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Assessment of Financial Literacy Education Importance and Practices

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Abstract

The topic of financial literacy has attracted many researchers to study the various aspects regarding this issue. The importance of being financially literate has been shown by statistics throughout multiple studies. However, financial literacy levels in the United States, on average, consistently remain low, and only a small fraction of our youth could be said to be financially prepared for adulthood when they graduate high school. This literature review assesses the effectiveness of financial literacy education in the United States by reviewing past practices. Current practices and research-based suggestions are then assessed to help guide the future for financial literacy education.

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CHAPTER I: INTRODUCTION

Introduction

A common phrase regarding money is that it does not buy happiness or that people do not need money to enjoy life, but the truth is, our economy is heavily reliant on money (Ebeling, 2016). There are certain needs that everybody must have in order to survive; food, water, shelter, along with other items that people may need to grow, adapt, and thrive (Sleight, 2014). According to the United States Census Bureau (2018), a family of four must make an income of $24,858 per year to be able to provide enough for their family. Financial literacy does not guarantee the accumulation of more wealth and happiness, but as Lusardi and Mitchell (2011d) found, financially savvy individuals are more likely to plan for retirement, and those who plan, accumulate more wealth. Another study done by Stone, Weir, and Bryant (2007) found that participants with more positive financial attitudes are happier and have higher financial literacy. The researchers believe that financial literacy programs can thus contribute to happiness and psychological health (Stone, Weir, & Bryant, 2007). These statistics help provide a context for the importance of managing money, but with so many resources available, where and how does one develop their financial attitudes and knowledge?

My experience with financial literacy was fairly thin up until I started teaching. High school Economics classes usually had a brief unit or lesson about financial literacy and I learned a few attitudes and some knowledge from my parents. Other than that, it was up to me to learn how to manage money on my own and from personal experiences. One financial literacy tool that I used and enjoyed when I was in my high school Economics class was the “stock market game”. While Mandel (2006) found that high school students who took a personal finance class

were no more financially literate than students who did not take the class, he also found that the "stock market game" did seem to improve financial literacy. Mandell (2006) credits the success of the game to its interactivity and that it is "fun". When I played, I found myself looking up what certain terms meant on the internet, as well as reading attentively to articles on companies that I would probably have skimmed if it were a standard homework assignment. I also had fun playing the game, as I was competing against friends. I looked forward to going to class to see how my stocks performed the previous day. I am a more competitive person than many, so I may have been more involved in the game than others. This is something I have also seen while administering the stock market game as a teacher. Some students may not involve themselves in in the game as much as others. Critics also argue that the game encourages high-risk strategies (Mandell, 2006). My high risk strategies while playing have paid off some years and dropped me to last place other years. The lessons behind the game and the extra incentives of having fun and being interactive did help improve financial literacy in many students. This game, along with some ineffective lessons when I started teaching personal finance topics, lead to my interest in finding out more about financial literacy.

While teaching a unit on financial literacy, I noticed that the students were likely not getting much out of all these lessons, something that Mandell (2006) also found. At the time, I believed that being financially literate was an important skill for students, something that is researched in this literature review (Hilgert, Hogarth, and Beverly, 2003; Christelis, Jappelli, & Padula, 2010; Moore, 2003; Lusardi and Mitchell, 2011d; Lusardi and Mitchell, 2007). While examining different resources for strategies in the facilitation of financial literacy, I came across many websites and online programs that had financial literacy content, ranging from individual

lessons to full curriculum. There are many diverse financial literacy topics to choose from such as life insurance, investing, and purchasing a car (Jorgensen & Salva, 2010). Minnesota, receiving a B grade in financial literacy state requirements from Champlain College's Center for Financial Literacy (Heitlin, 2015), offers teachers flexibility in teaching financial literacy, with only a few standards required for graduation. In the beginning of my informal research, more questions about financial literacy and financial literacy education started to circulate.

Rationale

With financial literacy playing an important role in the daily lives for many individuals (Hung, Parker & Yoong, 2009), it is then important to understand questions that pertain to financial literacy. Before teaching about financial literacy, the first thing to consider is whether the benefits of this literacy have positive outcomes (Hilgert, Hogarth, and Beverly, 2003; Christelis, Jappelli, & Padula, 2010; Moore, 2003; Lusardi and Mitchell, 2011d; Lusardi and Mitchell, 2007)? Next, is the school system a beneficial medium for this exchange of literacy (Bernheim, Garrett, & Maki, 2001; Mandell, 2006)? Are there specific financial topics that are more beneficial for students to learn in a secondary setting (Mandell, 2006; McCormick, 2009)? What standards have been put in place (Heitlin, 2015)? Finally, what is the effectiveness of current educational practices, tools, applications, and strategies and what suggestions can researchers make to help improve financial literacy? All of these questions lead to the rationale of reviewing financial literacy importance and practices.

Definitions of terms

Important terminology, used throughout this paper, is defined below:

Financial Literacy: Many researchers use differing definitions for financial literacy, and although the President's Advisory Council on Financial Literacy (PACFL, 2008) set to make a

"consensus" definition, many researchers still use variations for the definition of financial literacy. The PACFL (2008) defines financial literacy as using knowledge and skills to effectively manage financial resources for a lifetime of financial well-being.

Financial Education: Developed by the OECD (2005) the definition of financial education used by many countries is the process of improving the understanding of financial products, concepts, and risks, and through information, instruction and/or advice, consumers/investors develop the skills and confidence to become aware of risks and opportunities, make informed choices, understand where to find help, and take other effective actions to improve financial well-being.

Financial Products: Refers to the instruments that help you save, invest, get insurance, or a mortgage, often issued by various banks, financial institutions, stock brokerages, insurance providers, credit card agencies, and government sponsored entities (Financial Products, 2010).

Financial Services: Offered by banks and other financial institutions, financial services are used for the facilitation of various financial transactions, such as loans, insurance, credit cards, investment opportunities, and money management as well as providing information on the stock market and other issues, such as market trends (Definition of Financial Services, n.d.).

Financial Market: A broad term that describes any marketplace where trading of securities; such as equities, bonds, currencies, and derivatives occurs (Financial Market, n.d.).

Financial Instrument: A document; such as a check, draft or bond that has monetary value or represents a legally enforceable agreement regarding a right to payment of money (Financial Instrument, n.d.).

Statement of the question or topic

First, what impact does financial literacy education have on individuals. Second, what are the best methods, practices, tools, and applications for facilitating financial literacy?

CHAPTER II: LITERATURE REVIEW

Defining and Measuring Financial Literacy

With current economic conditions raising serious concerns for Americans' financial security, many individuals are attempting to take responsibility for their financial decisions (Hung, Parker & Yoong, 2009). Individuals face a growing number of financial decisions, with financing a home and preparing for retirement being two of the bigger financial hardships (Hung, Parker & Yoong, 2009). Issues such as the subprime mortgage experience have been a cautionary experience for many about making far-reaching decisions without adequate tools (Hung, Parker & Yoong, 2009).

