Original Articles

Citizenship Social & Economics Education

Citizenship, Social and Economics Education
1–15

DOI: 10.1177/2047173420927665
journals.sagepub.com/home/cse
SAGE

An assessment of personal financial literacy teaching and learning in Ontario high schools

Murdoch N Matheson, Christopher DeLuca, and Ian A Matheson
Queen's University, Canada

Abstract

The purpose of the study was to examine the experiences of current high school students and teachers in Ontario regarding their experiences with personal financial curriculum and teaching at the secondary level, and to identify the ways in which this important educational experience may have helped prepare students to become financially literate. We considered this overarching issue using a transdisciplinary lens from the perspective of the three stakeholder groups. Using a case study research design, the first of its kind in Ontario or Canada on this topic, We utilized interviews and artifacts to uncover student and teacher experiential data across three high schools in southeastern Ontario. The major findings were that current students and teachers perceived curriculum and teaching experiences as seriously lacking in effectively preparing them to be financially literate, and that a fundamental reorientation around transdisciplinary, student-led learning was key to transforming such learning into a more meaningful and valuable educational experience. With mandatory, properly supported, student-oriented (transdisciplinary) instruction, the potential exists for more effective and valuable learning, resulting in better equipped high school students who were properly prepared to successfully navigate financial issues and the path ahead.

Keywords

financial literacy education, financial literacy teaching, financial literacy learning in schools

Within the complex and quickly changing economic world, there is an emerging education need for curriculum, teaching, and learning to support increased financial literacy (Fox et al., 2005; Organisation for Economic Co-operation and Development (OECD), 2006, 2015). Curriculum developers, governments, and international organizations (e.g. OECD, World Bank) have acknowledged the urgency for youth to acquire knowledge and skills to make informed decisions about financial matters (Financial Literacy and Education Commission (FLEC), 2006; Sjøberg, 2019; Sridharan et al., 2017). In response, in several jurisdictions, educators have been encouraged and mandated to teach financial literacy expectations across subjects (Garg and Singh, 2018; Ontario Ministry of Education (OME), 2016). This surge of interest in financial literacy education is in

Corresponding author:
Murdoch N Matheson, Queen's University, Kingston, ON, Canada K7L 3N6.
Email: mnm2@cogeco.ca

response to recent market collapses. Economic uncertainty is a certainty; governments and policy-makers must contend with constantly changing market conditions. The introduction of complex derivative instruments in the early 2000s, led to acute global economic uncertainty sparked by the 2008 US sub-prime mortgage crisis. The need for financial literacy education could not be overstated within this broad context.

Similar to other educational systems, the Ontario Ministry of Education has responded to need for financial literacy among youth by initiating a province-wide curriculum (OME, 2016) that integrated financial literacy learning expectations across disciplines, suggesting that all educators were expected to make connections to financial topics and tasks. In essence, financial education is increasingly viewed as transdisciplinary, relating real-world financial problems and plans to a variety of disciplines (Jagman et al., 2014; Kaur et al., 2015). The Ontario financial literacy curriculum focuses on a number of knowledge areas, including “problem-solving, inquiry, decision-making, critical thinking, and critical literacy, related to financial issues” (Ontario Ministry of Education (OME), 2011: 3). The expressed goal was to help young people understand “local and global effects of world economic forces and the social, environmental, and ethical implications of their own choices as consumers” (OME, 2011: 3). This goal is reflective of other similar curricular initiatives in other educational jurisdictions in Canada and around the world (Garg and Singh, 2018; Sherraden et al., 2011). However, despite the valuable aims of new financial literacy curricula, there remains a paucity of research on the effectiveness of financial literacy education and on the teachers’ and students’ experiences of financial literacy education (Chen et al., 2017; Fosnacht and Dugan, 2018).

The aim of this study is to examine personal financial literacy education within a transdisciplinary context to develop financially literate students. Specifically, the purpose of this multi-perspective Ontario-based case study is to analyze secondary school students’ and teachers’ perceptions and experiences with personal financial literacy course curricula and teaching to understand the current value of financial literacy education. Undertaking this research from a transdisciplinary perspective introduces the consideration of new insights regarding the viability of student-centered inquiry and the associated implementation challenges (Drake et al., 2014; Ornstein et al., 2015; Totenhagen et al., 2015) as teachers work to prepare students to address current financial issues and those they would encounter as independent adults.

Research on financial literacy education

Studies focused on the financial literacy of youth around the world have highlighted a great need for increased attention to how students are educated about financial matters. Students in Mexico (Arceo-Gómez and Villagómez, 2017), Korea (Jang et al., 2014), Germany (Erner et al., 2016), New Zealand (Cameron et al., 2013, 2014), Japan, and the United States (Cameron et al., 2013) have been found to perform poorly on measures of financial literacy knowledge. Researchers have also identified sub-populations who perform significantly worse; for example, students who experience poverty have been found to perform worse than their peers from higher-income households on measures of financial literacy knowledge (Cameron et al., 2014), though these results are mixed across countries (Arceo-Gómez and Villagómez, 2017). Furthermore, interventions focused on improving financial literacy have showed weaker effects for students from low-income households compared with their peers (Fernandes et al., 2014). While some researchers suggest that targeted interventions may be most effective for sub-populations with less financial literacy knowledge (Erner et al., 2016), research also suggests that countries should work harder to develop the financial literacy of their students – particularly those in high school (Cameron et al., 2013). As such, two domains of literature were examined to provide context for our investigation on financial literacy education: literature on preparing teachers for financial literacy education and literature on the impact of financial literacy curricula on youth.

