A Bit Pricey: Young Adults' Financial Literacy, Financial Decision-Making Process, and Spending Habits

by

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A thesis submitted in partial fulfillment of the requirements for the degree of

Master of Education
in
School and Clinical Child Psychology

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Abstract

Canadians are making poor financial decisions that leave them with a significant amount of debt and little, if any, savings for the future. This is especially true of young adults in Canada, who appear to lack the financial knowledge and skills needed to avoid these poor financial outcomes. The present study examined young adults' feelings, thoughts, and uses of their financial resources. A sample of 71 participants from the University of Alberta, ages 18-34, completed a survey about their recent spending behaviours, knowledge of personal finance, and attitudes towards money. Results indicated that young adults spend more on necessities than leisure goods, are relatively well-informed about products prior to making purchases, and gain knowledge through experience. Participants had low levels of financial literacy and numeracy, and most did not receive formal financial education. Moderate attitudes towards credit and low levels of irresponsible credit card usage were found. Implications for the development of a comprehensive measure of financial literacy are discussed.

Keywords: financial literacy, financial attitudes, personal finance, young adults

Preface

This thesis is an original work by Chloe M. Philippot. The research project, of which this thesis is a part, received research ethics approval from the University of Alberta Research Ethics Board, Project Name “The Role of Young Adults as Consumers,” No. Pro00093593, September 23, 2019.

Acknowledgements

I would like to warmly thank my supervisor, Dr. Damien Cormier, for his mentorship, guidance, and support throughout this thesis project, from the beginning through to its completion. It has been a pleasure to work with you and learn from you these past two years.

I would also like to express my sincere gratitude to my parents, who have always encouraged me in the pursuit of my studies. Your love and support mean the world to me.

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Canadians are spending beyond their means and the amount of debt they are incurring by doing so is becoming increasingly high. Within the past six years alone, this ratio has increased by at least 12%, to reveal that in total, Canadians carry 183% of debt compared to their disposable income (Statistics Canada, 2020a). Across age groups, people under the age of 35 have the highest ratio of debt to assets, amounting to 44%; an increase of 2% within the past five years (Statistics Canada, 2019). Not only are Canadians taking on more debt, but they are also saving less money than their older Canadian counterparts (Statistics Canada, 2019). This puts young adults in a financially vulnerable position—how will they afford unforeseen emergency expenses or set aside money for their future and plan their retirement? Moreover, young adults are at a pivotal stage of their lives where they are making some of the most important financial decisions that come at substantial costs, such as their first car and their first home.

Young adults acknowledge the importance of personal finance and managing money (Lachance, 2012; Serido et al., 2013; Smith, 2018), and yet there appears to be a disconnect when it comes to actually managing their finances, as observed by the poor financial practices such as the high debt ratios observed in this Canadian sub-population. Additionally, people believe that debt rates are either stable or decreasing when in reality, debt continues to increase (Lachance, 2012). This suggests that there are misconceptions about how debt is being managed. Thus, it is important to understand how young adults are making financial decisions and identify their current financial habits. Risky financial habits, such as high-cost borrowing, are associated with low levels of financial literacy and an inability to answer basic questions about finances (de Bassa Scheresberg, 2013). Therefore, it is possible that young adults are not as financially literate as older adults. If financial literacy is a major contributor to making sound financial

decisions, then it will be worthwhile to provide young adults with the knowledge and skills that can prepare them for secure financial futures.

Financial Literacy

There is no universally accepted definition of financial literacy in the literature. This lack of a consistent definition is one of the prevailing difficulties in the financial literacy literature (Knoll & Houts, 2012). However, the definition of *literacy* can be applied to the area of personal finance to serve as a working definition. Literacy is the basic skills or knowledge of a subject (*Literacy*, n.d.). When applied to the area of personal finance, financial literacy can be defined as the basic financial skills and knowledge that people possess and use in their daily lives. Much like how literacy encompasses many skills including reading, writing, and deriving meaning from words, financial literacy also has many components. Specifically, this definition of financial literacy includes the acquisition of financial knowledge and skills, as well as applying those skills to tasks such as evaluating and managing one's personal finances. Moreover, this definition of financial literacy captures some of the more consistent aspects of other definitions of financial literacy that researchers have used (Aprea & Wuttke, 2016; Skagerlund et al., 2018), including the application of those skills and knowledge with behaviours guided by informed decision-making (Lusardi & Mitchell, 2011; Xiao & O'Neill, 2016).

Social Learning Theory and Increasing Financial Literacy

Cognitive abilities are not the sole predictor of financial literacy (Lusardi et al., 2010), and thus, efforts have been made to provide financial education to people in order to increase their financial literacy. The topics of financial education include planning and budgeting, saving, credit cards, interest rates, and paying bills (Amagir et al., 2018; Nga et al., 2011). These topics are relevant to current generations and may be subject to change depending on the circumstances people face. For instance, some generations may not experience things like inflation and

therefore not have that knowledge. Knowledge that is not relevant to the circumstances one faces in their lifetime is not necessary in order to be considered financially literate (Boisclair et al., 2017). The rationale for starting financial education early—either informally in the home or formally at school—is so that young people can see the benefits of good financial practices, such as saving money (Bucciol & Veronesi, 2014; Koposko & Hershey, 2014), and have these habits instilled in them early in their lives.

The task of increasing financial literacy early on in young people's lives can also be linked to developmental theory. Bandura's (1989) social learning theory posits that people learn by observing those around them, remembering how they acted, and then replicating the observed behaviour themselves as it relates to rewards and punishments. This effect could be especially strong if the child observes a monetary transaction which results in the person modelling the behaviour obtaining something that the child finds valuable. In this way, the reward that motivates the child to replicate the behaviour—in this instance, spending money—is the very product that they are purchasing. Obtaining a reward in turn reinforces a behaviour as something desirable and increases the likelihood that the individual will continue to engage in the behaviour (Bandura, 1989). Therefore, seeing the way that an adult saves money and then uses those savings to buy what something they want may enforce a similar style of money usage among the young. These models of spending are made readily available by nature of parents being prominent figures in a child's early life.

At home, parents have a significant amount of influence on their children and can often provide children with their first opportunities to learn about money. Consistent with social learning theory, personal finance research has found that parental influences and non-parental influences can effect motivation and behaviours related to saving and financial planning (Koposko & Hershey, 2014). People who have more positive attitudes towards finances tend to

make more advantageous financial decisions (Atkinson & Messy, 2012). Parents can act as role models even without explicitly teaching their children about finances. Furthermore, young adults acknowledge their parents' influence in adopting their shopping habits, financial planning, credit card usage, and saving and investing behaviours (Mittal & Royne, 2010). Even when saving habits are not adopted from one's parents, there is evidence that talking about finances with one's parents contributes to the development of positive financial attitudes (Agnew et al., 2018; Jorgensen & Savla, 2010). Although the extent of this influence varies on an individual level (Mittal & Royne, 2010), this shows that youths are paying attention to what their parents do and learn from those observations, which contributes to their financial literacy.

For children whose parents do not teach them about finances, formal financial education is another opportunity to learn about finances, which ensures that young people have some basic knowledge of money. Some propose that youth should receive formal education about saving money in both childhood and adolescence in order to have an effect on their financial behaviour, including savings, as adults (Bucciol & Veronesi, 2014). However, the literature is inconsistent regarding the best time to introduce formal financial education, and the effectiveness of it. Financial education is not universally offered in high school (Farinella et al., 2017). Moreover, there is no correlation between offering financial education and financial literacy (Farinella et al., 2017). Comparing high school to post-secondary education, there is evidence that young people benefit more when they acquire financial knowledge during post-secondary years (Peng et al., 2007). The benefits of learning about finances during this time may be maximized due to young people having more financial responsibilities. These responsibilities translate to more experiences and varied uses of money, which creates opportunities for young adults to immediately apply the knowledge they gain from post-secondary level financial education (Peng et al., 2007). Additionally, even short-term financial education or a workshop at the beginning of

the academic year may benefit students (Kezar & Yang, 2010), even if it is not as ideal as long-term education (Bowen & Jones, 2006). Despite the interest and importance of learning about managing finances, students are not actively pursuing that knowledge in post-secondary school classes (Smith, 2018). Indeed, many post-secondary programs outline specific classes that are required in order to obtain a degree and may not leave room for the pursuit of financial literacy, which is consistent with student reports (Smith, 2018). In sum, not all young people receive financial education informally in the home or formally through school. Therefore, examining the trajectory of financial literacy as it varies across the lifespan may provide valuable insight about financial literacy development without intentional educational efforts.

