Examining Correlations Between Student Debt Levels and Financial Literacy

by

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ABSTRACT

The financial landscape is increasing in complexity. This is largely due to deregulation of financial markets, easier access to credit, and increased responsibility for retirement planning (Marcolin and Abraham, 2006). With this increase in complexity comes the increased importance of financial literacy. Previous literature has concluded that the general level of financial literacy has not kept up with this increase in complexity of the financial landscape and has contributed to increased debt levels and lowered financial satisfaction. Of particular concern is the literacy of university students. The shift from being financially dependent on parents to complete financial independence along with an increase in costs associated with attending university creates a challenging situation for students. Large sums of debt are incurred through their time at university, which then must be repaid after graduation, creating a significant burden. This study surveys 193 University of New Brunswick students and compares student debt levels to financial literacy levels. The results showed a significant negative correlation between these two constructs for certain cohorts of students. It also revealed an important finding of the effects of financial attitudes towards student debt levels.
DEDICATION

I would like to dedicate this work to my parents, Kenny and Ann, as well as my siblings Kendra, Lindsay, Brianna and Brian for their endless support in my education and for always pushing me to be my best self.
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Chapter 1 - Introduction

The global financial landscape is characterized by ever-increasing complexity. The key tool for dealing with this is the possession of individual and household financial literacy. Unfortunately, this is a possession too many lack. There are many methods for an individual to make the most of the money they earn, yet consumers are all too often unaware of what these are, how to access them, and how to evaluate the effectiveness of these methods. Individuals repeatedly make bad financial choices, spend their money unwisely and miss out on the best saving and investing options available to them as a result of this lack of awareness. This leads to lost dollars and a lower level of financial satisfaction. The potential for a satisfying personal financial position is much higher.

Academic literature has shown that a higher level of financial literacy leads to higher financial satisfaction. This literature draws positive correlations between financial satisfaction and overall life satisfaction. Therefore, a high level of financial literacy can lead to long-term well-being, not only financially but also with regards to overall life satisfaction and happiness. Aside from the effects of financial literacy on personal factors, it also greatly influences the economic condition of communities. The higher the level of financial literacy within a community, the higher the level of disposable income residents will possess. This will leave them willing to spend more, which in turn boosts the prosperity of the local economy.

Previous literature has revealed that the overall level of financial literacy throughout the world is poor. This discovery has led to research into the causes of this deficiency in financial literacy. One of the target cohorts typically studied is college and
university students. This group is generally at a pivotal point in their lives and will soon be making important financial decisions. One challenge for this cohort is the fact that college or university is expensive and income generating opportunities while studying can be limited. It is a common occurrence for students to finish their studies and enter the workforce having accrued large sums of student debt. This makes it difficult for educated young adults as they transition to the workforce while encumbered with student loan repayments. Significant lifestyle purchases, such as cars and homes, may have to be curtailed or deferred as these compete with debt repayment. Given the necessity of solid financial literacy in today’s society and the potential negative, if not catastrophic, effects of student debt, the question is whether higher levels of financial literacy can limit the accumulation of student debt. The parameters of this relationship are revealed in this study and the implications of the findings are discussed.

Students from the University of New Brunswick located in Fredericton, New Brunswick responded to a survey questionnaire regarding financial literacy. An analysis of these responses sought to examine a connection between the level of student debt and the associated financial literacy level, allowing for conclusions to be drawn regarding the results of this study. This will allow for a better understanding of the effect of financial literacy on individual levels of student debt. The survey will be framed within the context of the existing literature. An explanation of the methodology used in conducting the survey and the results found therein will be thoroughly explained. This will lead to a discussion regarding the findings and conclusions derived from the results, ending with some concluding remarks.
Chapter 2- Literature Review

2.1 Introduction

A universal definition for financial literacy is yet to be widely agreed upon. However, the Financial Consumer Agency of Canada defines financial literacy as, “having the knowledge, skills and confidence to make responsible financial decisions” (Canada, F.C, 2017). Shim, Xiao, Barber, and Lyons proposed in a 2009 study that the financial domain consists of three major components; financial knowledge, financial attitude, and financial behavioral intention (p. 709). These three components will be discussed extensively throughout this literature review.

The research in this study is based on a conceptual model developed by Shim et al.. This study concluded that financial literacy correlates directly to financial well-being which in turn ties to life success and personal well-being (p. 721). As with many aspects of life, the overall goal of our daily routines is to achieve happiness and life satisfaction, both of which can be inhibited by a lack of financial literacy. Research in financial literacy aims to find the issues with current educational systems which place barriers in the path to gaining financial literacy in order to improve these systems. With improvement to these systems, there is the expectation that this will improve financial literacy, which will in turn lead to higher levels of financial satisfaction and ultimately, life satisfaction. Higher individual life satisfaction levels and higher individual financial

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1 Other definitions discussed in Section 2.2
2 FL1= Financial literacy measure which categorizes each individual score as positive or
literacy levels will in turn boost economic prosperity, subsequently leading to a more positive outcome for society as a whole.

In the Shim et al. (2009) study, the conceptual model for financial well-being includes three major components: socialization agents and personal values, levels of financial knowledge, attitude and behavior, and life success (p. 710). Each of these three domains is composed of several factors. The model lays out all components in this complex relationship and displays relevant influences and connections between all factors. The research in this thesis deviates from Shim et al. by examining debt levels as a lens for financial literacy specifically. It will examine the relationship between the three components of financial literacy and debt levels with regards to university students at the University of New Brunswick, Fredericton.

2.2 Limitations in Current Literature

There are many studies regarding financial literacy, and there are many definitions for the term. A study by Huston (2010, p. 302) found that only 13% of studies presented a formal definition of financial literacy. Huston also compiled eight different definitions of financial literacy that were used in various academic studies. Two of the definitions focused primarily on ability, three focused on knowledge only, and two included both ability and knowledge. The two definitions that included both ability and knowledge came from JumpStart Coalition and the U.S. Financial Literacy and Education Commission, and were almost identical. The JumpStart definition was, “Financial literacy is the ability to use knowledge and skills to manage financial
resources effectively for lifetime financial security.” The definition for the U.S. Financial Literacy and Education Commission was, “Financial literacy is the ability to use knowledge and skills to manage financial resources effectively for a lifetime of financial well-being” (Huston, 2010, p. 311). Although these are arguably good definitions of the term “financial literacy,” they have not become the generally accepted standard. Absence of a universally agreed upon definition for financial literacy can lead to blurred lines in terms of measuring this construct. In order to develop a standardized measurement tool, a complete and well-defined definition must be established. This leads to the next identified limitation by Huston (2010) regarding current research on financial literacy, which is the lack of a standardized measurement tool.

Despite the importance of financial literacy in and to our economy, very little attention has been given to how this important attribute is measured. This is currently a major deficiency in financial literacy studies, and it leads to inconsistencies regarding accuracy of study results. The Huston (2010) study compiled 71 different studies which measured levels of financial literacy. This study captured different constructs from each study and compared and contrasted how the studies were undertaken and measured. A notable finding showed that 76% of the studies used financial knowledge and financial literacy interchangeably, while 24% clearly defined the difference between the two. Huston also examined the content that was included in each measure of financial literacy/knowledge. She highlighted four main content areas to capture financial knowledge. These include money basics, borrowing, investing, and protecting resources. The results of her study concluded that only one-quarter of the measurement tools that
were included in this study incorporated all four of these content areas (Huston, 2010, p. 302).

In addition to the interchangeable use of financial knowledge and literacy and the lack of standardization between concepts included in measurement tools, Huston (2010) found another limitation. The majority of measurement tools in her study did not provide a rating tool to indicate whether a certain score of an individual would categorize them as financially literate or financially illiterate. This lack of coordination between researchers leads to confusion regarding results of studies and how conclusions are drawn from the collected data (p. 299-301).

Huston (2010) states that unlike health studies, which use one of three standardized measurement tools, there are currently no standardized instruments to measure financial literacy. It becomes difficult to compare studies and study results when all measurement tools are different. Huston (2010) concludes that the lack of standardization in a measurement tool is a major limitation in the field of financial literacy research. In summary, Huston (2010) proposes three main barriers to developing a standardized approach to measure financial literacy. They are 1) the lack of an agreed upon definition for financial literacy, 2) lack of a standardized measurement tool, and 3) lack of a standardized interpretation method (p. 305).

Huston (2010) proposes her own solution to the issues within financial literacy research by looking at each issue individually. First, regarding the issue of a non-standard definition for financial literacy, Huston concludes that financial literacy could be conceptualized into two dimensions—understanding and use. Her recommended definition is, “measuring how well an individual can understand and use personal
finance-related information” (p. 306). To address the issue of the interchangeable use of financial literacy and financial knowledge, Huston (2010) explains that financial knowledge should be used when referring to the stock of knowledge acquired through formal education and experience. Financial literacy should be used when determining not only whether a person knows financial information, but also if s/he can apply this knowledge appropriately to achieve financial gains. Finally, Huston (2010) comments on some standard tools to be used to assess financial literacy. She begins by highlighting that a standard measurement tool must include constructs on both knowledge and applications items. She proposes the use of four personal finance content areas: money basics, borrowing, investing, and protecting resources (p. 303). A study by Kim and Mueller, as cited in Huston’s 2010 research paper (p. 308), concluded that the minimum number of items to be measured on a particular domain factor varies between three and five. She determines that a rating method in the form of either a threshold or ranking system is imperative to ensure a common method of interpretation of construct results. Although Huston (2010) has proposed these solutions to the limitations in current literature, a standardized tool is still yet to be created and widely accepted by all financial literacy researchers.

2.3 Why Financial Literacy is Important

With the increasing complexity of the financial environment, the importance of financial literacy has heightened. This complexity stems from deregulation of financial markets, easier access to credit, ready issue of credit cards, rapid growth in marketing
financial products, and increasing encouragement from the government for individuals to take responsibility regarding retirement planning (Marcolin and Abraham, 2006, p. 2). A study by the Commonwealth Bank Foundation in 2004, as cited in Marcolin and Abraham (2006, p. 5), concluded that having financial literacy skills is essential to avoiding financial problems, which in turn leads to a prosperous and healthy life. A subsequent study by the Commonwealth Bank Foundation (2004) and cited in Marcolin and Abraham’s study (2006, p. 3), found that having a large proportion of the population with a low level of financial literacy poses serious economic problems for nations and their economies, not to mention the personal issues low financial literacy creates. In summary, high levels of financial literacy lead to life satisfaction and a prosperous economy, while poor financial literacy leads to life dissatisfaction and economic hardships. The two major reasons why financial literacy is so important are personal health and well-being and regional economic prosperity. The two are very closely related.

2.3.1 Personal Well-Being

The study done by Shim et al. (2009) highlighted four main factors regarding personal well-being. They include academic success, physical health, psychological health, and overall life satisfaction. The study concluded that financial well-being was significantly related to overall life success (p. 719). In terms of physical health, the survey asked participants to rate their overall health status on a five-point Likert scale, from poor health to excellent health. To measure psychological well-being, the Depressed Mood Scale was used from a 2001 study by Barber, Eccles, and Stone, as
cited by Shim et al. (2009, p. 714). This scale asked four questions to be ranked on a seven point Likert scale, the extent in which they experienced the statements. Finally, academic performance was measured by gathering GPA scores of students by providing several ranges of GPA’s. Shim et al. (2009) concluded that, “the more satisfied young adults are with their financial status, the more satisfied they are with their lives in general, the more likely they are to perform better academically and to be healthy, both physically and psychologically” (p. 721). By focusing specifically on the financial satisfaction portion of this complex correlation, this study will draw on the influences of financial literacy on debt levels, as debt is often a major determinant of financial satisfaction. In order to increase financial satisfaction, we must know exactly what influences it. The more that is known surrounding this relationship, the more effectively a plan can be implemented to increase financial satisfaction.

Other studies draw similar conclusions to Shim et al. (2009). Looking specifically at the physical health factor, results from a survey of 5000 Australian citizens concluded that financial literacy levels impacted physical health in terms of increased sleeplessness and a higher desire to smoke (Marcolin and Abraham, 2006, p. 5). Psychologically, the burden of debt can be an overwhelming reality for those who are unable to manage their finances.

The effect of debt on personal well-being has been observed by members of the National Association of Citizens Advice Bureau. They reported a 47% increase in new personal debt enquiries between the years of 1997-2002. One quarter of these reported anxiety, depression and stress problems that resulted in them seeking medical treatment (Edwards, 2003, p. 7). Additionally, a study by Brown, Taylor, and Price (2005)
examined the relationship between debt levels of household heads and their psychological well-being. The findings showed those head of households with outstanding credit and with higher amounts of debt were significantly less likely to report complete psychological well-being (p. 645). A study done by Holub in 2002 quotes Iowa Attorney General Tom Miller stating that, “excessive debt can lead to many psychological problems such as stress, and in extreme cases even suicide” (p. 3). An escalated level of debt and borrowing is one of the main reasons surrounding the sense of urgency surrounding financial literacy (Braunstein and Welch, 2002, p. 1). The academic relationship between financial literacy and psychology has become stronger as of late due to the increased knowledge of the effect the two have on each other. The research in this study will better define the connection between financial literacy levels and debt levels, with the intention of highlighting the importance of financial literacy on overall life satisfaction. In theory, higher financial literacy levels will lead to lower levels of student debt, leading to a higher level of financial satisfaction and a more stable psychological state.

2.3.2 Economic Factors

Overall economic prosperity is also affected by financial literacy levels. High regional financial literacy helps create jobs, boosts economic productivity, and boosts job productivity. In the 2004 (b) Commonwealth Bank Foundation study, as cited in Marcolin and Abraham’s 2006 study (p. 5), it was revealed that an improvement in financial literacy has the potential to create more than 16,000 new jobs which would in turn boost Australia’s economy by $6 billion per annum. There is also literature
supporting the connection between job productivity and economic prosperity. Joo and Grable investigated this relationship in their 2000 study. They found that personal financial wellness positively affects worker job productivity. However, it is clear in some cases, such financial literacy does not exist (p. 3). Chen and Volpe (2005), as cited in Marcolin and Abraham’s 2006 study (p. 6), examined the importance that employees put on several financial skills. American employees ranked all of the presented financial topics as important, and they agreed that employees did not have adequate personal financial knowledge (p. 6). Subsequently, Garman, Leech and Grable (1996) found poor financial decisions negatively influenced productivity in the workplace (p. 161).

Similarly, Kimball and Shumway (2006) also found that those who are more financially literate are more likely to invest in stocks and participate in financial markets (p. 6), these two activities leading to economic prosperity and growth. Therefore, the benefit of financial literacy can also be realized on the stock market, positively affecting the economy. Finding a connection between student debt levels and financial literacy would be a huge factor in increasing economic prosperity. A lower level of student debt leads to more disposable income following graduation. This will lead to an increase in economic prosperity as young adults will be in a better position to make substantial purchases such as cars and houses, and they will also have the means to invest in the market. Examining this connection will allow for a better understanding on how to decrease the overall level of debt that students incur by attending school, and allow them to spend this money elsewhere. This will increase their personal satisfaction as well as the state of the economy, benefiting both the individual and the community in which the individual resides.
2.4 Measuring Financial Literacy

2.4.1 Financial Knowledge vs. Financial Literacy

Although commonly treated as synonyms in previous literature, financial knowledge and financial literacy are two different terms and should not be used interchangeably. Huston (2010) analyzed 71 different individual studies on financial literacy. Of these, forty-seven percent used the terms financial literacy and financial knowledge interchangeably. (p. 302) Huston (2010) goes on to discuss how financial literacy has additional components past basic financial knowledge. Individuals must have the confidence and ability to apply this knowledge to make intelligent financial decisions. The three components of financial literacy include financial knowledge, financial attitude, and financial behaviour.