Preparing teachers for financial literacy education

Two studies aimed at understanding the relevant factors in successful teacher training on financial education used a questionnaire/quiz approach to determine teacher self-assessment relating to knowledge and confidence (Baron-Donovan et al., 2005; Loibl, 2008). These studies found that educator knowledge and confidence in the areas of financial education teaching were generally lacking. These findings may have been attributable to a perception that financial literacy content was not properly supported or resourced. There appeared to be a lack of curriculum materials, student interest, and time available to properly cover financial topics. Two other studies using the same quiz approach looked at the role and impact of teacher personal financial literacy and variables, such as satisfaction and confidence regarding the teaching of financial literacy (Baron-Donovan et al., 2005; Deng et al., 2013). Teacher training in financial literacy improved knowledge, confidence, and the efficacy of financial education teaching, findings that seemed somewhat at odds with the two previous studies. By employing solely a quantitative methodology, these studies may have missed out on teacher reflections that may only have been obtainable through a qualitative approach (e.g. personal interviews and focus groups). To date, the research on teacher preparation for financial literacy education is limited; of the research that exists, studies employed solely quantitative methods without exploring the learning and implementation experiences of teachers. To this end, qualitative studies of teachers' experiences implementing and learning to implement financial literacy curriculum are warranted.

Impact of financial literacy education

With regards to youth impact research, Mandell (2008) authored several JumpStart Financial Literacy Surveys of high school seniors beginning in 1997–1998. These large quantitative studies portrayed an overall decline over time in student financial knowledge. The surveys were composed of financial questions and problems which may or may not have been appropriate given the nature of the financial education provided. Mandell (2008) acknowledged that there were inevitable differences in curriculum content and teaching approaches even in states where financial education was mandated. Without accessing individual student inputs regarding financial education curriculum, we were left to speculate how such curriculum and teaching was perceived and what value was ascribed to it. Another quantitative study by Peng et al. (2007) noted that there was negligible impact of personal finance education delivered in high school courses, but that there was impact from college courses. Without looking into the nature of the course material and particularly how it was perceived by student stakeholders, these broad-brush results did not, on their own, provide sufficient context or utility. Further qualitative work would have helped elicit valuable student input that might help explain why college course takers benefited and high school students apparently did not.

Two other studies (Valentine and Khayum, 2005; Varcoe et al., 2005) took the same quantitative approach to gaining insight into student quiz and behavior performance as a result of financial education curriculum and other variables (part-time work, owning a savings account, and coming from a higher family income level). Improvements occurred in both studies, however, we did not have access to *how* or *why* because direct, open-ended student inputs were not provided. For instance, accessing how work, savings account ownership, and family income all play a role from the perspective of the student would have added rich interpretive data to these study conclusions. In each of these youth impact data studies, the main limitations centered on not having access to individual student unscripted inputs that were more readily elicited through open-ended qualitative methods.

Throughout this literature, the theme of standardized curricula and testing emerged. Standardized curriculum and testing is the notion that all schools with a defined area, board, or province should have pre-determined, prescribed curriculum, and testing for all students, so that they are all on the same level (OME, 2016). This standardized orientation was perhaps logical, in that, policymakers and educators often assumed these practices were more efficient and more easily measured. However, others challenged the assumption of standardization, arguing that the societal diversity we see today demanded a re-shaping and differentiation of how financial education was delivered (Lucey, 2007; Lucey and Giannangelo, 2006; Totenhagen et al., 2015). Opening dialogs about equality, economic injustice, and socio-economic issues related to student experience with financial products and services may have added value to curricula in ways not currently conceived with standardized models (Lucey and Giannangelo, 2006; Totenhagen et al., 2015). The pervasive preoccupation with standardized curricula and testing as cited in studies herein may have been a significant limitation in itself in the reach and perceived value of financial education. Standardized curricula and testing were more naturally aligned with measurable quantitative studies, however, these models did not readily access students' actual experiences with equality, economic injustice, and financial products and services (Mandell, 2008; Valentine and Khayum, 2005). This was especially true where students were not asked about their experiences in an open-ended manner. By involving a diversity of students and parents in financial literacy curriculum development, such curriculum might be responsive to the societal diversity and engage a greater number of youth in meaningful and personally relevant financial literacy education.

Overall, in examining existing literature on financial literacy education, there were three prevailing gaps. First, the overwhelming majority of studies to-date have been conducted in the United States. While other countries do have financial literacy education, research from these countries appears sparse among English-language publications. Second, research in this area has relied on quantitative methods, typical through Likert-type survey questions of youth. Rather than seeking general open-ended responses, the surveys targeted reactions to researchers' presuppositions. Third, almost no research existed in Ontario, the focus of this study. Canadian federal interest in this topic began in 2009 and curricula guidelines and policies were implemented as recently as 2012. Therefore, there is a need for Canadian-based data on current experiences with financial literacy education.

The transdisciplinary nature of financial literacy

Financial literacy terms and concepts may be linked to many subject areas; it is not a literacy topic that can easily be confined to one discipline (Jagman et al., 2014; Kaur et al., 2015). With transdisciplinary curricula, student interests dictate the questions and problems to be pursued; in this way, the students orchestrate their own curriculum and take personal ownership over their learning (Oliva, 2009; Wiggins and McTighe, 2011). Financial literacy topics, such as money and investments typically interest students in part because they want money and use it every day. Transdisciplinary curriculum opens up the learning experience to any real-world topics of interest, including money, finances, credit, and investments. Students may be curious about money and want to learn more; if their interests include personal finances, a transdisciplinary curriculum might well accommodate such a study. If it is relevant and meaningful to the student, they are more motivated to learn and benefit from their studies (McNeil, 2006a). This interest improves the prospects for confidence building, productivity, and success (Drake et al., 2014). It provides the basis for a richer cognitive environment where students own the curriculum and decide on areas of study consonant with their interests (Ornstein and Hunkins, 2013).

