

Running head: BRIDGING THE FINANCIAL LITERACY DIVIDE THROUGH ONLINE
SELF-ORGANIZED SOCIAL SYSTEMS

Bridging the Financial Literacy Divide through Online Self-Organized Social Systems

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Abstract

The democratizing effect of second-generation, web-based technologies has significantly diminished traditional barriers to information. A multitude of financial literacy programs and tools are now available online, giving rise to an increased access to financial education. Despite this, persistent financial struggles among Canadians suggest that access to financial literacy interventions may not be enough to bridge the financial literacy divide. The use of Online Self-Organizing Social Systems (OSOSSes) in providing emergent and situationally-relevant financial advice may present an opportunity to support existing modes of financial education and improve individuals' personal finance success. In addition, observational learning through OSOSSes may provide participants positive and negative models to reinforce existing financial knowledge or encourage financial behaviours. Applying a qualitative research methodology involving participants of a popular knowledge-based Reddit community, *r/PersonalFinanceCanada* (*r/PFC*), this study explored the following research questions:

RQ1: In what ways does participation in OSOSS influence participants' financial knowledge, attitudes, and behaviours?

RQ2: How does examining this phenomenon through the lens of social learning inform future research and development of financial literacy programs?

Semi-structured interviews yielded a data corpus that was analyzed using a combination of conventional and directed content analysis. Findings suggest that as a result of observations and, to a lesser degree, interactions with other OSOSS participants lead to an increase in financial awareness and confidence, and result to a positive effect on participants' financial behaviours. This study provides a foundation for future research on the impact of OSOSSes participation on individuals' personal finance outcomes.

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Chapter 1: Introduction

The democratizing effect that second-generation web-based technologies has had on access to information has transformed how individuals obtain knowledge, both in formal and informal settings. Innovations in information and communications technology (ICT) have opened digital doorways to help diminish geographic and even socio-economic constraints to education, leading to a rise in structured, web-based educational programs (Chen & Kidd, 2009; Liu, 2013). Informal education, defined as the spontaneous process of cultivating learning through conversation, exploration, and enlargement of experience (Smith, 2009) has also been shaped by web-based technologies as online experiences become increasingly interwoven with real life.

Situated within the broader educational landscape is the comparatively fledging sub-domain of financial literacy. The broader economic implications of financial literacy remained largely unexplored up until the 1990's, after the relationship between financial literacy and economic well-being became more apparent, thus propelling financial literacy into collective consciousness (Financial Consumer Agency of Canada, 2019). Ripples of the global financial literacy movement reached the Canadian landscape, setting into motion consultations and resulting efforts geared towards improving the level of financial literacy among Canadians. (FCAC, 2019).

Financial education programs have not escaped the roots of digital transformation that has been rapidly burrowing across the wider educational panorama. A plethora of financial literacy programs and tools abound the financial education topography (Rustomfram & Robinson, 2015; Taejun, 2017). Yet, despite the upsurge in the availability and accessibility of financial literacy programs, increased indebtedness (Fournier, et al, 2019), lack of retirement

readiness (Chevreau, J. 2018;), and an ever-widening chasm between the haves and have-nots (Task Force on Canadian Financial Literacy, 2010) continue to plague Canadians. While ICTs have played an increased role in mediating access and availability to financial education programs and tools, the gap in Canadian financial literacy levels show no signs of abating.

Purpose of the Study

The broadness of extant research on past and current financial literacy programs depicts the ever-growing sprawl of the financial education landscape. Improvements in technology and connectivity have greatly increased ease of access to financial education, however, the potential to augment individual financial literacy through informal, participatory, and observational learning within web-based environments remains largely uncharted. I will explore how Online Self-Organized Social Systems (OSOSSes) might facilitate perceived financial literacy within the framework of social learning. While not generalizable to a wider population, insights from my research may contribute to the development of current financial literacy initiatives in Canada and across the globe, and may serve as a springboard for future inquiry into financial literacy.

Preview of Literature Review

Situating the development of the global financial literacy movement in a proper context is essential to weaving a rich and dynamic portrait of the phenomenon of interest. Nestled amongst previous scholarly explorations on financial literacy delivery methods and perspectives on financial literacy lies the pretext for my exposition, which will be outlined in my literature review. The social learning theory, premised on the philosophy that individual learning takes place in social settings as a result of that individual's observation of others behaviours and of the consequences of those behaviours (Bandura, 1977), will serve as the backdrop for this study.