These issues have caused researchers to study various aspects that relate to financial literacy. These studies have yielded many conclusions when it comes to decision making and financial literacy, some of which have conflicted with one another. Early studies show that financial education mandates in high school significantly increased adult propensity to save (Bernheim, Garrett, & Maki, 2001). However, later studies show that students who took a high school personal finance course were no more financially literate than students who did not take the class (Mandell, 2006). Because financial literacy is such a broad term that includes numerous financial instruments within its scope, researchers first set out to define and measure financial literacy in order to help guide research. According to Hung, Parker, and Yoong (2009), how researchers decide to define and measure financial literacy could be a cause for the variations in these studies.

In 2008, the President's Advisory Council on Financial Literacy (PACFL) set out to create a uniform definition for financial literacy and financial education (Hung, Parker, & Yoong, 2009). This “consensus” definition was put in place to enhance consistency and comparability across evidence based research (Hung, Parker, & Yoong, 2009). The PACFL (2008) defined financial literacy as “the ability to use knowledge and skills to manage financial resources effectively for a lifetime of financial well-being” (p.10). They go on to define financial education as “the process by which people improve their understanding of financial products, services and concepts, so they are empowered to make informed choices, avoid pitfalls, know where to go for help and take other actions to improve their present and long-term financial well-being.” (PACFL, 2008, p.10). Even with the PACFL’s definitions, it is unclear how widely used these definitions are used by researchers (Hung, Parker, & Yoong, 2009). When looking at studies on financial literacy after 2008, one will notice varied definitions provided by different authors in their research. As with the many variations in definitions of financial literacy, the strategies researchers use to measure financial literacy may differ quite substantially (Hung, Parker, & Yoong, 2009). Some tests consist of multiple choice or true and false questions. Some tests have included consumer perceptions based on how well they think they understand financial literacy, while other tests have asked questions in regards to actual experiences and behaviors (Hung, Parker, & Yoong, 2009). Hung, Parker, and Yoong (2009) argue that because financial literacy affects the actions, attitudes, beliefs, and experiences that individuals have, these aspects should be included in the research of financial literacy.

One other issue that comes about when measuring financial literacy is how the question is asked (Lusardi & Mitchell, 2014). To test this, Lusardi and Mitchell (2009) asked two groups of

respondents the same question, but randomized the order of presentation. Thus, half of the participants were asked “Buying a company stock usually provides a safer return than a stock mutual fund. True or False?” While the other half were asked the question “Buying a stock mutual fund usually provides a safer return than a company stock. True or False” (Lusardi & Mitchell, 2014, p. 15). They found that responses were, indeed, sensitive to how the question was worded (Lusardi & Mitchell, 2009). Fewer respondents answered correctly when asked the first version of the question; conversely, the correct responses doubled when shown the alternative wording (Lusardi & Mitchell, 2009). Lusardi and Mitchell (2009) take from these results that some answers judged to be “correct” may instead be attributable to guessing, thus analysis of financial literacy questions should take into account the possibility of this variable when analyzing financial knowledge levels.

Importance of Financial Literacy

The U.S. President’s Advisory Council on Financial Literacy (PACFL, 2008) had this to say in regards to the importance of financial literacy:

> Far too many Americans do not have the basic financial skills necessary to develop and maintain a budget, to understand credit, to understand investment vehicles, or to take advantage of our banking system. It is essential to provide basic financial education that allows people to better navigate an economic crisis such as this one [referring to the financial crisis in 2008]. (p.7)

Former Federal Reserve Board Chairman Ben Bernanke (2011) had similar thoughts in his statement on financial literacy, saying that by living in a dynamic and complex financial marketplace, financial education must be a life-long pursuit that enables consumers to stay

attuned to changes and take advantage of financial products and services. Bernanke (2011) goes on to say that well informed consumers are one of the best lines of defense against the rapid increase of financial products and services that may be abusive, unsuitable, or unnecessarily costly. The business cycle is not steady, stable, and able to realize forever-growing economic expansion, that is, even when all seems great and nothing can go wrong economically, at some point, there will be an economic downturn or crisis. Bernanke and the PACFL realize the importance of financial literacy in these economic downturns, in order to help alleviate some of the costs of a recession or contraction.

In addition to having to manage an ever changing economy, "small investors" now have many more financial options, products and services, and more availability to financial markets at their disposal (Lusardi & Mitchell, 2014). Lusardi and Mitchell (2014) go on to list more specific changes in regards to financial markets that people face today that may have differed for older generations: alternative financial services (i.e. payday loans, pawn shops, auto title loans, tax refund loans, rent-to-own shops) and changes in pension landscape. This has put more responsibility on workers and retirees for saving, investing, and decumulating wealth. Rapid growth of financially complex products to the retail market have their obvious benefits, but many of these products have proven to be very difficult to manage for the unsophisticated investor (Lusardi & Mitchell, 2014). This type of issue has plagued citizens for a long time, that is, a person gets something new that they are not familiar with, they try use it without much prior knowledge, and the end result is often times negative. When this new product deals with financial tools and affects how someone is able to live, the problem can be magnified.

Multiple studies have been done to find out how important being financially literate is when it comes to making economic decisions and avoiding money management mistakes. Hilgert, Hogarth, and Beverly (2003) found a strong correlation between financial literacy and day- to-day financial management skills. More financially literate people are likely to participate in financial markets and invest in stocks (Christelis, Jappelli, & Padula, 2010). The least financially literate are also more likely to have costly mortgages (Moore, 2003). Financially savvy individuals have a greater likelihood to undertake retirement planning, and those who plan also accumulate greater wealth (Lusardi and Mitchell, 2011d). Some critics quip back to this statistic saying that individuals who want to plan for retirement will actively look to acquire a higher level of financial knowledge. Lusardi and Mitchell (2007) found that those who are more financially literate when they were young are more likely to plan for retirement, showing that literacy affects planning, not the other way around. Other studies have been done to find the importance of being financially literate in today's world. Similar results to the previously mentioned studies have been found, as well as many other statistics that would suggest being financially literate will help with personal savings, money management, investments, etc.

Another issue of financial literacy is how people personally view their own financial literacy knowledge in the United States (Lusardi, 2011). In a 2009 U.S. Financial Capability Study, 70% of respondents gave themselves a score of 4 or higher (7 point scale), but only 30% of the sample could answer the factual questions correctly (Lusardi, 2011). This presents the issue that people may be more willing to take a risk if they are more confident in themselves, however, if this confidence is based on irrational or misguided thoughts, they will be more likely to make poor financial decisions. Finke, Howe, and Huston (2011) developed a multidimensional

measure to look at how age factored into people's confidence in their own financial literacy. This study concluded that financial literacy falls with age, while people's confidence in their own financial decision-making abilities actually increases (Finke, Howe, & Huston, 2011).