Financial Literacy Across the Lifespan

Decision-making skills are considered a requirement for financial education, and those skills begin developing during childhood, around the same time that children start to understand social norms (Marchetti et al., 2016). As children grow and learn, they gain financial knowledge. For instance, older children tend to know more about credit than younger children (Abramovitch et al., 1991). Those decision-making skills continue to develop and become more complex as children transition to adolescence. Adolescence is also when many young people begin working their first jobs and earn an income that they can spend freely. This is another milestone in developing financial literacy. To truly become financially literate, youth need to engage in financial decision-making and gain experience by participating in transactions (Serido et al., 2013). By the time youths reach young adulthood, they have some basic experience and seek knowledge from those around them when they encounter more difficult financial decisions.

Young adults attribute more importance to financial knowledge they have gained from trusted personal relationships, such as friends and family, than they do from media outlets (Phau & Woo, 2008). Non-parental influences have greater importance to young adults once they are

living away from family and have more control and agency with their finances. Young adults often report feeling a lack of confidence in their financial skills (Kim & Chatterjee, 2013), and claim that their spending behaviour, including impulsive spending and the justification of that spending, is influenced by others (Penman & McNeill, 2008). Similar to children and adolescents, young adults' financial literacy differs at either end of the age range, with young adults at the upper end of the range, near 35 years of age, demonstrating more financial literacy than those at the lower end of the age range, near 20 years of age (de Bassa Scheresberg, 2013).

Much of the recent financial literacy research has focused on older adults. This population is of interest because they have acquired financial knowledge over the course of their lives, and they demonstrate their skills and apply their knowledge through behaviours such as retirement planning (Boisclair et al., 2017). People find retirement planning to be personally important (Volpe et al., 2016), and focus on the outcomes of that planning. There is also evidence that decision-making abilities stabilize in adulthood, which suggests that older populations are more likely to make competent financial decisions (Chen & Sun, 2003; Kovalchik et al., 2005). However, there are two other factors at play with older adults. First, older adults have reduced working memory capacity and use different cognitive strategies to work through information compared to younger adults (Chen & Sun, 2003). This is associated with the general cognitive deterioration in processing speed and working memory that is associated with aging adults (Finke et al., 2017). Second, numeracy skills tend to decrease with age (Lusardi, 2012), and numeracy significantly contributes to financial literacy (Skagerlund et al., 2018). Therefore, while financial literacy requires knowledge and decision-making skills that have stabilized in adulthood, it may be the basic computational skills and numeracy skills where older populations see a decline in their financial literacy. People perceive themselves to have

greater financial literacy as they become older, even in individuals who have less financial knowledge (Allgood & Walstad, 2013).

Overall, financial literacy varies considerably across the lifespan. Financial literacy is low among young people and continues to increase during adolescence and into adulthood (de Bassa Scheresberg, 2013). There are varied findings regarding when financial literacy peaks. Financial literacy may be highest in those between the ages of 15 and 35 (Klapper et al., 2015), or peak later between the years ages of 40 and 49 (Finke et al., 2017). However, there appears to be greater consensus that financial literacy begins to decline at 65 years of age and continues to do so as age increases (Finke et al., 2017; Klapper et al., 2015). More generally, financial literacy appears to follow an inverted U-shaped pattern, where financial literacy begins low for the young, reaches its highest point during adulthood, and then declines in older populations (Lusardi & Mitchell, 2011). Young adults as a population are of interest, then, because they are on the cusp of a transitional period where they are going from lower financial literacy to higher financial literacy.

Young Adults, Debt, and Credit

If young adults have less savings and less available finances compared to older populations, then it is worth examining how they use and spend borrowed money in the form of debt and credit. Young adults are not compelled to save money to the same extent as older adults, which may be related to less financial planning for the future, and more positive attitudes towards debt (Phau & Woo, 2008). Young adults view debt as necessary and do not believe that debt will have a negative impact on their futures (Penman & McNeill, 2008). This may be particularly salient for students, who could view their student loans and other debt related to their academics as necessary because it pertains to their future employment opportunities (Phau & Woo, 2008). Moreover, post-secondary students are taking longer to complete their degrees

(Bowen & Jones, 2006), which could mean that they are taking on more debt for each additional year of studies. There is some variation in how young adults perceive debt that is dependent on their living circumstances. While young adults who recently moved out of their parents' homes consider debt normal and see credit as free money, young adults who spend more time living on their own and managing their finances try to reduce their debt (McNeill, 2014). Similar to the trajectory of financial literacy over the lifespan, knowledge of debt is also low among the young, increases during adulthood, and declines in older populations (Lusardi & Tufano, 2015). This may have implications for how young people use credit, especially with the ease and convenience that characterizes the current technological landscape.

Theory of Cognitive Development in the Context of Credit and Technology

The increase in popularity of payment methods that forego the use of physical currency has impacted the way that people think about and use money. The presence of credit cards, mobile payments and services, such as PayPal and Apple Pay, as well as the absence of cash, has led to money being perceived as more of an abstract concept. Digital forms of money are considered to be placeholders for cash (Berensten, 1998). Without a way to physically indicate that a monetary exchange has occurred, people may not be able to monitor their funds in the same way that they could if they could see an absence of paper bills and coins in their wallets. Nothing is given away when a credit card is used; the card is returned to the wallet after each transaction and it is up to the individual to understand that they now have less money.

The abstract nature of debit cards, credit cards, and digital forms of money may be difficult for children to fully understand. Piaget's theory of cognitive development, which outlines stages of development of children from birth to 12 years of age, can help to contextualize the way that youths understand physical currency and newer digital forms of currency. During the preoperational stage, children experience difficulty when tangible objects

undergo transformations to their physical states (Kohler, 2008). During this stage, children would be expected to have difficulty understanding that two piles of coins having the same value, even if the only difference is that one is neatly stacked, while the other is more spread out. Furthermore, understanding how a debit or credit card, which does not change physical form, changes in value when money is spent using it would be beyond a child's comprehension at the preoperational stage. During the concrete operational stage, children have an understanding of the relationship between physical, concrete objects and are able to perform basic mathematical operations. These are all necessary cognitive processes needed to understand physical currency. However, it is not until the formal operational stage at approximately age 12 that adolescents are able to think in abstract terms without relying on concrete representation of those ideas. Thus, adolescents at this stage understand the concept of monetary value beyond physical representations of currency and apply the same concepts to digital forms of money and utilize the two in a similar way. One study found that children at the ages of 6, 8, and 10 years of age all spent more money using credit than cash (Abramovitch et al., 1991), which may support the idea that children's understanding of abstract forms of money differs from those in the formal operational stage.

However, as Piaget's theory does not account for further cognitive development past the age of 12, other factors must influence spending that go beyond solely cognitive factors. Environmental and contextual factors also influence spending. The mere presence of credit cards may act as cues that decrease the amount of time taken to make a purchase decision and increase the amount of money spent (Feinberg, 1986). However, these findings have not been consistently replicated (Hunt et al., 1990), which suggests that there is more at play than credit card cues within stores that influences spending behaviour.

Incentives and the need for credit increase people's willingness to use credit cards (Blankson et al., 2012; Lachance, 2012). For decades, store-issued credit cards and bank (debit) cards have been associated with a higher likelihood of making purchases, and are related to greater spending (Hirschman, 1979). It is worth noting that although this finding is dated, store-issued credit cards are still in use and often include perks such as cash-back programs to strengthen customer loyalty. For those who do not have credit cards, store-issued or otherwise, retailers also offer memberships and loyalty cards. While these do not function as credit cards, they are also associated with a point-based or store-credit-based system that encourages consumers to spend their money there. Additional promotions are offered, such as buying a certain quantity of a product for a lower price and earning bonus points. Thus, even without a store-issued credit card or bank card, these innovations can act as powerful motivators that encourage spending. As credit cards and other payment methods become more widely accepted, Canadians may see fewer in-store transactions that use cash (Fung et al., 2014). While cash is still used in the majority of transactions (Fung et al., 2017), this may be changing as retailers increase their online retail presence. Currently, many large retailers and small retailers alike have Web-based storefronts that will only process non-cash payment methods. Additionally, the rise in online and mobile banking services had made monitoring finances and sending and receiving payments more accessible. These services are convenient, secure, and give consumers more control of their finances, all of which are important factors that increase the likelihood of using these services to make electronic payments (Mantel, 2000). With different payment methods and options to make purchases, it is important to gain a better understanding of how young adults are navigating this changing consumer landscape and how they are using their financial knowledge and skills to make decisions about the things they buy.