Financial literacy topics are interrelated (e.g. to know something about budgets and savings is to know something about how to manage money) and they inevitably draw on several subject areas (e.g. simple and compound interest uses mathematics, savings and investments are a component of microeconomics, being responsible with our resources is an act in line with our civic duties). So in these ways, student-initiated financial topics of interest are framed and studied in the same way that a transdisciplinary curricularist envisions the pursuit of learning topics by curious and motivated students (Posner, 1995). Finally, as linkages broaden and deepen among financial literacy topics of interest and traditional subject areas, higher-order thinking skills are developed; this is a frequently observed process and experience within the enactment of transdisciplinary curriculum (Marsh and Willis, 2006; Oliva, 2009). Overall, it seems that there are several compelling reasons why the provision of financial literacy education finds a natural and nurturing home within a transdisciplinary conception of curriculum, which contains the following four tenets: (a) authentic student interests/concerns, (b) collaborative dialogue and engagement, (c) student-controlled and contextualized learning, and (d) flexible, growth-oriented inquiry.

The United States provided several examples of financial literacy education that reflected the key tenets of transdisciplinary curricula. The FLEC's national strategy document cited the integrated, cross-disciplinary nature of such education (McCormick, 2009). The document outlined ideas for integrating financial education curricula into subjects, such as math, social studies, sciences, in the early grades, and economics and business studies throughout high school (FLEC, 2006). The Council for Economic Education (CEE) administered by the United States conducted national biennial surveys on the progress of the K-12 personal financial education curricula (Sole, 2014). Personal finance focused courses were considered as were financial literacy instruction included within various established subjects. Based on this study, the CEE found that the financial literacy curriculum context was transdisciplinary with an emphasis on practical life skills (Sole, 2014).

Another comprehensive US study on the progress of financial literacy education identified key themes directly tied to the tenets of transdisciplinary curriculum. Among these were parental involvement, instructor knowledge and involvement, early start, accommodating diverse backgrounds, alignment with student interests, and foundational knowledge (Totenhagen et al., 2015). Drawing on different stakeholder inputs in a collaborative manner focused on student interests was fundamental to a transdisciplinary orientation (Drake, 2012; Sowell, 2005). After reviewing more than 200 programs, the study authors concluded that youth financial education was critical to the long-term well-being of individual, families, and the entire nation. Alluding to the transdisciplinary nature of financial education, the authors noted that programs needed to consider the contextual environment in which youth live and learn. Sensitivity to youth motivation and interests were key; active learning activities and experiences were essential to bringing value and meaning (Davis and Sumara, 2006; Totenhagen et al., 2015). Partnering with local community financial professionals was identified as a means of enhancing knowledge through hands-on experience. These global and US-cited documents and studies provided examples of financial literacy education that were embedded with transdisciplinary curricular elements where the unique nature of student-driven interests and real-world engagement featured prominently.

Methods

The intent of the case study methodology used in this study was to understand a specific issue, namely, participants' perceptions and experiences with personal financial literacy curricula and teaching in high schools in southeastern Ontario. This instrumental case study included applied and evaluative elements which emerged from examining real-life experiences with this topic or phenomenon of interest (Creswell, 2013; Patton, 2015; Yin, 2009). This study was situated in southeastern Ontario, Canada, where there was a deliberate curricular focus on the financial literacy education through the provincial curriculum document entitled, The Ontario Curriculum Grades 9–12: Financial Literacy Scope and Sequence of Expectations (OME, 2011, 2016). The policy emphasized the development of knowledge and skills in the area of: problem-solving, decision-making, critical thinking, and critical literacy. It focused on the implications of students' own choices as consumers, targeting Grades 9–12. The policy was transdisciplinary as teachers were expected to promote the development of these skills and knowledge in all 17 established curricular disciplines spanning all four secondary school grades.

Data for this study were collected through interviews with teachers and current secondary school students, and through related teaching artifacts. Semi-structured interviews were conducted with 12 teachers and 12 students from three secondary schools (i.e. four students and four teachers from each of the three schools) in southeastern Ontario, Canada. Among the teacher participants, there were four females and eight males. Among the student participants, there were three females and nine males. The teachers taught a range of subjects, including civics, careers, math, history, economics, business, and science. All teachers had some experience teaching at least a unit or more of personal finance topics within their established subject areas. Their secondary school teaching career tenure ranged from a 2-year contractual position to 25 years; most were established educators with 10 years or more of teaching experience.

For the student and teacher semi-structured interviews, open-ended questions were used to probe participants' impressions and experiences with personal finance-related curriculum and teaching. The nature of the questions changed depending upon the given responses and the opportunity to pursue nuanced reflections on what actually occurred in the classroom. Participants were encouraged to offer any other thoughts and ideas on the topic outside of the line of questioning. Teachers were invited to share teaching artifacts (lesson plans, assignments, worksheets) with the researcher to highlight their pedagogy in the area of financial literacy education. Data collected from student and teacher interviews and artifacts were analyzed through standard thematic analysis (Braun and Clarke, 2006; Creswell, 2013; Hines, 2009). Using inductive analysis, the researcher searched the collected data for codes, categories, and themes, avoiding preconceived analytical categories (Braun and Clarke, 2006; Creswell, 2013; Patton, 2015). The collection and analysis process utilized personal note-taking, audio recordings, and research software (i.e. ATLAS.ti). Student and teacher data were analyzed separately within two aggregated groups. Data were analyzed by one rater with reliability ensured through a second rater who analyzed a subset of data. Raters discussed themes and codes until consensus was reached to ensure a high degree of trustworthiness.