All of the statistics mentioned in this section give reason to educate individuals on financial literacy. The existence of financial literacy should not be taken for granted (Lusardi, 2008). Financial illiteracy is widespread, and given the increased complexity of day-to-day financial transactions, the evidence of illiteracy raises important questions for policy (Lusardi, 2008). The mixed results from financial programs (Bernheim, Garrett, & Maki, 2001; Mandell, 2006) has lead to questions about whether it is worth it to try and improve financial literacy (Lusardi, 2008). Lusardi (2008) says however, that it may not be a choice, as it is very difficult to live and operate in today's world without being financially literate. According to Lusardi (2008):

> Given the complexity of current financial instruments and the financial decisions required in everyday life, from comparing credit card offerings, to choosing methods of payments, to deciding how much to save, where to invest, and how to get the best loan, individuals need to know how to read and write financially. (p. 16)

With the importance of financial literacy confirmed, focus must be put on where, when, and how financial literacy is taught. The first place to start, when looking to answer these questions, is our youth.

Financial Literacy of the United States Youth

According to the National Center of Education Statistics, roughly 56 million students attended elementary and secondary schools in 2017 in the United States, including both public and private schools (Fast Facts, 2017) . That many students will, no doubt, lead to high variations

in the level of financial literacy of students across the United States, no matter the curriculum that is being taught. Before looking into how individuals are fairing in regards to financial literacy, it is necessary to examine how the United States compares to other countries around the world.

In 2015, The Program for International Student Assessment (PISA), assessed the financial literacy of 15-year olds in the United States, as well as 14 other countries. According to PISA, "Students were tested on their knowledge and understanding of fundamental elements of the financial world, including financial concepts, products, and risks, and their ability to apply what they know to real-life situations involving financial issues and decisions (Gonzales & Sen, 2017, p. 1)." Comparing the United States' scores to the average of the other 14 participating countries, the US had a higher average than six countries, a lower average than six countries, and shared no significant difference with the other two countries (Gonzales & Sen, 2017). These results would seem to indicate the United States' financial literacy among 15-year olds as average when comparing them to the other 14 educational systems that were assessed in this research. The United States also participated in a similar study in 2012, and when comparing the 2012 results to 2015, no significant difference can be found over that time period, while countries such as Russia and Italy showed significant improvements to their scores (Gonzales & Sen, 2017). These statistics suggest that the United States could be considered "average" when it comes to financial literacy, while not making much progress in improving the financial literacy of students.

During the 1997-1998 school year, the Jump$tart Coalition started a biennial Personal Finance Survey, a nationwide survey of 12th grade students to determine the ability of young

people to survive financially in today's economy (Mandell, 2008). The initial "average" score was a failing 57.3%, which dwindled down to 48.3% in 2008, when this report was published (Mandell, 2008). More recently, they have started giving this exam to college students, and quite a big increase is seen, with average scores of 62.2%, with that number increasing with each year of college experience. Mandell (2008) notes that one assumption to be made by these statistics is that people tend to gain financial literacy as they grow older, likely due to the increase of life experiences that involve more financial aspects. It can be expected that younger people will struggle more with financial literacy topics due to experience and youth. However, one concerning aspect with this is that only about 25% of youth graduate from college. This would mean that 75% of youth may miss out on the valuable and indirect financial learning that occurs in college (Mandell, 2008). While white Americans scored best on the exam, no ethnic group across the United States had more than 33% of participants pass the test, showing this is a nationwide issue (Mandell, 2008). As the statistics indicate, there is a great deal of room for improvement in financial literacy for the youth, regardless of all the individual characteristics that each youth possesses and obtains. While financial literacy does seem to increase with age and experience, the overall average scores are still low, with year-to-year average scores decreasing for 12th grade students from 1998 to 2008 (Mandell, 2008).

When shifting focus to how individual attributes and backgrounds affect financial literacy of students and adults, many factors can play a role in the understanding and application of financial literacy, such as ethnicity, gender, income level, parental involvement, hands-on experience, etc. Mathematics is often times connected to financial literacy, as calculations and basic math strategies can be intermixed with financial literacy topics. Looking back at PISA's

2015 study of financial literacy in 15 year olds, results suggest that scoring high in the area of math were not generally connected to success on the financial literacy exam (Zubrzycki, 2017). However, a study done in the Journal of Banking and Finance found that improving mathematical skills early in life will eventually raise households' financial literacy and wealth accumulation (Jappeli & Padula, 2013). When looking at these sources together, it would seem to indicate that while having high mathematical knowledge at a younger age may not increase financial literacy, this mathematical knowledge will help individuals continue to grow their financial literacy as they become adults and grow older, and actually start putting more of these financial literacy topics into use (Zubrzycki, 2017; Jappeli & Padula, 2013).

A similar study was done by the Harvard Business School in 2007, instead of focusing on just mathematics scores, this study compared financial literacy to cognitive ability. Cognitive abilities are brain-based skills needed to carry out tasks, ranging from simple to very complex (Michelon, 2016). The study then compared the scores to financial applications as students got older. The study concluded that cognitive ability is important when it comes to making financial decisions, correlating these higher test scores to a higher likelihood of holding a wide variety of financial instruments such as stocks, bonds, mutual funds, savings accounts, and CD's (Cole & Shastry, 2007). The size of this effect is quite large. Comparing students at the 25th to 75th percentile in cognitive ability, there is a 10% increase in the probability of owning stocks, bonds, or mutual funds for white students, while black students see an increase 3.4% (Cole & Shastry, 2007). Another conclusion from the study indicates that individuals with one more year of post secondary schooling are 3% more likely to report positive investment income, similarly, students graduating high school have a greater likelihood of reporting income from retirement savings

(Cole & Shastry, 2007). One last conclusion from the study indicated that the impact of a mandated financial literacy class had no effect on individual savings decisions (Cole & Shastry, 2007).

Two more very important aspects that can play a role in financial literacy are parental involvement and income level. In the 2015 PISA exam done by the Organization for Economic Co-operation and Development (OECD), Angel Gurria, the secretary-general of the OECD, noted that much of the students' financial knowledge comes from parents, but "gaps in scores between students from different income brackets indicate that students have very different experiences and opportunities to learn about finances" (Zubrzycki, 2017, p. 1). PISA found that students who reported talking to their parents about financial topics, scored higher on the test (Zubrzycki, 2017).

Other research has been done on the topic of parental involvement in their child's financial literacy acquisition. A study using structural equation modeling done by Jorgensen and Savla (2010) tested whether "(a) parents were perceived to influence young adults' financial knowledge, attitudes, and behaviors and (b) the degree to which young adults' financial attitudes mediated financial knowledge and perceived parental influence on young adults' financial behaviors" (p. 465). In order to fully understand the results, it must be noted that the results were broken down into a few different categories. The authors measured the previously posed research questions against financial knowledge, attitude, and behavior, then how each of those affected each other. Implicit and explicit learning (if they learn from observing their parents, or explicit instruction) was also measured here. Finally, Jorgensen and Savla (2010) measured direct and

indirect effects. The results found that parents were perceived to influence youth financial attitudes and behaviors, but did not have an effect on financial knowledge.

