

# **STUDENTS AND FINANCIAL LITERACY: WHAT DO MIDDLE SCHOOL STUDENTS KNOW? WHAT DO TEACHERS WANT THEM TO KNOW?**

Mary Connolly and Cynthia Nicol

University of British Columbia

*Given the international recognition of the importance of financial literacy, the generally unsatisfactory results of international financial literacy tests for youth and adults, and the overlaps between financial literacy and mathematical thinking, the need to better understand how and why it is taught is crucial. In this paper, we provide a beginning research contribution to financial education by examining the perspectives of three different stakeholders: teachers, business volunteer instructors, and middle school students to explore what students know about financial concepts and what teachers would like them to understand about financial matters.*

## **INTRODUCTION AND BACKGROUND**

The OECD has recognized financial education as an important factor in developing financial stability, economic development, and individual financial empowerment and well-being. In particular, financial choices among young people are expected to be more challenging than in previous generations and with more complex products. Increased life expectancies and decreased welfare and employment benefits will increase exposure to financial risks making financial literacy skills essential (OECD, 2014, p.27). While there is no single definition of financial literacy or capability, most include the acquisition and use of knowledge and skills for effectively managing one's financial resources and making informed financial decisions (Task Force on Financial Literacy in Canada, 2010; Mandell, 2008; OECD, 2014; Social & Enterprise Development Innovations [SEDI] 2008). From basic daily spending and budgeting, to saving for key life events, to choosing banking products, these decisions have "profound impacts on financial well-being and inclusion" (SEDI, 2008, p.1).

Given this importance, the OECD identified the need for reliable data that can inform financial education strategies by providing benchmark measures of financial literacy levels. Through the Programme for International Student Assessment (PISA), the OECD (2014) created the 2012 Financial Literacy Assessment, which was completed by 29,000 fifteen year olds in 18 countries and economies and included questions about money and transactions, planning and managing finances, balancing risk and reward, and general character and features of the financial world (p.35). The results, released in July 2014, show about 15% of students scored below the baseline Level 2 and 10% scored at proficient Level 5 with wide variations within each OECD country. Notable is Shanghai-China, where 41% of students scored as proficient compared to the OECD average of 7.9%. In general, financial literacy in OECD countries (13 participated) was strongly correlated with scores in mathematics (.83)

---

and reading (.79) (p.68). This relationship was weaker in countries with established financial literacy programs and professional development for teachers where students perform better on financial literacy than their scores in mathematics and reading would predict (p.70).

In Canada, the Federal Minister of Finance declared financial literacy an essential skill and authorized a federal task force to study the issue (Financial Consumer Agency of Canada, 2009). In 2011, a Financial Literacy Action Group was formed as a coalition of seven organizations that work to improve the financial literacy of Canadians. Similar concerns and efforts have been underway in the United States resulting in the formation of a President's Advisory Council and significant efforts by organizations to advance financial literacy. The US-based Jump\$tart Coalition was founded in 1995 by organizations that share an interest in advancing financial literacy among K-12 students. It has grown to include more than 180 national partners and 48 affiliated state coalitions.

Despite widespread initiatives to improve financial literacy skills, study after study show a poor grasp of financial concepts among young people and adults. Less than 18% of U.S. baby boomers could correctly answer a question regarding interest compounding over two years (Lusardi, 2012) and the U.S. National Foundation for Credit Counseling, NFCC, reports that 48% of adults express concern about insufficient savings for retirement (NFCC, 2011). Credit card debt is on the rise and people do not fully understand the damaging consequences of making only minimum monthly payments nor "the benefits of modest increases over these small payments" (Soll, Keeney & Larrick, 2013, p.69).