Trustworthiness and credibility were further enhanced by the use of the following two forms of triangulation involving multiple participants: consistency checking drawing on different data collection methods and consistency checking through different data sources within the same method (Hines, 2009; Mathison, 1988; Patton, 2015). Trustworthiness and credibility were operationalized in two ways within this study. First, open-ended interview questions provided the opportunity for teacher and student respondents to raise and address questions and issues that they themselves framed in an unconstrained way. Furthermore, all participant data were collected within the school context within which all participants were familiar; a comfortable participant context enhances accuracy (Von Hippel, 2016[1988]; Woodside, 2016).

Results

Inductive thematic results were drawn from interviews with students and teachers from three secondary schools. An important finding unto itself was that the five themes emerged in both student and teacher data with high relevance and consistency in each group. The five themes that emerged from the data are (a) stream coverage, (b) equality issues, (c) curriculum and teaching limitations, (d) valuable advisors and supporters, and (e) enhancing pedagogy. The themes are elaborated below drawing on both student and teacher data.

Stream coverage

Stream coverage addressed the nature of personal financial literacy teaching and learning within the three established high school streams of academic, college/applied, and workplace. In Ontario, secondary students can choose course based on post-secondary destination (i.e. stream). Stream coverage comprises two categories: (a) academic stream limitations and (b) college/applied and workplace coverage.

The academic stream did not seem to provide for much, if any, personal financial literacy curriculum or teaching from the perspectives of teachers and students. For example, the following descriptive words were used to outline teacher and student perspectives on personal finance instruction in the academic stream: absent, missing, ignored, least coverage, overlooked, void, and lacking. Taken altogether, the codes represented a lack of interest, time, or space regarding personal finance instruction in the academic stream courses. One teacher lamented that there was a "huge gap, no course for [the] academic stream" in financial topics and issues. Another teacher characterized this *gap* as a missed opportunity to provide important learning for students, noting that "the academic kids need this." Overall, these academic stream findings outlined an oversight of demonstrable curriculum and teaching in the personal financial literacy space. Moreover, based on the perspectives of teachers and students in this study, this instruction gap appeared to be inequitable for academic students and a missed opportunity for important life learning.

Over the course of the interviews, a category related to college, applied, and workplace coverage emerged, which suggested that *some* level of personal financial literacy instruction occurs in college and applied and workplace stream courses. The codes described the partial or limited personal finance instruction that occurred in some high school courses. If and when this instruction was operational, it typically took place within college or workplace math or civics courses. One Grade 12 college math student, just 2 months away from graduation underscored the limited coverage in this space "college math is the only place I've had exposure" to personal financial literacy topics. Another applied stream student summarized his assessment this way: "I think I should be learning the basics from grade 9–12." Surveying the above range of responses from participants, it appeared that the college/applied and workplace streams provided *some opportunity* for personal finance coverage within the curriculum and teaching, however, it was quite limited. Primary topics in this stream are saving and investing, financial planning, fraud and ID theft, taxes, and inflation. Importantly, what was missing from college, applied, and workplace streams was a comprehensive, focused coverage over a broad array of personal finance topics.

Equality issues

Both student and teacher respondents alluded to the idea that underlying the personal finance curriculum and teaching was the inherent inequality in financial experiences and instruction from home across different student socio-economic backgrounds. Some students were privileged with exposure to personal finance information and knowledge in the home, whereas other students were not, creating knowledge gaps among students. One student stated that she "learned financial basics at home." Equality was also a factor in terms of student experiences with part-time jobs. Working students might have had at least some exposure to money management, bank accounts, saving, and spending, that may have been absent in the experience of non-working students. The combination of these factors created an uneven playing field for the instructors, as curriculum and teaching in personal finance would likely have found a more relatable and receptive learner in students so privileged in terms of background or life experience. According to one student, financial literacy teaching "was too broad, every kid comes from a different background" implying that for students that were exposed to financial terms and concepts at home, such instruction may have seemed natural, building upon what they already knew. For other students where personal finance topics were not discussed at home, they may not have easily related to such terms and knowledge, particularly when they had not had a chance to develop and apply these skills in their day-to-day experience.

Curriculum and teaching limitations

Deficiencies and weaknesses were also highlighted by respondents, including a lack of tools and resources, money topics missing, limited time/space, teacher interest, and competency. Overall, the consensus among both teacher and student respondents was that personal financial literacy curriculum tools and resources did not meet their expectations for teaching and learning, and were largely ineffective or insufficient as learning aids. The net effect of this shared perception was that without proper tools and resources, there was a missed opportunity to provide effective instruction on topics that were viewed as meaningful and valuable by both constituent groups. Teachers voiced their frustration through statements including "I need more resources" and "there isn't any textbook material," emphasizing the lack of suitable teaching material, while one student "didn't like when teachers just [taught] the curriculum" implying that other teaching tools and approaches would be welcome.

Regarding money topics missing, respondents expressed that fundamental personal finance topics did not get the instructional time and attention they needed in current curriculum and teaching contexts. The consensus was that this oversight represented a significant curriculum and teaching limitation in the area of personal finance. One student identified specific gaps in learning that should have been fully addressed: "taxes, I have no idea here and I'll be going to university and I should know that, fraud and ID theft not covered and ignored, should be covered, also credit/debt not covered." Another student reiterated a similar point saying that personal finance was "not covered in school, high school teachers haven't covered this about life, more off-hand conversations based learning." Teacher respondents expressed frustrations about how "students don't have [a basic] understanding of money, skills," and how "any construction around personal financial literacy could be revisited, changed, updated for relevance."

