help the Consumer Financial Protection Bureau as well as the Office of Financial Education. If one of the goals of the CFPB is to measure financial well-being, and financial literacy of individuals is a key component, then it could serve the government well to consider the role credit unions play in accomplishing higher financial literacy scores for its members.

Importantly, given that 52% of U.S. households have no retirement savings (Jeszeck et al., 2015) and that financial literacy is on the decline (Lin et al., 2019; Yakoboski et al., 2020), governments could use this research to justify the benefit of credit unions in preparing individuals for retirement. The more individuals that are financially prepared for life after work, the less dependence there is on social programs such as Social Security and Medicaid—which are already stretched thin. Moreover, governments could use this research to justify the continued investment in low-income designated credit unions and credit unions that qualify as Community Development Financial Institutions (CDFI). Members of these low-income credit unions could benefit from the financial resource subsidies which focus on financial education.

Governments could use the findings of this research to promote credit unions as a potential resource for closing the racial wealth gap. A particular focus on funding aimed at credit unions with large, marginalized populations or CDFI eligible credit unions could prove beneficial. Finally, the government may use the findings to warrant the continued support of the tax-exempt treatment of credit unions, given the ongoing and widespread benefit to individuals and communities.

Trade Organizations.

For credit union trade organizations, the findings of this research could prove beneficial in legislative advocacy. If credit unions are to maintain their preferential tax treatment, they must show value that exceeds the benefits they are granted. Moreover, with the results of this study, trade organizations could be moved to sponsor an additional study that expands the scope of this research, or participate in the development of a credit union index. Importantly, this research could play a part in helping trade organizations unify credit unions in their focus on member financial wellness—with financial literacy and positive financial behavior playing an important role.

Researchers.

For researchers, the results of this study could be used to focus on demographic areas where there is a persistent financial literacy gap. Female, Black, and Hispanic individuals score poorly on national financial literacy exams (Yakoboski et al., 2020). The findings could be utilized to expand research on financial literacy and financial behavior of marginalized populations in credit unions. Moreover, researchers may use the findings of this study as motivation to expand their financial literacy and wellness research into the credit union domain. The finding that credit union members score better than comparable NFCS respondents on test-based financial literacy questions is significant as it highlights the need for more research in this underexplored realm.

McKillop and Wilson (2015) note that credit unions are well-positioned to deliver financial literacy to their members. McKillop et al. (2020) determined that credit unions are "well-positioned" because the primary focus of credit unions is on achieving the social and economic goals of their membership. Byrne et al. (2010) highlight that the purpose of credit unions is to promote member financial capability and build member economic wellbeing. Huang et al. (2013) determined that financial capability includes three key considerations: (1) financial literacy and ability are critical elements of financial well-being, (2) consumers need access to financial institutions, and (3) there is interconnectivity between consumer financial knowledge and the institutional setting. Johnson and Sherraden (2007) note that financial capability is both an individual and an institutional ideal, and when they are combined, it facilitates a consumer's ability to "understand, assess, and act in their best financial interests" (p. 124). This study's findings can help galvanize previous research by connecting financial literacy, financial behavior, and the institutional setting as a "collective" to be further explored in the credit union domain. Questions like "what activities contribute to the increased literacy scores?" and "what activities can be done to enhance and maximize the advantages that are found within the credit union ecosystem?" are important considerations.

The findings reported in this research may quell some of the concern about the overall value proposition of financial literacy education (De Meza, Irlenbusch, & Reyniers, 2009; Willis, 2009; 2017) given: the reduced cost of delivery given the economics within the credit union that are different than the government or the private sector. Although some may argue that the tax subsidies afforded to credit unions are a cost with little benefit being achieved, this study's findings show that credit union respondents answer more questions correctly, on average, than NFCS respondents. This finding is at least a light, at the end of a dimly lit tunnel, as we consider a response to declining financial knowledge, increased complexity of financial products and services, and households not saving enough for retirement.

Willis' concerns over information asymmetry, financial complexity, and neoliberalism as primary culprits for financial education's ineffectiveness may be valid (2008, 2001, 2017). However, something appears different within the credit union ecosystem, and the benefits of such a difference warrant the efforts of further exploration. Financial literacy may improve individual and collective financial well-being if disseminated in the proper institutional setting. Although this researcher agrees with Willis and her sentiments up to this point, the current research findings described in this paper provide hope for a new era of exploration of financial literacy in the credit union context.