In Canada, the British Columbia Securities Commission (BCSC) commissioned, in 2011, the first comprehensive Canadian benchmark study on youth financial skills (ages 17-20) which found marginally better scores among those students who recall taking a "very comprehensive" high school course, while those whose courses were "somewhat" or "not very" comprehensive scored no differently than those who did not take a course at all. Sixty-six percent reported learning what they know about personal finance from their family, followed distantly by 10% who attributed their knowledge to a course in high school (BCSC, 2011, p.66). Similar results were reported in the 2008 U.S. Jump\$tart survey report: "We have long noted with dismay that students who take a high school course in personal finance tend to do no better on our exam [biennial since 1997] than those who do not" (Mandell, 2008, p.5). The report continues that such results are "a great disappointment" to those who support high school courses in personal finance and "it points to the need for better materials and teacher training" (Mandell, 2008, p.5). Families have also been found to be the most important influences in the acquisition of financial skills in Canada, US and Australia, with youth's understandings about money tied to family backgrounds and financial circumstances (BCSC, 2011; LaChance & Choquette-Bernier, 2004; Lusardi, 2012; Lusardi, Mitchell & Curto, 2010; Sawatzki, 2014). As a consequence, those with less-than-financially-savvy parents are at a significant disadvantage which

---

points to a societal fairness justification for effective youth financial education programs and “without attention to such issues, financial literacy education is reduced to replicating inequities and contributes to the continued marginalization of already vulnerable populations...” (Pinto, 2012, p.113).

When considering mathematics, aspects of financial literacy can also be considered the use of mathematical thinking in a particular context – a financial context. In fact, exploring the understandings middle school children have about money enabled Sawatzki (2014) to develop, trial and refine a financial literacy intervention that found merit in using “financial dilemmas” to engage students in commonplace applications of mathematics that connect social and mathematical thinking, and that require them “to seek out and consider multiple alternative options” (p.182). This approach was proposed as a method to prepare students to be “active and critical problem-solvers” with ability to make informed financial decisions in the future (p.13). Sawatzki (2014) also highlighted the need for quality, research-based professional learning opportunities and materials to guide teacher’s approach to financial literacy education.

Given the international recognition of the importance of financial literacy, the generally unsatisfactory results of international financial literacy tests for youth and adults, and the overlaps between financial literacy and mathematical thinking the need to better understand how and why financial literacy is taught is crucial. There is little research on the pedagogical practices of developing middle school students’ financial literacy (Sawatzki, 2014 is one exception). This paper provides a beginning contribution to the research in this area. We examine what middle school students know about financial concepts and what teachers would like their students to understand about financial matters.

## **METHODOLOGY**

A mixed methods (quantitative and qualitative) approach was used to gather data from students and teachers, by the first author, in the process of developing new financial literacy materials for middle school students. This Canadian joint research included a national financial education non-profit organization, a financial institution, the University of British Columbia Interdisciplinary Studies program and a government-sponsored research program. The materials were developed for the national non-profit organization for delivery by business volunteers from the financial services industry in Canadian middle school classrooms.

### **The Participants**

There were three groups of participants in this study, all from British Columbia, Canada: teachers, volunteer instructors, and students. The teachers, 23 in total, had each requested and hosted volunteers to present the existing financial literacy program in their Grades 6 to 8 classrooms in the year preceding the study. The volunteer instructors, 10 in total, were from the financial services industry and had experience teaching the existing financial literacy program. The students, 45 in total,

---

were in Grade 7 aged 11-12 (n=26) or Grade 8 aged 13-14 (n=19). The Grade 7 students were from a diverse urban school with 50% ESL (English as a Second Language) students, while Grade 8 students were from a French Immersion class in a suburban high school with 14% ESL students. Each school performed with average academic achievement scores for the province.

### **Data Collection**

The classroom teachers responded to an online questionnaire about their reasons for requesting the financial literacy program, and their priorities on topics and teaching methods. The volunteer instructors were interviewed through face-to-face semi-structured interviews on their experiences with teaching the existing financial literacy program, and reasons for choosing to volunteer. The students completed a pre- and post-survey of financial background knowledge and the intervention materials were delivered in their classrooms.

### **Data Analysis**

The data collected from the online survey of the classroom teachers were analysed for frequency of responses using the reporting and graphing capabilities of the online software, and the qualitative responses were summarized for common themes. The volunteer instructor interviews were recorded with handwritten notes, which were then entered into a database and summarized for common themes. The student pre- and post-surveys were completed by the students on paper and later entered into a database for analysis of response frequencies and common themes.