The Present Study

The present study aims to learn about the current knowledge of personal finance, attitudes towards money, and recent spending behaviours of young adults attending a Canadian university. This multi-method study will utilize both quantitative and qualitative data in order to investigate hypotheses and answer research questions. When examining participants' most expensive, recent purchases, necessities and leisure goods will be examined as separate categories of products to find out if there are differences in how young adults spend their money depending on the intention of the purchase. Regarding personal finance knowledge, the present study seeks to examine if there is a relationship between numeracy skills and financial literacy. Moreover, this study seeks to discover if there is a relationship between financial knowledge and mathematical knowledge. From these study goals, the following hypotheses were derived:

H1: The average amount of money spent on necessities and leisure goods will be significantly different.

H2: Regardless of the type of the purchase, products bought using a credit card will have a significantly higher cost than products bought using cash or a debit card.

H3: Better performance on numeracy questions will be associated with better performance on financial knowledge questions.

H4: Credit card attitudes will be negatively correlated with financial conscientiousness.

H5: Credit card attitudes will be negatively correlated with financial planning attitudes.

H6: People who report greater financial planning attitudes will also report more future planning.

An additional purpose of the study is to examine young adults' decision-making process as it relates to their most expensive purchases made within the past year. By examining purchases that are high-cost, and presumably have higher stakes than low-cost, lower stakes purchases, the present study hopes to gain insight regarding the information that young adults take into consideration when spending money. This study will ask about two points in time: what

was known prior to making the purchase, and what was learned as a result of making the purchase. Observing a discrepancy between the two points in time may provide insight about the financial knowledge and skills that young adults gain through experience.

Method

Participants

A total of 71 participants were recruited from the University of Alberta's Educational Psychology participant pool for a study about their money spending behaviour and knowledge of personal finance. Due to the nature of the research, only young adults between the ages of 18 and 34 were deemed eligible to participate in the study. Most of the participants were born in Canada (n = 66), and were native English speakers (n = 64). None of the participants were international students. Participants were required to bring an electronic device (computer, tablet, phone) that could connect to the university's internet network in order to complete the study. Eligible participants signed up through the university's online research participation portal and selected a timeslot to complete the study. Upon arriving at the study site, participants received an information-consent form outlining the details of the study. If they chose to participate, they signed and dated the form. Once they returned it, they were provided with the Web URL to access the online survey on their own devices. All participants completed the same measures in the same order, as detailed below. The final section of the study consisted of demographic questions, including questions about age, gender, ethnicity, education status, and financial status. For a complete list of demographic information, see Appendix A. In exchange for participating, all participants received credit which went towards a small percentage of their course grade.

Measures

All measures were presented in English and in the same order to each participant. Unless otherwise noted, all rating scale items were completed using a 5-point scale, with responses

ranging from: *1 = Strongly disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree,* and *5 = Strongly agree*. Responses were averaged to create summary scores for each scale.

Financial Decision-Making Processes

To assess participants' spending behaviours, participants were asked to reflect upon the most expensive necessity and the most expensive leisure good that they purchased for themselves within the past 12 months using open-ended questions. Each question allowed participants to type their responses into a text box in their own words. For both product types, participants were asked what the product was, how much it cost, what method of payment they used and where they bought the product. Then, they were asked how much they knew about the product before buying it, how much they knew about other options, and the sources of this knowledge. Finally, participants were asked what they learned from making the purchase and if they would do anything differently if they were to go back and make the purchase again. For the complete list of questions, see Appendix B. The products purchased were sorted into categories derived from those of an online budgeting tool from a national Canadian bank. The categories were: housing costs, utilities, services, groceries, transportation, insurance, personal, daily living, and entertainment. Further categories included in the online budgeting tool were not applicable. One additional category was added for the purpose of this study to account for educational costs.

Financial Knowledge

Perceived Financial Knowledge. A single item was used to assess participants' perceived financial knowledge, which read: "How would you rate your overall financial knowledge?" Possible responses ranged from *1 = Extremely low*, *2 = Low*, *3 = Low average*, *4 = Average*, *5 = High average*, *6 = High*, and *7 = Extremely high*. Higher scores on this measure indicated having more perceived financial knowledge.

Financial Literacy. To measure participants' financial literacy, Lusardi and Mitchell's (2011) 3-item scale of financial literacy was used. The content of the questions required participants to know about interest calculations, inflation calculations, and risk diversification. Responses on these items were coded as correct or incorrect, and then summed for each participant, where a score of zero indicated no correct answers, and 3 indicated all correct answers. Higher scores on this measure indicated higher financial literacy skills. This measure was completed after participants reported their perceived financial knowledge so as to not influence participants' responses after answering financial questions. Coefficient alpha for this measure was 0.46.

Numeracy

Skagerlund et al.'s (2018) 7-item scale of numeracy was used to assess participants' ability to answer calculation-based numerical questions that did not ask about finances. Responses on these items were coded as correct or incorrect, and then summed for each participant, where a score of zero indicated no correct answers, and a score of 7 indicated all answers were correct. Higher scores on this measure indicated higher numeracy skills. Coefficient alpha for this measure was 0.54, which was comparable to the coefficient alpha of 0.58 reported by Skagerlund et al. (2018) in their original publication.

Financial Attitudes

Parental Influence on Savings. Koposko and Hershey's (2014) 4-item scale was used to assess the extent to which participants attributed their money saving habits to their parents' influence while growing up. Higher scores on this measure indicated greater attribution to parental influences on saving habits. Coefficient alpha for this measure was 0.79, which was slightly lower than the coefficient alpha of .86 reported by Koposko and Herskey (2014) in their original publication.

Financial Conscientiousness. To measure the extent to which participants felt that they should be careful when spending money that was not their own, Agnew et al.'s (2018) 4-item scale was used. Items were framed to ask about borrowing money from one's parents. Higher scores on this measure indicated greater financial conscientiousness. Coefficient alpha for this measure was 0.76, which was comparable to the coefficient alpha of 0.74 reported by Agnew et al. (2018) in their original publication.

Financial Planning Intentions. Agnew et al.'s (2018) 4-item scale was used to measure the extent to which participants thought about how they spent their money and planned to save money for the future. Higher scores on this measure indicated greater financial planning intentions. Coefficient alpha for this measure was 0.77, which was comparable to the coefficient alpha of 0.76 reported by Agnew et al. (2018) in their original publication.

Credit Attitudes. Lachance's (2012) 8-item attitudes towards credit scale was used to assess participants' attitudes towards credit cards and usage of credit. Of the eight, six items contributed to credit attitudes. The other two items of Lachance's (2018) measure were excluded from analyses because they converged on debt attitudes rather than credit attitudes. Additionally, one other item was found to lower the reliability of the scale and was therefore excluded from analyses. Higher scores on this measure indicated more positive attitudes towards credit. Coefficient alpha for the 5-item version of the measure was 0.54, which was slightly lower than the coefficient alpha of 0.69 reported by Lachance (2012) in their original publication.

Spending Behaviour

Compulsive Spending. Faber and O'Guinn's (1992) 7-item compulsive buying scale was used to measure the extent to which participants engaged or felt like engaging in emotionally-driven and compulsive spending behaviour. Higher scores on this measure indicated engaging in more compulsive spending behaviours. Coefficient alpha for this measure was 0.79,

which was lower than the coefficient alpha of 0.95 reported by Faber and O'Guinn (1992) in their original publication.

Credit Card Behaviour. Roberts and Jones' (2001) 12-item credit card usage scale was used to measure the extent to which participants engaged in irresponsible credit card use, marked by having too many credit cards, making late payments, and spending over one's credit limit. Higher scores on this measure indicated greater irresponsible credit card usage. Coefficient alpha for this measure was 0.74, which was slightly lower than the coefficient alpha of 0.81 reported by Roberts and Jones (1992) in their original publication.

Future Planning

To measure the extent to which participants thought about and planned for their futures, Koposko and Hershey's (2014) future time perspective scale was used. The items asked about whether they enjoyed reflecting on the future, if they liked thinking about how their lives would be in the future, and whether others would describe them as future-oriented. Higher scores on this measure indicated greater orientation towards the future. Coefficient alpha for this measure was 0.88, which was comparable to the coefficient alpha of 0.89 reported by Koposko and Hershey (2014) in their original publication.