Both types of respondents identified limitations regarding the time and space of the curriculum, as well as the interest and competency of teachers. Despite direction from board curriculum documents that financial literacy-related terms and concepts be included in all of the established subject instruction, most teachers were challenged to find teaching time and space for this topic. Teacher interest in and self-perceived competency with personal finance played a significant role in whether these topics were covered and the level of enthusiasm and engagement that occurred with students. Individual teacher experiences with personal finance appeared to strongly influence both interest and competency factors, and ultimately the manner in which personal finance instruction was undertaken. Though student respondents expressed a desire to learn about concepts like "investments, [where] teachers could share their experiences, and (we could) learn more," teacher respondents expressed that "anecdotal teaching is not likely" given their own lack of interest or competency with the concepts.

Valuable advisors and supporters

Respondents also spoke about outside expertise and parental involvement as categories related to valuable advisors and supporters. A consensus was evident among students and teachers on the perceived value of including outside expertise in the teaching of personal finance. A student observed that there were "different experts and people who can help the learning process" that may be brought in to assist with the subject matter. Both types of respondents also agreed that personal finance education was aided by parents and family members who were interested in these topics in the home environment. While one teacher expressed there was an "expectation that these things will be taught more at home," another teacher asserted that "most students have minimal if any exposure to personal finance." One teacher had "received emails from students and parents [expressing their] appreciation" for financial literacy instruction, and suggested that active interest and support by parents in such education matters.

Enhancing pedagogy

Both types of respondents spoke about the idea of enhancing pedagogy through categories that included student-led learning, projects and games help, real-life engagement, sequential learning, important skills and knowledge, and mandatory course instruction. Both respondents indicated that personal finance topics were more real and engaging when pursued individually on the basis of student-led inquiry. At the same time, both teachers and students lamented that notwithstanding these learning benefits, the current teacher and textbook-led model had the systemic momentum of tradition and practice behind it, and did not easily give way to innovative, student-led approaches to learning. One teacher expressed that it was important "to have it student driven, it has to be relevant to them or they will not buy-in or get involved." To make it meaningful, one student reported that the instruction "material needed to accommodate different student interests," which according to another teacher, could be accomplished more readily if students led the learning "drawing on their own personal experiences."

There was also a perceived value of games, projects, and assignments as preferred learning vehicles; both types of respondents felt that the flexible, freestyle nature of this learning was favored over traditional text-driven approaches where students became directly involved in the activity and had the time and freedom to explore areas of personal finance that were of greatest interest. A teacher described a research project assignment that was successful "getting them more involved in activities that they care about." One student expressed that student-initiated projects provided the welcome "opportunity to initiate our own learning which is good." Another student described a popular survival game called "Family Alive" where students were in charge of a family, and had a certain income with specific goals; they had to successfully navigate various issues and decisions that impacted themselves and their families. The student felt this game taught decision-making, where they learned to "prioritize required items over pleasure choices," and came to understand the consequences of their decisions for themselves and those they cared about.

Both students and teachers collectively acknowledged that student real-life engagement was largely lacking in personal finance curriculum and teaching, and it was recommended as a key pedagogy to enhancing and improving the value of personal finance education, enabling graduates to be more able to navigate the path ahead. One student stated "What I want to know is how to apply this in my life, not the formulas," while a teacher shared that "without student interest, you will struggle to convey anything" suggesting that engaging students with the subject matter in relatable, real-life connections was key. Teacher respondents expressed that a sequential learning model, building progressively beyond basic financial terms and concepts directly connected to student real-world experiences, was a preferable instruction model. One teacher stated that "if I was designing [personal finance curriculum], I would play out a decade at a time" in which the money management topics and issues pertinent to particular chapters in a lifetime have to be addressed with decisions to be made in each decade. Illustrating his point, the teacher remarked that there were investment issues a 20–year-old would face that would be altogether different from those of a person in their 60s.

While there was a shared perspective on the importance of financial skills and knowledge, there was also considerable concern expressed about student readiness to apply these skills in productive and positive ways. One teacher stated, "I don't think we're sending them out prepared." These expressed concerns gave rise to a disconnect between the perceived value of personal finance education and the capacity of curriculum and teachers to properly prepare students for the path ahead. These responses acknowledged the shared concern that the teaching of financial literacy skills and knowledge was insufficient and that this learning gap was not in students' interests as they prepared to function independently in the real world. Finally, teacher and student respondents emphasized the need for mandatory personal finance instruction for high school students. Respondents viewed personal finance instruction as useful, valuable, and important in helping prepare students to live in the real world and navigate the myriad finance issues in the path ahead. Teacher respondents expressed their shared view that a mandatory course in Grade 12 was preferable, as "students understand and relate better if it's taught at a more senior level."

Discussion

The purpose of this study was to examine the personal financial curriculum and teaching experiences of high school students and teachers. Data provided a window into what was occurring in the classroom, what was working, and what improvements may be made within the current transdisciplinary context of financial literacy education in Ontario, with implications for other jurisdictions. In relation to previous study findings, this research contributed the following novel results to understanding financial literacy education: (a) students and teachers have stated that the current personal finance curriculum and teaching was largely inadequate and inconsistent with stated curriculum goals and the best interests of students; (b) dedicated personal finance-related course(s) were required to provide comprehensive and meaningful instruction; (c) a fundamental re-evaluation of the manner in which personal financial teaching was conducted was required, with emphasis placed on student-centered, transdisciplinary learning-oriented around real-life student relevant interests and issues; (d) qualitative (interview) data that were unique in Ontario in this study and more broadly in this research area, which has almost exclusively been quantitative (surveys) in nature has enabled access to unscripted, valuable feedback from students and teachers regarding their personal financial curriculum and teaching perspectives and experiences; and (e) there was a noteworthy convergence of findings among students and teachers in this study, which suggests a high degree of consistency in the perception and experience of financial literacy education in this case study.