Preview of Research Methodology

To understand how the social aspect of OSOSSes may facilitate financial literacy through informal learning, I developed my research tool within the scope of the main theoretical tenets of social learning. I recruited active participants of r/PersonalFinanceCanada (r/PFC) – a Reddit community devoted to personal finance. Reddit is one of the world’s most widely used OSOSS. Semi-structured interviews were used to draw out rich descriptions of participants’ experiences relating to how their r/PFC participation affects their perceived financial literacy. Interview data was subjected to a combination of inductive and deductive coding cycles, yielding findings and conclusions that may pave the way for future explorations into the subject-matter.

Acknowledging limitations to the conclusiveness of my findings as a result of the limited size and scope of my study, this research nonetheless fills the current gap in understanding how persona finance OSOSSes may complement more structured financial education delivery models, by providing a rich venue for context-based informal learning. The following research questions guided my inquiry:

RQ1: In what ways does participation in OSOSS influence participants’ financial knowledge, attitudes, and behaviours?

RQ2: How does examining this phenomenon through the lens of social learning inform future research and development of financial literacy programs?

This research report is divided into five chapters in total: chapter two contains a review of related literature in financial literacy perspectives and contemporary interventions; chapter three describes the design and methodology that I developed to aid my exploration; chapter four contains my findings and analysis; and chapter five summarizes my insights and provides recommendations for future use and study.

Chapter 2: Literature Review

“Financial literacy can make a crucial difference in the lives of people, in their opportunities, in their success: it is a foundation stone for well-being, for entrepreneurship, for social mobility, for inclusive growth.” – Angel Gurria, 2015 unveiling of the Programme for International Student Assessment (Organisation for Economic Co-operation and Development, 2015).

We stand on the brink of a massive transformation, where rapid shifts in the technological milieu has led to an unprecedented set of challenges to society. Individuals, perhaps more than ever before, now regularly contend with financial decisions that often have lasting implications on their personal and economic lives (Palameta, et al, 2016; Skagerlund, et al, 2018, Lusardi, 2015). The lingering aftershocks of the 2008 Great Financial Crisis (GFC) serve as a solemn testament to the effects of seemingly innocuous, day-to-day financial choices. While the origins of the GFC can be traced back to an unchecked deregulation in the financial industry, some nonetheless suggest that the financial decisions that led to the crisis were reflective of a general dearth of financial astuteness stemming from low financial literacy levels (Klapper et al, 2012). A disproportionate amount of the GFC’s casualties were financially-vulnerable individuals and families (Habib, et al, 2010) which further exacerbated already precarious financial situations. Today, over decade since this historic market crash, many families affected by GFC have yet to recover (Li et al, 2016; DePillis, 2018). The years following the GFC stimulated a renewed commitment to improving global financial literacy levels (OECD, 2009). In Canada, the Financial Consumer Agency of Canada (FCAC), originally established in 2001 to improve Canadians’ understanding of the financial sector, its products and services, expanded its mandate in 2007 to improve the financial knowledge and behaviours of

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Canadians. (FCAC, 2019). Since its establishment, the agency has dedicated a tremendous amount of resources to developing and implementing national strategies for efficient financial literacy programs. Nonetheless, the grim reality of working Canadians' financial situations suggests that the journey to financial literacy has only just begun (FCAC, 2017). Despite the increased awareness around the importance of financial literacy, collective knowledge and has failed to keep up with technology-driven financial trends (Galvin et al, 2018), creating continued cause for concern among financial education proponents (Redmund, 2010; Spiranec et al, 2012, Lusardi 2015).

To situate my research within the wider financial education landscape, my literature review will trace the progression of the field of financial literacy and address the various perspectives on the subject. I will begin by capturing major themes around factors affecting financial literacy, followed by a brief overview of some examples of digitally-mediated financial literacy interventions. Appreciating these enduring themes and patterns will shape the rationale for the exploration into how the social aspect of OSOSSes may facilitate informal learning and influence participants' financial knowledge, behaviours, and attitudes.