2.4.2 Financial Knowledge

The first component of financial literacy is financial knowledge. As previously mentioned, this is a fundamental component of financial literacy. In order for one to be financially literate, one must possess some underlying knowledge of basic financial concepts. Previous studies have attempted to capture the knowledge of participants by testing basic concepts that are used on a day-to-day basis. Some of the common topics tested include time value of money, simple and compound interest, inflation, risk and return and diversification. These were the topics tested in a study done by Atkinson and Messy (2012). They conducted a study in 14 different countries with at least 1000
respondents from each country. The financial knowledge concepts they tested included division of money, time value of money, simple and compound interest, risk and return, inflation, and diversification. The results showed acceptable financial knowledge on some concepts and unacceptable levels on others. Overall, no country scored exceptionally low on average, but every country did have a proportion of the population that achieved relatively low scores, showing room for improvement (p. 21-22).

Subsequently, a study done by Danes and Hira (1987) tested 323 Iowa State University students on various financial knowledge concepts. Their findings showed very limited financial knowledge among those surveyed. Another study done by Volpe, Chen, and Pavlicko (1996) surveyed 454 students at Youngstown State University and also found a low level of financial knowledge. The survey included ten questions on everyday financial concepts. Each correct answer was awarded 10 points. The average score among the participants was 44 out of 100, indicating inadequate financial knowledge and showing room for improvement. Several variations of surveys to measure financial knowledge have been created over the years, with the overarching results showing low financial knowledge in many different cohorts.

### 2.4.3 Financial Attitude

The second component of financial literacy is financial attitude. Financial attitude refers to the preferences and thoughts an individual has surrounding certain financial actions. For example, a negative attitude towards saving for the future suggests a decreased likelihood to undertake this behavior. There is a very close link between financial attitude and financial behavior. If an individual has a positive attitude toward
saving, their behavior is very likely to follow suit. Financial attitude is often evaluated as gratifying short-term versus long-term wants. A positive financial attitude favors long-term financial planning, saving, and investing, while a negative financial attitude favors short-term gratification such as spending and using credit. The attitude toward the use of credit and buying on credit is a good measure of financial attitudes. Atkinson and Messy (2012) used three attitudinal statements in their study. Participants were asked to answer to what extent they agreed with the statements. For example, one of the statements was, “I find it more satisfying to spend money than to save it for the long term.” They combined the responses to all three statements to create a financial attitude score. The findings showed that people generally had positive attitudes towards financial matters, with only a few exceptions. Again, although financial attitudes were fairly positive, Atkinson and Messy (2012) concluded there was room for improvement.

2.4.4 Financial Behaviour

The final component of financial literacy is financial behaviour. This is arguably the most important component (Atkinson and Messy, 2012, p.23). To exhibit intelligent financial behaviours is the integral step that will create positive financial gains. One may possess positive financial knowledge and attitudes, but without the actual action of financially intelligent behaviours, these components mean little to nothing. Positive financial outcomes are a direct result of positive financial behaviours. Some examples of positive financial behaviours include thinking before making a purchase, paying bills on time, budgeting, and saving for the long-term. Again, looking at Atkinson and Messy (2012), the results showed major variations in financial behaviours. The survey asked 9
basic financial behavior questions including considering purchases, timely bill payment, budgeting, active saving, and choosing a product, among others. The total points available were 9, with a score of 6 considered to be high. The overall results showed only half of the surveyed countries with the majority of their participants recording a high score (p. 31-32). Atkinson and Messy (2012) go on to suggest significant room for improvement in terms of financial behaviours. Although scores varied greatly, some areas of concern include lack of active and informed market participation and lack of active saving in some countries.

### 2.4.5 Combined Measure of Financial Literacy

The three components of financial literacy are very closely related to each other. The study by Shim et al. (2009, p. 719) found direct links between financial knowledge, financial attitudes, and financial behaviours. As research as shown, those with higher financial knowledge will experience more positive financial outcomes than those with lower financial knowledge. However, in order for this financial knowledge to be realized and for individuals to benefit, they must transfer this knowledge to their attitudes and subsequently their behaviours. A 2008 study conducted by Borden, Lee, Serido, and Collins examined the knowledge, intentions and attitudes towards financial responsibilities of 93 college students. When examining the relationship between financial knowledge and financial behaviours, they found that financial knowledge was not a significant predictor of financial behaviours. This indicates that although a connection between these two factors has been found in previous studies, positive financial behaviours are not a direct result of financial knowledge. Subsequent findings
in this study found that students with avoidant attitudes toward credit cards were less likely to engage in risky financial behaviours. In summary, the findings from this study suggest that students who had higher financial knowledge were less likely to have avoidant attitudes toward credit cards, and students with higher avoidant attitudes toward credit cards report fewer risky financial behaviours. Referring back to Atkinson and Messy (2012), these results showed a consistently positive relationship between financial knowledge and behavior for each country surveyed. Additionally, positive attitude scores were correlated with positive financial behaviours. The overall consensus regarding the relationship between the three factors of financial literacy is that financial knowledge affects attitudes and behaviours and financial attitudes are related to financial behaviours. This conceptual model of relationships was first hypothesized by Shim et al. (2009). It was then tested by Shim et al. (2009) and confirmed. Again, although a relationship was found between these three factors, the relationships are not perfectly positively correlated; therefore each component must be analyzed individually in order to capture a true level of financial literacy. This means that combining the respective scores of each of the financial knowledge, financial attitude, and financial behaviour scores can capture an overall financial literacy score. Some studies argue that financial knowledge is more influential and important than attitude and behaviour. They therefore weigh this factor more heavily in calculating a combined overall financial literacy score. This method has not been widely accepted and some studies simply weigh each factor equally when calculating scores.
2.5 Variations by Socio-Demographic Cohorts

The attention that financial literacy has received has increased over recent years. The realization of the economic impact that financial literacy levels has on regional economies has heightened the importance and the efforts put towards researching and improving financial literacy. Although this has been realized, it is still not universally viewed as a cause for concern at both the individual and economic level. Future studies must highlight the effects of poor financial literacy in order to emphasize this importance. This research study examines this issue on an individual level, by connecting financial literacy levels to debt levels. If a positive correlation can be drawn from data collected, this may stress the importance of financial literacy which will in turn encourage students to pay more attention to their personal finances and seek out more information. In order to begin to improve financial literacy levels, there must be an understanding of how it is learned and what factors affect the retention levels, as well as how attitudes and behaviours are influenced. As previously discussed, many studies have been conducted to capture financial knowledge and financial literacy around the world. The overall consensus is that financial literacy is poor. So how can this be fixed? This is what recent and current literature has been aiming to figure out. One of the major findings from previous studies is that socio-demographic variations is one of the influential factors on the varying levels of financial literacy. Some of the common cohorts studied include university students, gender, educational background, and parental influence. Research continues to study financial literacy with respect to each of these cohorts.
2.5.1 University Students

One of the most at risk groups resulting from poor financial literacy is university students. They experience heightened financial responsibilities in a short period of time when transitioning from high school to university life. They take on the responsibility to pay for tuition, rent, food, utilities and leisure expenses, among others. This is a very intense transition from financial dependence on parents to financial independence and heightened responsibility and expectations. They are exposed to several forms of debt and credit for the first time in their lives. These include the most common types for students, student loans and credit cards. Credit card companies often target this cohort, knowing from previous studies that their financial intelligence is subpar. They take advantage of this vulnerability and young students jump at the opportunity, fulfilling their short-term wants. The success of students in handling these financial responsibilities is dependent on their previous exposure to such financial topics before entering college or university. Many studies have been conducted and are being conducted on university students, as they are at such a high-risk for financial troubles given their low level of financial literacy. This is a difficult concept for university students to show concern for as they typically have enough funds to cover their expenses while in school due to student loans and credit cards. Although it is during school years that this debt piles up, it is not until after graduation that this debt becomes a stressor, as loan payments become due and living expenses typically increase. Student’s must be aware of their financial position before entering university so they can control their debt level and positon themselves in a way as to incur as little debt as possible. Again, highlighting that the level of financial literacy affects debt levels is an integral part in
addressing this issue. It allows students to see first-hand the importance of becoming financially literate.

### 2.5.2 Gender

Studies have found a major divide between male and female financial literacy levels and perceived financial literacy levels. According to Shim et al. (2009, p. 721), female participants were less likely to perceive themselves as financially knowledgeable. This finding is also consistent with results from Chen and Volpe’s 1998 study. The findings of this study also showed female participants answering 50.77% of the financial knowledge questions correctly, while male participants answered 57.40% correctly. Atkinson and Messy (2012) found a higher proportion of male respondents scoring better than female respondents in 13 of the 14 countries studied. They concluded that in almost all countries where the average financial knowledge level was high, women were less knowledgeable than their male counterparts. Interestingly, the overall findings showed an overwhelming difference in financial knowledge between genders, but this finding is not consistent with financial behavior scores. Although differences were found between behaviour levels and gender, the dominance of male positive behaviour scores over female positive behaviour scores was not as apparent as it was with the results of the financial knowledge scores. Atkinson and Messy (2012) attribute this finding to the fact that many behaviors are taken at a household level, although this theory requires further research. Subsequently, Atkinson and Messy (2012) found women to score higher than men with regards to financial attitude scores. The overall consensus shows women trailing men in terms of financial knowledge but scoring
higher in positive financial attitudes. The combined financial literacy measure shows a small variation in scores in some countries, but not all. Atkinson and Messy (2012) attribute this to the large difference in financial knowledge between these two gender categories. Women did not score higher than men in any country. Lusardi and Mitchell (2014) showed that women were less likely to answer financial literacy questions correctly than men, but women were also more likely to answer questions with “I don’t know” than were men. This gender divide in financial literacy levels is one of the most apparent socio-demographic differences found and has been a major area of emphasis for researchers and for those attempting to increase financial literacy levels.

2.5.3 Educational Background

Although the influence of formal education on financial knowledge has been vigorously debated, many studies have concluded this connection exists and is positively correlated. Shim et al. (2009) studied this connection. It found that those participants who had taken a personal finance class in high school and/or college believed they had a good understanding of financial matters, compared to those who had not taken a class and rated their understanding lower (p. 720). Although this perceived level of knowledge does not necessarily translate to financial knowledge, the connection is still important. Perceived financial knowledge predicts financial behaviors and financial attitudes. Shim et al. (2009) concludes that although formal education cannot be solely relied on to increase financial knowledge, it is an important piece of the puzzle (p. 720).

It must be noted once again that financial knowledge is one third of the equation when considering financial literacy. The other two parts, financial attitudes and financial
behaviours, are influenced by a multitude of factors. It must also be noted that formal education is not the only factor that influences financial knowledge. Shim et al. (2009) go on to highlight the effects of parental socialization and personal values as also affecting knowledge levels. Atkinson and Messy (2012) found a strong positive correlation between a higher level of education and a high financial literacy score. An interesting finding in their study pointed out that there were a few cases in which participants with little to no formal educational background scored high (p. 50). This suggests that a high financial literacy level is possible, even if formal education is low, or even non-existent.

Aside from the basic comparison of levels of completed education, previous studies have also done a comparison of differing financial education levels with regards to the program of study in which participants are enrolled. A Chen and Volpe (1998) study examined the financial knowledge differences between business and non-business students. They concluded that business students scored on average 10% better than non-business students (p. 6). This suggests that formal education programs do influence financial knowledge levels. This can be examined further by dividing business students in to the different majors offered. For example, a comparison can be done between finance, accounting, marketing, management and information systems majors, among others. A study conducted by Gottschall (2015) on 297 undergraduate business students looked at the differences in financial knowledge, attitude and behaviour scores while dividing students in to their respective majors. A significant difference between knowledge and behavior scores was found. For knowledge, the highest scores were realized among enterprise development, finance, and finance/economics students. For
behaviour, enterprise development once again scored the highest while leadership management student’s scored the lowest. These were then divided into more quantitative majors, less quantitative majors and others. A significant difference was found within the knowledge scores, with students in more quantitative majors scoring higher than students in less quantitative majors (p. 30-33).

2.5.4 Parental Influence

If formal education is not the only factor that affects financial literacy levels, then we must identify other factors that do. This is important as it will lead to effectively altering and enhancing financial literacy levels. Shim et al. (2009) identifies one of these important factors as parental influences. They divide this up in to two important sections, first being anticipatory parental socialization such as talking with children regarding money management as they mature, second being parental normative expectations. A study by Churchill and Moschis (1979), as cited by Sabri (2011, p. 18) concluded that consumer knowledge and behaviour in adults was learned during pre-adult years through socialization agents, such as parents and family. Additionally, Martin and Oliva (2001), as cited by Sabri (2011, p. 3), concluded from their study that what college students learn and experience as children and youth may affect both their knowledge and management of their personal finances. Other related and influential factors include parental income level and parental education level. The literature suggests that the higher the parental income and the more education the parents hold, the more financially literate their child or children will be. Lusardi et al. (2010, p. 21) found a positive correlation between mother’s education level and financial knowledge levels.
2.6 Financial Requirements of University Students

As previously mentioned, the financial requirements for a high school student to transition to a university setting are substantial. The first major financial requirement realized is the cost of tuition, books, and room and board. All these expenses are sizeable and occur at the same point in time during the fall. There are time restraints on when payments are due, which forces students to pay these massive lump sums all at once. As most teenagers are not financially literate, they have likely not saved up for these expenses, although there is the odd case where a student has prepared for these costs. This being said, students often rely on help from parents or rely on student loans or other forms of debt financing. Some families have the means to help their child out with these costs, some do not. After sorting out the financing in the fall, the next financial requirement is for food and recreational activities. As students move to new cities and towns and meet new people, there are always new activities to do and new places to go. These activities typically cost money. Again, most teenage students do not financially prepare for this point in their life. They again may turn to help from parents or use student loan money or credit cards. Students may not realize the fee structure and payback plans associated with loans and credit cards. This process of borrowing or debt financing is continued over a period of four or more years. At the end of four years, many students have amassed a large pile of debt which is associated with substantial interest rates and they possess little to no knowledge on how to deal with this result. Those who struggle with repayment can then run into issues with their credit scores.
which can affect their ability to buy a car or a house, and advance in life in general. It is a difficult life to live with a poor credit score.

Some students realize and feel the burden of their debt as they continue their studies year to year. This will cause some people to seek out part-time jobs while studying. While this is sometimes a very good option for students with reduced workloads, it also leads to very busy schedules for some. This may lead to a decrease in time spent on studying and create academic failure. A study by Bozick (2007) found that students who worked more than 20 hours a week while attending college were more likely to leave school during their first year than students who worked less than 20 hours a week (p. 261).

Financial stresses on students are a real issue that does not get enough attention. This being said, it is believed that financial literacy may be an important tool to encourage students to continue their studies and will decrease the number of drop-outs per year. Financial stresses are often a common factor leading to university drop out, so financial literacy should be of concern to university campuses. In fact, a study done by Commercial Law Bulletin in 1998, as cited by Holub (2002, p. 4) quotes an administrator from Indiana University, who says that their institution loses more students to credit card debt than to academic failure. This leads to the belief that informing students on smart financial practices is not only good for the students well-being and academic success, but is also important for the universities’ finances, as they want students to continue paying tuition as opposed to dropping out. There are a variety of ways to finance your education and graduate with as little debt as possible, but these ways are often unknown by the average university student due to poor financial literacy.
The result of poor financial literacy upon graduation is detrimental to the financial position of new graduates. Unfortunately, the importance of this financial literacy is often overlooked. The long-lasting effect that student debt has on graduate lives has lead to extensive research being done on university student’s financial literacy levels. It continues to be a major area of interest for research in this field.