Analytic Approach

Quantitative

The hypotheses surrounding financial knowledge were analyzed using a combination of descriptive and inferential statistics. A t-test was used to look at the mean difference in cost between necessities and leisure goods. A one-way analysis of variance (ANOVA) was used to see if there was a difference between methods of payment, with the dependent variable being the cost of the product. This analysis was followed by a post hoc analysis to further compare the three methods of payment in pairs. Another one-way ANOVA was used to look at the difference

of numeracy question performance on the dependent measure, financial literacy. Post hoc analyses were used to determine how many numeracy questions needed to be answered correctly in order for there to be a significant difference on financial literacy. Finally, descriptive correlational analyses were used to examine the relationship between credit card attitudes, financial attitudes, and future planning.

Qualitative

The open-ended questions which allowed participants to respond in their own words were analyzed using a coding scheme in order to answer the research questions related to young adults' spending behaviour. Each question was coded one at a time into categories established by the author of the study. If a response did not fit into a category, a new category was developed. For instance, when coding responses about the source of their information about a product, if a participant listed "retailer" which was already a category, as well as "social media" which was not a category, a "social media" category was created to capture both components of the participant's response. A single response could be counted in as many categories as were relevant depending on the question. Once all responses were coded into categories, responses were counted in order to evaluate how frequently they occurred in the data.

Results

Method of Payment, Type of Purchase, and Cost

In order to test H1 and H2, items were categorized by the method of payment used (cash, debit, credit), and by the type of purchase (necessity, leisure good). Products were not included in the analyses when multiple payment methods were used, if no payment method was identified, or the payment method involved other means, such as loans, PayPal, or E-Transfers. Of the 142 total products purchased, 123 were included in these analyses.

H1 hypothesized that the mean difference of the cost of necessities and leisure goods would be significant. First, Levene's test was conducted, which revealed that the variances for the type of purchase were not equal, $F(1,121) = 6.99$, $p = .009$. An independent t-test with unequal variances assumed was then conducted. Results indicated that there was a significant difference between the average cost of products depending on whether the purchase was a necessity ($M = 1359.30$, $SD = 2034.32$) or a leisure good ($M = 754.67$, $SD = 1234.69$), $t(103) = 2.00$, $p = .048$. The data supports H1 and indicates that significantly more money was spent on necessities compared to the amount of money spent on leisure goods.

H2 hypothesized that regardless of the type of purchase, credit card purchases would be significantly higher than purchases made with cash or by using a debit card. First, Levene's test was conducted, and showed that the variances for the method of payment was not equal, $F(2,120) = 27.03$, $p < .001$. Additionally, the assumption of equal group size was violated. Thus, a one-way ANOVA was conducted with the Welch correction for heterogeneity. The results indicated that the cost of the products did not significantly differ across the three payment methods, $F(2,30) = 2.30$, $p = .118$. Games-Howell post hoc analyses were then conducted to determine if there was a significant difference between specific pairs of payment methods. No significant differences were observed. The data did not support H2 and suggests that purchases made using a credit card were not significantly higher than purchases made using cash or a debit card.

Financial Literacy and Numeracy

On average, participants rated themselves as having moderate financial knowledge ($N = 71$, $M = 4.08$, $SD = 1.04$). A few of the participants rated their perceived financial knowledge as "extremely low" ($n = 2$), or "low" ($n = 2$). The rest of the participants rated their perceived financial knowledge as "low average" ($n = 13$), "average" ($n = 29$), or "high average" ($n = 21$).

None of the participants rated their perceived financial knowledge as "extremely high." Of the three financial literacy questions administered, the majority of participants were able to correctly calculate a basic interest question (n = 55), but less than half of the participants were able to correctly answer questions about inflation (n = 32) or risk diversification (n = 34). A small proportion of participants did not answer any of the financial literacy questions correctly (n = 8).

H3 hypothesized that better performance on numeracy questions would be associated with better performance on financial literacy questions. Participants had low performance on financial literacy (M = 1.70, SD = .99), and numeracy questions (M = 3.51, SD = 1.51). An ANOVA was conducted and the results revealed that financial literacy scores differed significantly depending on the number of numeracy questions answered correctly, $F(7,63) = 4.18$, p = .001. A post hoc Tukey analysis revealed that financial literacy scores differed when participants answered one numeracy question correctly compared to when they answered four (p = .004), five (p = .039), or six (p = .009) numeracy questions correctly. This difference was not significant when comparing one correct numeracy question to seven correct numeracy questions, p = .069. These results provide partial support for H3. Additionally, there was a slight difference of financial literacy and numeracy performance based on age, with participants between 25 and 34 years of age performing slightly better (n = 17, $M_{\text{financial literacy}}$ = 2.00, $SD_{\text{financial literacy}}$ = 1.00; M_{numeracy} = 3.71, SD_{numeracy} = 2.11) than participants between 18 and 24 years of age (n = 54, $M_{\text{financial literacy}}$ = 1.61, $SD_{\text{financial literacy}}$ = .98; M_{numeracy} = 3.44, SD_{numeracy} = 1.28).

Financial Education and Financial Attitudes

Over one quarter of participants received financial education in high school (n = 13) or university (n = 12), while less than five percent of participants received financial education in their workplace (n = 3). Four participants reported receiving financial education in both high school and university, and of those four, one participant also received financial education in their

workplace. A majority of participants agreed or strongly agreed that their parents influenced their attitudes towards saving money. Almost 80% of participants thought that saving money was an important lesson that they learned in childhood, and over 65% of participants indicated that their parents told them about ways to save money on their own. When asked about using their parents' money, over half of participants rated themselves as being cautious and responsible when spending their parents' money and thought that it was important to pay their parents back. Over 60% of participants thought that it was important to help their parents save money by being careful with how they spent their money. Nearly 25% rated themselves as neither in agreement nor disagreement with that same statement. Finally, participants generally rated themselves as careful with spending money and saving money for the future. Over 98% of participants thought that it is important to plan for the future when thinking about spending their money. The trends observed in these responses were consistent with a significant correlation observed between parental influences on saving money and future planning, $r = .39$, $p = .001$, such that participants who viewed their parents as being influential to their saving habits also reported being more oriented towards thinking about and planning for their futures. A complete summary of the items used to assess participants' financial attitudes is presented in Appendix C.

The Relationship Between Credit Attitudes, Financial Attitudes, and Future Planning

To test H4, H5, and H6, correlation analyses between credit attitudes, financial attitudes, and future planning were conducted and the results are presented in Appendix D. No significant correlation was observed between credit card attitudes and financial conscientiousness, which does not support H4. No significant correlation was observed between credit card attitudes and financial planning, which does not support H5. Additionally, no significant correlation was observed between financial planning and future planning, which does not support H6. Although none of these correlations were significant, the hypothesized directionality of the relationships

was consistent with what was hypothesized. A significant correlation was observed between parental influence on saving habits and future planning, $r = .39$, $p = .001$. Additionally, financial planning and financial conscientiousness were significantly correlated, $r = .44$, $p < .001$.

Credit Attitudes and Spending Behaviour

Participants reported moderate attitudes towards credit ($M = 3.19$, $SD = .59$). Less than half of participants agreed or strongly agreed that there were more advantages than disadvantages to using credit. Almost 40% of participants thought that credit allowed for better quality of life. Over 50% of participants thought that everyone should have at least one credit card. Indeed, most of the participants reported having one credit card ($n = 58$), while fewer reported having two credit cards ($n = 10$), or three credit cards ($n = 2$). Approximately 60% of participants thought that people should not be afraid to use credit, while only 20% of participants thought that people have to use credit. Regarding their own credit card behaviours, participants reported low levels of irresponsible credit card usage ($M = 1.99$, $SD = .55$). Over 80% of participants reportedly pay off their credit card balance at the end of the month, while almost 60% of participants did not make late payments on their credit cards. Less than 20% of participants spent more impulsive when using a credit card, and 15% of participants were less concerned with the price of a product when they use a credit card. Over 80% of participants rarely went over their available credit limit. Only 15% of participants worried about how they would pay off their credit card debt. Finally, participants reported engaging in low levels of compulsive spending ($M = 1.92$, $SD = .71$). Almost 30% of participants have bought things even though they could not afford them. 60% of participants have bought things in order to make themselves feel better. Over 90% of participants did not report feeling anxious or nervous on days when they did not go shopping. Over 75% of participants did not think that people would be surprised by their spending habits. A complete summary of the items used to assess participants'

credit attitudes, credit card behaviours, and compulsive spending behaviours and the frequency of responses is presented in Appendix E.