Researchers may consider the benefit of a longitudinal study that extends this researcher's work by (1) expanding the type, size, and geography of credit union respondents and (2) synchronizing the administration of the survey with the NFCS survey which is conducted every three years. This type of study could be significant given the state-by-state breakdown of the NFCS data, allowing a comparison of the findings. Researchers who consider this work could also consider establishing a credit union index, which quantifies the financial knowledge of credit union members. Significantly, because credit unions are a global phenomenon, researchers may benefit from examining the financial literacy of credit union members in different parts of the world to determine if the “credit union effect” holds up when assessing financial literacy and behavior amongst global credit union members.

Finally, researchers may want to use the full FMBS scale and compare the financial behaviors of members to other non-credit union administrations of the FMBS. Along the same lines, an approach that utilizes the questions from the NFCS but is administered to a credit union audience could prove beneficial for comparison purposes.

Credit Unions.

Credit unions may take the findings from this study as encouragement that the focus and effort on its membership's social and economic goals are paying off. Moreover, the findings that credit union members score higher on test-based financial literacy questions than NFCS respondents should provide an incentive for credit unions to continue to invest in their members' financial literacy and to maximize their impact.

Importantly, given the results of this study, credit unions should consider establishing or expanding their advisory services to members. The 2020 TIAA Institute-

GFLEC study notes that “individuals with greater financial literacy are more likely to receive financial guidance from a professional advisor or advisory service” (p. 20). The study notes that professional financial advice may improve financial wellness—which is the overarching goal of financial wellness initiatives.

For credit unions that are not spending time or resources on financial literacy education and coaching, the results of this study should spur investment in people and technology that promote financial literacy education. Importantly, because credit unions are member-owned not-for-profits, credit union leaders may use the results of this study to motivate their boards to invest in financial literacy education or to conduct financial literacy surveys of their own to determine the financial knowledge and behavior of their membership.

Credit unions may consider the finding that subjective measurements of financial knowledge map to objective measures, as a simple way to determine the financial knowledge of their membership. Instead of asking a series of test-based questions, credit unions could simply ask members to rate their own financial literacy and gain valuable insights on members through a single question. Moreover, there could be a significant benefit to asking a single financial knowledge question to members, tailoring financial education programs, and offering an appropriate product mix based on their response. For example, if a member's response to a self-assessed financial knowledge question indicates they have low financial knowledge, then offering a credit card with lower minimums and low-interest rate may be more appropriate than a credit card which may not be paid off each month and has a higher rate.

Results from this study could prompt credit unions to expand their efforts to promote financial literacy in particular demographic areas. A focus on female, Black, and Hispanic members could prove beneficial, given the financial knowledge among members when compared to the NFCS respondents. Moreover, given the correlation between financial knowledge and financial behavior, credit unions could establish just-in-time financial education linked to the financial behaviors they intend to improve (Fernandes, 2014).

Finally, credit unions could use the results from this research for marketing purposes. They could highlight the importance of financial literacy, and its essential role in financial capability and financial wellness, while underscoring the distinctiveness of credit unions from other financial institutions.

Other Considerations.

Even with the positive relationship that exists between financial literacy and financial behavior (Fernandes et al., 2014; Lusardi & Mitchell, 2011; Mitchell & Lusardi, 2015), which are supported by the findings of this study, there is growing concern that financial education alone does not translate into better financial behaviors. Grable et al. (2020) note the extraordinarily complex relationship between financial literacy and financial behaviors and that financial literacy does not guarantee positive financial decisions (Tang & Baker, 2016).

Stakeholders who will benefit from the findings of this research must recognize that the potential exists in the sum of the parts—meaning, a combination of a trusted financial institution, appropriate and transparent products, and services, coupled with individuals who are financially literate. Financial education alone is not the answer, if it were, consumer financial knowledge, as indicated on financial literacy assessments (it is education that leads to literacy that's being questioned here), would be increasing, not declining. Although positive financial behavior of individuals is essential, literacy does not provide a perfect positive correlation to behavior. Positive financial behaviors require a combination of access to suitable products and services. If consumers have the financial knowledge and intent to behave positively, but lack access to beneficial products and services, then the financial knowledge and intent to behave positively does little for them. If that same consumer has access to the products and services, but the solutions are presented in a complex or confusing way, they may end up in the wrong product, despite their financial knowledge and intent to act wisely. Even this critical addition of beneficial products still simplifies the situation due to ignoring the complexity of human behavior.

This research may bring meaningful improvement to stakeholders if viewed more holistically and in line with Huang et al. (2013). The authors note that "families must have not only financial knowledge and skills but also access to appropriate financial products and services" (p. 1). It sounds a lot like the authors were describing the credit union setting. The research findings found within this study indicate that the credit union environment is prime to capitalize from higher literacy levels when combined with more nurturing financial products.

Recommendations for Future Research

The following section outlines the recommendations for future research:

1. Expanding the number of credit unions included in the sample could be a way to test whether the results of this research are robust.