Students who had reported learning explicitly about finances from their parents had higher financial attitudes and behaviors, but marginally lower financial knowledge compared to students who said they learned implicitly from their parents (Jorgensen & Savla, 2010). Jorgensen and Salva (2010) note that the results were not surprising, except that young adults did not perceive that parents influence their financial knowledge. Other results from the study showed that men and women had no significant difference in their financial knowledge, attitude, and behavior. Class rank had a strong direct influence on knowledge and an indirect influence on behavior and attitudes. Finally, financial knowledge, attitude, and behavior increased incrementally from freshman year in college to senior year in college (Jorgensen & Savla, 2010). These results could suggest that as students become older and have more experiences with financial matters, they may be more motivated to learn about them. Overall, this study shows that parents do have an effect on the students financial literacy, however, they affect attitudes and behaviors more than knowledge.

As with the earlier mentioned PISA test, Jorgensen and Savla (2010) found that financial literacy did increase with increased family income. This could be attributed to increased opportunities to interact with their children in more diverse financial areas (e.g. life insurance, investing, purchasing a new car (Jorgensen & Salva, 2010).

In the PISA test, when comparing higher income schools to lower income schools, it was found that 45% of students in the higher income schools received a top score on a 5-point scale, whereas only 3% of students from lower income schools earned a top score on that same scale

(Zubrzycki, 2017). Lower income communities are defined as communities in which a high concentration of children are eligible to be counted under Title 1 of Elementary and Secondary Education Act of 1965, as amended (Teaching in a Low Income School, 2018). By age 15, 67% of students in higher income schools reported having some sort of bank account, compared to 18% of students in lower income schools (Zubrzycki, 2017). This could also be due to the fact that higher income schools have more opportunities to interact with students in different financial areas, as well as the fact that the students attending these schools come from families with more financial diversity.

Reviewing the landscape of financial literacy for youth in the United States, the issue is not just designated to a couple groups of citizens, it is a nationwide issue facing every ethnicity and gender (Mandell, 2008). Second, while parental involvement can help influence positive financial attitude and behavior, more parental involvement does not automatically lead to more financial literacy; factors such as what is being taught and the opportunities to experience these financial topics play a large role in the learning of financial literacy of younger students (Jorgensen & Savla, 2010). Third, cognitive ability plays an important role in one's ability to obtain financial literacy (Cole & Shastry, 2007; Jappeli & Padula, 2013). Finally, income also plays an important role in financial literacy, as more well-off students are, on average, more financially literate (Jorgensen & Savla, 2010; Zubrzycki, 2017). When looking at this information, regardless of whether high school financial literacy programs work, most of the United States' youth are not adequately prepared for the financial responsibilities and happenings they will encounter when they become adults. Only a small fraction of our youth could be said to be financially prepared for adulthood when they graduate high school (Mandell, 2008).

States Fall Short on Teaching Financial Literacy

Based on the plethora of data that points to an inadequacy of financial literacy of youth in the United States, a couple hypotheses could be formulated as to why these numbers are so low. Specific characteristics that impact financial literacy have been presented, but it is clear that, no matter the personal characteristics or situation a child is in, on average, financial illiteracy is a problem that affects all classes, genders, ethnicities, and children of different financial upbringings, albeit at different levels (Mandell, 2008; Jorgensen & Salva, 2010; Jappeli & Padula, 2013; Zubrzycki, 2017). With many children failing at financial literacy from many different socio-cultural upbringings, and parental influence not being a great enough factor into solving this issue as a whole, some would look to the school systems to help alleviate this problem. In a 2001 study, Mandell and McCollum found that children who receive financial literacy content from their parents scored no higher on a personal finance test than students who received no such instruction. This, along with the other data that is available and presented in this paper, helps point to the importance of teaching financial literacy in school.

The Networks Financial Institute at Indiana State University commissioned a survey asking current educators about financial literacy in the classroom (Ash, 2007). Overall, 650 K-12 educators participated in the survey, with 95% of the middle school and high school teachers believing financial literacy is important to teach in schools. Of the 650 educators, about half taught financial literacy in their classrooms. The most common reasoning for not teaching this content being that it was not a state requirement (Ash, 2007).

Many students do not complete a course designed to help improve financial literacy, but students that do, Mandell (2006) states, have done no better than students who have not taken

such a class, something Mandell calls very distressing. Some observers believed that providing more “just in time” financial education would be more beneficial to students. This would mean teaching concepts that are more immediately relevant to students. However, research found that classes in financial literacy made no difference in their specific knowledge of decisions they recently made (Mandel, 2006).

Taking a more in-depth look at how each state ranks according to financial literacy requirements, Champlain College’s Center for Financial Literacy recently conducted a second such study (Heitlin, 2015). The basis of these rankings come from graduation requirements, academic standards, and regulations regarding how personal finance courses are delivered in public schools (Heitlin, 2015). Champlain College’s Center for Financial Literacy ranks the states by assigning grades of A through F to all 50 states. Heitlin (2015) acknowledges the breakdown as follows, A’s - 5, B’s - 20, C’s - 11, D’s - 3, F’s - 12. One thing to note is that if a student is able to graduate high school without ever being required to take a personal finance class, the state received an F (Heitlin, 2015) . Looking at the criteria for these ratings, there is some grey area. For example, a state that receives a B (Minnesota being one such state) could be quite a bit different than other states that receive a B. Heitlin (2015) adds that some states that received a B may have only taught 7 hours of financial literacy during the course of a semester, while other states may have provided over 30 hours. Furthermore, this study is not able to go in depth on how personal finance curriculum is being delivered in all the public schools in a state. For example, if a state requires academic standards to be taught in a required class in order to graduate, they likely would receive a B. Thus, if a state receives a B, this does not automatically mean they are doing an above average job of teaching financial literacy, it just means they have

solid requirements for the teaching of financial literacy. Heitlin (2015) notes that looking at this from the opposite way, the same can be said that just because a state received an F, does not mean that schools are not trying to increase financial literacy. For example, Wisconsin received an F, but they hold teacher trainings on the subject and they have created a council at developing a model for financial literacy. Heitlin (2015) goes on to say that in order to receive an A, states would need at least a stand alone semester financial literacy course, or have it be part of a full year course.

When it comes to the top of the list, Utah outshines the financial literacy requirements and assessments of other states (Heitlin, 2015). Utah is one of two states (the other, Tennessee) to require a stand alone personal finance course. Utah also mandates students to an end-of-the-year financial literacy assessment from the state. Heitlin (2015) adds that as of 2014, Utah also required teachers to receive a 16 hour endorsement before getting in front of the class, and they must also participate in financial literacy "boot camps". The question then becomes, does it work? Not much research has been done when comparing the actual results of financial literacy from state-to-state due to the vast contrast in curriculum, planning, and delivery across the United States. One statistic to help make Utah's case is that it has the lowest average student loan debt in the nation with $18,873, compared to a national average of $37,172 nationally (Cowles, 2018). There is no such study to prove correlation between these two numbers, as well as other financial benchmarks to specific classroom instruction, something that would need to be done to better evaluate each state's performance rather than effort when it comes to teaching financial literacy. As mentioned before, it really can come down to the instructor or type of instruction for students. One student from Utah said that there was a strong disconnect between

what they were supposed to be learning and what the instructor knew. While another student said that they did not learn much, as they sat through boring hour and a half lectures (Cowles, 2018).