## **RESULTS**

### **Teachers' perspectives on financial literacy**

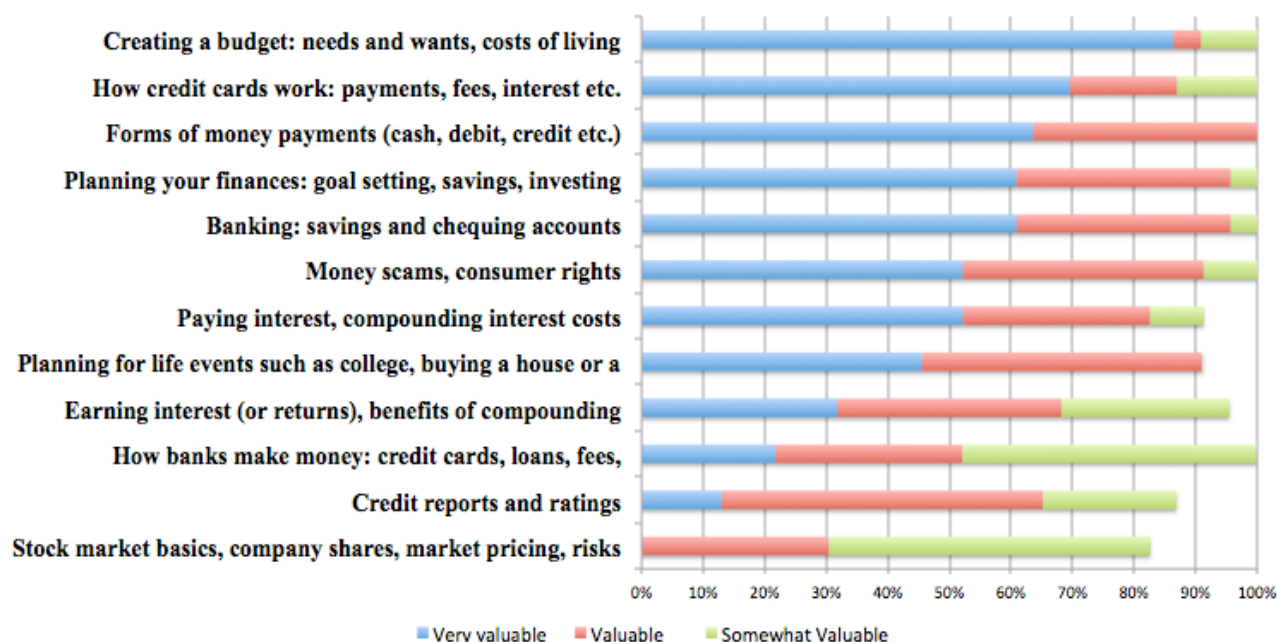
The primary reason that teachers had requested and hosted the existing financial literacy program over the prior year was that they felt it was important for students to increase their financial knowledge (82%). Almost half had hosted the program in the past and were pleased with the results and half had heard about the program and thought they would try it. Over one third requested the program because they felt that instructors from the business community were more knowledgeable about financial topics. Most of the teachers (78%) had integrated financial concepts into their math or social studies curriculum, 40% had used websites to teach financial skills, a few (17%) had used books, videos and sharing of financial news articles.

Teachers reported that using an instructor with group exercises was very effective (87%) for delivering financial education in the classroom, followed closely by just a live instructor, and more distantly by computer, board games and tablet apps. Several teachers stated that exercises or games that linked mathematics to real-life such as banking, saving money, interest rates, and setting up decision-making exercises or a small business of some sort, were particularly effective for teaching financial skills.

Teachers note that many of their middle school students have very little experience with earning and saving money, though they can have very different knowledge

---

levels based on their socio-economic backgrounds. Some from less privileged backgrounds were said to “know almost nothing about formal money systems and act suspicious and contemptuous of banks.” Teachers rated how valuable they felt the following financial concepts were to their students:



Teachers in this study affirmed the importance of using an instructor with group exercises that linked mathematics to real-life financial activities to be a very effective approach for their students. The use of volunteer instructors from the financial services community had proven to be effective with these teachers, or had been recommended from their colleagues, with more than a third of teachers considering the business volunteers to be more knowledgeable about financial topics.