Financial Decision-Making Processes

Knowledge of Alternatives

Participants were asked the extent that they knew of alternative products that they may have looked at purchasing before deciding to purchase the particular product that they did. Of the necessities (n = 71), about half (n = 32) stated that they knew about alternatives to some extent. These responses ranged from stating that they knew "a little bit" or "a lot," to more detailed responses stating information they knew about the type of product, such as the product's price range. Over one quarter of participants (n = 19) specified that they had conducted research on alternative products, brands, and retailers in addition to knowing about alternatives to some extent. Some participants (n = 5) responded by stating that they did not know much about alternatives, asked for a second opinion on the product they did purchase, or stated that they opted to buy the product that they were more familiar with over an alternative product. A small proportion of participants (n = 7) stated that they did not look into alternative products when considering their purchases. Eight participants did not provide a response to this question.

With regards to the leisure good purchases (n = 71), about half of participants (n = 31) stated that they knew about alternatives to some extent, with responses converging on similar content as necessities (i.e., general statements regarding knowledge about alternatives, specific information about alternative products). Under one quarter of participants (n = 12) stated that they knew about alternatives by conducting research about similar products. One participant stated that they explored second-hand options as alternatives to purchasing a brand new product. Other responses (n = 12) indicated that they did not know much about alternatives, they knew there were other options but did not look into them further, or their choice of products was

restricted due to price. Some participants (n = 13) reported that they did not look into alternative products. Three participants did not provide a response to this question.

Sources of Knowledge

Participants reported various sources for their knowledge about the product they bought and the alternative products they considered. Across necessities, leisure goods, and their respective alternative products (n = 284), most participants reported one source of knowledge for each product and alternative (n = 128). Fewer participants reported two sources of knowledge (n = 78), and fewer yet reported three or more sources of knowledge (n = 55). A total of 21 participants stated that the question was not applicable to them, such as not having a source for knowledge of alternatives due to not looking into alternative products, or not having knowledge of a product. Additionally, two participants stated that they did not know the source of their knowledge.

The most commonly cited source was online and internet resources. Most participants cited “online” and “internet” generically for necessities and leisure goods, as well as their alternatives. Other participants included more detailed descriptors of which internet-based sources that they acquired information from, with responses including the retailer’s website, web forums, social media, videos, and reviews. Responses also cited traditional media, from “media” and “news” generically, to more specific types of traditional media outlets, such as television, advertisements, flyers, and books. Additionally, participants cited their source of knowledge as people in their lives, including professionals and consultants, school instructors, family, friends, and peers. Finally, participants also cited their knowledge as having been acquired through personal experience, personal preference, and previous job experience. For a complete list of categories and how frequently participants cited them as their sources of knowledge, see Appendix F.

Knowledge Gained by Purchasing Products

There was a variety of information that participants reported learning by making their purchase. Across both necessities and leisure goods, common themes emerged. Of the total responses for both product types ($N = 142$), a small proportion of participants stated that they did not learn anything ($n = 24$), or did not provide a response ($n = 3$). One participant's response for a necessity product was that they learned that the product was necessary, which did not fall into a common theme. Some participants' responses consisted of explaining various information that they learned that was specific to the product they purchased ($n = 18$), including those who learned how to use the product itself.

Budgeting, Saving, and Planning. Ten participants' responses discussed the cost of their purchase, stating that the product was expensive, or more expensive than they initially thought. Two additional participants stated that it took a long time to save up for an expensive purchase, and it was important to plan in advance. Another two participants echoed similar sentiments that they had to budget their finances in order to balance the expensive purchase. One participant learned that they were willing to spend more money than usual on a product when it was a gift for another person. One participant discussed the importance of improving their saving habits, and went on to state that they would have not bought the product and would have instead spent that money on groceries and other necessities. Another participant learned that splitting the cost with another person can make a large purchase more affordable.

Product Quality. Regarding the quality of the product, five participants stated that they learned that they benefited from spending more money on a higher quality product. Another participant's response discussed that when browsing products that were on sale, the higher quality product should be purchased. Other responses discussed how there are many factors to consider when making a large purchase. Similarly, three participants stated that spending money

on large purchases was worth it, with two of the three further elaborating that if a product is long-lasting, it is worth paying more money for it. One participant stated that they should have bought the more expensive product after realizing they would have to invest more money into the product than they would have if they bought the more expensive product in the first place. Another participant learned that if an expensive product would not last a long time, then it was not worth buying.

Researching Products. Another common theme that emerged involved making informed purchase decisions by doing research and considering alternative products. Ten participants made statements about how prices varied and how important it was to conduct research and be aware of all options. Another participant stated that it was important to set boundaries during the process, adding that they were not aware of alternatives until they consulted a professional for a second opinion. While one participant stated that professionals are knowledgeable, another participant cautioned that some retailers will "rip you off" in the process. Another participant responded similarly, stating that they learned that retailers' opinions were subjective. In another response, a participant stated that they learned to actively seek information themselves instead of waiting to be told information. Additionally, one participant stated that they learned that they should not make a decision when in a rush and elaborated by stating that they did not examine alternatives due to the stress and frustration they felt at the time they made their purchase.

Online Purchasing. Another theme that emerged with a few responses surrounded making online purchases. Two participants stated that they learned to look at online flyers to compare prices across retailers, with one of the two going on to say that online and in-store prices may differ. Similarly, another participant learned that they should have bought their product in-person instead of trying to bargain with an online seller. One participant learned that they should see the product in-person before purchasing it. Two participants learned to pay

attention to which currency was being used when making online purchases in order to avoid unknowingly paying more money after currency conversion.

Timeliness. In another cluster of responses, some participants stated that they were in a rush to buy the product and learned that they should have examined the product more closely for imperfections. Another participant's response discussed how it was better to buy a product that was fairly priced right away instead of waiting for a better deal or sale to come along. Two participants' responses discussed the value in waiting to buy the product instead of choosing the first option available to them. One participant said that it was important to have the time to decide on a purchase. Another response detailed how the timeliness of a new release impacted their purchasing decision; they learned that older models of products can be as good as the newest models, and that they were persuaded by an employee's attempt to up-sell them the newest model of a product.

Regrets. Some participants expressed regret with their purchases. Specifically, one participant expressed regret with their purchase decision, stating that the instant gratification of buying something combined with purchasing it with their savings through PayPal made their money feel abstract and easier to spend. Another participant stated that they could not afford to make the same kind of purchase in the future. One participant expressed a similar sentiment, stating that they did not think of buying second-hand until after they made their purchase and regretted purchasing a brand new product.

Spending Habits

Most Expensive Purchases

Results suggest that, on average, participants spend more money on necessities compared to leisure goods, and the types of necessities purchased spans a broader range of categories compared to leisure goods purchased. A complete summary of the categories of products and

descriptive statistics are presented in Appendix G. Most participants (*n* = 19) stated that their most expensive necessity was transportation-related, with responses including vehicles, vehicle parts and repairs, and airfare. This was followed by a similar number of participants who cited personal-related purchases as their most expensive necessity (*n* = 18), with responses including clothing, laptop computers, instruments, and non-essential medical procedures. Education emerged as the third most common category of necessities (*n* = 13), and included tuition and textbook purchases. Daily living necessities were the next most commonly reported purchase (*n* = 8), with items such as furniture, tools, and essential medical treatments. The next most common reported categories were housing costs (*n* = 5; including rent, mortgages, home loan) and groceries (*n* = 5). Finally, the least common categories of necessities were services (*n* = 2; including new phones), and insurance (*n* = 1; including car insurance). The cost of necessities spanned a broad range of prices, from purchases as low as $5 for groceries, to as high as $365,000 for a home loan.

By comparison, leisure good purchases spanned fewer categories of products, with the majority (*n* = 44) falling under the category of personal purchases. The personal purchases category had a larger variety of items within it, including vacations, electronics, clothing, sports equipment, beauty products, and toys. The next most common category was entertainment-related good (*n* = 15), including concert tickets, music albums, video game consoles and games, online video subscriptions, televisions, and books. Transportation was the next highest category of leisure good purchases (*n* = 9), which included vehicles and airfare. Finally, the least common categories of leisure goods were daily living goods (*n* = 2; including furniture), and services (*n* = 1; internet). The cost of leisure good prices spanned a narrower range than necessities, with purchases as low as $13 for a monthly online video subscription, to $13,000 for a vehicle.