2.7 Debt

A study done by Lusardi et al. (2009, p. 24) collected financial literacy and personal debt information from 1,000 United States residents through the use of a phone interview. This study found that, “people who make financial choices that incur avoidable fees and charges are those with a weaker understanding of the implications of debt.” This finding suggests that the financial literacy level of those who make financial decisions which add to debt levels is lower than those who take steps to avoid an increase in debt. This means, as financial literacy increases, the incurred level of debt decreases, and vice versa. Looking specifically at students, there are three categories of debt that may be incurred. These are student debt, credit card debt, and other debt.

2.7.1 Student Debt

Student debt comes in the form of student loans. As previously mentioned, when students incur large financial requirements when entering university, they often turn to the government to provide them with an appropriate student loan amount, given their parental background and their personal background, financially. The government
assesses applications and rewards loans of appropriate amounts on a case by case basis. A student loan will first pay the academic institution whatever is owing on the students account, then will deposit any leftover funds in to the students’ personal bank account. When the student completes their academic goals and is no longer a student, they must pay back the face value of the loan, along with additional interest payments. The payment terms and structures differ from place to place. The big issue with student debt is that students forget that there is a repayment process when they are finished school. Large sums of money get deposited in to their bank account and they do not understand, or fail to consider carefully, that the use of that money comes at a cost. Some students abuse the student loan money and wear it out, while some are more conservative and plan accordingly, knowing there is repayment in the near future. The approach taken with these loans depends heavily on financial literacy levels.

Looking specifically at the Canadian student loan terms, students are not required to make any payments on their student loan until 6 months upon graduating or leaving school, although interest will still be charged during this 6-month period. In terms of the interest rate, there is a choice between choosing a fixed interest rate which is prime + 5% where the rate does not change throughout the duration of the loan, or a floating interest rate which is prime + 2.5%, where the rate can fluctuate (Interest Rates for Canada Student Loans, 2016).

The smaller the loan to be paid back, the smaller the interest payments will be, and the sooner the student loan can be paid off. The sooner the student loan is paid off, the faster one can begin saving for other life expenditures, such as travel or buying a house or car. Therefore, one might assume that the more disciplined and financially
literate the student is during their time in school, the more benefits they can reap upon graduation. A high financial literacy level can help decrease student debt, leading to these benefits. Students often have a hard time seeing the long-term benefits of saving for the future and frequently prefer instant gratification. Borden et al. (2008) conducted a survey on 93 students in the southwestern United States. Of these 93 students, 33% said they have a student loan. The average student loan level of debt was $2,000-$3,000. This is substantially less than the average student debt level found in the 2015 study by Gottschall. This study surveyed 442 undergraduate students. Thirty-six percent of students surveyed had a student loan and the average student debt was $21,932.20 (p. 19).

### 2.7.2 Credit Card Debt

Aside from student loans, many students may also turn to credit for debt financing. As previously touched on, students have become the prime target for credit card companies. They understand the vulnerability and lack of knowledge that students possess, but also understand the expenses that students face. They target students in their marketing campaigns and often set up booths on campuses, enticing students to sign up. Credit card companies prey on the lack of knowledge that students’ have. This has become a major concern for those studying financial literacy. Similar to student loans, credit cards supply students with quick money, but again many students do not understand the repayment terms or the interest rates associated with this borrowing. Credit cards have become even more concerning with the ease to apply for a card and the increase of online shopping, which typically requires a credit card. Students often
lose track of their finances and run into issues paying off their credit card on time. This leads to poor credit scores and consequently, the inability to borrow in the future.

2.7.3 Other Debt

Although student debt and credit card debt are the two main sources of debt for students, we must include the possibility of other forms of debt a student may encounter. For example, some students may be vehicle and/or homeowners. This leads to the heightened importance of financial literacy as there are now many forms of financing in play requiring increased vigilance on how and where money is spent.

2.8 Student and Parental Income

An apparent factor in student debt levels is the parental income and student income associated with each student. Some students come from wealthier families and do not have to incur any debt as parents can afford to cover all expenses, while some cannot afford this and students must come up with their own funding. Additionally, some students worked while in high school and throughout their years of university in order to save up and pay for expenses such as tuition. Some other students may not have done this and will have to heavily rely on debt financing. Therefore, student income and parental income must be taken into account when looking at debt levels and comparing to personal financial literacy levels.
2.9 Financial Wellness, Life Success and Overall Happiness

Referring back to the conceptual model proposed by Shim et al. (2009), there are three components to the financial well-being in the life of a student. They are demographic and socialization factors, the financial domain including financial knowledge, attitude, and behaviours, and life success. Shim et al. (2009) describes life success as overall life satisfaction, academic success, physical health, and psychological adjustment. Conger, Rueter and Conger (2000), as cited by Shim et al. (2009, p. 711) state that, “It has been clearly established that economic hardship can lead to depression, distress, and poor interpersonal relationships.” The Shim et al. (2009) conceptual model highlights life success as the outcome and overlying goal of financial literacy. This heightens the importance of financial literacy. It extends the concern of lack of financial literacy to other academic fields such as psychology and sociology. It not only affects the financial stability of individuals and households, but also plays a role in physical, psychological, and academic success. An individuals’ perception of living a happy and successful life is greatly impacted by financially literacy. The importance of this field of study is so substantial and should be of concern to virtually everyone who manages their own money and aims to live a successful life. Greenspan (2001) concludes that financial literacy is an essential skill and is important to the long-term well-being of both individuals and communities, as cited by Sabri (2011, p. 7). Additionally, Kapoor, Dlabay, and Hughes (2007), as cited by Sabri (2011, p. 16) draws a connection between satisfaction with personal financial affairs and overall life satisfaction.
2.10 Conclusion

Although the topic of financial literacy focuses on managing everyday finances and achieving financial satisfaction, it has an overarching impact on virtually every aspect of life. Financial instability is a stressor that weighs down on individuals and families every day. It can lead to anxiety, depression, and sleeplessness, among other mental health issues. These, subsequently, can lead to a lack of physical activity and a decrease in a healthy diet. While financial literacy is categorized under personal financial research, it is often cross-referenced with other disciplines, most notably being psychological studies. For example, Shim et al. (2009) is a study published in the *Journal of Applied Developmental Psychology*. It ties together the underlying importance of financial literacy in the lives of everyday people and stresses its importance. Shim et al. diagrams the effects of financial literacy throughout a whole lifespan, from parental influences as a child to financial satisfaction as a young adult to ensuring a stable retirement fund in the elder years. Financial literacy is a required factor in living life to the fullest and increasing our knowledge of how related factors are connected and influenced will allow for an easier adaptation of this literacy.
Chapter 3- Methods

3.1 Participants

The following will discuss the methodology used to collect data and how this data was converted into an appropriate format to be analyzed accordingly. The target participants for this research study are students attending the University of New Brunswick, Fredericton. The University of New Brunswick has campuses in both Fredericton and Saint John, New Brunswick. Enrolment at the Fredericton campus is nearly 4-fold that of the Saint John campus. In the 2015-2016 academic year, there were 7785 full-time and part-time students enrolled at Fredericton’s campus, 2093 were enrolled at the Saint John campus (MPHEC, 2016). In order to limit the scope of the study and to facilitate survey distribution, the population for the study was limited to the students attending UNB at the Fredericton campus.

In addition to the University of New Brunswick, the province of New Brunswick is also home to three other major universities. These include Mount Allison University, St. Thomas University, and University of Moncton. The Fredericton campus at the University of New Brunswick has the highest enrolment of any of these New Brunswick universities. It also ranks second among enrolment in Maritime universities, with Dalhousie University in Halifax, Nova Scotia ranking first (MPHEC, 2016). There is a wide range of degrees offered at both the undergraduate and graduate level, as well as some Ph.D. offerings, at the University of New Brunswick’s Fredericton campus. The
high enrolment numbers and wide range of degree offerings at this campus results in a diverse data set.

3.2 Survey Instrument

3.2.1 Introduction

Once the decision to select University of New Brunswick students from the Fredericton campus as the potential participants for this research study was made, a data collection instrument was designed. Ultimately, a survey was selected to be used to collect all relevant data for this research. Certain data collection methods are appropriate for certain types of research. Although surveys have pros and cons, in this particular case a survey is believed to be the most effective way to collect the needed data to carry out this research study (Burns and Bush, 2014). Burns and Bush (2014) identify five advantages of surveys. These advantages include providing standardization, ease of administration, ease of analysis, revelation of subgroups, and the ability of surveys to get beneath the surface. Surveys provide standardization by presenting the same set of questions in the same order to all respondents. They are easily administered, and respondents read and respond to questions in a timely manner, easing any pressure on both the respondent and the administrator. Ease of analysis is accomplished with the presence of standardization as well as with the use of computer processing and software. Subgroups such as gender, age and ethnicity are identified as these factors are easily captured in surveys. Finally, the use of a survey in collecting data allows the researcher to get beneath the surface and collect rich data. While this data may not be as rich as
interviews and focus groups, it allows for more detailed information than what would be collected through observation studies (Burns and Bush, 2014).

The survey instrument in use here is a slight adaptation from a survey used in Atkinson and Messy’s 2012 OECD study titled, “Measuring Financial Literacy: Results from the OECD/International Network on Financial Education (INFE) Pilot Study.” This study was undertaken in 14 different countries with a minimum of 1,000 respondents from each country. The questionnaire included questions on financial knowledge, financial attitudes, and financial behaviours as well as various socio-demographic factors. This questionnaire was reviewed and relevant questions that would be applicable to university student’s financial situation were compiled. The current survey contains these questions plus additional questions related to student debt and further socio-demographic characteristics.

The survey’s title is, “Financial Literacy at UNB.” It begins by explaining what the study is and its purpose in the form of a “Study Information” page. This page provides the Research Ethics Board Approval number assigned by the University of New Brunswick Ethics Board. It explains the confidential nature of the survey and the intended use of all survey responses. It then provides information on where study results will be found following completion of the research study. The survey then takes participants to a consent form page. This page lists four statements. Before a participant can move on to the next part of the survey, they must agree that they have read the statements and agree to participate in the study. Once these two pages are read, the survey participant is then guided to the first set of questions. The first group asks basic socialization and demographic questions. This is followed by a second group of
questions, composed of more in-depth questions regarding financial knowledge, financial attitudes and financial behaviours. The final question set captures the participant’s current debt level and its form, student, credit card, or other. The estimated time to complete the survey, based on trial run data, was, on average, ten minutes. The survey is reproduced in Appendix 1.

3.2.2 Socialization and Demographic

The demographic parameters captured in the survey include: gender, age, living situation, parental income, student income, faculty of study, major field of concentration, level of study, and various parental influences. The first question in the Socialization and Demographic section asks for gender. Participants check a box stating whether they are male or female. The next question captures the age of the participant. The ages are categorized as follows: less than 18, 18-20, 21-23, 24-26, 27-29, and greater than 29. These groupings cover the typical age groups of university students while allowing for outliers to still be captured. Participants living situation is then captured using a drop down menu of items. The options include: living with parents, living in an apartment/house, living in residence, or other. Parents/guardians income and student income is then collected. The combined parental income levels are presented in the following range options: $0-$60,000, $60,001-$90,000, $90,001-$150,000, $150,001-$200,000, $200,001-$250,000, and greater than $250,001. Student income options are also presented in a range format, with the range options being: $0, $1,000-$2000, $2000-$6,000, $6,001-$10,000, $10,001-$14,000, $14,001-$18,000, and greater than $18,001. Student income is also clarified as including income earned both during
the summer months and during the school year. Respondents are then asked to indicate their faculty of study. The survey allows for one option from a list of 13 to be chosen. This list includes all degrees that are offered at the Fredericton campus of UNB. There is then a short free text question asked regarding the major/field of concentration. The short free text method is used so participants can write out their major/field of concentration, ensuring no options are left out. Because the University of New Brunswick, Fredericton offers degrees at the undergraduate, graduate, and Ph.D. level, participants are asked to identify the degree level they are pursuing. Since attitudes are affected by socialization, a question is asked to determine the financial and/or business background of the participant’s parents. The final four questions capture parental influence while growing up in terms of personal finances. A yes/no question is administered regarding whether parents/guardians included them in discussions on the importance of saving, the family spending plan, the participants spending plan and the use of credit.

3.2.3 Financial Literacy Measure

As discussed in Chapter 2, financial literacy is composed of three parameters: financial knowledge, financial attitudes, and financial behaviours. In total, there are nine questions used to capture financial knowledge, three to capture financial attitudes, and nine to capture financial behaviours. These are all measured in the second set of survey questions, beginning with questions to capture the participant’s level of financial knowledge.
The topics of financial knowledge included in the survey are: division, time value of money, interest paid on a loan, calculation of interest plus principle, compound interest, risk and return, inflation, diversification and mortgages. All questions asked capture knowledge of financing activities regularly encountered in one’s daily life. The knowledge of these topics are essential to a positive level of financial literacy, and therefore a positive personal financial position. An individual’s financial decision making is informed by knowledge in these areas and those decisions significantly affect a person’s overall financial situation. All questions asked and the scoring scheme for each question are presented in Table 1. The first financial knowledge question captures the knowledge level of basic division. This is presented as a short free text question, allowing participants to write out their answer. Multiple choice is avoided in this case as to not influence answers. Correct answers are awarded one point and incorrect answers are assigned a zero. The second question is an extension of the first, but it captures knowledge on inflation and its effects (time value of money). This is presented as a practical application question regarding the outcome of inflation and uses a multiple choice question to capture an answer. Correct answers are again awarded one point and incorrect answers are given a zero. Question three tests knowledge of interest paid on a loan, and asks for a short free text answer. Again, this short free text method is used as to not project bias on any answers. One point is given for the correct answer, zero is given for any incorrect responses. The fourth question tests knowledge of the interest plus principle concept. A simple mathematical question is asked and a short free text answer box is provided, with correct responses gaining one point and incorrect
responses scoring zero. Question five is an extension of question four, but now asks for the outcome of compound interest on a savings account. The scoring scheme on this question deviates from the others. This question is only rewarded a point if the previous question on simple interest along with this question on compound interest are both answered correctly. This is due to the multiple choice format of the compound interest question. This scoring scheme is implemented to avoid correct responses from guesses. It is assumed that if respondents did not know the concept of simple interest, then they do not know the concept of compound interest. Therefore, incorrect responses to the simple interest question paired with correct responses to the compound interest question is assumed to be a guess and is scored as incorrect. The final four financial knowledge questions present a statement and participants are asked to answer whether they believe the statement is true or false. These four questions capture knowledge on risk and return, the definition of inflation, diversification, and mortgages. Correct responses are awarded one point and incorrect responses are given a zero. A maximum score of eight can be obtained in the financial knowledge section of the survey.
**Table 1- Financial Knowledge Scoring System**