With regards to how students have perceived their financial literacy education, the findings from the present study provided assertions that were both consistent and inconsistent with existing studies in the field. In the present study, students cited the need for active hands-on learning activities and experiences with financial literacy, as well as partnering with local finance professionals to enhance the learning experience. This same point was underscored in a US-based review of youth financial literature (Totenhagen et al., 2015). Similarly, other studies (Baron-Donovan et al., 2005; Deng et al., 2013; Loibl, 2008) identified the importance of teacher training, appropriate learning resources, and instructional confidence and competence in financial literacy as key factors in delivering meaningful and valuable education in this space.

There is an opportunity for financial literacy instruction to come from the parents and guardians of students. However, as the CEE (2013) expressed, parents may not always be the best models for financial decision-making. While students may learn about financial topics from their parents, there is no guarantee that the knowledge is accurate. As was expressed by participants in the present study, there is an inequality in both the exposure to knowledge and financial experiences for students outside of school. With the range in both the quantity and quality of direct and indirect (e.g. part-time job) instruction for students coming from outside of school, there is a clear need for equality in exposure to a strong financial curriculum.

Assertions from the present study also suggested that according to students, financial literacy curriculum guidelines did not manifest in effective and meaningful instruction. Similarly, in several US-based quantitative studies (Danes and Haberman, 2007; Mandell, 2008; Peng et al., 2007), mandated financial education did not prove to be effective in raising levels of financial literacy. At the same time, other studies revealed that mandated financial education in high school courses did indeed result in positive learning outcomes, which on the surface, appeared to be inconsistent with the findings from the present study. The explanation for these discrepancies lay in the nature of the mandated instruction. The findings from the present study did not support the notion that mandated instruction existed in Ontario; curriculum guidelines provided that direction, however, effective and meaningful enactment was apparently absent. In the absence of enactment, the findings from the present study did not ascribe any value to mandated instruction where it did not exist. The findings affirmed the student recommendation that to prove effective, such learning must be both mandated and enacted, consonant with a student-focused educational experience.

Within the present study, teachers underscored the value of mandated financial education, which was consonant with findings from several studies (Bernheim et al., 2001; Deng et al., 2013; Varcoe et al., 2005). Other studies asserted that mandated financial education had no measureable positive impact on learning (Danes and Haberman, 2007; Mandell, 2008; Peng et al., 2007). Teachers within this study asserted that any kind of mandated financial instruction was largely absent within the Ontario curriculum, yet they acknowledged the potential of enhanced instructional meaning and value where such learning was suitably implemented and enacted. Several studies (Baron-Donovan et al., 2005; Deng et al., 2013; Loibl, 2008; Totenhagen et al., 2015) pointed to the value of financial instruction where suitable teacher training and resources were in place. The findings from the present study provided similar assertions with teachers lamenting the lack of teacher training and suitable resources, while noting the enhanced value of financial instruction where such training and resources were available.

A transdisciplinary educational framework offered an innovative, student orchestrated means of learning (Drake, 2012). It offered the best means of accessing student-generated topics of interest (i.e. money, spending, saving, investments, taxes, debts, etc.) and learning processes that offered the most stakeholder value and meaning (Drake et al., 2014; OME, 2011). Teachers who have had a declared interest in personal financial literacy and have been suitably trained (additional qualifications) should have instructed within dedicated courses or at least focused units within courses. Rather than have teachers lead the instruction, which was the typical approach taken with most school subjects, personal finance education should have ideally been student-centered learning, oriented around real-life issues of current interest. Student-led instruction is not necessarily incompatible with sequential learning, rather, it reflected another recommended learning model that emerged from this study. For example, topics such as bank accounts and budgeting could have been investigated based on student interest prior to say investment products, but within such topics there could have been a sequence of learning. In any event, whether a sequential (i.e. linear) model was invoked or not, or some combination thereof, student-centered learning should have prevailed as the preferred instructional model. This perspective was consonant with the expressed views of most of the study participants on this point. Future research on the sequencing and specific pedagogy that yields deep learning of financial literacy is warranted, given these study findings.

Consonant with these recommended financial literacy transdisciplinary learning approaches, the findings from the present study underscored the point that students should drive the educational experience around their personal real-world interests and problems. For the most part, teacher-led personal financial instruction was not broadly appreciated and was perceived by students as lacking in meaning or value. Research (Drake et al., 2014; McNeil, 2006; Oliva, 2009; Ornstein and Hunkins, 2013; Wiggins and McTighe, 2011) has promoted the notion that a transdisciplinary approach, where students orchestrated their own curriculum, can provide the optimum learning motivation and benefits for financial literacy. The findings from the present study endorsed this transdisciplinary student-centered approach to learning. They were consonant with the stated Ontario curriculum goals related to student confidence building, productivity, and success (OME, 2011, 2016).

Operationalizing this personal financial transdisciplinary approach to learning was not without its challenges as identified in this study or previous scholarship (Drake et al., 2014; McNeil, 2006). In order for personal finance to have been allotted course focus, teaching space, and suitable resources, other educational priorities may have to have been adjusted or compromised. Supporting a truly student-centered approach to learning would have required not only curriculum-stated commitments on the topic, but also the interest and flexibility on the part of teachers to devote instructional space and time to such innovative teaching models; and, to have been prepared to learn and adjust to constantly improve learning practices. This may have been an unrealistic goal in the short term, however, potential existed for moves in this direction in time as personal financial literacy received more attention and teaching and learning practices were reviewed and re-evaluated in light of best teaching practices in this space.

Finally, amid the barriers and challenges inherent to implementing a transdisciplinary personal financial literacy curriculum, there were expectations that teachers should have made the effort to invoke such learning within the domain of each and every subject area, as outlined in the curriculum document (OME, 2016). Without financial literacy, teaching and learning students might be deprived insight and understanding that could be useful and meaningful in their current and future paths. However, unprepared, they may have perceived themselves to be to teach financial literacy, teachers in many cases abdicated their responsibilities to students in this emerging space. This finding reality underscored the importance and value of re-evaluating the educational experience in light of best financial literacy practices and implementing suitable changes.