Overview of the Literature Review Methodology

Guided by my literature research question: "How do online communication tools facilitate financial literacy?" I developed my research methodology following Booth et al.'s (2016) five stages of the search process. I began by conducting an initial scoping of financial literacy-related resources to familiarize myself with the topic and to identify some commonly-used terminology. This initial scoping informed my early list of key search terms: financial literacy, financial knowledge, financial education, financial behaviours, financial attitudes and personal finance.

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I employed a combination of pearl-growing and author-searching strategy to expand my literature search. Lusardi emerged as a key contributor to the field of financial literacy research based on her volume of published research and frequency of citation. Synthesizing this new information, my search took a tangent towards digitally-accessible Lusardi-authored studies published in academic journals available through the University of Alberta's online library. The key concepts that emerged from the body of literature I amassed further narrowed the scope of my research, and ushered it towards a more specific inquiry into the role of individual psychosocial factors in financial literacy and perspectives on current financial literacy interventions. After reviewing my related literature, I identified a gap in how current financial literacy interventions might account for individual differences resulting from each person's unique psychosocial and environmental background. This led me into a deeper inquiry of how Online Self-Organizing Social Systems have been demonstrated to facilitate unstructured, context-based, informal learning, which gave rise to my two main research questions:

RQ1: In what ways does participation in OSOSS influence participants' financial knowledge, attitudes, and behaviours?

RQ2: How does examining this phenomenon through the lens of social learning inform future research and development of financial literacy programs?

Once I defined my research questions, I settled on the following list of key search terms:

- Financial literacy
- Financial behaviours
- Financial confidence
- Participatory learning online
- Social learning online
- Participatory learning
- Online forums
- Decentralized learning

Using Boolean logic, I continued my search using various permutations of the abovementioned keywords. The electronic databases Business Source Premier and Emerald Insights yielded the most relevant resources on my topic. I also searched my literature's bibliographies to ensure inclusion of important and seminal works. I uncovered a significant amount of other relevant material by repeating this process several times.

Once I was satisfied with the breadth and depth of literature collected, I coded my sources according to the following criteria: date published, theoretical framework (if applicable); thematic focus, key concepts, contributions to RQ, findings and limitations. During my analysis and review of related literature, the following major themes emerged:

- The case for financial literacy
- Factors affecting financial literacy
- Financial literacy delivery methods and tools
- Critical perspectives on financial literacy
- Informal, participatory learning online

These abovementioned themes will form the body of this literature review. To provide grounding of important concepts discussed in my literature review, I will begin with a definition of key terms and concepts.

Key Terms and Concepts

Financial Literacy

The definition of financial literacy has evolved significantly since it first reached mainstream consciousness in the early 1990s. Early expressions of the concept explicitly focused on individuals' ability to effectively manage money (Beal & Delpachitra, 2003), however as societal shifts underscored the relationship between sound personal finance and financial

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stability, both on a micro and macro level (Lusardi, 2015) appreciation for the complexity of financial literacy flourished, as did the scope of understanding. By the early 2010s, the generally-accepted definition of financial literacy evolved to extend beyond the one-dimensional perspective of its early meaning. Today, financial literacy is understood to encompass individuals' knowledge of key financial concepts as well as their ability and confidence to manage personal finances and their demonstrated capacity to make sound short-term decisions and long-range financial planning, all while mindful of life events and changing economic conditions (Redmund, 2010). This modern conceptualization of financial literacy noticeably highlights the need for comprehension of key financial concepts as a precursor to confidence, and ultimately action. It is also important to note the recognition of personal and economic conditions as a mitigating factor in this definition - a departure from earlier perspectives that tacitly excludes external factors.

The abovementioned definition of financial literacy is the currently in use by FCAC's Canadian Financial Literacy Taskforce, who further operationalizes the definition by specifically also pertaining to the knowledge, confidence, and ability to:

- Deal with local, provincial and national government programs and systems that are often complicated and confusing, even to experts;
- Evaluate the financial information and advice they get, whether from friends, the media, or professionals' and
- Make the best use of the resources they have, including workplace benefits, private and public pensions, tax credits, public benefits, investments, home equity, and access to credit, and consumer spending power. (FCAC, 2019)

A cacophony of perspectives on the conceptual definition of financial literacy remains to this day, not least of which is due to the lack of consensus how financial literacy is measured and evaluated (Hensley, 2015; Potrich et al 2018, Kirch, 2018; Schuhen & Schurkmann, 2014).