When assessing each state's commitment to financial literacy in the classroom, there is definitely a big gap in the efforts of these states to teach and assess financial literacy (Heitlin, 2015; Cowles, 2018). With more focus, attention, and preparation on financial literacy, Utah hopes to better prepare students for a future with many financial decisions and implications, such as student loan debt (Cowles, 2018). However, as Mandell (2006) has concluded through his studies, most financial literacy courses have been ineffective. Based on these results, it can be said that Utah is trying to improve financial literacy in the classroom. Next, specific teachings, applications, and tools of financial literacy will be examined to gauge the effectiveness, or ineffectiveness, of these strategies.

Current Financial Literacy Practices and Suggestions in the Classroom

The next step in reviewing financial literacy education is to look at current practices and suggestions in the classroom. Financial literacy applications look very different in classrooms in the United States, as well as when compared to other countries. As mentioned before, the United States ranks somewhere in the middle of the pack when it comes to financial literacy, but plenty of work needs to be done to get youth to an acceptable level of financial literacy (Gonzales & Sen, 2017).

Do financial literacy programs work? Based on the previous evidence and research studied, it cannot be said for sure, one way or the other. The next step, then, is to look specifically at programs that have been proven to work or not work. With the abilities of the internet and globalization opening up so many more resources, there will be more ways to

deliver financial literacy content now, and in the future. With some of the studies that have found personal finance courses ineffective, is it because it could not work? Or is it that they do not work, because of poor design or administration (Hathaway & Khatiwada, 2008)? Another reason for mixed results in terms of financial literacy courses may be due to teachers, administrators, and/or researchers not knowing how to properly evaluate these courses (Hathaway & Khatiwada, 2008). Two suggestions are made by Hathaway and Khatiwada (2008) in improving the effectiveness of financial behavior programs. First, Hathaway and Khatiwada (2008) contend that programs be highly targeted toward a specific audience or financial activity, such as home ownership and credit card use. This training should occur just before the corresponding financial event. Some highly targeted programs have been found to change people's financial behavior (Hathaway & Khatiwada, 2008). However, as other studies have found, this is going to be more effective with adults who are currently experiencing these situations (McCormick, 2009). Mandell (2006) also looked at teaching concepts that are more immediately relevant to students, and the research found that classes in financial literacy made no difference in their specific knowledge of decisions they recently made. The strategies for adult financial education cannot simply be reengineered into a K-12 classroom (McCormick, 2009). McCormick's (2009) study suggests the following:

> Childhood financial education needs to be prescriptive, preventative, developmental, and delivered on a massive scale. Therefore, the pedagogies and strategies that are appropriate for adult financial education cannot transfer effectively onto efforts by the American school system to train children to be financially literate. (p. 70)

The second suggestion proposed by Hathaway and Khatiwada (2008) is to put in place a formal program method in design of the program itself. It is critical to understand what works and what doesn't. Effective program evaluation provides this context (Hathaway & Khatiwada, 2008). Between the the different definitions and measurements used in many different studies (Hung, Parker, & Yoong, 2009) and the many different program styles, variations, and ways they are administered, it is very difficult to get a solid conclusion on the effectiveness of financial literacy programs.

Mandell describes the inadequacy of financial literacy programs in high school to problems faced in many other classes and subjects as well. Adults want kids to be financially literate to avoid severe difficulties. However, through previous studies and experience, many know that it is almost impossible to reach children and pass on this knowledge where it is attained and able to be used in practice, when it has taken only a few minutes to impart in class (Mandell, 2006). Yet, Mandell (2006) notes, this does not stop them from hoping mandatory high school classes will deliver financial literacy that is "sticky" enough to persevere into adulthood.

Another financial literacy test was done in a medium sized midwestern town with a well regarded financial literacy program to see if that would yield better results (Mandell, 2006). The results were disappointing, with those who had taken the class scoring no better on a financial literacy test a year later, than those who did not take the class (Mandell, 2006). Some observers have looked at this and thought that more "just in time" education is far more effective than general education (Mandell, 2006). As mentioned before and looked at by Mandell (2006) and McCormick (2009), these "just in time" programs do not translate very well into the high school

classroom, and even learning about topics that are more immediately relevant to them (such as using a checkbook, choosing a credit card, or selecting auto insurance) made no difference in their specific knowledge relating to decisions they recently made.

At the time of Mandell's (2006) study, he had found only one intervention technique that seemed to improve financial literacy; the "stock market game." Students who competed in the stock market game tend to have significantly higher financial literacy scores than those who don't (Mandell, 2006). Many studies have included the stock market game in their research, and it has consistently provided higher financial literacy scores for those that have participated than those who did not, and the differential may even be growing (Mandell, 2006). Mandell (2006) credits the success of the stock market game to it's high interactivity and also because it is fun. The game does have its critics however, as they claim that the game rewards extreme risk taking since you cannot win unless you invest in very volatile securities (Mandell, 2006). In addition to taking a very risky approach in order to win, since there is no penalty for losing all of your money, the game may discourage risk-averse investing, which forms the basis for strategic saving in our economy (Mandell, 2006).

With the success of the stock market game, and the likelihood of the game's success due to interactivity, Mandell (2006) suggests that our educational efforts need to be more directed at higher levels of interactivity. For this reason, Mandell helped develop his own program called MoneySKILL, which is a totally interactive and web-based class that demands students to "test-fly" their own lives (Mandell, 2006). Pre and posts tests were given to students, which showed a great deal of learning throughout the semester, but no data was given about how "sticky" that learning was years after completing the course (Mandell, 2006).

Lusardi (2008) discussed the future of financial literacy, suggesting that some sort of academic standards need to be set in place. Lusardi (2008) believes two questions need to be thoroughly thought about when setting these standards in place: What do students know? What should the pillars of financial literacy be? Her belief is that one institution should preside over and establish these standards, with her suggestion being the U.S. Department of Treasury.

One of Lusardi's (2008) specific suggestions is to consider the use of technology to garner more interactive methods. Technology has progressed enough where students would not even necessarily have to learn financial literacy in the classroom, but they could learn from online courses, CDs or DVDs (Lusardi, 2008). One obvious trend that has continued to expand throughout education and in our economy as a whole has been the increased ability that technological advances has brought with it. With these technological advances, the ability to be able to learn on your own time or in the comforts of your home has increased. A study by Hogarth and Hilgert (2002) conducted a survey on the learning preferences of individuals for financial topics. More traditional ways of learning, such as informational seminars and formal courses at a school were rated the lowest by respondents when asked if they felt these strategies would be effective ways to learn financial topics (Hogarth & Hilgert, 2002). TV, radio, magazines, or newspapers was rated the most effective, while informational brochures, video presentations viewed from home, then the internet followed behind (Hogarth & Hilgert, 2002).

A simple online search for financial literacy curriculum will come back with many, many different financial literacy lessons, activities, curriculum, and even full courses. These resources include learning on your own, as well as guided classroom instruction. Some are free, while others require payment. One problem with this, however, is that little attention has been given to

understanding why technology based tools and strategies have been expected to improve financial literacy and its outcomes (Way & Wong, 2010).