How Participants Would Approach the Process Differently

Finally, participants were asked what they would do differently if they were to go back to the time before they bought the product. Across all purchases (N = 142), over half of participants stated that they would not do anything differently (n = 79). The frequency of this response was reported at similar rates for necessities (n = 41) and leisure goods (n = 38), which suggests that people were equally content with their purchase regardless of the product type. A small proportion of participants stated that for their necessity (n = 2) or leisure good (n = 7), they would either buy less of the product or not buy the product at all.

One cluster of responses surrounded conducting more research about the product, including considering alternative products and examining the features and prices of products. Rationales included wanting a higher quality product, buying an older version of a product, and choosing a product with specific features. Another participant stated that they would conduct more online research before going to a physical store to look at products. Other participants had similar responses and discussed trying the product out in-person before buying it. Finally, other participants stated that they would look into buying products second-hand. From these responses, participants expressed a desire to know more about the product and the different options they had before they made their purchasing decision.

Another cluster of responses were themed around the product cost, with some stating that they would have waited for a sale or discount opportunity to arise before buying the product. Others stated that they would have spent more money for a more expensive product. Within this cluster, some participants reported that they would finance the product and spread the payments out instead of paying the entire amount at once. In another response, a participant stated that they would split the cost with someone else.

The final cluster of responses centered around timeliness. This was expressed in two ways: financial planning and the time of purchasing the product. First, some participants stated

that if they were to go back to a time before making the purchase, they would plan their purchase in advance. In one case, a participant stated that they found it difficult to feel like they adequately saved up money for long enough in order to afford an expensive product. Regarding the time of purchase, responses were mixed. Some participants stated that they would take longer when deciding to make their purchases, while others discussed wanting to make their purchase sooner or try to be more decisive if they were to go through the process again.

Discussion

The results of the present study indicated that participants' spending habits are diverse. This diversity was observed in the range of products that were bought and the amount of money spent on those products. The difference in the cost of the necessity purchases and the range of categories likely reflects a difference in life circumstances and the extent to which participants are responsible for purchasing their necessities. For instance, a student living at home where their living expenses and groceries are being bought for them and who only has to purchase their own winter coat will differ from a student who has recently moved out and is making mortgage payments on their home, paying bills, and buying their own weekly groceries. Moreover, there was no significant difference between the three methods of payment on the amount of money spent on products. Previous work has found that younger children tend to spend more money when using a credit card compared to cash (Abramovitch et al., 1991), which may reflect the concrete operational stage of cognitive developmental theory wherein children do not fully understand the abstract nature of digital currency. This suggests that these young adults who have already reached the formal operational stage of development during adolescence understand that physical and digital currencies are conceptually the same, which is reflected in no significant difference in cost and method of payment. Overall, participants bought products in many different categories of necessities, with the most common category being transportation.

Comparatively, leisure goods covered fewer categories, with the majority of them being personal purchases. This diversity also demonstrates how young adults are beginning to make major financial commitments, such as homes and vehicles, that are difficult decisions to make because they will be making payments on them for years to come. Observing that young adults are making these types of purchases emphasizes the importance of financial literacy for this age group: having financial knowledge and skills are critical to being able to make good financial decisions specific to one's life circumstances.

Although participants perceived themselves to have average financial literacy, most could only answer one out of three financial literacy questions correctly. The results also suggest that performance on financial literacy questions differs depending on performance on numeracy questions, but only once a threshold of four or more numeracy questions are answered correctly. Thus, it can be inferred that most people are performing below this threshold value, which is associated with lower financial literacy, suggesting that participants lack the numeracy skills needed to correctly answer financial literacy questions (Lusardi, 2012; Skagerlund et al., 2018). There was a slight difference between the mean scores of financial literacy and numeracy between younger and older young adults. Although this difference was not tested for significance, it may suggest that financial literacy differs within the age group, with older young adults demonstrating more financial literacy than their younger counterparts (de Bassa Scheresberg, 2013). In sum, actual performance on financial literacy and numeracy questions are lower than the financial knowledge that young adults perceive themselves as having, but proficiency with these skills may increase with age.

There was a significant correlation between saving and future planning, such that people who reported their parents as having influenced their saving habits were more likely to be future-oriented and enjoyed thinking about and planning for their futures. This is consistent with

previous hypotheses about how those with future-oriented mindsets may be more inclined to save, and similarly, those whose parents taught them about saving habits may be more future-oriented (Bucciol & Veronesi, 2014). This study does not assume the causality of this relationship but observes that these variables co-exist. Parental influence on saving habits and financial planning were not significantly correlated, which contradicts previous findings (Koposko & Hershey, 2014). However, the non-significant correlation between financial planning and future-orientation complicates this relationship. It should theoretically follow that those who financially plan for their futures tend to be future-oriented (Bucciol & Veronsei, 2014), yet this is not consistent with the findings of the present study. It is possible that people who enjoy thinking about their future are focused more on life outcomes and goals rather than their future financial situation. Given the significant correlation between parental influence on saving habits and future-orientation, there may be a relationship between saving money for the future and being more future-oriented, but this may not extend to financially planning for one's future beyond saving behaviour.

Participants reported having relatively good financial habits, including low levels of compulsive spending habits, and the majority reported paying off their credit card balances in full, which contradicts previous findings (Durvasula & Lysonski, 2007; Phau & Woo, 2008). These cited studies were conducted before a major recession effected many nations' economies, including Canada, which may have impacted how future generations grew up thinking about money. This generation of young adults may be more conscious about the disadvantages of spending compulsively and carrying a balance. However, this claim cannot be made, given the poor financial behaviours that characterize young adults across Canada in recent years (Statistics Canada 2020a; Statistics Canada, 2019). Participants' attitudes towards credit were moderate, and they reported low levels of irresponsible credit card usage, which is consistent with previous

findings (Lachance, 2012). It is, therefore, possible that this is not a generational effect, but is instead an instance of this sample reporting themselves as being more responsible with their money compared to samples from previous work. It is also possible that the participants of this study provided more socially desirable responses.

Moreover, it may indeed be the case that this sample was more responsible with their money in terms of their decision-making processes. The majority of participants reported having at least some knowledge of alternative products that they could have purchased instead of the products they bought. Additionally, many participants consulted multiple sources of information when deciding to make their purchasing decision. Participants consulted their friends and family as a source of information about the products they bought and alternative products more than traditional media. This is consistent with previous findings that suggest that young adults consider their friends and family more important sources of information compared to traditional media (Phau & Woo, 2008). A fair number of participants also cited social media as their source of product and alternative product information. There is evidence that buying products has a social aspect that is related to establishing a sense of self and identity (McNeill, 2014; Penman & McNeill, 2008). This finding also aligns with Bandura's social learning theory, specifically as it relates to observing those around them and replicating that behaviour. In this case, the young adults appeared to seek out product information and purchasing guidance from people in their lives, which influenced their spending by way of buying the same, or very similar, products. It is possible that participants who reported social media as one of their information sources searched for that content on social media platforms once they were already interested in those products. However, it is also possible that they became interested in those products after browsing social media and wanted to integrate aspects that they liked into their own identities by purchasing similar products. Nevertheless, the amount of information known about products before buying

them and referring to multiple sources seems to indicate that this sample of young adults are engaging in good financial practices.

The information that participants learned by making their purchases helps to identify the kind of financial knowledge that is gained through experience. Saving money in advance and planning purchases were both reported to be important considerations. Participants learned that it is worthwhile to invest in a long-lasting product by spending more money for higher quality products. Participants also learned the importance of conducting research and being aware of all of their options before making their purchase. This included checking online stores for deals that were exclusive to a retailer's online storefront. In hindsight, some participants discovered more cost-effective options that better suited their needs and would have influenced their purchasing decisions if they had known about them sooner. Related to this, there was no consensus in responses regarding the importance of waiting for a better deal or making the purchase when they did. Acting without fully examining all available options because of a deal in the moment may give way to compulsive spending habits. Moreover, bargain hunting has been associated with compulsive spending (Phau & Woo, 2008), and young adults are among the most compulsive spenders (Durvasula & Lysonski, 2007). However, one participant stated that it was important to take adequate time to come to a decision. This response appears to take a stance against compulsive spending by suggesting the importance of taking consideration to not compulsively buy products.