Despite this pervasive tension, most contemporary studies on the subject take the perspective that financial literacy is comprised of the supporting elements of knowledge, confidence, and behaviour. (Bay et al, 2014; Hanson & Olson, 2018; Huston, 2010; Redmond; 2010).

Online Self-Organizing Social Systems

An Online Self-Organizing Social System (OSOSS) is web-based social system that allows a large number of individuals to self-organize in a highly decentralized manner, in order to solve problems and accomplish other goals (Wiley & Edwards, 2002). OSOSSes have a multitude of functions, including enabling peer-to-peer, informal and participatory learning in unstructured online environments (Wiley & Edwards, 2002; Casarin et al, 2015, Hess et al, 2014, Marzano, & Ochoa Siguencia, 2017). Online forums are one such example of an OSOSS.

Typical information-seeking behaviours involve a community participant presenting a “community query”, to which other members then proffer personal pointers and responses (Wiley & Edwards, 2002). Rather than seeking information from a centralized and finite repository of knowledge, community members participate in a peer-based, decentralized, construction of knowledge.

OSOSS-based learning is distinct from structured online learning environments because of its dispersed nature (Luppicini, 2007). Traditionally-structured, didactic online learning communities such as Massive Open Online Courses or MOOCs are distinguished by restricted access and often, a central figure of authority and knowledge source (Gamage, et al 2018), and course content and learning objectives within MOOCs are also generally pre-defined. Proponents

of the use of OSOSSes in the learning context envisage a more personal learning environment where, rather than simply focusing on episodic learning, participant conversations and interaction is facilitated (Downes, 2010).

Reddit

Reddit is one such example of how an OSOSS which may facilitate informal, decentralized learning. An online networking site that boasts of over 330 million users (Hutchinson, 2018) Reddit is the sixth most popular site in the United States, and the 18th worldwide (Enes, 2018; Widman and Nicol, 2019). Reddit simultaneously functions as a news aggregation site, discussion board, and online community and is known for its highly-engaged and diverse communities (Thukral et al, 2018, Hutchinson, 2018).

Registered members of the community, who refer to themselves as “Redditors”, curate a stream of content, categorized by area of interest. Within the expansive Reddit universe exists communities sorted by area of interest, referred to as a subreddit (sub), which each sub managed by a group of moderators (mods). Despite the existences of mods, most subs are operated using a light-touch approach. Mods are primarily tasked with removing spam, taking down rule-breaking or harassing posts, and ensuring that communities are filled with quality content (Renfro, 2016; Peck, 2019). Although some mods schedule community posts to encourage community discussions, on the whole, most of the community content is user-driven and user-generated, remaining largely unmediated by a central figure of authority.

Reddit has been described “self-correcting marketplace of ideas” (Silverman, 2012). This can be attributed to the self-regulatory nature of the community, through which community members democratically rate and filter content according to relevance through the use of

“upvote” and “downvote” buttons to rate high- and low-quality content, respectively. The sub r/PersonalFinanceCanada (r/PFC) describes itself as:

“A place to discuss anything related to Canadian personal finance (including) ...budgeting, goal planning, taxation saving, investing, banking, credit cards, insurance products, life event planning, major purchase advice, unique deals and tips for frugality, employments and other income sources, global or national economic news and discussions, and a variety of similar topics.” (Subreddit Information, n.d.).

Social Learning Theory

The main premise of the social learning theory is that cognitive learning occurs in social contexts. Albert Bandura, the Canadian behavioural psychologist who popularized the theory in the 1970s, postulated that individuals learn, either deliberately or inadvertently, by observing and imitating others (Bandura, 1971). The theory further extends that imitation occurs when characteristics of the model are attractive and relevant to the observer (Ormrod, 1990). For example, individuals who appear highly competent or those who appear to have similar traits as the observer, are more likely be imitated. In the social learning paradigm, behaviour is perceived to be regulated through vicarious positive and negative reinforcement. Vicarious positive reinforcement occurs when observers witness positive consequences arising from models’ behaviours while vicarious punishment occurs when observers see negative consequences arising from models’ actions (Gruver & Chen, 2015).