The California Department of Education has set up a webpage with numerous links to financial literacy content and curriculum (Grades K-12 Financial Literacy Resources, 2018). When reading through the brief descriptions of the curriculum, it becomes clear that many of these sources use "real-life scenarios", videos with interactive curriculum, and financial tools to help increase the interactivity of the learning (Grades K-12 Financial Literacy Resources, 2018). Colleges have also offered free or paid web-based curriculum as another option to learn about personal finance. Experts warn that financial literacy curriculum is often times created by for-profit-companies and some of this curriculum is created to try to funnel students toward particular banks or products (Zubrzycki, 2017).

One specific program that has some universal procedures is a DVD-based curriculum called Financing Your Future (FYF) (Walstad, Rebeck, & McDonald, 2010). Walstad et al.(2010) conducted a study to measure the effectiveness of the FYF program. Instruction, measurement, design, and analysis are universal in all classrooms using this curriculum (Walstad et al., 2010). The study also ensures that teachers are familiar with the content and know how to teach it. Walstad et al.'s (2010) research shows that financial education using the FYF curriculum does make a positive and important contribution to a high school student's knowledge of personal finance. Positive and significant effects were found when examining pretests and posttests from students completing the FYF curriculum (Walstad et al., 2010). This data was also measured against a control group that did not partake in the FYF curriculum. Walstad et al. (2010) notes that the biggest issue with the study however, as seen in other

literature reviews, is that it does not measure students financial literacy, attitudes, and behaviors years after the students have been removed from the course. Most high schoolers do not have a lot of financial responsibility, so while it is positive that students gained financial literacy by using the FYF curriculum, there is no evidence or data that shows whether or not the literacy learned by the students was beneficial as they became older and began to have more financial responsibilities (Walstad et al., 2010). This is considered a strong drawback to the study, as the goal of a financial literacy curriculum is to ensure financial success for students throughout their lives, not just their knowledge of the content at the time they learn about it.

One of the more popular programs to appear in the last few years has been the Dave Ramsey Foundations of Personal Finance curriculum. One in three high schools have used the Foundations in Personal Finance: High School Edition. More than 70,000 homeschooled kids have used the homeschool curricula, and their college curriculum is on more than 680 campuses nationwide (Foundations of Personal Finance, 2018). Dave Ramsey's website also offers many other products and services to help improve financial literacy for both young and old (Foundations of Personal Finance, 2018). When reading through a description of their high school curriculum, you again see keywords associated with many other web-based curriculum such as "activities", "real-world applications", and "engaged" (Helping Make the Difference You've Dreamed About, 2018). There is no large scale data that effectively measures the effectiveness of this program at this time.

Unfortunately, and as Way and Wong (2010) mentioned in their study, not a great deal of research has gone into the specifics of technology use in the curriculum of personal finance or specific program effectiveness. Way and Wong (2010) looked at how digital technologies can

enhance financial education efforts and argue that technology, when applied in a reasoned way, can support learning processes, enhance learner motivation, and expand access to learning opportunities. Technology may not produce desired results if the applications do not carefully match learner characteristics with needs, learner context, and desired behavioral outcomes (Way & Wong, 2010). They call for a "learning with" approach rather than a "learning from" approach when it comes to technology-based financial education (Way & Wong, 2010).

In order to properly use technology as an effective aid in the facilitation of financial literacy, Way and Wong (2010) lay out 11 guidelines that should be considered and applied when considering technology-based tools and resources. First, technology based tools and resources must be selected based on how they may contribute to positive financial outcomes. Knowledge acquisition should be used to lay the foundations of financial capacity, but human behavior theories suggest that knowledge (and even skills) will not be sufficient by themselves in order to guide the positive outcomes of financial behavior (Way and Wong, 2010). Next, Way and Wong (2010) suggest that applying multiple behavior theories simultaneously in one or more units may produce some of the strongest personal finance interventions. Educators, however, must be careful when combining these units and behaviors as to avoid redundancy, overlapping, and contradictory practice implications (Way and Wong, 2010). The third suggestion describes the use of technology needing to be a way students can learn with technology, not learn from technology. Simply using technology just because it is available does not ensure better learning; many assignments done using technology could still be done without technology, thus changing nothing but the source of the information. This is based on a constructivists learning perspective which should provide learners an opportunity to interact with one another, emphasis reflection

and not just reproduction of content, and provide learner and peer control rather than educator control (Way and Wong, 2010). Fourth, the factual and procedural knowledge provided by the technology based tools and resources must be critically evaluated by educators (Way and Wong, 2010). While games may be interactive and fun, not all games are created equal in terms of learning, and must be evaluated based what students are learning and how much students are learning. These tools and resources should be selected by educators based on whether the kind of thinking emphasizes matters in the real world, if the knowledge is worth knowing, where appropriate risk taking is encouraged, and where learners are able to explore who they want to be (Way and Wong, 2010). Next, Way and Wong (2010) suggest that the technology-based tools and resources must be developed based on existing theories on how to motivate and support meaningful learning. Making something "look good" does not necessarily facilitate positive learning experiences and outcomes. Motivators such as a sense of competence, autonomy, and a sense of belonging are important designs to consider when choosing and evaluating technology-based tools and resources (Way and Wong, 2010). The sixth suggestion from Way and Wong (2010) notes that universal instructional design principles could be used to ensure that learner variations such as language and literacy differences, cultural backgrounds, and learning styles are accommodated. Many schools already focus on providing these variations in instruction to serve the needs of all learners, and it should be no different when technology is introduced as a tool and resource for curriculum. Way and Wong (2010) stress the importance of understanding and being aware of historical representational and pedagogical biases and make sure they are not perpetuated as their seventh suggestion. An example of these biases are male-oriented game scenarios and passive or less challenging instructional practices in

low-income contexts (Way and Wong, 2010). Way and Wong's (2010) eighth suggestion states that professional development should be expanded to include support for both self-directed and teacher-directed personal finance education and the role that educational technology can play in these efforts. Technology is still young in terms of its uses in the classroom, and educators must take the time to get familiar with these technologies and the best practices to benefit financial literacy. Way and Wong's (2010) ninth suggestion is very similar to their eighth, in that more attention needs to be given to developing and organizing technology-based financial educational tools, however this suggestion stresses the importance of organizing and developing these tools for self-directed informal learning. This should include an explicit attempt to help individuals evaluate internet-based financial information (Way and Wong, 2010). The tenth suggestion from Way and Wong's (2010) study explains that new technologies should build upon existing positive financial behaviors within and among population subgroups, for example, linking learners though discussion forums and social networking sites. Finally, personal finance educators must be aware of the technological mindset, that is, the overly optimistic view that technology is the solution for most things (Way and Wong, 2010). Way and Wong (2010) warn that technology cannot be expected to answer the question of what personal finance should be.

Technology has expanded to a point where it can be very useful, but with many things, it must be used correctly in order to reap the full benefits. These 11 steps can be used by educators and administrators when planning and evaluating their financial literacy programs. They can also be a guide to research that must be done before determining the right financial program or lesson for a school's demographics.