2. Similar to NFCS and other national longitudinal studies, researchers who include more credit unions in this study could form an index in which credit union member financial knowledge and behavior could be measured over time and compared with other national surveys.
3. A study including a geographically diverse sample of credit unions could be helpful given that the current study was confined to Oregon and Virginia.
4. A study examining credit unions membership affiliations (military, trade groups, universities, and healthcare) could be beneficial to determine if the financial literacy varies by vocation.
5. The responses for this study were concentrated on a primarily urban/suburban market. A future study could focus on rural credit unions to determine financial knowledge and behavior among members.
6. Because of the potential to benefit marginalized populations, a study focused on low-income credit unions and credit unions that are CDFI are essential. The objective of this future research is to determine the extent of the impact of the credit union domain on the financial literacy of all members.
7. The current study was done in the middle of the COVID-19 pandemic. A similar study done with the same credit unions could be helpful to determine the impact the pandemic had on member financial knowledge and behavior. Member financial knowledge and corresponding behavior could have been impacted due to significant stress related to the pandemic.
8. Financially knowledgeable consumers require additional services to accommodate their desire to plan and save for retirement. A study focused on the product mix of

credit unions could be helpful, given the potential product and service needs of members and the limitation of product and services choices.

9. The Virginia credit union asked that Gender include a choice for non-binary. Although the Oregon credit union included a choice for male, female, and "other," in the future, researchers may want to consider exploring the financial literacy of those who identify as non-binary or genderqueer.
10. Researchers may want to explore the relationship between financial knowledge and the number and type of services a member consumes. The purpose of this analysis is to determine if financial knowledge translates into the consumption of financial products. If a relationship is determined, credit unions could have an even greater reason to invest in the financial literacy of their membership.
11. This researcher included a subset of the Dew and Xiao (2011) FMBS questions when constructing the survey. Future research could include the complete list of FMBS questions so member responses can be compared to the financial behaviors of other studies where the full FMBS was utilized.
12. Future researchers could consider aligning their survey instrument more closely with the National Financial Capability Study (NFCS). Modifying the survey instrument could include expanding the questions on objective financial knowledge to six (a sixth question was introduced by NFCS in 2015 focused on compounding interest on a loan) and asking the same demographic and behavioral questions. In doing so, researchers would have a process (every three years) for asking the same questions as conducted on a national survey but within the credit union domain. The survey could turn into a national or global index used to measure credit union membership's

financial literacy and behavior. The expanded survey could increase the interest in credit unions and the database.

13. Additional research could be performed beyond the United States as the cooperative financial model is prevalent in Canada and Europe. The purpose of conducting similar research outside the U.S. is to determine the effect of the U.S. credit union on member financial knowledge versus a similar effect outside the U.S.
14. Future research that focuses on demographics where financial illiteracy is persistent is warranted. If credit unions are shown to impact marginalized populations' financial literacy positively, the impact could be significant and add to the growing body of financial literacy and financial behavior literature, but in an underexplored domain, the credit union.

Conclusion

The conclusion aims to summarize the essential points of this study found in Chapters I through V.

Financial literacy has been studied for decades spanning numerous survey instruments and populations (Hastings et al., 2014; Huston, 2010). Financial literacy is economically essential (Kaiser et al., 2020; Lusardi & Mitchell, 2014) and central to the concept of financial capability (Goyal & Kumar, 2020; Sherraden, 2013). Financial capability combines financial knowledge, the ability to act, and the proper institutional setting to act within (Huag et al., 2013). According to the authors, to be financially capable, appropriate products and services are necessary. Goyal and Kumar (2020) note that a financially knowledgeable person cannot be viewed as financially capable unless their behavior reflects their level of knowledge.

Extensive resources have been devoted to studying financial literacy (Babiarz & Cobb, 2014; Goyal & Kumar, 2021; Klapper et al., 2013; Lusardi, 2015; Lusardi & Mitchell, 2011). There is evidence that a positive relationship exists between financial literacy and financial behavior, with the more financially knowledgeable individual making more informed financial decisions (Klapper & Lusardi, 2020). Those who score better on test-based financial literacy questions are known to plan and save more (Lusardi, 2019), establish emergency funds (Babiarz & Robb, 2014), handle financial shocks (Hasler et al., 2018), are better at managing debt (Huston, 2012), and saving for retirement (Goyal & Kumar, 2021; Yakoboski et al., 2020).

Despite the many benefits of financial knowledge, most consumers have low financial knowledge (Lusardi, 2019). Financial knowledge is not equally distributed as students and elderly, Black and Hispanic, female, and the unemployed, generally suffer from low levels of financial knowledge. This demographic information is important given that low financial knowledge is associated with financial and social exclusion and adds to the growing wealth inequality in the United States (Solper & Walter, 2017.)