Discussion of Literature Review

The central themes that emerged from my review of related literature will inform the next following sections of this chapter. I will begin with a discussion on major themes around the individual factors that influence financial literacy, followed by a brief overview of current

digitally-mediated financial literacy programs and tools. A synthesis of these two aforementioned themes shapes the rationale for the pursuit of understanding into how the social aspect of OSOSSes facilitate informal learning that contributes to the development of financial knowledge, behaviours, and attitudes.

Individual Factors Affecting Financial Literacy

The conceptual progression of the field of financial literacy exemplifies the important interplay between financial knowledge, confidence, and behaviour when addressing financial literacy. The dynamics between financial literacy, personal situation, and environmental factors are also now widely acknowledged as key influencers to sound personal finance (Lusardi, 2015; FCAC, 2019). The following section provides an overview of prior scholarship in this debate.

Confidence and self-efficacy

A great deal of inquiry has been conducted to explore the mediating influence of people's self-beliefs about their abilities on their overall financial literacy and behaviours. In a study of working adults, Forbes and Murat Kara (2010) found evidence to suggest that individuals who had prior investment knowledge also displayed higher levels of confidence in developing a plan to achieve financial goals. Despite this, the combination on financial knowledge and confidence was found to be inadequate when it comes to preventing poor investment decisions. Furthermore, investor sentiment and investor biases were found to have significant adverse effects on individuals, leading the authors to suggest increased rigour in both investor training and public policy.

Farrell et al (2016) expanded on this area of research by investigating how women's measure of self-efficacy affected their financial behaviour, specifically by examining the type and number of financial products that the study sample possessed. Self-efficacy refers to

people's beliefs about their agentic ability to manage their behaviour and shape events affecting their lives (Bandura, 1997). The authors found evidence to suggest a positive association between women's assuredness in their financial management capabilities and their propensity to hold a higher number of investment products and a smaller number of debt products. While these results can be perceived as indicative of a link between self-efficacy and healthy financial behaviours, a possible omission exists when considering the principal balances of the debt and investment products in consideration. Particularly in a period of time where technology has significantly reduced financial services purchasing friction (KPMG, 2018 <https://assets.kpmg/content/dam/kpmg/in/pdf/2018/09/consumer-eliminating-friction-financial-services.pdf>) it could be suggested that the number of financial products owned by an individual may be an insufficient barometer for financial well-being, and that other factors such as overall net worth and investment success may provide a better-rounded snapshot of personal finance success. Nonetheless, findings of the research provide important implications for financial literacy research by supporting the need for self-efficacy enhancing tools, beyond financial education programs.

Tang and Baker (2016) also sought to understand the relationship between an individual's self-perception and their financial knowledge and behaviour. Positing that there could be a direct and indirect link between self-esteem and financial behaviour, the authors used a longitudinal dataset designed and collected by the U.S. Bureau of Labour Statistics to test their hypothesis. Results collected from the dataset suggest that an individual's subjective measure of financial literacy is determined in part by one's self-esteem. In addition, the authors argue that more financial knowledge is not necessarily better, as it may have the unintended effect of inappropriately overwhelming individuals and damaging their feelings of self-worth.

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Another study by Kramer (2016) explored the relationship between individuals' financial confidence, financial advice-seeking behaviour, and objective and subjective financial literacy. He found a significant negative association between individuals' subjective financial literacy and their propensity to seek financial advice, while no such association was perceived between objective financial literacy and financial-seeking behaviour. The strong link between financial behaviour and self-perception (rather than measured knowledge) implies that financial education may have an unintended negative consequence of promoting unmerited financial overconfidence, emphasizing the need for more accurate self-assessments of financial literacy.

This position is echoed by Palameta et al. (2016) in their analysis of microdata from the 2014 Canadian Financial Capability Survey, in which they suggest that financial education design strategies should look beyond knowledge-based interventions and also account for cognitive biases and the potential negative effects of overconfidence on financial outcomes. Key findings suggest that although individuals who possess low literacy but high confidence may do well in day-to-day money management, they tend to have poor planning and saving outcomes.