One more consideration of financial literacy strategies is it's place in elementary education. The NASBE Commission (2006) argued that "the earlier a student begins learning [Financial Education] concepts, the more opportunities schools will have to impact behavior. Therefore, states should consider infusing financial and investor education throughout the K–12 curriculum" (Who will own our Children, p. 20). McCormick (2009) adds that the poor performance of high school financial literacy courses suggests that the current model of waiting until high school to introduce personal money management concepts is too late, and needs to be introduced in earlier grades. McCormick (2009) says "It is widely recognized that literacy, as the foundation for virtually all other subject areas, needs to be taught from the very earliest ages; this focus on early childhood literacy is known as emergent literacy" (p. 75). She adds that the core concepts that underlie financial literacy, such as goal setting, spending, saving, etc., need to be emphasized and supported from the very earliest grades if students are to transition into financially literate consumers (McCormick, 2009). Basically, many students cannot learn what they need to know about financial literacy in a one semester class because if they do not already understand the basic underlying principles of financial literacy, they will either, a) not be able to comprehend the concepts being taught or, b) need to start at a more beginner level, thus not being able to learn everything they need to know in one semester.

In summary of the current practices and suggestions for financial literacy education, a few basic strategies and guidelines are important to remember. First, more effective program evaluations must be put in place to evaluate new and specific curriculum (Hathaway and Khatiwada, 2008). Next, basic financial literacy concepts need to be introduced at the elementary level (McCormick, 2009; Who will own our Children, 2006). Finally, many factors must be

considered and researched when deciding to implement technological financial literacy curriculum into the classroom (Way and Wong, 2010).

By following these steps, it would seem that there would be a better chance to improve the financial literacy programs in our schools. Although some studies have shown that personal finance classes are ineffective long-term (Mandell, 2006), many statistics suggest that financial literacy is very important in today's world and that the school system seems like the best place to provide this education in order to fully benefit as much of the economy as we can.

CHAPTER III: DISCUSSION AND CONCLUSION

Summary of Literature

The literature review summarizes the importance of financial literacy in today's age, examines the effectiveness of current financial literacy strategies, and finally, determines the best practices, tools, applications, and strategies in moving forward with financial literacy education. Financial literacy education has been around for many years, coming from multiple sources; such as school systems, parents, seminars, online programs, as well as multiple other sources tasked with educating individuals on financial literacy.

With many individuals facing a number of growing financial decisions, such as financing a home and preparing for retirement, and the issues of the subprime mortgage experience still fresh in many people's minds, many individuals are attempting to take responsibility for their financial decisions (Hung, Parker, & Young, 2009). The importance of these financial decisions have caused plenty of research and differing strategies to be attempted. Lusardi and Mitchell (2014) expand on these growing financial decisions that differ from older generations such as payday loans, pawn shops, auto title loans, tax refund loans, and changes in the pension landscape, putting more responsibility on workers for saving, investing, and decumulating wealth. In addition to growing financial decisions, "small investors" now have many more financial products and services available to them, and easier access to financial markets (Lusardi & Mitchell, 2014). More financially literate people are likely to participate in financial markets (Christelis, Jappelli, & Padula, 2010). Hilgert, Hogarth, and Beverly (2003) found a strong correlation between financial literacy and day-to-day financial management; the least financially literate are more likely to have costly mortgages (Moore,

2003); and financially savvy individuals are more likely to undertake retirement planning, and those who plan accumulate more wealth (Lusardi & Mitchell, 2011d). These statistics point to the importance of financial literacy, which leads to the next step of measuring financial literacy of youth in the United States.

The Jump$tart Coalition started a biennial survey in 1997-1998 to determine the ability of 12th grade students to survive financially in today's economy (Mandell, 2008). The study found an initial failing average score of 57.3% , which decreased to 48.3% by 2008 (Mandell, 2008). Mandell (2008) notes that the study was recently given to college students, which sees an average score of 62.2%, with that number increasing with each year of college experience, leaving Mandell to make the assumption that people tend to gain financial literacy as they grow older. While Mandell (2008) acknowledges that white Americans scored best on the exam, no ethnic group had more than one-third of participants receive a passing grade in 2008, showing this to be a nationwide issue. Looking at how mathematics knowledge affects financial literacy, sources seemed to indicate that having a high mathematical knowledge at a younger age may not increase financial literacy at that young age; however, mathematical knowledge will help individuals continue to grow their financial literacy as they grow older and start putting more financial literacy topics into use (Zubrzycki, 2017; Jappeli & Padula, 2013). Cognitive ability was also found to play an important role in the financial literacy of students, as seen by comparing students in the 25th to 75th percentile in cognitive ability, a 10% increase in the probability of owning stocks, bonds, or mutual funds for white students was found, while black students saw an increase of 3.4% (Cole & Shastry, 2007). Finally, parental involvement and income level was looked at to see the effect this had on student's financial literacy. The OECD

(Zubrzycki, 2017) and Jorgenson and Salva (2010) found a gap in scores between students from different income brackets. PISA found that students who reported talking to their parents about financial topics, scored higher on their test (Zubrzycki, 2017). However, a study done by Jorgenson and Salva (2010) found that parents have more of an effect on financial attitudes and behaviors compared to financial knowledge. Mandell and McCollum (2001) also found that children who received financial literacy content from parents scored no higher on a personal finance test when compared to students who received no such instruction.

When comparing the United States financial literacy to 14 other participating countries (assessing the financial literacy of 15-year olds), PISA found that the U.S. ranked as "average" (Gonzalez & Sen, 2017). Champlain College's Center for Financial Literacy, ranking states in terms of financial literacy requirements, found that Utah leads the way in terms of financial literacy requirements and assessments (Heitlin, 2015). While 24 other states received either an A or B (Minnesota being one such state receiving a B), 15 states received a D or F (Heitlin, 2015). This data does not necessarily show effectiveness of financial literacy, but rather the efforts that each state devotes to it.

Looking at the effectiveness of financial literacy courses, conflicting results have been found. Bernheim, Garrett, and Maki (2001) found that financial education in high school increased adult propensity to save, while Mandell (2006) found that students who took a high school personal finance course were no more literate than students who did not take the class. Mandell (2006) pointed to how the class is delivered to possibly being a key component of financial literacy effectiveness. Utah may have received the highest grade in terms of requirements and assessment (Heitlin, 2005), however, one student admitted to not learning

much, as they sat through boring hour and a half lectures (Cowles, 2018). Mandell (2006) and McCormick (2009) explored "just in time" techniques (teaching financial topics that are more readily applicable to young students lives), but found that these programs did not translate very well into the high school classroom. Mandell (2006) found one intervention technique that seemed to improve financial literacy was the "stock market game", with students who participated in this game consistently showing higher financial literacy scores when compared to those who did not participate. Mandell (2006) credited the success of this game to it's high interactivity and that it is fun. McCormick (2009) believes that financial literacy must also be started in elementary school, stating that many students do not possess the skills necessary to be able to properly learn and understand all the concepts covered in a senior high financial literacy class.