Note: This table has been adapted from a study done by Atkinson and Messy, 2012, p. 17.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Question Asked</th>
<th>Scoring Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Division</td>
<td>Imagine that five brothers are given a gift of $1000. If the brothers have to share the money equally how much does each one get? [open response: $200]</td>
<td>1 for correct response, 0 in all other cases.</td>
</tr>
<tr>
<td>Time-value of money</td>
<td>Now imagine that the brothers have to wait for one year to get their share of the $1000. In one year’s time will they be able to buy: a) More, b) the same amount, c) <strong>less than they could buy today</strong> d) it depends on the types of things they want to buy, or e) don’t know</td>
<td>1 for correct response, 0 in all other cases.</td>
</tr>
<tr>
<td>Interest paid on a loan</td>
<td>You lend $25 to a friend one evening and he gives you $25 back the next day. How much interest has he paid on this loan? [open response: 0]</td>
<td>1 for correct response, 0 in all other cases.</td>
</tr>
<tr>
<td>Calculation of interest plus principle</td>
<td>Suppose you put $100 into a no fee savings account with a guaranteed interest rate of 2% per year and the interest is paid at the end of each year. You don’t make any further payments into this account and you don’t withdraw any money. A) How much would be in the account at the end of the first year, once the interest payment is made? [open response: $102]</td>
<td>1 for correct response, 0 in all other cases.</td>
</tr>
<tr>
<td>Compound Interest</td>
<td>B) Assuming compound interest, how much would be in this account at the end of five years, remembering that there are no fees? a) <strong>More than $110</strong> b) Exactly $110 c) Less than $110 d) not enough info or e) don’t know</td>
<td>1 for correct response if the previous response was also correct, 0 in all other cases.</td>
</tr>
<tr>
<td>Risk and Return</td>
<td>An investment with a high return is likely to be high risk. [true/false]</td>
<td>1 for correct response, 0 in all other cases.</td>
</tr>
<tr>
<td>Definition of Inflation</td>
<td>High inflation means that the cost of living is increasing rapidly. [true/false]</td>
<td>1 for correct response, 0 in all other cases.</td>
</tr>
<tr>
<td>Diversification</td>
<td>It is usually possible to reduce the risk of investing in the stock by buying a wide range of stocks and shares. [true/false]</td>
<td>1 for correct response, 0 in all other cases.</td>
</tr>
<tr>
<td>Mortgage</td>
<td>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. [true/false]</td>
<td>1 for correct response, 0 in all other cases.</td>
</tr>
</tbody>
</table>
After finishing the nine financial knowledge questions, participants are asked to answer three questions to capture their level of financial attitude. Again, these three questions cover financial situations typically encountered by an average person throughout their lifetime, including university students. The questions asked and the scoring system used for this section are presented in Table 2. A five-point Likert scale is used to capture the degree to which participants agreed with the presented statements, with 1 representing strongly disagree and 5 representing strongly agree. The three statements are as follows: “I find it more satisfying to spend money then to save it for the future,” “I tend to live for today and let tomorrow take care of itself,” and “money is there to be spent.” These statements capture the attitude that participants have towards typical financial decisions. A positive financial attitude is associated with long-term goals directed towards saving and planning for the future, whereas a negative financial attitude is associated with short-term gratification. When looking at the three statements included in the survey and the scoring scheme, the higher an individual rates a statement, the more negative their financial attitude is. For example, if someone scored a five, meaning strongly agree, to the statement, “I find it more satisfying to spend money then to save it for the future,” this attitude shows a short-term attitude. In order to allow for a high attitude score to associate with a positive financial attitude, the scoring system reverses all answers. This transforms the results into a more easily understandable format. The scoring scheme is transferred as follows: 5 switched to 1, 4 switched to 2, 3 stayed as 3, 2 switched to 4 and 1 switched to 5. Once these switches are made, all three numbers are added together and an average score is calculated for each participant. The highest possible score that could be obtained from the financial attitude questions is five.
**Table 2- Financial Attitude Scoring System**
Note: This table has been adapted from a study done by Atkinson and Messy, 2012, p. 33

<table>
<thead>
<tr>
<th>Statement</th>
<th>Scoring Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>I find it more satisfying to spend money than to save it for the long term.</td>
<td>Scale of 1 to 5 used, where 1 was completely disagree with the statement and 5 is completely agree.</td>
</tr>
<tr>
<td>I tend to live for today and let tomorrow take care of itself.</td>
<td>Scale of 1 to 5 used, where 1 was completely disagree with the statement and 5 is completely agree.</td>
</tr>
<tr>
<td>Money is there to be spent.</td>
<td>Scale of 1 to 5 used, where 1 was completely disagree with the statement and 5 is completely agree.</td>
</tr>
</tbody>
</table>

** Scores were reversed to allow for higher scores to represent more positive attitudes. Ex: a response of 1 was changed to a 5 and vice versa.**

The final nine questions capture the financial behaviour of survey participants. All questions along with their associated scoring system are presented in Table 3. The first four questions use the same 5-point Likert scale that is used for the attitude questions. Four statements are made and participants are asked to rate the degree to which they agree with the statements. In this case, unlike the three statements presented in the financial attitude section, a high score represents a positive financial behaviour. Therefore, no score swapping is required. However, in order to keep the scoring scheme of these questions consistent with the rest of the financial behaviour questions, all scores of either 4 or 5 are categorized as being positive and are awarded one point while any other score is given a zero. The next two questions cover the financial behaviour of day-to-day money decisions and budget use. The first of these questions asks who is responsible for day-to-day decisions regarding your money, while the next part asks if
the participant uses a budget or not. The scoring scheme for this two-part question is a conditional question. Respondents are only awarded a point if they answer being either personally or jointly responsible for their money management in the first question and answer that they use a budget often or always for the second question. All other combinations of answers for these questions are awarded a zero. The seventh question in the financial behaviour section captures saving and spending. It asks whether respondents have saved money within the last 12 months. One point is awarded for an answer of yes, and no points are awarded for an answer of no. The final two questions gather information on the credit card use of students. The first asks whether respondents are solely responsible for making payments on their credit cards and the second asks how their credit card was chosen. These two questions are scored as a combined measure. If respondents answer being solely responsible for making credit card payments and they considered several different credit card options from different companies, this was seen as positive behaviour towards credit card use, leading to a reward of two points. If respondents own a credit card and considered various options from one company, this is also seen as positive behaviour, but not as much as shopping around at various companies. Therefore, this answer combination is awarded a score of one. All other combinations between these two questions are assigned a score of zero. Again, an overview of this scoring system can be reviewed in detail in Table 3. The highest possible score on the questions relating to financial behaviour is eight.
### Table 3- Financial Behaviour Scoring System

Note: This table has been adapted from a study done by Atkinson and Messy, 2012, p. 29

<table>
<thead>
<tr>
<th>Topic</th>
<th>Question Asked</th>
<th>Scoring Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Considered purchase</td>
<td>Before I buy something I carefully consider whether I can afford it.</td>
<td>A scale of 1-5 was used, 1 being completely disagree, 5 being completely agree. Responses of 4 or 5 were given one point, 0 in all other cases.</td>
</tr>
<tr>
<td>Timely bill payment</td>
<td>I pay my bills on time.</td>
<td>A scale of 1-5 was used, 1 being completely disagree, 5 being completely agree. Responses of 4 or 5 were given one point, 0 in all other cases.</td>
</tr>
<tr>
<td>Keeping watch on financial affairs</td>
<td>I keep a close personal watch on my financial affairs.</td>
<td>A scale of 1-5 was used, 1 being completely disagree, 5 being completely agree. Responses of 4 or 5 were given one point, 0 in all other cases.</td>
</tr>
<tr>
<td>Long-term financial goal setting</td>
<td>I set long-term financial goals and strive to achieve them.</td>
<td>A scale of 1-5 was used, 1 being completely disagree, 5 being completely agree. Responses of 4 or 5 were given one point, 0 in all other cases.</td>
</tr>
<tr>
<td>Responsible and has a household budget</td>
<td>a) Who is responsible for day-to-day decisions about your money?</td>
<td>1 point if personally or jointly responsible for money management and uses budget often or always. 0 in all other cases.</td>
</tr>
<tr>
<td></td>
<td>b) Do you use a budget?</td>
<td></td>
</tr>
<tr>
<td>Active Saving</td>
<td>In the past 12 months have you personally saved money, whether or not you still have the money now? [Yes/No]</td>
<td>If the answer was yes, respondents were given 1 point. 0 in all other cases.</td>
</tr>
<tr>
<td>Choosing products</td>
<td>a) If you have a credit card, are you solely responsible for making the payments on your credit card? [Yes/No/Don’t have a credit card]</td>
<td>If respondents did not have a credit card they were given a 0. If respondents did own a credit card and considered several options from different companies they were given a 2. If respondents owned a credit card and considered various options from one company, they were given a 1, 0 in all other cases.</td>
</tr>
</tbody>
</table>
3.2.4 Debt

The focus of this study is to examine the relationship between financial literacy levels and debt levels. The final section of the survey gathers information on levels of debt. All survey participants are students, so the types of debt that is captured in this survey is specific to those commonly known to be incurred by students. The two main types of debt encountered by students are student debt and credit card debt. A category is included for “other debt” as to not leave out any other forms of debt students may have incurred. Accounting for the fact that some students may be mature students and own houses and have mortgages, the “other debt” category is stated to exclude mortgage debt as to not offset the data set with large debt levels. A set of ranges is presented for each of these three debt categories. Ranges are used instead of an open response as some students may not know their exact debt and may be discouraged to enter a value or quit the survey all together. However, most students know if their debt is in the less than $10,00 range or the greater than $155,000 range, or somewhere in between. The use of ranges helps guide students to their approximate level of debt in each of these three debt categories.

As student debt is one of the most important factors of the data being collected in this survey, the options are presented in small ranges. This allows for the differing levels of debt to be categorized as closely as possible and for analysis of results to be more accurate. The ranges spread from the option of no debt to the option of greater than $155,000 debt. In order to code the responses, a number was assigned to each option with the number getting larger as the level of debt gets larger. This process is replicated for both credit card debt and other debt. The ranges, however, only reach to the “greater
than $50,000” level, as these debt levels anecdotally do not tend to go too far beyond this level. The debt level for each of these categories is added together to create an overall debt score for each respondent.

3.3 Ethics Approval

Before this survey could be distributed to the target population, it had to pass ethical approval from the University of New Brunswick’s Research Ethics Board. Although this study is not invasive, ethics approval must be granted before the survey can be administered as this research involves collecting data from humans. All ethics review forms are completed and submitted. A few minor changes were suggested and made, and ethics approval was granted with little hassle. The Research Ethics Board Approval number assigned to this research project is REB # 2016-124. This number is included on all forms of survey promotion and within the survey itself. This confirms to survey participants that all questions in the survey have passed the University of New Brunswick’s ethical standards and no questions asked will be invasive or unethical.

3.4 Survey Software and Live Release

Upon creating the survey and scoring scheme and receiving ethics approval, the survey is ready to be sent out. The two options for survey distribution include an online roll-out or an in person distribution. Burns and Bush (2014) identify advantages and disadvantages of using an online survey. The first advantage identified is the user-
friendly features of many online survey tools. Many of the websites for these survey tools are equipped with user manuals and how-to videos to assist in the survey creation and the data collection process. Burns and Bush classify the inexpensive nature of online surveys as another advantage. There are free versions and free trials available for many different online survey tools. The more advanced the survey is, the more sophisticated and expensive the system can become. However, for simple survey use, many free or inexpensive options are available. Online surveys pose an important advantage in that they reduce the effect that in-person research may have on responses. This concern and desire by participants to give the “right” answer is diminished when respondents interact with a computer. One disadvantage identified by Burns and Bush (2014) is the requirement of respondents to be computer-literate and internet-connected. This would be a concern for research involving certain cohorts such as seniors or children who don’t use computers as often as teenagers, young adults, and the middle-aged group do. Although this is a legitimate concern of online survey distribution, it is of very little concern with regards to this research study as the target respondent is the young adult and middle-aged group. All respondents must also be a student at the University of New Brunswick, Fredericton. This campus allows access to computers and internet connectivity on its campus, however most university students own a laptop or personal computer of their own. It can therefore be confirmed that all target participants have access to the necessary tools to complete an online survey. Due to the list of advantages of an online survey and the non-existent impact of the identified disadvantage, an online survey was used.
LimeSurvey is the chosen software to create and administer the survey. Version 2.05 of LimeSurvey is used for this project. The University of New Brunswick has a license to use LimeSurvey which makes use of the system free of charge for this research project. This, along with the ease of use of the system, makes LimeSurvey software the best option. The survey that was previously created in hard copy is transferred to soft copy format through the LimeSurvey interface. The survey is first completed by a few test subjects on a trial-run basis. They are timed in order to allow for an approximation of the time commitment to complete the survey for future participants. They are also asked to comment on any confusions or issues they may have encountered during the trial run. The reports of these issues are taken in to consideration and the survey is adjusted accordingly. The survey is then tested a few more times until a final version is made official. It should be noted that the results of the test trials are not saved in the final data set as the survey is not yet considered to be live and results are discarded upon survey completion. Once the final version is solidified, the survey is made live.

3.5 Recruiting Participants

In order for UNB students to become aware of the opportunity to fill out this survey, it is advertised through several different UNB media outlets. The first avenue that is used to distribute the survey is a post on my personal Facebook page. Some general information on the survey along with an invite to participate and a copy of the link are included in this post. The text that is used for this post can be found in
Appendix 2, Panel A. This will not reach as many UNB students as is needed, so additional efforts are used to make students aware of the existence of the survey. A news forum on the myUNB portal is utilized. This portal is used by virtually every UNB student in order to access important information daily such as class schedules, student card funds, exam schedules, and student financial account balances, among many other functions. The news portion of this page is titled myUNB News. This news forum is broken down in to myUNB Student News for Fredericton campus and myUNB Student News for Saint John campus. This forum allows student groups, student clubs, or individual students to post information regarding upcoming events, research being done, cancellations and closures around campus among many other pieces of news and information. Notices are first submitted and must be put through an approval process before they can be posted to the myUNB News forum. A list of rules and required information is presented before notices are submitted. All notices may be posted a maximum of once per week. A notice to inform students of the Financial Literacy Survey at UNB and invite them to participate is submitted under the myUNB Student News Fredericton campus news forum. This news notice was accepted two days after submission and is added to the student news page. It eventually became expired and is resubmitted a week later. This process is repeated for several weeks. The text that is used in this news release can be found in Appendix 2, Panel B.