### Financial services industry volunteers as instructors

All the program instructors were volunteers with experience in the financial services industry at banks, credit unions, brokerage firms, or in corporate finance and had taught the financial education program an average of three times during the last two years. Most were motivated by a desire to help young people learn valuable money management skills and avoid financial problems by sharing their expertise, and by the interest and enthusiasm of the students. Sample comments included: “In grade 8, I got allowances and I wish I had started saving a lot sooner. I am motivated by news of credit card debt levels, and bad advice given to seniors.” “The course makes a difference with kids and can impact their lives.” Others felt that “depending on their parents, [financial knowledge] kids may or may not be learning appropriately.” “Because this is not stuff they [students] learn traditionally. I learned it from my mom.” “Kids like to talk about how they work with money, their experiences.” And “I walk away feeling really good about what kids have learned. I love it.”

Program elements that they found particularly engaging and effective were: real-life problems with hands-on activities such as creating a financial product advertisement, a comparison shopping exercise, or developing a budget for a trip or event. Areas the volunteer instructors thought were important to cover included: cost of buying fast food (\$100/month for 20 years), credit cards, fees and interest, banking information such as loans, types of accounts, bank's profit models. Several volunteers mentioned encountering sensitivity with ranges of socio-economic backgrounds of students with exercises such as classifying needs and wants, or during a shopping decision making activity. One instructor reported her/his experience with a Grade 7 class where only 1 or 2 students understood credit and debit cards, while in a second class, at a private school, Grade 8 students had credit cards on their parent's account.

In their professional lives, the volunteers observe adults struggling with financial literacy issues and believe that sharing their expertise could positively impact the students' financial behaviours and future well-being. They are a motivated and important resource for the teachers in this study who value the real-life perspective and knowledge they bring to the classroom.

### **Students' perspectives and understanding of financial literacy**

In the Grade 8 class, 84% of the students had a bank account though only 32% had ever used their debit cards to make a purchase. Most students (79%) said they had learned about finance in the past, 68% of them listed math class, and half said they learned about interest rates. Additional topics mentioned by one or two students each included: exponential or compound growth, mortgages, sales taxes, debt and investment and counting money. In the Grade 7 class, 62% said they had learned about finance in math and in a provincially required course called Personal Planning, which had a theme called "What's Money got to do with it?" and one student said she learned about "careers and how money can't buy you happiness." Most of the mathematics themes reported by Grade 7 students focused on counting money and making change though one student mentioned saving and spending and another reported computing percentages as being tied to developing financial skills.

Over 73% of the students reported that their parents had taught them about money and more than half the time these lessons were about saving money and spending wisely, such as not buying cheap toys or items they won't use, and waiting for sales. A handful of students mentioned learning about the value of money, that it "doesn't grow on trees" and that "it takes hard work." A few students mentioned parental lessons that dealt with online banking, setting up a child stock account, foreign exchange, supply and demand, difference between credit and debit cards, and how to organize three savings pots: for donating, saving and spending.

When asked to describe their "money personalities" in terms of "I like to save, spend or earn money" most students (78%) stated they like saving money, half also included either earning or spending, distributed equally. About 50% of the students described being careful about spending money by saving up for purchases they really

---

wanted, or spending at a slower rate than saving. Perspectives included: “I’m sort of mixed between saving and spending struggling [with] what I want but don’t need.” And “I like to earn and save money, whenever I spend it I feel like I could’ve saved it for something better.” Several students admitted they “like to spend money a lot.”

When asked in the pre-survey the main reasons for putting your money in a bank vs. a piggy bank, almost all students identified safety as a main reason; only 25% listed earning interest. While 90% of Grade 8 students knew what 1% of \$100 was, less than half could correctly compute 20% of \$1000. The intervention covered information on credit and debit cards, including interest rates, and this topic was ranked most useful by 95% of students. Money problem solving role-play exercises were rated as interesting and enjoyable by 95% of students.