With the advancement of technology, many programs have been put in place online that include interactive lessons, tools, and applications. Mandell created his own MoneySKILL program (an interactive and web-based financial literacy class) that found a positive correlation throughout the semester, but no data was given about if that learning "stuck" years after the course was completed (Mandell, 2006). A DVD based curriculum, Financing Your Future (FYF), was also found to make a positive and important contribution to high school students' financial literacy, however, similar to the MoneySKILL program, researchers were not able to measure students' financial literacy, attitudes, and behaviors years after students have taken the course (Walstad et al., 2010). With many different programs out there, Hathaway and Khatiwada (2008) suggest effective program evaluation needs to be set in place, and Lusardi (2008) suggests one institution should establish some sort of standards for all. Finally, in order

to properly use technology effectively in the facilitation of financial literacy, Way and Wong (2010) laid out 11 guidelines to consider and apply when using technology-based resources. Technology has the potential to be a great facilitator in the learning process, but technology does not guarantee better learning, and must be used positively to increase learning (Way & Wong, 2010).

Professional Application

Through the review of literature pertaining to financial literacy, it becomes clear that the acquisition of financial literacy is an important step in the development of individuals. Many statistics point to the importance of developing financial literacy, and based on the literature, it would seem that while there are plenty of settings to receive financial knowledge, in order to ensure that all individuals in our country receive proper financial literacy opportunities, the school system would be (at least) one place that financial literacy should be covered. However, at this time, there is no specific, research-backed curriculum that supports the idea that requiring a semester long personal finance course will have substantial influence on students, years after taking the class. While the previous ideas are certainly contradictory, these findings suggest that more must be done before requiring students to take a full semester class in order to graduate. This does not mean that students should not have an option to take a personal finance class, but requiring them to do so could incur an opportunity cost that is greater than the reward for too many. Many states currently have different ways of handling financial literacy (full semester requirements, standards that must be taught before graduation, or no standards at all). There is not enough evidence at this time to fully support a mandated semester long class for all states. This does not mean that financial literacy should not be

taught in schools (as shown before, it should be taught in schools) but more research and studies must be done to prove the effectiveness of financial literacy curriculum before applying it at a national level.

One aspect that will play an important role in the continued development of financial literacy content is technology. If making curriculum more interactive and fun is the current direction that many subjects, including personal finance, are taking, then technology will play a large role in the development of this curriculum. Technological resources must be continually reviewed, updated, and revised to help improve the financial literacy curriculum. Many of the current curriculum reviewed had either parts of the curriculum tied to technology, some of the curriculum tied in with technology, or some were even completely technology-based. With many financial products, services, tools, and markets having some sort of online application to them, technology will certainly play a role in the continued development of financial literacy curriculum.

Minnesota is a state that currently has some financial literacy requirements, but no full semester class is required to graduate. The findings from this research would suggest that Minnesota keep these requirements as is, at least until a study comes out that fully supports a curriculum that has been proven to have consistent and positive long-term effects, multiple years after the class has concluded. Schools that have personal finance electives should be doing research of their own to gauge the effectiveness of their programs. Minnesota should continue to use, develop, and analyze technology in their personal finance curriculum, and look to gather more data on financial literacy topics in elementary schools.

After examining the findings, trends, and suggestions from my review, I then turn to how this research can affect my own teaching. I teach one Economics class that requires a few financial literacy standards to be taught. I will use suggestions from Mandell (2006) in keeping these lessons interactive, while considering Way and Wong's (2010) suggestions on the use of technology within these lessons. Online curriculum and content will be carefully reviewed based off the findings from my literature review to help enhance my financial literacy instruction. Discussions with administration have centered around the idea of a personal finance class before, and after this review I plan to suggest more research be done into the effectiveness of other school's personal finance classes before creating an elective class at my school, keeping in mind that there is no long term study that promotes the idea of a semester long personal finance class. The possibility of technology enhancing financial literacy education exists, but continued review and assessment of personal finance classes should be done in my case before truly considering a semester class.

Limitations of the Research

Although much of the research reviewed in this paper focused on the United States, financial literacy is not just confined to the U.S. From 2012 to 2015, two countries, Russia and Italy, showed significant improvements in their financial literacy scores based on the assessment done by PISA (Gonzalez & Sen, 2017). More research should focus on how those two countries significantly increased their scores in that time period. When PISA conducts another similar study, more studies and research will need to go in depth on specific content and requirements for countries that improve their scores significantly. Research should also be

done on countries that do not improve, to see if a newer curriculum did not work, or if the country did nothing to try improve their financial literacy among 15-year olds.

One other large limitation is that there is no research of a specific, technology-based curriculum that studies financial literacy of students who took the class, many years down the road. Studies done in the past have found that students who took personal finance classes were no more financially literate than students who did not take the class (Mandell, 2006). These studies were done in years that had severely less technological tools, applications, content, and curriculum available. With technology playing a massively larger role in many school district's curriculum, past research may be less important if technology-based curriculum proves to have a significant effect on the financial literacy of students, years after completing a personal finance class.

Implications for Future Research

The limitations of the research reviewed should guide future research. First, continually assessing global levels of financial literacy should be done. By studying what works well, and what does not work for other countries, the United States can continually try new strategies that have been proven to work for other counties. Next, review of technology-based curriculum and content must be continually assessed. With technology playing a larger and larger role in, not only schools, but the lives of almost every individual, technology must be at the forefront of assessment when it comes to financial literacy. This does not mean that technology will automatically increase financial literacy, but based on current trends, it must be continually put into practice and assessed. Finally, more assessment of elementary-based curriculum could be helpful for long term financial literacy. Little research is out there that follows students who

learn foundational financial literacy skills in elementary, who then go on to take a semester long personal finance class in high school. Determining how the development of these skills at a young age affects students, who then go on to take a personal finance class in high school, could have important future implications.

Conclusion

The literature review set out to find the impact financial literacy has on individuals, and what the best methods, practices, tools, and applications for facilitating financial literacy is. From the research, it can be said that there are many benefits that an individual can take advantage of by acquiring financial literacy (Hilgert, Hogarth, and Beverly, 2003; Christelis, Jappelli, & Padula, 2010; Moore, 2003; Lusardi and Mitchell, 2011d; Lusardi and Mitchell, 2007). In terms of acquiring this financial literacy, many different settings can help an individual develop this, but the school system should be considered as one setting for financial education (Jorgensen & Savla, 2010; Zubrzycki, 2017). While not enough evidence is out there to support a full semester class, this does not mean that future advancements in financial literacy content should not be pursued (Mandell, 2006; Hathaway & Khatiwada, 2008; Lusardi, 2008; McCormick, 2009; Walstad, Rebeck, & McDonald, 2010). Interactive content has seemed to have a benefit in the acquiring of financial literacy (Mandell, 2006). Also, the advancement of technology has certainly increased the possibility to expand financial literacy curriculum, but more research must be done in order to distinguish different content and programs, and determine if technology can help improve the financial literacy of students, years after taking a personal finance class (Lusardi, 2008; Mandell, 2008; Walstad, Rebeck, & McDonald, 2010; Way & Wong, 2010) .

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