The number of total surveys completed after these recruitment efforts was minimal. In order to recruit more participants, additional efforts to reach more students was be implemented. An email was distributed to members of an undergraduate managerial accounting class inviting them to participate in the “Financial Literacy at
UNB” survey. The text included in this email can be found in Appendix 2, Panel C. Social media was then utilized on a bigger scale with outreach to the social media coordinator for UNB Fredericton. An invitation to participate in the survey along with the link to the survey was added to the Twitter page for the UNB Fredericton campus. The text used in this post is included in Appendix 2, Panel D. This participant recruitment effort was followed by messages sent out to various UNB academic Facebook groups asking for the survey to be shared either via the Facebook group itself, via email or through another avenue the social media coordinator deemed appropriate. The message that was sent through either these Facebook groups or to department secretaries asking for the survey to be distributed to their respective faculty groups can be found in Appendix 2, Panel E. The response from this effort was very positive. Nearly all departments were happy to send out the survey in some form to students. Many departments asked for a short message including the survey link that could be directly posted on their Facebook page or sent out through an email. A draft of an invitation to participate was created and sent to the various social media coordinators. This template can be found in Appendix 2, Panel F. Some department heads required additional information on the research prior to posting or sending. This was promptly provided to the appropriate contact and no issues were identified. Posts were made on faculty Facebook groups, emails were sent out to students from their faculty secretary, and the survey was even included in a weekly newsletter for the Engineering department. This proved to be the most effective form of participant recruitment as the number of completed surveys grew rapidly after these messages were sent.
3.6 Descriptive Statistics

A total of 283 surveys are collected, with 90 of these being only partially completed. For the purpose of gathering enough information to represent respondent’s literacy and debt situation in order to analyze data appropriately, only completed surveys are used. This results in a final number of 193 usable surveys. The spread of respondents in terms of gender, age, and years in school is spread out well. The engineering department holds the largest percentage of respondents, likely due to the post in the engineering weekly newsletter, and the majority of respondents also report living in an apartment or house. Also, as expected, the majority of respondents are undergraduate students. A complete breakdown of the participants who took the survey is displayed in Table 4. These numbers are presented as a total number of responses, as well as a total percentage of the 193 usable surveys.
Table 4: Descriptive Statistics

<table>
<thead>
<tr>
<th>Title</th>
<th>Count</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>85</td>
<td>44%</td>
</tr>
<tr>
<td>Female</td>
<td>108</td>
<td>56%</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;18</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>18-20</td>
<td>54</td>
<td>28%</td>
</tr>
<tr>
<td>21-23</td>
<td>63</td>
<td>33%</td>
</tr>
<tr>
<td>24-26</td>
<td>25</td>
<td>13%</td>
</tr>
<tr>
<td>27-29</td>
<td>16</td>
<td>8%</td>
</tr>
<tr>
<td>&gt;29</td>
<td>35</td>
<td>18%</td>
</tr>
<tr>
<td><strong>Faculty</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arts</td>
<td>8</td>
<td>4%</td>
</tr>
<tr>
<td>Business</td>
<td>29</td>
<td>15%</td>
</tr>
<tr>
<td>Science</td>
<td>8</td>
<td>4%</td>
</tr>
<tr>
<td>Engineering</td>
<td>70</td>
<td>36%</td>
</tr>
<tr>
<td>Forestry</td>
<td>2</td>
<td>1%</td>
</tr>
<tr>
<td>Education</td>
<td>33</td>
<td>17%</td>
</tr>
<tr>
<td>College Extended Learning</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Computer Science</td>
<td>3</td>
<td>2%</td>
</tr>
<tr>
<td>Kinesiology</td>
<td>8</td>
<td>4%</td>
</tr>
<tr>
<td>Law</td>
<td>20</td>
<td>10%</td>
</tr>
<tr>
<td>Nursing</td>
<td>10</td>
<td>5%</td>
</tr>
<tr>
<td>Renaissance College</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>1%</td>
</tr>
<tr>
<td><strong>Level of School</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undergraduate</td>
<td>135</td>
<td>70%</td>
</tr>
<tr>
<td>Graduate</td>
<td>54</td>
<td>28%</td>
</tr>
<tr>
<td>PhD</td>
<td>4</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Years in School</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>18</td>
<td>9%</td>
</tr>
<tr>
<td>2</td>
<td>15</td>
<td>8%</td>
</tr>
<tr>
<td>3</td>
<td>31</td>
<td>16%</td>
</tr>
<tr>
<td>4</td>
<td>30</td>
<td>16%</td>
</tr>
<tr>
<td>5</td>
<td>27</td>
<td>14%</td>
</tr>
<tr>
<td>6</td>
<td>22</td>
<td>11%</td>
</tr>
<tr>
<td>7</td>
<td>20</td>
<td>10%</td>
</tr>
<tr>
<td>8</td>
<td>11</td>
<td>6%</td>
</tr>
<tr>
<td>Credit Card</td>
<td>Yes</td>
<td>151</td>
</tr>
<tr>
<td>-------------</td>
<td>-----</td>
<td>------</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>42</td>
</tr>
<tr>
<td>Number of Credit Cards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zero</td>
<td>42</td>
<td>22%</td>
</tr>
<tr>
<td>One</td>
<td>96</td>
<td>50%</td>
</tr>
<tr>
<td>Two</td>
<td>37</td>
<td>19%</td>
</tr>
<tr>
<td>Three</td>
<td>16</td>
<td>8%</td>
</tr>
<tr>
<td>&gt;Three</td>
<td>2</td>
<td>1%</td>
</tr>
<tr>
<td>Living Situation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parents/Guardians</td>
<td>27</td>
<td>14%</td>
</tr>
<tr>
<td>Living in apartment/house</td>
<td>142</td>
<td>74%</td>
</tr>
<tr>
<td>Living in residence</td>
<td>20</td>
<td>10%</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>2%</td>
</tr>
<tr>
<td>Parents Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-60,000</td>
<td>42</td>
<td>22%</td>
</tr>
<tr>
<td>60,001-90,000</td>
<td>44</td>
<td>23%</td>
</tr>
<tr>
<td>90,001-150,000</td>
<td>70</td>
<td>36%</td>
</tr>
<tr>
<td>150,001-200,000</td>
<td>18</td>
<td>9%</td>
</tr>
<tr>
<td>200,001-250,000</td>
<td>10</td>
<td>5%</td>
</tr>
<tr>
<td>More than 250,000</td>
<td>9</td>
<td>5%</td>
</tr>
<tr>
<td>Parent’s Business Owners or Entrepreneurs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>48</td>
<td>25%</td>
</tr>
<tr>
<td>No</td>
<td>145</td>
<td>75%</td>
</tr>
<tr>
<td>Student Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>12</td>
<td>6%</td>
</tr>
<tr>
<td>1-2,000</td>
<td>14</td>
<td>7%</td>
</tr>
<tr>
<td>2,001-6,000</td>
<td>41</td>
<td>21%</td>
</tr>
<tr>
<td>6,001-10,000</td>
<td>46</td>
<td>24%</td>
</tr>
<tr>
<td>10,001-14,000</td>
<td>24</td>
<td>12%</td>
</tr>
<tr>
<td>14,001-18,000</td>
<td>13</td>
<td>7%</td>
</tr>
<tr>
<td>&gt;18,000</td>
<td>43</td>
<td>22%</td>
</tr>
<tr>
<td>Student Debt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>96</td>
<td>50%</td>
</tr>
<tr>
<td>&lt;10,000</td>
<td>31</td>
<td>16%</td>
</tr>
<tr>
<td>10,001-15,000</td>
<td>23</td>
<td>12%</td>
</tr>
<tr>
<td>15,001-25,000</td>
<td>15</td>
<td>8%</td>
</tr>
<tr>
<td>25,001-35,000</td>
<td>9</td>
<td>5%</td>
</tr>
<tr>
<td>35,001-45,000</td>
<td>5</td>
<td>3%</td>
</tr>
<tr>
<td>45,001-55,000</td>
<td>4</td>
<td>2%</td>
</tr>
<tr>
<td>55,001-80,000</td>
<td>7</td>
<td>4%</td>
</tr>
</tbody>
</table>
80,000-105,000 1 0%
105,001-130,000 2 1%
130,001-155,000 0 0%
>155,000 0 0%

3.7 Data Conversion and Scoring Scheme

After sufficient responses are collected, the data is then converted to Microsoft Excel software. With the use of LimeSurvey as the data collection tool, this conversion is very simple. A function in the LimeSurvey software allows for this direct conversion. Once the data is converted to a spreadsheet, the responses are coded according to the coding scheme. This process transforms text answers into numbers that represent each answer. Once all data is coded, formulas are then used within Microsoft Excel to create separate financial knowledge, financial attitude, and financial behaviour scores according to the scoring system mentioned earlier. Now that each portion of financial literacy is scored appropriately according to each scoring scheme, an overall financial literacy score is calculated for each respondent. This is done using two different methods. The first system used to calculate financial literacy is consistent with the method used in the 2012 study done by Atkinson and Messy which collected data from 14 different countries. A score of six for the knowledge section, three for the attitude section, and six for the behaviour section are categorized as a positive score for each question set. If the respondent scores equal to or greater than this threshold, they are awarded a point, if they score below this number they are given a zero. This process is repeated for each of the three financial literacy components. This results in each
respondent being assigned a financial literacy score between zero and three, with zero representing low financial literacy and three representing high financial literacy. Two respondents had a financial literacy score of zero, 27 had a score of 1, 92 respondents scored 2 and 72 respondents scored 3. These numbers are presented in Table 5.

Additionally, a second financial literacy score is calculated by simply adding all three scores together and dividing by three. Both scores are used in the analysis of data in order to cover all possible correlations within the collected data.

An overall debt score is then created by combining the assigned code for each type of debt captured: student debt, credit card debt, and other debt. Once the data is coded and scored, this data set is then converted to SPSS software for data analysis.

<table>
<thead>
<tr>
<th>Financial Literacy Score</th>
<th>Number of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>27</td>
</tr>
<tr>
<td>2</td>
<td>92</td>
</tr>
<tr>
<td>3</td>
<td>72</td>
</tr>
</tbody>
</table>
Chapter 4 - Results

4.1 SPSS Correlation Bivariate

Correlation bivariate tests were run using SPSS software in order to reveal the characteristics of the relationship between debt and financial literacy. This analysis tool is used to determine if two variables are linearly related to each other. It answers the question, “is there a statistically significant relationship between variable one and variable two?” In the case of this research, the two variables being tested would be student debt and financial literacy. A similar method was used in research done by Borden et al. (p. 32) in a 2007 study to determine if a correlation existed between two attitude scores. The use of correlation bivariate testing allowed for the variable of student debt to be tested individually against financial literacy scores for different cohorts of students, in aim of revealing any significant relationships. The analysis of these correlation tests can be broken down into three steps: presence, direction, and strength. Presence refers to whether a relationship exists between the two variables being examined. This will reveal whether there is sufficient evidence to claim that an association is present between two variables. This is represented by the significance variable indicated from the correlation test. A significance level of less than or equal to 0.05 was used to determine a statistically significant association. This reveals a 95% confidence level. This means that 95% of the time, the hypothesis being tested is correct, revealing a significant relationship between the two variables being tested against each other. All relationships with a significance variable less than or equal to
0.05 reveals that increases or decreases in one variable significantly relates to increases or decreases in the second variable. Therefore, only relationships with a significance value less than or equal to 0.05 were considered for further analysis. The direction of the relationship is tested next. This evaluation simply reveals whether two variables are positively associated or negatively associated. This is indicated by a negative correlation coefficient revealing a negatively correlated relationship, or no sign on the correlation coefficient indicating a positively correlated relationship. This means that the two variables move in the opposite direction from each other. Finally, given that the association is statistically significant, the absolute value of the correlation coefficient will reveal the strength of the relationship. This coefficient will be within the range of -1 to 1, with a higher absolute value representing a stronger correlation, in the direction indicated in front of the coefficient. A strong association between two variables reveals that the two variables exhibit a dependence relationship. These relationships are typically categorized, strength wise, as: none, very weak, weak, moderate, or strong. A table created by Burns and Bush, 2014, presents these categories along with their associated coefficient ranges. This is found in Table 6: Rules of Thumb about Correlation Coefficient Size.

**Table 6: Rules of Thumb about Correlation Coefficient Size***

<table>
<thead>
<tr>
<th>Coefficient Range</th>
<th>Strength of Association</th>
</tr>
</thead>
<tbody>
<tr>
<td>+.81 to +1.00; -.81 to -1.00</td>
<td>Strong</td>
</tr>
<tr>
<td>+.61 to +.80; -.61 to -.80</td>
<td>Moderate</td>
</tr>
<tr>
<td>+.41 to +.60; -.41 to -.60</td>
<td>Weak</td>
</tr>
<tr>
<td>+.21 to +.40; -.21 to -.40</td>
<td>Very weak</td>
</tr>
<tr>
<td>+.20 to -.20</td>
<td>None</td>
</tr>
</tbody>
</table>

* Assuming the correlation coefficient is statistically significant

4.2 Financial Literacy at UNB Survey Correlation Results

The correlation bivariate test was used in order to analyze the relationship between debt and financial literacy among University of New Brunswick students, keeping in mind the three analytical criteria: presence, direction, and strength of association. The first variables tested were the overall debt score for each respondent and the two financial literacy constructs. Table 7.1 shows the results found from this test. An analysis of the presence portion of the results revealed that no significant relationship exists between the debt levels captured from the survey and both financial literacy measures. The significance values of .412 and .426 do not qualify the criteria of less than or equal to 0.05 in order to show significance. Therefore, this test revealed no significant correlation between debt levels and financial literacy levels as it relates to the survey respondents. Due to its non-relational nature, this relationship was not studied any further. In order to gain a better sense of the impact of debt on students, a more focused approach was taken. The student debt portion of “Debt” was pulled out from this construct and was tested against the two financial literacy measures. This relationship showed no significant relationship between student debt and FL1 but a minimal relationship between student debt and FL2. The significance value was .209 between student debt and FL1. It was .035 for FL2, which is less than the threshold of .05. The results from this test can be found in Table 7.2. Although significance is found

2 FL1= Financial literacy measure which categorizes each individual score as positive or negative and assigns an overall score of 0-3 for each respondent based on how many positive scores were captured.
3 FL2= Financial literacy measure which adds all financial literacy constructs together and divides by 3.
between student debt and FL2, the strength of association is very low, with a correlation coefficient value of -.152. Referring back to Table 6, this coefficient does not appear in the coefficient range, and is therefore negligible. Although the strength of this correlation is not strong, there is a correlation present. This relationship was further analyzed by identifying factors affecting student debt levels.

**Table 7.1- Debt vs. FL1 and FL2**

<table>
<thead>
<tr>
<th></th>
<th>Debt</th>
<th>FL1</th>
<th>FL2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debt</td>
<td>1</td>
<td>-0.059</td>
<td>-0.058</td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td></td>
<td>.412</td>
<td>.426</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>193</td>
<td>193</td>
<td>193</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed).**

**Table 7.2- Student Debt vs. FL1 and FL2**

<table>
<thead>
<tr>
<th></th>
<th>Student Debt</th>
<th>FL1</th>
<th>FL2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Debt</td>
<td>1</td>
<td>-0.091</td>
<td>-0.152*</td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td></td>
<td>.209</td>
<td>.035</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>193</td>
<td>193</td>
<td>193</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

4.3 Breaking Down Student Debt

The necessity to acquire a student loan and therefore increase student debt relies on many controllable and uncontrollable factors. These factors must be taken into account as much as possible when analyzing this complex relationship between student
debt and financial literacy. The factors that were believed to have the ability to affect student debt levels include: years spent in school, student income, parental income, living situation, and parental influences. All of these variables were captured in the student survey. They were tested against student debt levels to see if a significant relationship existed between the variables. The correlation bivariate test that was run between student debt and years in school revealed a significant relationship, although very minimal. A significance value of .027 was found with a strength of association of .160. This is an extremely weak correlation but, nonetheless, is existent. The results from this test are presented in Table 8.1. A correlation bivariate test was then run between student debt and student income. This revealed no significant correlation with a significance value of .189, shown in Table 8.2. Student debt and parental income were then tested and significance was found between this relationship. (Table 8.3) The significance value of .001 and a strength of association of -.233 reveals a correlation, although the strength of this relationship is classified as “very weak” according to the, “Rules of Thumb about Correlation Coefficient Size,” highlighted in Table 6. In order for living situation to be an indication of spending money on living or not, the results were recoded. Answers of living in residence or in an apartment/house were coded as 1, as these living situations require additional financing, whereas responses of living with parents was coded with a 2, as it is assumed rent is not paid and no additional costs are associated with this living situation. An option for “Other” was included in the living situation question, but no surveys with this response were collected. These results revealed a significant correlation between student debt and living situation with a significance value of .039 and a correlation coefficient of .149, shown in Table 8.4.
Finally, parental influence was tested against student debt. A parental influences variable was created with the responses collected from the question, “Did your parents/guardians include you in discussion while growing up on the following topics?”. The four statements included in this can be found in the survey found in Appendix 1. As seen in Table 8.5, no significant correlation was found between this relationship. In summary, years in school, parental income, and living situation are correlated with student debt levels, while student income and parental influences showed no association.