Participants had similar responses when asked what they would do differently if they could make their purchases again. Participants stated that they would have done more research and considered different options such as buying online or second-hand, waiting for sales or deals, and spending more money on higher quality products. They also expressed the desire to plan their purchases in advance and put money aside in savings to make these purchases, which are

good financial practices. It is worth noting that planning, budgeting, and saving are also topics that researchers have called upon to be part of financial education efforts (Amagir et al., 2018; Nga et al., 2011). Educating young people in these topics could help so that these are not considerations realized in hindsight and are instead at the forefront of their thoughts before they make their purchases. The data suggest that these topics are indeed of interest to young people and would be beneficial to include in future financial education curricula.

Limitations and Future Directions

There are a number of limitations to acknowledge in the present study. The products that people reported buying ranged considerably, which made it challenging to conduct comparisons. Some participants reported a single product, such as a laptop, while others reported costs spread out over time, such as their yearly tuition for all of their classes, or a weekly or monthly recurring expense or service. These questions were designed to be non-directive to encourage a variety of responses from participants. There is value in understanding how participants interpret what a product is, although providing a clear definition of what constitutes a product (i.e., a single, physical item that is not grouped with another purchase, is not an experience, and is not a recurring expense) may have resulted in responses that could have been more easily compared. Similarly, the question “Was there anything you learned by buying the item?” resulted in a few instances of participants stating that they learned that the product they purchased was expensive when this question intended to probe what participants learned about their decision-making process. Using clear, more directive phrasing of these financial decision-making questions may have yielded data that was comparable and specific to the research questions.

The diversity in responses also impacted the power of the quantitative data analyses conducted in the present study. Specifically, the prices of the products had a high degree of variability which violated the assumption of heterogeneity when analyzing the difference

between different methods of payment and the insignificant results. Had there been less variability, this assumption may not have been violated, resulting in more degrees of freedom, greater power, and no need to make adjustments in order to run that analysis. While this could have yielded different results, it is also possible that there is a true difference reflected by the high degree of variability between groups that does not lend them well to such comparisons.

Another limitation is associated with the methodology and data analysis procedures. The qualitative data were analyzed by the author of the present study without the use of additional raters. As such, there may be bias in how some of the responses were summarized and categorized. It is possible that other raters would have categorized responses differently, which may have influenced the frequency of responses. Additionally, the financial literacy measure consisted of only three items with little diversity in the content that those items covered. This may have resulted in less reliable, artificially low scores by not allowing participants an opportunity to demonstrate their financial knowledge across a few isolated areas, as some have criticized of the current measures of financial literacy (Aprea & Wuttke, 2016; Volpe et al., 2006). This problem is magnified by researchers not operationalizing financial literacy the same way, which can complicate that task of comparing and replicating findings beyond covering the same content in the measures that they develop (Knoll & Houts, 2012). Developing a longer, more comprehensive measure of financial literacy that includes items that have greater content validity by representing more areas of financial knowledge that young people use in their daily lives would benefit the field of financial literacy. This limitation also arose with the numeracy measure used in this study. This scale was composed strictly of probability-based questions, which likely does not capture or reflect the full range of numerical knowledge that numerate individuals possess. Furthermore, both the financial literacy scale and the numeracy scale had low coefficient alpha values. Due to the small item pools that comprised these measures, the

observed alpha values suggest that these are complex constructs that require more items in order to be properly measured. This greatly limits the conclusions that can be drawn from these measures. Although H3 was partially supported, suggesting that financial literacy increases as numeracy increases, this conclusion cannot be made due to both scales' low reliability. Future research would do well to investigate this hypothesized relationship using scales that are composed of more items and have higher coefficient alpha values. Finally, the same caution should be given when interpreting the results of credit card attitudes, as this measure was also observed to have a low coefficient alpha value.

A majority of participants reported that they perceived themselves as having average financial literacy, yet few participants reported receiving formal financial education through school or their workplace. Over three quarters of participants did not receive financial education in high school or post-secondary studies, and this general lack of financial education has been well-documented in previous work (Farinella et al., 2017). The efficacy of financial education on financial literacy and the most opportune timing to receive that education are still being debated (Farinella et al., 2017; Peng et al., 2007). However, numeracy is an essential component of most mathematics curricula, which is part of compulsory education across Canada. As Skagerlund and colleagues (2018) suggest, increasing young people's numeracy skills may be the best way to increase their financial literacy because numeracy is the largest contributor to financial literacy. Future research should continue to examine the relationship between numeracy and financial literacy. Additionally, the present study only asked about participants' experience with formal financial education opportunities and did not ask participants to report other sources of their financial knowledge. Future research should ask young adults about their sources of financial knowledge by including non-formal learning opportunities, such as those in the home and from

family, in order to obtain a more comprehensive understanding of how young adults acquire financial knowledge, if not through school or the workplace.

Finally, there are limitations in the generalizability of the results. More financial literacy research been conducted with student samples of young adults compared to non-student samples (Lachance, 2012). Less is known about young adults who are not students, who make up over 80% of Canadians between the ages of 20 and 34 years (Statistics Canada, 2020b; Statistics Canada, 2020c). Additionally, young adults who do not attend post-secondary school would not have had an opportunity to receive financial education at that level. There may be disparity in the opportunities non-students had to acquire financial literacy compared to the sample of students in this study, and in the way that young adults who are not students use money. Therefore, the findings of this study should be considered relevant specifically to young adults who attend or have attended a post-secondary institution.

Conclusion

The present study examined young adults' spending behaviour, knowledge of personal finance, and attitudes towards money. This group of young adults was relatively careful with their money and had knowledge about the things they bought. Knowing information about the products one buys and consulting a variety of sources to acquire this information are good practices that appear to benefit young adults. Moreover, young adults gain knowledge through experiences that inform their future actions. Regarding spending behaviour, the amount of money these young adults spent on products did not differ as a function of payment method, suggesting that they do not spend more when money is used in an abstract form, such as credit. These young adults also reported low levels of irresponsible credit card usage. Together, these findings reinforce each other; this instance of not spending more money on purchases made with a credit card does not appear to be unusual for this group, and similarly, their reported

behaviours of low irresponsible credit card usage appear to be consistent with their actual behaviours.

This may seem to contradict the poor financial habits that have characterized Canadians in this age group over the past few years. However, it is important to remember that this was found in a sample of young adults who attend university, which only makes up a small proportion of this subpopulation. Although more needs to be understood of young adults who do not attend a post-secondary education, the present findings provide a snapshot of the current financial attitudes and behaviours of young adults who are students. Very few of the young adults in this study received any formal financial education. By comparison, a majority of participants attributed their saving behaviour to their parents, which suggests that parental influence during childhood plays an important role in one's financial behaviours when they reach young adulthood. The importance of this influence should not be undermined. Instead of depending on unreliable second-hand knowledge or learning "the hard way" through negative experiences, young adults could benefit from financial education and acquire knowledge firsthand. Finally, the results of the present study highlight how it will be crucial to develop a comprehensive measure of financial literacy in order to further this area of study. The present study was not able to make conclusive inferences about financial literacy and numeracy due to the poor reliability of the measure used. Just as financial knowledge is extensive and spans a variety of topics and uses in everyday life, this should be reflected in a comprehensive measure of financial literacy. The development of such a scale would have positive impact in this area of study by providing a foundational tool for understanding young adults' financial knowledge and skills. From that greater understanding, research efforts can focus on ways to increase young people's financial literacy and better prepare them to be empowered consumers that have prosperous financial futures.