The findings of this study must be considered in relation to the scope of the investigation, the limitations of the study, and context of the research. The findings from the present study may have been enhanced with additional interviews or surveys of school board officials, administrators, and the public at large regarding their perceptions of personal financial curriculum and teaching. Inputs from these additional stakeholders would have inevitably added value to the study insights and assertions. Also, a more complete representation of financial literacy learning experiences may have been possible with a greater weighting of participants from the applied/college and workplace streams. Interview questions could have probed respondents' experiences with personal financial curriculum and teaching with more precision and depth. This could have been accomplished by asking for clarification when general or vague answers were provided or by asking more follow-up questions. As examples, more detail could have been requested about:

(a) what curriculum and teaching could have been curtailed to make room for personal finance instruction; (b) what personal financial topic instruction should be prioritized; and (c) the specific instructional duties and responsibilities of students and teachers within a student-centered learning environment. The absence of detail on these topics does, however, provide some direction for future research.

Future personal financial literacy research could also include the application of a transdisciplinary lens to other Ontario schools, and to other jurisdictions across Canada. Additional research (i.e. larger, more generalizable studies) of this nature will enable testing and comparability of findings, ultimately improving data reliability and validity. Studies are needed that will uncover best personal financial curriculum and teaching practices here in Canada but also across the world. As additional research in this regard unfolds, meaningful and valuable improvements may be undertaken in this emerging space which policymakers, curriculum writers, and key stakeholders have stated is of such critical interest and importance.

Conclusion

Given the global emerging interest in financial literacy in recent years, this study contributed important findings that have implications for theory, policy, and practice. Within Ontario and more broadly in Canada and beyond, there has been no high school personal financial literacy curriculum and teaching research using a transdisciplinary framework. Drawing on qualitative methods, this research shed light onto the perspectives of students and teachers regarding the viability of transdisciplinary financial literacy education. Governments and educational policy positions and documents need to contend with the exposed gaps that exist between the actual learning experiences within this space and desired curricular outcomes. The congruence of findings from these key stakeholders regarding recommended curriculum and teaching enhancements and improvements are worthy of close examination. The recommendations herein have implications for policy and practice that could transform personal financial learning into a more meaningful and valuable education experience.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

ORCID iD

Murdoch N Matheson https://orcid.org/0000-0002-0955-5075

References

Arceo-Gómez EO and Villagómez FA (2017) Financial literacy among Mexican high school teenagers. *International Review of Economics Education* 24: 1–17.

Baron-Donovan C, Wiener R, Gross K, et al. (2005) Financial literacy teacher training: A multiple-measure evaluation. *Journal of Financial Counseling and Planning* 16: 63–75.

Bernheim BD, Garrett DM and Maki DM (2001) Education and saving: The long-term effects of high school financial curriculum mandates. *Journal of Public Economics* 80(3): 435–465.

Braun V and Clarke V (2006) Using thematic analysis in psychology. *Qualitative Research in Psychology* 3: 77–101.

Cameron MP, Calderwood R, Cox A, et al. (2013) Personal financial literacy among high school students in New Zealand, Japan, and the USA. *Citizenship, Social and Economics Education* 12(3): 200–215.

Cameron MP, Calderwood R, Cox A, et al. (2014) Factors associated with financial literacy among high school students in New Zealand. *International Review of Economics Education* 16: 12–21.

Chen K, Bendle N and Soman D (2017) Policy by design: The dawn of behaviourally-informed government. *Report, University of Toronto, Canada, March*.

Council for Economic Education (CEE) (2013) *National Standards for Financial Literacy*. New York: Author.

Creswell JW (2013) *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Thousand Oaks, CA: Sage.

Danes S and Haberman H (2007) Teen financial knowledge, self-efficacy, and behaviour: A gendered view. *Journal of Financial Counseling and Planning* 18: 48–60.

Davis B and Sumara DJ (2006) *Complexity and Education: Inquiries into Learning, Teaching, and Research*. Mahwah, NJ: Lawrence Erlbaum.

Deng HT, Chi LC, Teng NY, et al. (2013) Influence of financial literacy of teachers on financial education teaching in elementary schools. *International Journal of E-Education, E-Business, E-Management and E-Learning* 3(1): 68–73.

Drake SM (2012) *Creating Standards-Based Integrated Curriculum: Common Core Edition*, 3rd ed. Thousand Oaks, CA: Corwin Press.

Drake SM, Reid JL and Kolohon W (2014) *Interweaving Curriculum and Classroom Assessment: Engaging the 21st Century Learner*. Toronto, ON, Canada: Oxford University Press.

Erner C, Goedde-Menke M and Oberste M (2016) Financial literacy of high school students: Evidence from Germany. *Research in Economic Education* 47(2): 95–105.

Fernandes D, Lynch JG Jr and Netemeyer RJ (2014) Financial literacy, financial education, and downstream financial behaviors. *Management Science* 60(8): 1861–2109.

Financial Literacy and Education Commission (FLEC) (2006) *Taking Ownership of the Future: The National Strategy for Financial Literacy*. Washington, DC: Author.

Fosnacht K and Dugan BJ (2018) Undergraduate financial knowledge and the role of financial education programming. In: *NASPA annual conference*, Philadelphia, PA, 5 March.

Fox J, Bartholomae S and Lee J (2005) Building the case for financial education. *Journal of Consumer Affairs* 39(1): 195–214.

Garg N and Singh S (2018) Financial literacy among youth. *International Journal of Social Economics* 45(1): 173–186.

Hines SR (2009) Investigating faculty development program assessment practices: What's being done and how can it be improved? *Journal of Faculty Development* 23: 5–19.