**Table 8.1- Student Debt vs. Years in School**

<table>
<thead>
<tr>
<th></th>
<th>Student Debt</th>
<th>Years in School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Debt</td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.027</td>
</tr>
<tr>
<td>N</td>
<td></td>
<td>193</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).

**Table 8.2- Student Debt vs. Student Income**

<table>
<thead>
<tr>
<th></th>
<th>Student Debt</th>
<th>Student Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Debt</td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.189</td>
</tr>
<tr>
<td>N</td>
<td></td>
<td>193</td>
</tr>
</tbody>
</table>
### Table 8.3- Student Debt vs. Parental Income

<table>
<thead>
<tr>
<th></th>
<th>Student Debt</th>
<th>Parental Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1</td>
<td>-0.233***</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>0.001</td>
</tr>
<tr>
<td>N</td>
<td>193</td>
<td>193</td>
</tr>
</tbody>
</table>

*** Correlation is significant at the 0.01 level (2-tailed).

### Table 8.4- Student Debt vs. Living Situation

<table>
<thead>
<tr>
<th></th>
<th>Student Debt</th>
<th>Living Situation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1</td>
<td>0.149*</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>0.039</td>
</tr>
<tr>
<td>N</td>
<td>193</td>
<td>193</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).

### Table 8.5- Student Debt vs. Parental Influence

<table>
<thead>
<tr>
<th></th>
<th>Student Debt</th>
<th>Parental Influence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1</td>
<td>-0.080</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>0.269</td>
</tr>
<tr>
<td>N</td>
<td>193</td>
<td>193</td>
</tr>
</tbody>
</table>
Table 9- Influential Factors on Student Debt

<table>
<thead>
<tr>
<th>Variables</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years in School</td>
<td>Yes</td>
</tr>
<tr>
<td>Student Income</td>
<td>No</td>
</tr>
<tr>
<td>Parental Income</td>
<td>Yes</td>
</tr>
<tr>
<td>Living Situation</td>
<td>Yes</td>
</tr>
<tr>
<td>Parental Influences</td>
<td>No</td>
</tr>
</tbody>
</table>

The factors that significantly influence student debt levels must be accounted for in the student debt to financial literacy correlation test. Significant factors are highlighted in Table 9. In order to account for years in school as it is related to student debt, a new variable was created by dividing the student debt score by years in school. This new variable was tested against both financial literacy measures. The results can be found in Table 10, with a significance value of .000 for both FL1 and FL2, and correlation coefficients of -.272 and -.304. This shows that there is a significant correlation between student debt adjusted to reflect years spent in school and financial literacy levels. This can now be projected to reflect that yearly student debt incurred by students is associated with financial literacy levels, as it relates to UNB Fredericton students. The strength of this correlation is, however, categorized as very weak. A chart highlighting the analysis path undertaken thus far can be found in Table 11. In order to further analyze this relationship, the other influential factors found, these being parental income and living situation, were accounted for. This was done using a chart to reveal the spread of survey respondents between the two variables. This chart can be found in Table 12. As seen in this chart, a large cluster of respondents fall in the apartment/house category and the $0-$60,000, $60,001-$90,000, and $90,001-$150,000 parental income
categories. This cluster of three categories makes up 60% of all respondents. These sets of respondents were pulled from the master data set and tested against the two financial literacy constructs as a group of all three as well as each group individually. In order to fully analyze these relationships, each group was tested at the overall debt level, the student debt level, and the student debt per year in school level.

**Table 10- Student Debt per Year in School vs. FL1 and FL2**

<table>
<thead>
<tr>
<th>Correlations</th>
<th>Student Debt Per Year in School</th>
<th>FL1</th>
<th>FL2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Debt Per Year in School</td>
<td>Pearson Correlation</td>
<td>1</td>
<td>-.272**</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>193</td>
<td>193</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed).**
Table 11 - Analysis Path

Debt $\rightarrow$ Financial Literacy

Student Debt $\rightarrow$ Financial Literacy

Student Debt $\rightarrow$ Years in School
Student Debt $\rightarrow$ Student Income
Student Debt $\rightarrow$ Parental Income
Student Debt $\rightarrow$ Living Situation
Student Debt $\rightarrow$ Parental Influences

Student Debt/Year in School $\rightarrow$ Financial Literacy

Table 12 - Living Situation vs. Parental Income Spread Count

<table>
<thead>
<tr>
<th>Parental Income</th>
<th>Parents</th>
<th>Apt/House</th>
<th>Residence</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-60,000</td>
<td>6</td>
<td>31</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>60,001-90,000</td>
<td>7</td>
<td>33</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>90,001-150,000</td>
<td>10</td>
<td>52</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>150,001-200,000</td>
<td>2</td>
<td>12</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>200,001-250,000</td>
<td>2</td>
<td>6</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Greater than 250,001</td>
<td>0</td>
<td>8</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>
The data set containing all respondents who live in an apartment or house and whose parent’s combined income is in either the 0-$60,000, $60,001-$90,000, or $90,001-$150,000 range was the first group tested. This category is made up of 116 survey respondents. The debt variable was tested against the FL1 and FL2 variables. This relationship showed no significant correlation. (Table 13.1) Student debt was then tested and significance was found between this variable and FL2 only. A significance level of .028 was found with a correlation coefficient of -.205, showing a very weak relationship. These results can be found in Table 13.2. Student debt per school year versus FL1 and FL2 revealed significant correlations between both financial literacy measures, with a slightly increased strength of association. However, the association strengths found of -.365 and -.331 (Table 13.3) still fall under the “very weak” category, according to the rules of thumb found in Table 6.

Table 13.1- Debt vs. FL1 and FL2: All three cohorts

<table>
<thead>
<tr>
<th>Correlations</th>
<th>Debt</th>
<th>FL1</th>
<th>FL2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debt Pearson Correlation</td>
<td>1</td>
<td>-.127</td>
<td>-.074</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.175</td>
<td>.429</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>116</td>
<td>116</td>
<td>116</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed).
In order to further focus in on the correlation found between student debt and financial literacy within the three groups mentioned above, this analysis was then broken down into its three groups, beginning with the 0-$60,000 parental income range. Thirty-one respondents fell in the category of living in an apartment or in a house (away from their parents) with their parents earning a total combined income in the range of 0-$60,000. Again, analysis of these 31 respondents was done by testing both financial literacy measures against overall debt, student debt, and student debt per year in school. Significance was found between debt and both FL1 and FL2. Correlation coefficients of -.404 and -.415 showed a “very weak” and “weak” correlation (Table 14.1). The
bivariate correlation test between student debt and FL1 and FL2 showed an even more significant relationship. Correlation coefficients were -.452 and -.484, respectively (Table 14.2). While these correlations are stronger than that of the previous results correlating overall debt with financial literacy, their strength of association still falls under the “very weak” category. This relationship was further focused by testing the student debt per years in school variable against both financial literacy variables. This correlation test accounts for all three significant variables shown in Table 9, which were found to have a significant relationship with student debt. Significance was once again found and the strength of association is now in the moderate category, with coefficients of -.624 and -.622, shown in Table 14.3. The strength of association grew stronger as more of the significant variables on student debt were included in the correlation measurement.

**Table 14.1- Debt vs. FL1 and FL2: Apartment/House and Parental Income 0-$60,000**

<table>
<thead>
<tr>
<th>Debt</th>
<th>Pearson Correlation</th>
<th>FL1</th>
<th>FL2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debt</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td></td>
<td>.024</td>
</tr>
<tr>
<td>N</td>
<td></td>
<td>31</td>
<td>31</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).
Table 14.2- Student Debt vs. FL1 and FL2: Apartment/House and Parental Income 0-$60,000

<table>
<thead>
<tr>
<th></th>
<th>Student Debt</th>
<th>FL1</th>
<th>FL2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Debt</td>
<td>1</td>
<td>-.452*</td>
<td>-.484**</td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.011</td>
<td>.006</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>31</td>
<td>31</td>
<td>31</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table 14.3- Student Debt per Year in School vs. FL1 and FL2: Apartment/House and Parental Income 0-$60,000

<table>
<thead>
<tr>
<th></th>
<th>Student Debt Per Year in School</th>
<th>FL1</th>
<th>FL2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Debt Per Year in School</td>
<td>1</td>
<td>-.624**</td>
<td>-.622**</td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>31</td>
<td>31</td>
<td>31</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).

The category of 33 students who live in an apartment or house away from their parents and whose parents combined income is between $60,001-$90,000 was tested against the same three variables: debt, student debt, and student debt per year in school. Table 15.1 shows the results from the test run between debt and FL1 and FL2, and Table 15.2 shows the results between the student debt variable and FL1 and FL2 variables. Both of these relationships show no significant correlation. The student debt per year in school variable tested against both financial literacy measures revealed a significant
relationship with FL1, with a correlation coefficient of -.370, shown in Table 15.3. This coefficient is categorized as a very weak correlation.

Table 15.1- Debt vs. FL1 and FL2: Apartment/House and Parental Income $60,001-$90,000

<table>
<thead>
<tr>
<th>Correlations</th>
<th>Debt</th>
<th>FL1</th>
<th>FL2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debt Pearson Correlation</td>
<td>1</td>
<td>-.203</td>
<td>-.087</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.257</td>
<td>.629</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>33</td>
<td>33</td>
<td>33</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).

Table 15.2- Student Debt vs. FL1 and FL2: Apartment/House and Parental Income $60,001-$90,000

<table>
<thead>
<tr>
<th>Correlations</th>
<th>Student Debt</th>
<th>FL1</th>
<th>FL2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Debt Pearson Correlation</td>
<td>1</td>
<td>-.030</td>
<td>.038</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.869</td>
<td>.834</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>33</td>
<td>33</td>
<td>33</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).
Table 15.3- Student Debt per Year in School vs. FL1 and FL2: Apartment/ House and Parental Income $60,001-$90,000

<table>
<thead>
<tr>
<th>Correlations</th>
<th>Student Debt Per Year in School</th>
<th>FL1</th>
<th>FL2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Debt Per Year in School Pearson Correlation</td>
<td>1</td>
<td>-.370*</td>
<td>-.281</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.034</td>
<td>.113</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>33</td>
<td>33</td>
<td>33</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

The final category tested includes respondents who live in an apartment or house and whose parents combined income is between $90,001 and $150,000. This group consists of 52 University of New Brunswick students. No significant correlations were found with the debt variable, the student debt variable, or the student debt per year in school variable. The results from these three correlation tests can be found in Table 16.1, 16.2 and 16.3.

Table 16.1- Debt vs. FL1 and FL2: Apartment/House and Parental Income $90,001-$150,000

<table>
<thead>
<tr>
<th>Correlations</th>
<th>Debt</th>
<th>FL1</th>
<th>FL2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debt Pearson Correlation</td>
<td>1</td>
<td>.084</td>
<td>.132</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.555</td>
<td>.349</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>52</td>
<td>52</td>
<td>52</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).
The variables that showed a significant correlation to student debt and therefore have an effect on student debt levels were years in school, parental income, and living situation, as previously mentioned. Combining these three constructs and accounting for them in various combinations within correlation tests revealed significant associations. Particularly of interest was the pattern found within the group of 31 students who live in an apartment or house and whose parents combined income is $0-$60,000. As the construct of debt became more focused, from overall debt to student debt to student debt per year in school, the strength of association grew stronger. This association was strongest when it included all three criteria that were found to affect student debt: years
in school, parental income and living situation. As highlighted in Table 14.3, these correlation coefficients for FL1 and FL2 are -.624 and -.622, revealing moderate strength. The negative relationship means that the higher the level of student debt per year in school, the lower the financial literacy level was. The opposite is also true; the lower the level of student debt per year in school, the higher the level of financial literacy. This is applicable to students who fall in the category of living in a house or apartment and whose parents earn 0-$60,000 annually.

4.4 Breaking Down Financial Literacy

In order to better analyze the relationship between student debt and financial literacy, factors that affect student debt levels were accounted for in the correlation bivariate analysis. The same can be done for variables that affect financial literacy levels. This variable is easily broken up into its three components: financial knowledge, financial attitude, and financial behaviour. This will reveal which portion of financial literacy is the most significantly correlated with debt levels in its various capacities. This analysis was first done at the macro level by correlating the full data set containing all 193 survey respondents against financial knowledge, financial attitude, and financial behaviour variables. Again, this test was done using debt, student debt, and student debt per year in school variables. The results of the test between debt and the three financial literacy measures is presented in Table 17.1. A significant negative correlation was found between debt and financial attitude, with a correlation coefficient of -.215. No significant relationship was found between debt and financial knowledge or financial behaviour. To create a more focused analysis, student debt only was then tested against
the three financial literacy constructs. This test again showed a significant relationship between student debt and financial attitude, although there is no strength of association with a coefficient of -.164. No significant correlation was found between student debt and financial knowledge or financial behaviour, as is highlighted in Table 17.2. Finally, the construct earlier created to account for years of school as it relates to student debt was tested. Financial attitude was once again found to correlate with this variable with a “very weak” coefficient of -.355, as well as financial behaviour with an even weaker coefficient of -.190. Financial knowledge still showed no significant correlation to the student debt per year of school variable. (Table 17.3)

Table 17.1- Debt vs. Financial Knowledge, Financial Attitude, Financial Behaviour

<table>
<thead>
<tr>
<th></th>
<th>Debt</th>
<th>Knowledge</th>
<th>Attitude</th>
<th>Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debt</td>
<td>1</td>
<td>.022</td>
<td>-.215**</td>
<td>.017</td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.766</td>
<td>.003</td>
<td>.814</td>
</tr>
<tr>
<td>N</td>
<td>193</td>
<td>193</td>
<td>193</td>
<td>193</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).
The previously found moderate strength association between the student debt per year in school variable and the 31 students who fall in the category of living in an apartment or house and whose parent’s earn 0-$60,000 annually is then tested against financial knowledge, financial attitude, and financial behaviour. Each of the three contributors to financial literacy were tested against the level of student debt per year in school of the 31 students in the category mentioned above. These results revealed a significant correlation between this group and financial attitude, with a negative
coefficient of -.671, which falls in the moderate association strength category.

Significance was also found between student debt per year in school and financial behaviour, with a negative coefficient of -.443, which is categorized as “very weak” according to Bush and Burns rules of thumb. No significant relationship was found between this group of participant’s student debt levels per year and financial knowledge. These results are shown in Table 18.