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Appendix A

Demographic Characteristics of the Sample

Variable	*n*	%
Age (years)		
18-24	54	76
23-24	17	24
Gender Identity		
Male	26	37
Female	44	62
Other	1	1
Ethnicity		
Arab	4	5
Chinese	7	9
Filipino	1	1
Hispanic	1	1
Indigenous	2	3
Latin American	2	3
South Asian	4	5
Southeast Asian	1	1
West Asian	1	1
White	52	67
Other	4	4
Level of Education		
High school graduate	19	27
Some university or college	29	41
Community college degree	1	1
University degree	20	28
Postgraduate or professional degree	2	3
Year of Study		
First	2	3
Second	4	6
Third	26	37
Fourth	24	34
Fifth or beyond	15	21
Academic Major		
Humanities	31	48
Social Sciences	13	20
Natural Sciences	10	16
Computer Sciences and Mathematics	4	6
Applied Sciences	6	9
Grade Point Average		
A- to A (2.7 to 4.0)	29	41
B to B+ (2.7 to 3.3)	34	49
C to C+ (1.7 to 2.3)	7	10
Relationship Status		
Single	26	37

Variable	*n*	%
In a relationship	35	49
Married or domestic partnership	10	14
Political Orientation		
Extremely Left Wing/Liberal	3	4
Left Wing/Liberal	20	29
Somewhat Left Wing/Liberal	14	20
Centre/Moderate	16	23
Somewhat Right Wing/Conservative	13	19
Right Wing/ Conservative	4	6
Employment Status		
Part-Time (< 40 hours/week)	26	65
Full-Time (≥ 40 hours/week)	2	3
Not in labor force	1	1
Unemployed	22	31
Household Income (Canadian Dollars)		
Less than $40,000	27	38
$40,000 to $69,000	16	23
$70,000 to $100,000	12	17
Over $100,000	16	23
Household Structure		
Living with parents	31	44
Living with roommate/partner	32	48
Living alone	6	8
Money in Savings (Canadian Dollars)		
Less than $1,000	9	13
$1,000 to $5,000	23	32
$5,000 to $10,000	18	23
Over $10,000	16	25
Do not have savings	5	7
Financial Investments		
Yes	21	30
No	48	70
Money Owed (Debt, interest, late fees)		
Less than $1,000	14	20
$1,000 to $5,000	4	6
$5,000 to $10,000	5	7
Over $10,000	16	23
Not in debt	32	45
Action Taken on Last Credit Card Payment		
Paid balance in full	59	84
Carried a balance	5	7
Made minimum payment	6	9

Note. Percentages rounded to the nearest whole number. Participants could select more than one ethnicity.

Appendix B

Financial Decision-Making Process Questions

Please answer the following questions about the most expensive [**necessity/leisure item]** you bought in the last 12 months.

1. What is the most expensive [necessity/leisure item] you have bought in the last 12 months?
2. How much did the item cost?
3. What method of payment did you use?
4. Where did you buy the item (e.g., in-store, a physical store's website, online store, secondhand)?
5. How much did you know about the item before you bought it

5a. What was the source of this information?

6. What did you know about other options that you looked at before deciding on the specific item you bought?

6a. What was the source of this information

7. Was there anything you learned by buying the item?
8. If you could go back and go through the process again, would you do anything differently?

Appendix C

Results for Financial Attitudes Measures, by the Degree of Agreement

	n				
Item	1	2	3	4	5
Parental Influence on Savings					
Growing up, my parents helped me to imagine situations when I might need extra money to fall back on.	2	10	10	33	16
My parents made sure that I understood the value of money and that money is a limited resource.	0	4	4	34	29
Saving money for the future was an important lesson I learned as a child.	4	5	7	28	27
My parents suggested to me concrete ways to save money on my own.	5	10	11	29	16
Financial Conscientiousness					
It is important to help my parents save money by being careful with how I spend their money.	3	3	17	27	21
When my parents buy me things it is important to pay them back by helping them out when I can.	6	4	10	24	27
I am cautious when spending my parents' money.	2	0	7	25	37
I should be responsible about how I spend my parents' money.	0	0	4	23	44
Financial Planning					
It is important to plan for the future when thinking about what to do with my money.	0	0	1	27	43
I try to put money aside in case I need it more when I'm older.	1	8	6	23	33
I keep track of how much money I have to spend.	1	8	10	24	28
I am careful with how I spend my money.	1	7	14	32	17

Note. $N = 71$. 1 = *Strongly disagree,* 2 = *Disagree,* 3 = *Neither agree nor disagree,* 4 = *Agree,* 5 = *Strongly Agree.* Parental influence on savings items are from Koposko & Hershey (2004).

Financial conscientiousness and financial planning items are from Agnew et al. (2018).

Appendix D

Summary of Correlations Among Credit Attitudes, Financial Attitudes, and Future Planning

Variable	1	2	3	4	5
1. Credit attitudes	—	-.04	-.11	-.09	.15
2. Parental influence on savings		—	.17	.23	.39**
3. Financial conscientiousness			—	.44**	.18
4. Financial planning				—	.16
5. Future planning					—
M	3.12	3.88	4.15	3.97	3.82
SD	.48	.83	.74	.86	.68

$N = 71$.

**$p < .01$.

Appendix E

Results for Credit Attitudes and Spending Behaviour Measures, by the Degree of Agreement

	n				
Item	1	2	3	4	5
Credit Attitudes					
There are more advantages than disadvantages to using credit.	1	11	24	26	9
Credit allows for a better quality of life.	2	18	23	24	4
Everyone should have at least one credit card.	2	14	18	30	7
You should not be afraid to use credit.	2	10	16	36	7
Nowadays, you have to use credit.	12	31	13	12	3
Compulsive Spending					
If I have any money left at the end of the pay period, I just have to spend it.	41	23	5	1	1
I feel that others would be horrified if they knew of my spending habits.	30	25	7	6	3
I bought things even though I could not afford them.	31	17	2	16	5
I wrote a check when I knew I did not have enough money in the bank to cover it.	58	11	1	0	1
I buy myself something in order to make myself feel better.	12	10	6	35	8
I have felt anxious or nervous on days I did not go shopping.	53	13	2	2	1
I have made only the minimum payments on my credit cards.	44	10	9	6	2
Credit Card Behaviour					
I have too many credit cards.	44	19	8	0	0
I frequently use the available credit on one credit card to make payments on another credit card.	56	11	2	2	0
I always pay off my credit cards at the end of each month.[a]	0	6	6	18	41
I seldom take the cash advance on my credit card.[a]	3	5	14	15	34
My credit cards are usually at their maximum credit limit.	39	18	9	4	1
I am seldom delinquent in making payments on credit cards.[a]	8	5	16	19	23
I am more impulsive when I shop with credit cards.	22	24	11	13	1
I rarely go over my available credit limit.[a]	0	4	6	15	46
I spend more money than I use a credit card.	7	12	27	17	8
I worry how I will pay off my credit card debts.	31	23	6	5	6
I often make minimum payments on my credit card bills.	30	14	8	10	9
I am less concerned with price of a product when I use a credit card.	30	24	6	8	3

Note. $N = 71$. 1 = *Strongly disagree,* 2 = *Disagree,* 3 = *Neither agree nor disagree,* 4 = *Agree,* 5 = *Strongly Agree.* Credit attitudes items are from Lachance (2012). Compulsive spending items are from Faber & O'Guinn (1992). Credit card behaviour items are from Roberts & Jones (2001).

[a]*Items are reverse-coded.*

Appendix F

Most Expensive Necessities and Leisure Goods Purchased, by Category in Canadian Dollars

Category	Σ	*M*	*SD*	*median*	*n*
Necessities	471,206	6,5637	43,194	700	71
Transportation	39,230	2,065	2,623	800	19
Personal	15,100	839	1,310	325	18
Education	38,913	2993	3252	1000	13
Daily Living	4,360	545	308	550	8
Housing Costs	386,008	73,602	162,897	730	5
Groceries	1,495	299	186	350	5
Services	1,800	900	849	900	2
Insurance	2,300				1
Leisure Goods	66,049	930	1892	300	71
Personal	36,660	833	1,081	378	44
Entertainment	2,928	1,952	150	150	15
Transportation	25,975	2,886	4,407	900	9
Daily Living	386	193	103	193	2
Services	100				1
Total	537,255	3,784	30,598	450	142

Note. Dollar amounts rounded to the nearest whole dollar.

Appendix G

Frequency of Sources of Knowledge for Product Information Cited by Participants

Variable	Frequency of Source (*n*)			
	Necessity Bought	Necessity Alternative	Leisure Good Bought	Leisure Good Alternative
Advertisements and flyers	1	4	3	1
Books	0	0	1	0
Consultants	1	1	0	0
Employees	2	2	0	1
Family	11	7	5	5
Friends	7	6	14	9
Internet	3	2	3	2
Job experience	2	0	0	1
Media	0	0	1	0
News	0	0	1	1
Online	20	18	25	25
Online price quote	0	1	0	0
Peers	3	2	3	1
People and others	3	2	4	4
Personal experience	10	13	14	10
Personal preference	0	0	0	6
The product itself	0	0	1	0
Professionals	2	1	1	1
Research	0	2	5	5
Retailer	15	13	15	10
Retailer's website	11	9	13	11
Reviews	5	3	8	4
School and instructors	6	2	1	0
Second-hand	1	0	0	2
Social media	7	6	11	7
Television	0	1	0	0
Videos	3	1	0	1
Web forums	3	2	3	1

Note. Participants could list more than one source of knowledge.