The results indicate that middle school students are developing understandings about finances and have internalized lessons from their parents and teachers and begun to form savings and spending behaviours, curious about and sometimes struggling with how to manage money appropriately. The students were especially motivated during the financial problem solving role-play exercises, confirming the experiences of the teachers and instructors. This research found considerable variation between the financial lessons different students were taught at home and also in the student’s experience and ability to work with financial math concepts such as interest rates.

## **CONCLUSIONS**

In this paper, we provide a beginning contribution to the research in financial education for middle school students. Examining the perspectives of three different stakeholders: teachers, business volunteer instructors, and students, reveals that teachers saw a need to increase their student’s financial knowledge in a range of areas and selected a program delivered by business volunteers to bring a real-world perspective and specialized expertise to their classrooms. The volunteer instructors were motivated to share their knowledge and positively impact the students’ financial behaviors and the students shared their widely varied understandings about and experiences with finances and were engaged and attentive, though challenged with financial mathematics concepts such as computing interest. For these middle school students, parental guidance on financial habits and behaviors and the corresponding socio-economic influences were apparent and seem to play an important role in the student’s self-described values around saving and spending. This observation is consistent with the research on parental influence cited earlier in this paper, including the finding that financial literacy is strongly and significantly correlated with parent’s education, (in particular the mother’s) (Lusardi, 2012). This research also supports Sawatzki’s (2014) emphasis on the important role that student’s understandings and values around finances serve in the development of effective interventions.

This study involved a short intervention in the important area of financial literacy and provides a snapshot of three stakeholder’s perspectives. Further research could seek to bring the worlds of mathematical thinking (literacy) and financial literacy together

---

to further explore students' values, behaviors, and understandings of finance and the mathematical understandings they use and those they will need in order to make capable financial decisions in the future.

## References

- BCSC: British Columbia Securities Commission. (2011). *National report card on youth financial literacy*, October 2011.
- FCAC: Financial Consumer Agency of Canada (2009). Moving forward with financial literacy, synthesis report on reaching higher. *2008 Canadian Conference on Financial Literacy*. Montreal, Quebec.
- Jump\$tart: Jump\$tart Coalition for Personal Financial Literacy (2015). National standards in K-12 personal finance education, 4<sup>th</sup> Edition. Washington, DC: Jump\$tart.
- Lachance, M. J. & Choquette-Bernier, N. (2004), College students' consumer competence: a qualitative exploration. *International Journal of Consumer Studies*, 28: 433–442.
- Lusardi, A. (2012). Numeracy, financial literacy, and financial decision making, *Numeracy: 5(1) Article 2*. DOI: <http://dx.doi.org/10.5038/1936-4600.5.1.2>
- Lusardi, A., Mitchell, O.S., & Curto, V. 2010. Financial literacy among the young. *Journal of Consumer Affairs* 44 (2): 358–80.
- Mandell, L. (2008). *The financial literacy of young American adults: Results of the 2008 national Jump\$tart coalition survey of high school seniors and college students*. Seattle, WA: University of Washington and the Aspen Institute.
- NFCC: National Foundation for Credit Counseling (2011) "The 2011 consumer financial literacy survey, final report." Harris Interactive Inc. Public Relations Research.
- OECD (2014). *PISA 2012 Results. Students and money: Financial literacy skills for the 21st century (Volume VI)*, PISA, OECD Publishing.
- Pinto, L.E. (2012). When politics trump evidence: Financial literacy education narratives following the global financial crisis. *Journal of Education Policy*, 28(1), 95-120.
- Sawatzki, C.W. (2014). *Connecting social and mathematical thinking: Using financial dilemmas to explore children's financial problem-solving and decision-making* (Doctoral dissertation). Monash University [ethesis-20140905-091836]
- SEDI: Social & Enterprise Development Innovations (2008). *Delivery models for financial literacy interventions: A case study approach*. Prosper Canada. Toronto, ON.
- Soll, J.B., Keeney, R.L. & Larrick, R.P. (2013). Consumer misunderstanding of credit card use, payments, and debt: Causes and solutions. *Journal of Public Policy & Marketing*, 32(1), 66-81.
- Task Force on Financial Literacy in Canada. (2010). *Canadians and their money: Building a brighter financial future*. Ottawa, ON: Department of Finance Canada, p.10.