Jagman H, Lewis K, Nunn B, et al. (2014) Financial literacy across the curriculum (and beyond): Opportunities for academic libraries. *College & Research Libraries News* 75(5): 254–257.

Jang K, Hahn J and Park HJ (2014) Comparison of financial literacy between Korean and U.S. high school students. *International Review of Economics Education* 16: 22–38.

Kaur M, Vohra T and Arora A (2015) Financial literacy among university students: A study of Guru Nanak Dev University, Amritsar, Punjab. *Asia-Pacific Journal of Management Research and Innovation* 11(2): 143–152.

Loibl C (2008) Survey of financial education in Ohio's schools: Assessment of teachers, programs, and legislative efforts. *Ohio State University P-12 Project*. Available at: http://p12.osu.edu/reports/Loibl.PersonalFinancialEducation.pdf

Lucey T (2007) The art of relating moral education to financial education: An equity imperative. *Social Studies Research and Practice* 2: 486–500.

Lucey T and Giannangelo D (2006) Short changed: The importance of facilitating equitable financial education in urban society. *Education and Urban Society* 38: 268–287.

McCormick MH (2009) The effectiveness of youth financial education: A review of the literature. *Journal of Financial Counseling and Planning* 20: 70–83.

McNeil JD (2006a) *Contemporary Curriculum in Thought and Action*, 6th edn. Hoboken, NJ: John Wiley & Sons.

McNeil JD (2006b) *Curriculum: A Comprehensive Introduction*, 6th edn. New York: Harper Collins.
Mandell L (2008) High school financial literacy. In: Lusardi A (ed.) *Overcoming the Savings Slump*. Chicago, IL: University of Chicago Press, pp.257–279.
Marsh C and Willis G (2006) *Curriculum: Alternative Approaches, Ongoing Issues*, 4th edn. New York: Merrill Publishers.
Mathison S (1988) Why triangulate? *Educational Researcher* 17(2): 13–17.
Oliva PF (2009) *Developing the Curriculum*, 7th edn. Boston, MA: Pearson.
Ontario Ministry of Education (OME) (2011) The Ontario curriculum grades 9-12: Financial literacy scope and sequence of expectations. Available at: http://www.edugains.ca/resourcesFL/Resources/Secondary/FinLitGr9to12.pdf
Ontario Ministry of Education (OME) (2016) The Ontario curriculum grades 9-12: Financial literacy scope and sequence of expectations. Available at: www.edu.gov.on.ca/eng/document/policy/finlitgr9to12.pdf
Organisation for Economic Co-operation and Development (2006) The importance of financial education [policy brief]. Available at: http://www.oecd.org/dataoecd/8/32/37087833.pdf
Organisation for Economic Co-operation and Development (2015) 2015 OECD/INFE toolkit for measuring financial literacy and financial inclusion. Available at: https://www.oecd.org/daf/fin/financial-education/2015_OECD_INFE_Toolkit_Measuring_Financial_Literacy.pdf
Ornstein AC and Hunkins FP (2013) *Curriculum: Foundations, Principles, and Issues*. Boston, MA: Allyn & Bacon.
Ornstein AC, Pajak EF and Ornstein SB (2015) *Contemporary Issues in Curriculum*, 6th edn. Boston, MA: Allyn & Bacon.
Patton MQ (2015) *Qualitative Evaluation and Research Methods*, 4th edn. Newbury Park, CA: Sage.
Peng T-CM, Bartholomae S, Fox J, et al. (2007) The impact of personal finance education delivered in high school and college courses. *Journal of Family and Economic Issues* 28: 265–284.
Posner G (1995) *Analyzing the Curriculum*, 2nd edn. New York: McGraw Hill.
Sherraden MS, Johnson L, Guo B, et al. (2011) Financial capability in children: Effects of participation in a school-based financial education and savings program. *Journal of Family and Economic Issues* 32(3): 385–399.
Sjøberg S (2019) PISA: A success story? Global educational governance by standardization, rankings, comparisons and "successful" examples. In: Langer L and Brüsemeister T (eds) *Handbuch Governance Theorien*. Wiesbaden: Springer, pp.653–690.
Sole MA (2014) Financial literacy: An essential component of mathematics literacy and numeracy. *Journal of Mathematics Education at Teachers College* 5(2): 55–62.
Sowell EJ (2005) *Curriculum: An Integrative Introduction*, 3rd edn. Upper Saddle River, NJ: Pearson Education.
Sridharan S, Cosentino C and Meyer L (2017) The partnership to strengthen innovation and practice in secondary education (PSIPSE): 2016 monitoring results. *Report, Mathematica Policy Research, Princeton, NJ, 1 August*.
Totenhagen CJ, Casper DM, Faber KM, et al. (2015) Youth financial literacy: A review of key considerations and promising delivery methods. *Journal of Family and Economic Issues* 36: 167–191.
Valentine G and Khayum M (2005) Financial literacy skills of students in urban and rural high schools. *Delta Pi Epsilon Journal* 47: 36–48.
Varcoe K, Martin A, Devitto Z, et al. (2005) Using a financial education curriculum for teens. *Journal of Financial Counseling and Planning* 16: 63–71.
Von Hippel EA (2016[1988]) *The Sources of Innovation*. New York: Oxford University Press. Available at: https://ssrn.com/abstract=2877276
Wiggins G and McTighe J (2011) *The Understanding by Design Guide to Creating High Quality Units*. Alexandria, VA: Association for Supervision & Curriculum Development.
Woodside AG (2016) Storytelling theory and research. In: Woodside AG (ed.) *Case Study Research*. Bingley: Emerald Group, pp.41–83.
Yin RK (2009) *Case Study Research: Design and Methods*. Los Angeles, CA: Sage.