Table 18- Student Debt per Year in School vs. Financial Knowledge, Financial Attitude, Financial Behaviour: Apartment/House and Parental Income 0-$60,000

<table>
<thead>
<tr>
<th>Correlations</th>
<th>Student Debt Per Year in School</th>
<th>Knowledge</th>
<th>Attitude</th>
<th>Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Debt Per Year in School</td>
<td>Pearson Correlation</td>
<td>1</td>
<td>-.247</td>
<td>-.671**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.181</td>
<td>.000</td>
<td>.013</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>31</td>
<td>31</td>
<td>31</td>
<td>31</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

4.5 Social and Demographic Correlations

Several demographic variables that were captured from the survey were tested against FL1, FL2, financial knowledge, financial attitude, and financial behaviour variables. The demographic variables tested include gender, age, faculty and level of school. The gender test revealed significant relationships between gender and both financial knowledge and financial attitude, with financial knowledge being the most

Faculty was recoded and categorized as business and non-business students.
strongly correlated with a coefficient of -.296, shown in Table 19.1. This is, however, categorized as a very weak correlation. The negative coefficient reveals that female respondents are more strongly correlated with a negative financial knowledge score, as females are coded as two and males were coded as one in the data analysis process. Higher variables of two are negatively correlated with knowledge, meaning that females scores are correlated with lower knowledge scores, and vice versa. The attitude coefficient of 0.183 is significant but the strength of association is negligible. Both FL1 and FL2 scores showed no significant correlations. A test was run to identify any differences between age and financial scores. Table 19.2 reveals the findings from this test. This again showed different results from previous variables tested against financial knowledge, financial attitude, and financial behaviour measures. The most significant relationship with this demographic variable, shown in Table 19.2, is between age and financial behaviour, with a coefficient value of .299. This falls in the very weak category. This reveals that the older each survey respondent was, the more positive their financial behaviour was. Table 19.3 shows the results between the faculty variable and FL1, FL2, financial knowledge, financial attitude, and financial behaviour. In order to create a representative variable for faculty, all business students were coded with one and non-business students were coded with zero. Interestingly, no significant correlations were found between any of the variables. Table 19.4 shows the relationship between level of school and the various financial literacy measures. Significance was found between level of school and FL1, FL2, and financial behaviour, although all significant correlations were either negligible or very weak. This means that the higher
the level of school, the more positive FL1, FL2, and financial behaviour scores were, although the relationships are not strong.

*Table 19.1- Gender vs. FL1, FL2, Financial Knowledge, Financial Attitude, Financial Behaviour*

<table>
<thead>
<tr>
<th>Correlations</th>
<th>Gender</th>
<th>FL1</th>
<th>FL2</th>
<th>Knowledge</th>
<th>Attitude</th>
<th>Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender Pearson Correlation</td>
<td>1</td>
<td>-.102</td>
<td>-.108</td>
<td>-.296**</td>
<td>.183*</td>
<td>-.054</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.160</td>
<td>.134</td>
<td>.000</td>
<td>.011</td>
<td>.452</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>193</td>
<td>193</td>
<td>193</td>
<td>193</td>
<td>193</td>
<td>193</td>
</tr>
</tbody>
</table>

*Table 19.2- Age vs. FL1, FL2, Financial Knowledge, Financial Attitude, Financial Behaviour*

<table>
<thead>
<tr>
<th>Correlations</th>
<th>Age</th>
<th>FL1</th>
<th>FL2</th>
<th>Knowledge</th>
<th>Attitude</th>
<th>Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Pearson Correlation</td>
<td>1</td>
<td>.182*</td>
<td>.207*</td>
<td>.090</td>
<td>-.095</td>
<td>.299**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.011</td>
<td>.004</td>
<td>.214</td>
<td>.189</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>193</td>
<td>193</td>
<td>193</td>
<td>193</td>
<td>193</td>
<td>193</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).
### Table 19.3- Faculty vs. FL1, FL2, Financial Knowledge, Financial Attitude, Financial Behaviour

**Correlations**

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Pearson Correlation</th>
<th>FL1</th>
<th>FL2</th>
<th>Knowledge</th>
<th>Attitude</th>
<th>Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty</td>
<td></td>
<td>1</td>
<td>-</td>
<td>-.034</td>
<td>.041</td>
<td>.043</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.643</td>
<td>.574</td>
<td>.058</td>
<td>.844</td>
<td>.552</td>
</tr>
<tr>
<td>N</td>
<td></td>
<td>193</td>
<td>193</td>
<td>193</td>
<td>193</td>
<td>193</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed).**

### Table 19.4- Level of School vs. FL1, FL2, Financial Knowledge, Financial Attitude, Financial Behaviour

**Correlations**

<table>
<thead>
<tr>
<th>Level of School</th>
<th>Pearson Correlation</th>
<th>FL1</th>
<th>FL2</th>
<th>Knowledge</th>
<th>Attitude</th>
<th>Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level of School</td>
<td></td>
<td>1</td>
<td>.183</td>
<td>.202**</td>
<td>.026</td>
<td>.090</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.011</td>
<td>.005</td>
<td>.715</td>
<td>.214</td>
<td>.001</td>
</tr>
<tr>
<td>N</td>
<td></td>
<td>193</td>
<td>193</td>
<td>193</td>
<td>193</td>
<td>193</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).

**Correlation is significant at the 0.01 level (2-tailed).**
4.6 Conclusion

Although the basic relationship between debt and financial literacy showed no significance, other more focused relationships between these two variables showed significance. The debt variable was broken down in to its major component of interest in this study, that being student debt. This variable was then adjusted accordingly to account for external factors affecting student debt, these significant factors being years in school, parental income, and living situation. Additionally, the financial literacy measure was broken down in to its three components of financial knowledge, financial attitude, and financial behaviour. Accounting for all relationships, the largest significant correlation found was between student debt per year in school for students living in an apartment or house and whose parents earn less than or equal to $60,000 per year. The strongest correlation between these 31 students and financial literacy falls within the financial attitude category, as highlighted in Table 18. The correlation coefficient of -.671 reveals a moderately negative association between variables. This means that the higher the level of student debt per year in school for this group of students, the lower the level of financial attitude, and vice versa. When dividing the survey respondents according to several demographic factors, different components of the financial literacy measure were shown to be more strongly correlated with the variable of interest than others. Gender showed a weak but significant relationship with financial knowledge, with males scoring higher than females. An increase in age was shown to be associated with an increase in financial behaviour. No significant difference was found between business students and non-business student’s financial literacy components. Finally, a
higher level of school was associated with higher financial behaviours. These results have several implications on future research of financial literacy as well as the concerns of university students with regards to their student debt levels. The next chapter will discuss these implications and summarize the importance of the results found.
Chapter 5- Discussion

5.1 Overview

This study was undertaken to assess the financial literacy of students attending the University of New Brunswick, Fredericton campus and compare this measure to student debt levels. Furthermore, the research aimed to identify any factors which may affect this relationship. Analysis was undertaken to identify significant relationships between these two factors at the macro level. Potential influential factors for each variable were identified and these factors were tested to reveal correlation levels.

Massive student debt levels have added to serious financial troubles for recent graduates as they enter the workforce and many students have troubles paying back their loans. A study done by Baum and Schwartz in 2006 asked recent graduates if they have had any difficulties repaying all of their government student loans. They asked this question in 1990 and repeated the study in both 1995 and 2000. Twenty-one percent of all respondents reported having difficulties repaying loans in 1990. This number stayed consistent at 21% following the 1995 study. An increase of 6% was found in the results from the year 1995 to the year 2000, resulting in 27% of respondents reporting they had difficulties repaying their government student loans. This increase is of concern to students and local economies as struggles repaying student loans leads to lower levels of disposable income. Previous research has studied various factors affecting financial literacy levels, but the relationship of these levels to student debt levels has received little attention in existing literature. Studying this relationship can help to reveal whether more financially literate university students graduate with less debt. If this positive
outcome of lower debt is the case, more focus can be put on increasing financial literacy levels. This proof can also help to motivate students to be proactive in increasing their financial literacy. If no correlation is found, further research must be done to find the most influential factors contributing to student debt levels and how they can be decreased. This will lead to higher financial satisfaction for recent graduates while also adding to economic prosperity within communities with the increase of disposable income.

5.2 Student Debt and Financial Literacy Relationship

No significant correlation was found at the most macro level of the debt to financial literacy association. As this study consists of students only, the debt variable was further focused to include student debt levels only. The correlation test between student debt and financial literacy revealed a significant relationship between student debt and the FL2 variable. In order to focus the relationship, potential influential factors on student debt were tested. Factors that showed a significant correlation with student debt included years in school, parental income and living situation. Years in school showed a positive relationship, meaning that as years in school increased, student debt levels increased. This was an expected influential factor, as an increase in years attending school leads to more tuition and other university-related fees as well as the associated lack of income from full-time employment. This connection was accounted for with the creation of a “student debt per year in school” variable which took the student debt measure and divided it by the total years of school attended by the student.
Parental income was also an expected influencer as higher income families typically contribute more to covering the expenses incurred by their child or children while attending university. The negative correlation is indicative of higher student debt being associated with lower parental income. Living situation was also an expected influencer as those who live away from their parents have large rent expenses or residence fees that they must pay on top of tuition fees and other university related costs. This is highlighted by the positive correlation between these two variables. When assessing student debt levels and trying to decrease these debt levels, students and researchers must consider these factors as the most significant influencers.

When accounting for student debt per year of school and comparing this figure to FL1 and FL2, an increased correlation is found as compared to the student debt variable on its own. This is indicative of the influence financial literacy has on student debt levels. These correlations are both significant and negative. This reveals that the higher the measure of student debt per year in school, the lower the financial literacy measure was for both FL1 and FL2 variables. The opposite is also true; the lower the student debt per year of school measure was, the higher FL1 and FL2 scores were. This highlights that increasing financial literacy levels will decrease student debt.

When all influential factors that affect student debt were considered in the correlation test with FL1 and FL2 variables the strongest correlation was found. The correlation coefficients of -.624 and -.622 show a moderate negative association. This reveals that the strongest association exists between student debt per year in school and financial literacy for a very specific cohort of students; this being those who live in an apartment or house and whose parent’s earn less than $60,000 per year. This shows that
as student debt per year for this cohort increases, financial literacy levels decrease, and vice versa. This is an important finding as it proves the relationship between the variables of student debt and financial literacy, while accounting for all relevant factors. These results are a positive outcome for researchers and university students. This finding is a pathway to helping students avoid or lower their debt loads upon graduation. Financial literacy is often a hard topic for high school or university students to buy into as it is often associated with activities such as buying houses and cars, which occur later on in life. By proving this important application of financial literacy in the teenage and young adult years, the negative connotation associated with financial literacy education and when it is most important can begin to lift. Additional research is needed on this relationship in order to continue to change the perception behind financial literacy and identify any other influential factors that may exist. This research should focus on the most prominent cohort of students found in this study, those who live in an apartment or house and those whose parent’s income is less than or equal to $60,000. This group of students are representative of one of the most common situations for students who completed this particular survey. This can be investigated further to confirm if this is indicative of other university student populations. If so, the relationship between these specific students and student debt levels can be compared to other students categorized differently in the living situation and parental income matrix.
5.3 Financial Attitude

When evaluating the make-up of financial literacy and the significance of each component on student debt levels, the overall results revealed that financial attitude has the strongest correlation to student debt, with financial behaviour being the next significant factor, and financial knowledge showing the weakest correlation. This is not consistent with previous literature as financial knowledge is often found to be the biggest indicator of financial literacy. However, studies only recently began including attitude and behaviour in the financial literacy measure, and they were often, anecdotally, not considered to be as significant as the financial knowledge component. The finding in this study is significant and suggests that future research needs to shift to understanding the influence of financial attitudes on financial literacy levels. This may be a specific finding to university students, or to residents of New Brunswick. Further research is also needed to expand the geographical scope of the study and broaden participants beyond university students and student debt.

This study also reveals the importance of incorporating the concept of financial attitude when teaching and preaching financial literacy. Past efforts to increase financial literacy typically focus most efforts towards increasing financial knowledge. The finding of the significant correlation between financial attitudes and student debt levels opens up many research possibilities on how financial attitudes are influenced and potential methods to improve these levels. The resulting positive personal outcomes, including the potential for lower student debt levels, will have a wider societal benefit. These results demonstrate the need for financial literacy research to steer focus away
from financial knowledge and more towards financial attitudes and financial behaviours. The landscape of financial literacy research must change to reflect this new information.

5.4 Financial Literacy Composite Score

Very little difference was found in overall results between using the FL1 and FL2 composite score measures. A limitation of measuring financial literacy is the issue of no agreed upon method for measuring financial literacy. (Huston, 2010) While the actual questions included in literacy surveys still needs extensive research on the most accurate questions to use to measure financial literacy, the method used to create the composite score of financial knowledge, attitude, and behaviour is not a critical portion of this disconnect. The first financial literacy score (FL1) used in this study is the same method that was used in the OECD study by Atkinson and Messy in 2012. Atkinson and Messy agreed upon a threshold score for each measure of financial literacy, categorizing each result as either high or low. High scores were awarded one, where low scores were assigned a zero. This resulted in each participant being assigned an overall financial literacy score between zero and three. The spread of these results from the “Financial Literacy at UNB” survey can be found in Table 6. The second financial literacy score was a simple addition of all three scores: financial knowledge, financial attitude and financial behaviour, divided by three to create an average score for each participant. While the correlation coefficients of FL1 and FL2 were not exactly similar for all tests run through SPSS, the overall meaning of the results found showed little variation between the two variables. Further research on standardizing a method to measure
financial literacy levels should focus on the actual question make-up of the survey or test rather than the method to create a composite score, as the results from this study show little variation in results between the two scores.

5.5 Overview of Conclusions

When all three identified factors that influence student debt levels were considered in bivariate correlation tests, the strongest correlation was found. Students living in an apartment or house and whose parent’s combined income is less than or equal to $60,000 are most susceptible to low financial literacy levels and therefore higher student debt levels, according to the relationships found from correlation tests. Further research should be aware of these demographic variables and their effect on literacy levels. Furthermore, future research needs to be completed on these relationships using more specific survey questions to gather a better sense of this relationship. The breakdown of financial literacy revealed that attitude as the most significant variable rather than the common assumption of financial knowledge being the most significant indicator of financial literacy. Finally, results showed little difference between overall results when using FL1 composite score or FL2 composite score. This shifts the focus of creating a standardized financial literacy score more directly towards the choice of questions, rather than on the method to create an overall score.
5.6 Future Implications

The implications from these findings are significant for researchers, curriculum and program designers, and students. Researchers can use this information to further focus their studies regarding financial literacy as it relates to university students and student debt, as a significant correlation has now been identified. This information can be used to approach the issue of high student debt levels upon graduation. Financial attitude was found to have the strongest correlation with student debt, indicating that this relationship should be a focal point in future research efforts. Additionally, this is important for economic development. This relationship can be investigated further and suggestions can be made to change or implement programs to address this matter in attempts to lower student debt and increase disposable income, in-turn boosting economic prosperity. Students can use this information to better prepare themselves to exit the university system with as little debt as possible. The connections found highlight the importance of financial literacy to achieving this goal.

5.7 Limitations

While several preliminary actions were taken prior to and during data collection, there are numerous uncontrollable factors that may have affected the quality of the data collected. These limitations are recognized, but cannot be accounted for in data analysis. They should be considered while assessing and interpreting the results from this study. One of the first apparent limitations encountered in this study is the use of convenience
sampling. This is a form of sampling in which participants are selected based on convenience of access. The best sample for these study results to be projected country wide would have been a random sample of university students from across Canada. However, gathering this information would have been very time consuming. The time frame on this research would not allow for this method of data collection. Therefore, data was collected from the convenient population of University of New Brunswick students attending the Fredericton campus.

The University of New Brunswick, Fredericton is one of approximately 100 universities across the 13 provinces and territories of Canada. It is located on the east coast of Canada. This poses another limitation as financial literacy may vary from coast to coast. Different universities throughout Canada have varying expectations for their students. This creates different campus cultures and a different student body makeup. The cost of living, minimum wages, and school tuitions are very different from coast to coast. This will have an effect on student debt levels as well as financial literacy levels. Additionally, the student loan process and awarded student loans and bursaries vary throughout the country. Therefore, the results from this study cannot be generalized across Canada as the results of a similar study at different Canadian universities may vary.