Financial literacy has growing importance given the increased responsibility for consumers to manage their own finances. Moreover, increased access to financial products and the growing complexity of financial services has highlighted the need for financial literacy (Klapper & Lusardi, 2020) and institutions that can deliver appropriate products and services (Huang et al., 2013). Regardless of the present need for financially knowledgeable households, financial literacy is on the decline (Lin et al., 2019), and consumers continue to make poor financial decisions.

The purpose of this study was to explore the financial literacy and financial behavior of credit union members in hopes that the credit union is found to be a possible solution to increase financial knowledge and positive financial behaviors. A survey instrument was created to test for objective and subjective financial knowledge and included a subset of questions from the FMBS by Dew and Xiao (2011).

The survey responses from credit union members indicated that, on average, members could answer more test-based financial literacy questions correctly than respondents from the National Financial Capability Study. Moreover, the study determined a significant positive relationship between self-reported financial knowledge and actual financial knowledge. Respondents who rated themselves as more knowledgeable tended to answer more financial knowledge questions correctly. Notably, the study's results indicated that financial knowledge is positively correlated with numerous positive financial behaviors, with members who answered more financial literacy questions correctly engaged in positive financial behaviors more often. Lastly, in an exploratory analysis of demographics, including race, gender, and employment, the results indicated that demographic characteristics collectively explained significant variance in financial knowledge.

Summary of Discussion, Implications, Recommendations, and Conclusion

This chapter presented the discussion of the findings of this study, the implications to stakeholders, recommendations for future research, and the conclusion. The discussion of findings addressed the three research questions defined in Chapter I and reflected on the research results from Chapter IV. The implications of the study analyzed the results of the study within the context of the key stakeholders, which included (1) individuals, (2) government, (3) trade organizations, (4) researchers, and (5) credit unions. Recommendations were made for future research based on the results of Chapter IV and the need to expand the exploratory nature of this research. The conclusion aimed to summarize the essential aspects of Chapter I through V.

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APPENDIX A

COPY OF FINANCIAL LITERACY AND BEHAVIOR SURVEY TOOL

Financial knowledge

1. **Suppose you have $100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?**

A. More than $102
B. Exactly $102
C. Less than $102
D. Don't know
E. Prefer not to say

2. **Imagine that the interest rate on your savings account is 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?**

A. More than today
B. Exactly the same
C. Less than today
D. Don't know
E. Prefer not to say

3. **Buying a single company's stock usually provides a safer return than a stock mutual fund.**

A. True
B. False
C. Don't know
D. Prefer not to say

4. **If interest rates rise, what will typically happen to bond prices?**

A. They will rise
B. They will fall
C. They will stay the same
D. There is no relationship between bond prices and the interest rate
E. Don't know
F. Prefer not to say

5. **A 15-year mortgage typically requires higher monthly payments than a 30-year mortgage, but the total interest over the life of the loan will be less.**

A. True
B. False
C. Don't know
D. Prefer not to say

Self-Assessed financial knowledge

6. **On a scale from 1 to 7, where 1 means very low and 7 means very high, how would you assess your overall financial knowledge?**

Financial management behavioral questions

7. **Please indicate how often you have paid all of your bills on time in the past six months.**

   1) Never
   2) Seldom
   3) Sometimes
   4) Often
   5) Always

8. **Please indicate how often you have stayed within your budget or spending plan in the past six months.**

1) Never
2) Seldom
3) Sometimes
4) Often
5) Always

9. **Please indicate how often you have paid off credit card balances in full each month in the past six months.**

1) Never
2) Seldom
3) Sometimes
4) Often
5) Always

10. **Please indicate how often you have maxed out the limit on one or more credit cards in the past six months.**

1) Never

2) Seldom
3) Sometimes
4) Often
5) Always

11. **Please indicate how often you began or maintained an emergency savings fund in the past six months.**

1) Never
2) Seldom
3) Sometimes
4) Often
5) Always

12. **Please indicate how often you have saved money from every paycheck in the past six months.**

1) Never
2) Seldom
3) Sometimes
4) Often
5) Always

13. **Please indicate how often you have contributed money to a retirement account in the past six months.**

1) Never
2) Seldom
3) Sometimes
4) Often
5) Always

<u>Demographic information</u>

14) **How would you best describe your race?**

1) Black/African American
2) Hispanic
3) Caucasian/White
4) Asian
5) Other (please specify) **(include response box)**

15) **What is your zip code?**

16) **How would you best describe your gender?**

1) Male
2) Female
3) Other

17) **How would you best describe your employment?**

1) Employed
2) Not Employed
3) Retired
4) Student
5) Currently laid off