The title of the survey poses a limitation to who volunteered to participate in the survey. The survey titled, “Financial Literacy at UNB,” had the potential to attract participants confident with their financial literacy, while discouraging those who may not be as confident with their financial literacy. Financial matters can be a “scary” topic for some people, especially those who may currently be struggling financially. This
limitation would alter who volunteered to participate in the survey in the first place, altering survey results by including only those who feel confident in their ability to answer survey questions.

The use of an online survey also created a limitation in the quality and representative nature of the data. The LimeSurvey interface used to create and administer the survey online provides statistics on how many surveys were partially completed before being abandoned. While 193 surveys were completed in full, 90 surveys were started but not completed. Some of the surveys that were abandoned may have been exited due to intimidation or fear of the finance questions. This may have driven away those who were less financially literate, and kept those who were more confident with their financial literacy to complete the survey. As previously mentioned, only completed surveys were included in data analysis. This would alter survey results as the data would neglect to include those whose financial literacy may be lower. The collected data would not be an accurate representation of the average financial literacy level of University of New Brunswick, Fredericton students due to this limitation.

The use of an online survey also allows for participants to use the internet to search answers to survey questions. This is of particular concern for the financial knowledge questions. The answers to these questions or the methods to solve the questions can be found online. If answers were searched online, this would not represent true financial knowledge levels, which would in turn affect overall financial literacy levels. Again, this is an uncontrollable limitation with the use of an online survey. An in-person survey would have mitigated this issue. However, the advantages and
disadvantages of in-person versus online surveys were assessed and an online survey was believed to work better for this research study and was therefore the method used.

As seen in Table 5, which highlights the descriptive statistics of the survey participants, engineers made up 36% of respondents. While the remaining 64% of survey respondents were fairly spread out, the lop-sided distribution of engineers compared to other degrees has the ability to alter overall results. Engineers are typically very good with numbers as much of their degrees are based around mathematical problems. While finance math is different from engineering math, the everyday dealings with numbers may make engineers more comfortable with answering finance questions as opposed to other degrees which rarely deal with numbers. This advantage that engineering students have over other non-math related degrees creates a limitation in this research.

Finally, there are additional influential factors on student debt and on financial literacy that may not have been captured in the survey. For example, parents with several children attending university may not be able to contribute as much to each child for tuition and expenses as a one child family. The method to create a student debt per year in school did not have the capacity to account for part-time students who work full-time and have the ability to pay tuition in full or pay off student debt early in their academic endeavour. Aside from this factor, other variables may play a role in this student debt to financial literacy relationship. Because these factors were not captured in the survey, it poses a limitation to the results found. These various limitations should be considered when assessing the presented results found from the research.
5.8 Conclusion

Personal financial literacy is essential for individuals to live financially stable lives and to achieve financial satisfaction. This financial satisfaction affects mental, physical and emotional well-being. Aside from the importance of financial literacy on an individual basis, it is also crucial to economic prosperity. Studies have highlighted University Students as a cohort of student’s who particularly struggle with limiting their debt and investing intelligently.

This study looked at the relationship between student debt levels and financial literacy levels while accounting for social and demographic factors. It did so with the use of a survey completed by 193 students of the University of New Brunswick, Fredericton campus. It found a moderately strong negative correlation between student debt and financial literacy for students who live in an apartment or house and whose parents earn less than $60,000 annually. This cohort of students accounted for 16% of survey respondents. Additionally, when breaking financial literacy up into its three components of knowledge, attitude and behaviour, attitude was found to be the most positively correlated with debt levels. This contradicts previous research which accounts financial knowledge as having the greatest impact on financial literacy. These results are important for future researchers to consider when examining the relationship between debt and financial literacy of university students as well as those attempting to lower student debt levels.
References


Appendices

Appendix 1- Survey Instrument

Financial Literacy at UNB

There are 31 questions in this survey

Study Information

This research is being conducted by Melissa Gottschall under the supervision of Dr. Glenn Leonard, in the Department of Graduate Studies at the University of New Brunswick in Fredericton, New Brunswick. The graduate student of UNB is a second-year MBA student and is conducting this survey as part of her MBA research thesis.

This project has been reviewed by the Research Ethics Board of the University of New Brunswick and is on file as REB 2016-124.

What is this study about? The purpose of this research is to gather levels of financial literacy of UNB students and compare this result to their level of debt and explore any connections between these factors. The study will require one visit to this survey, which will take approximately 10 minutes to complete. There are no known physical, psychological, economic, or social risks associated with this study.

Is my participation voluntary? Yes. Although it be would be greatly appreciated if you would answer all material as frankly as possible, you should not feel obliged to answer any material that you find objectionable or that makes you feel uncomfortable. You may also withdraw at any time.

What will happen to my responses? All responses will be collected in an anonymous manner. No personally identifiable information will be collected at any point during this survey. All responses will be kept confidential. This information will be used as part of a research project in the students' study. The data may also be published in professional journals or presented at academic conferences, but any such presentations will be of general findings and will not breach individual confidentiality. Should you be interested, the results of this research will be presented in the final Master’s Thesis document. This will be made available in the digital archives at the University of New Brunswick library.

Will I be compensated for my participation? No

What if I have any questions or concerns? Any questions about study participation may be directed to the Melissa Gottschall at mgottsch@unb.ca or Dr. Glenn Leonard
at glenn.leonard@unb.ca or by phone at (506) 458-7102. If you have any ethical concerns or complaints, you may contact the University of New Brunswick Chair of the Research Ethics Board at (506) 453-4189.

Again, thank you. Your interest in participating in this research study is greatly appreciated.

Consent Form

1. I have read the Letter of Information and have had any questions answered to my satisfaction.

2. I understand that I will be participating in the study called Financial Literacy at the University of New Brunswick. I understand that this means that I will be asked to complete an online survey. I understand my participation will be anonymous and no personal identifiable information will be collected.

3. I understand that my participation in this study is voluntary and I may withdraw at any time. I understand that every effort will be made to maintain the confidentiality of the data now and in the future. Only team members and supervisor(s) in this research project will have access to the data. Any hard copies of the data collected will be kept in a locked office. Electronic files will be password protected. The data may also be published in professional journals or presented at academic conferences, but any such presentations will be of general findings and will never breach individual confidentiality. Should you be interested in the findings, the results will be included in Melissa Gottschall’s MBA Thesis, which will be available publically through the UNB library services upon completion.

4. I am aware that if I have any questions about study participation they may be directed to the research investigator at mgotts@unb.ca or to the research supervisor at glenn.leonard@unb.ca or by phone at (506) 458-7102. Any ethical concerns about the study may be directed to the University of New Brunswick Chair of the Research Ethics Board at (506) 453-4189.

I have read the above statements and freely consent to participate in this research.

* Please choose all that apply:

  • Yes
Socialization and Demographics

The following are a few questions on your social and demographic background.

What is your gender?

* Please choose only one of the following:

- Female
- Male

What is your age?

* Please choose only one of the following:

- <18
- 18-20
- 21-23
- 24-26
- 27-29
- >29
- Other

What is your living situation?

* Please choose only one of the following:

- Living with parents
- Living in an apartment/house
- Living in residence
- Other

What is your parent’s/guardians combined income?

* Please choose only one of the following:

- 0-60,000
What is your personal student income (summer employment and expected income during the school year)?

* Please choose only one of the following:

- none
- 1-2,000
- 2,001-6,000
- 6,001-10,000
- 10,001-14,000
- 14,001-18,000
- >18,001

What faculty are you in?

* Please choose only one of the following:

- Faculty of Arts
- Faculty of Business
- Faculty of Science
- Faculty of Engineering
- Faculty of Forestry and Environmental Management
- Faculty of Education
- College of Extended Learning
- Faculty of Computer Science
- Faculty of Kinesiology
What is your Major/Field of Concentration?
* Please write your answer here:

Are you an undergraduate, graduate, or PhD student?
* Please choose only one of the following:
  * Undergraduate
  * Graduate
  * PhD

Are either of your parent’s entrepreneurs or business owners?
* Please choose only one of the following:
  * Yes
  * No

Did your parents/guardians include you in discussions while growing up on the following topics?
* Please choose the appropriate response for each item:
  Yes
  No

  The importance of saving.

  The family spending plan.

  Your own spending plan.
Financial Knowledge, Attitude, and Behavioural Intentions

This section will gauge your level of financial literacy

Imagine that 5 brothers are given a gift of $1,000. If the brothers have to share the money equally, how much does each one get?

* Please write your answer here:

Now imagine that the brothers have to wait for one year to get their share of the $1,000 and inflation stays constant at 2%. In one year’s time they will be able to buy:

* Please choose only one of the following:
  
  • More with their share of the money then they could buy today
  • The same amount
  • Less than they could buy today
  • It depends on the type of things they want to buy
  • Don’t know

You lend $25 to a friend and he gives you back $25 the next day. How much interest has he paid on the loan?

* Please write your answer here:

Suppose you put $100 in to a no fee savings account with a guaranteed interest rate of 2% per year and the interest is paid at the end of each year. You don’t make any further payments into this account and you don’t withdraw any money.

a) How much would be in this account at the end of the first year, once the interest payment is made?
Assuming compound interest, how much would be in this account at the end of 5 years, remembering there are no fees?

* Please choose only one of the following:

- Less than 110
- 110
- Greater than 110
- Don’t know

* Answer the following True/False questions.

Please choose the appropriate response for each item:

<table>
<thead>
<tr>
<th></th>
<th>True</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td>An investment with a high return is likely to be high risk.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High inflation means that the cost of living is increasing rapidly.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is usually possible to reduce risk of investing in stock by buying a wide range of stocks and shares.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Please rate the following phrases as they apply to you, with 1 being strongly disagree and 5 being strongly agree:

* Please choose the appropriate response for each item:

I find it more satisfying to spend money then to save it for the long-term.

I tend to live for today and let tomorrow take care of itself.

Money is there to be spent.

1= strongly disagree, 5= strongly agree

Please rate the following phrases as they pertain to you, with 1 being strongly disagree and 5 being strongly agree:

* Please choose the appropriate response for each item:

Before I buy something, I carefully consider whether I can afford it.

I pay my bills on time.

I keep a close personal watch on my financial affairs.

I set long-term financial goals and strive to achieve them.

1= strongly disagree, 5= strongly agree

Who is responsible for your day-to-day decisions about your money?

* Please choose only one of the following:

- You only
- You and your parents
• Your parents only
• You and someone else
• Someone else only

**Do you use a budget?**

* Please choose *only one* of the following:

• Never
• Rarely
• Sometimes
• Often
• Always

**In the past 12 months have you personally saved money, whether or not you still have the money?**

* Please choose *only one* of the following:

• Yes
• No

**If you have a credit card, are you solely responsible for making payments on your credit card?**

* Please choose *only one* of the following:

• Yes
• No
• I don’t have a credit card

**Which of the following best describes how you chose your credit card?**

* Please choose *only one* of the following:

• Considered several options from different companies
• Considered various options from one company
• Only considered one option
• Don’t know
• I don’t own a credit card
• Other, please explain

Make a comment on your choice here:

**How many credit cards do you have?**

* Please choose **only one** of the following:

• zero
• one
• two
• three
• more than three

**Personal Debt Information**

This section will gather personal levels of debt. A reminder that all information is confidential.

**How much student debt do you currently have?**

* Please choose **only one** of the following:

• None
• Less than 10,000
• 10,001-15,000
• 15,001-25,000
• 25,001-35,000
• 35,001-45,000
• 45,001-55,000
• 55,001-80,000
• 80,001-105,000
• 105,001-130,000
• 130,001-155,000
• Greater than 155,000

**What is your total credit card debt?**

* Please choose **only one** of the following:

• None
• Less than 5,000
• 5,001-10,000
• 10,001-15,000
• 15,001-20,000
• 20,001-25,000
• 25,001-30,000
• 30,001-35,000
• 35,001-40,000
• 40,001-45,000
• 45,001-50,000
• Greater than 50,000

**How much “other” debt do you have, excluding mortgages?**

* Please choose **only one** of the following:

• None
• Less than 5,000
• 5,001-10,000
• 10,001-15,000
• 15,001-20,000
• 20,001-25,000
• 25,001-30,000
• 30,001-35,000
• 35,001-40,000
• 40,001-45,000
• 45,001-50,000
• Greater than 50,000

How many years have you been in school (including this year and part-time years)?

* Please choose only one of the following:

• 1
• 2
• 3
• 4
• 5
• 6
• 7
• 8
• 9
• 10
• Greater than 10
Appendix 2- Participant Recruiting Messages

*Panel A- Personal Facebook Post*

CURRENT UNB STUDENTS! Please take part in my short survey on the topic of financial literacy. The results of this survey will be presented in my Master’s Thesis, which will be comparing UNB student’s financial literacy levels to student debt levels. The survey takes approximately 10 minutes. This project has been reviewed by the Research Ethics Board of the University of New Brunswick and is on file as REB 2016-124.

https://surveys.unb.ca/secure/index.php/496922/lang-en

Thanks!

*Panel B- myUNB portal: Student News Fredericton*

“ Calling all current UNB Fredericton students! I’m a second-year MBA student doing a Research Thesis on Financial Literacy at UNB. Please fill out my survey, it takes approximately 10 minutes. The Research Ethics Board Approval number is REB# 2016-124. The link to the survey can be found below. Your help is appreciated!

https://surveys.unb.ca/secure/index.php/496922/lang-en”

*Panel C- Email to UNB Managerial Accounting class*

“Hi all,

My name is Melissa Gottschall and I’m a second-year MBA student. I’m completing a Research Thesis on Financial Literacy and its connection to student levels of debt. In doing so, I’m conducting an online survey that takes approximately 10 minutes to complete. All answers collected are completely confidential. The Research Ethics Board Approval number is REB# 2016-124. I would appreciate a few minutes of your time to fill out this survey. If you have any questions or concerns you can contact me at mgottsch@unb.ca. The survey link can be found below.
https://surveys.unb.ca/secure/index.php/496922/lang-en

Thank you,

Melissa Gottschall”

Panel D- UNB Fredericton Twitter post

Panel E- Message to individual faculty outlets

“ Hi there,

I’m a second-year MBA student and I’m doing a research thesis on financial literacy and it’s connection to student levels of debt at UNBF. I’m wondering if the ______________ Department would be willing to send out an email to the ______________ students with a link to my survey. I have an email typed up, it would just be a matter of forwarding to the students, or posting on Facebook/Twitter pages. Please let me know if you’re willing to do this. It would be greatly appreciated!

Thank you,

Melissa Gottschall”
Panel F- Message from faculty to students

Email version

“Hi all,

My name is Melissa Gottschall and I’m a second-year MBA student. I’m completing a Research Thesis on Financial Literacy and its connection to student levels of debt. In doing so, I’m conducting an online survey that takes approximately 10 minutes to complete. All answers collected are completely confidential. The Research Ethics Board Approval number is REB# 2016-124. I would appreciate a few minutes of your time to fill out this survey. If you have any questions or concerns you can contact me at mgottsch@unb.ca. The survey link can be found below.

https://surveys.unb.ca/secure/index.php/496922/lang-en

Thank you,

Melissa Gottschall”

Facebook post version

“Weefill out a quick survey on the Financial Literacy at UNB for a second-year MBA student doing her Master’s Thesis. Research Ethics Board Approval number is REB# 2016-124. The survey takes approximately 10 minutes. Your help is appreciated!

https://surveys.unb.ca/secure/index.php/496922/lang-en”
Curriculum Vitae

Candidate’s full name: Melissa Gottschall

Universities attended (with dates and degrees obtained):

**Bachelor of Business Administration, Honours in Finance**  2011-2015

St. Francis Xavier University  Antigonish, Nova Scotia