Lastly, findings from Lim et al's (2014) examination of college students' financial help-seeking behaviour reiterated the importance of objective financial literacy in shaping overall financial awareness, after finding strong links between students' completion of financial education courses and their propensity to seek financial advice. The authors suggested that financial education may have a moderating impact on individuals' tendency to misjudge one's own level of financial proficiency, which may then enhance the perceived value of financial advice.

Parental/familial socialization

In contrast to the research on the relationship between self-esteem, self-confidence, and financial literacy, relatively few studies have been conducted to examine the relationship of parental and familial socialization in financial literacy and financial behaviours.

Operating on the hypothesis that healthy financial behaviours, financial attitudes, and self-efficacy partly result from interactions with socialization agents such as parents, courses and informal learning mechanisms (Shim et al , 2015) conducted a study to better understand the interplay between these factors. The results identified parental influence as the strongest socialization agents among those that were examined. Specifically, modeling their parents' behaviours and attitudes, receiving parental reinforcement, and interacting with their parents in a positive way enhanced the students' self-efficacy and favourable attitudes towards personal finance.

In another study, Norvilitis & Maclean (2010) examined how parents' teaching and modeling of basic financial skills, such as budgeting and managing bank accounts, affected students' likelihood to have credit card debt. Findings suggested that parental modeling of these abovementioned skills has a direct negative effect on debt, whereas parental instruction, that is, simply talking about how to manage money, was related to higher levels of credit card debt. From these findings, we might claim that modelling positive financial behaviours, or leading by example, may result in positive financial outcomes among children. Further, it could also be suggested that providing verbal instruction without the reinforcement of action may not be as successful in affecting long-term behavioural changes.

Despite the abovementioned findings, other studies provide evidence to support that openness in communicating about financial matters may affect financial knowledge. Hanson and

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Olson (2018) conducted a study exploring the relationship of family communication patterns on measured financial knowledge. Investigating the financial knowledge of college students raised in families with varying degrees of communicativeness, the authors found that individuals raised in less communicative households also had less financial knowledge than their cohorts who grew up in more communicative environments.

Socio-economic and demographic attributes

The impact of socio-economic and demographic attributes on financial literacy is one of the more well-researched areas within the financial literacy domain. Chen & Volpe's (1998) study on financial literacy among college students is one of the earliest works to explore this subject. Although their research was primarily focused on demonstrating evidence of college students' financial literacy and examining how students' knowledge affect their financial decision, the authors also inadvertently uncovered demographic trends in financial literacy. By analyzing survey responses from subgroups of their sample, the researchers identified a trend of lower financial literacy levels among non-business majors, women, students under 30, and lower class ranks.

In another study, Lusardi et al (2010) conducted their own examination of financial literacy among the young. The authors included demographic characteristics such as gender and race/ethnicity to determine whether these were related to financial literacy. Variables such as educational attainment, family characteristics, and cognitive ability were also included. The results indicated a persuasive link between financial literacy, sociodemographic characteristics and family characteristics. They found in particular that educational attainment and family financial sophistication had the strongest links to high financial literacy among the participants.

Additionally, findings suggested that that women tend to possess lower financial literacy than men.

Kiliyanni & Sivaraman (2016) also conducted a study to assess the impact of demographic and socio-economic aspects on the financial literacy of Indian young adults. Much like previous studies, results also pointed to a gap in literacy between male and female respondents. As well, educational attainment, discipline of study, occupational classes, marital status, income and parents' education were all found to influence financial literacy. Studies conducted by Ali et al (2016), Potrich et al. (2018), and Collins (2012) reveal similar findings, which may lead us to consider that there may be a need for financial literacy interventions to account for individual differences in background and upbringing and to explore if and how current interventions are addressing this need. The following section provides an overview of current web-based financial literacy interventions.

Web-Based Financial Literacy Interventions

After the resurgence of the global financial literacy movement reinstated financial education in the global spotlight, the emergence of various online financial literacy interventions quickly followed. Operating on the belief that increased financial education generally leads to improved individual financial decision-making (Bernheim, et al, 1997; Brown et al 2014; Wolla, 2017) advocates of online financial literacy tools and programs suggest that online interventions provide financial education opportunities in regions where they may not have otherwise existed (Wolla, 2017, Bowles 2017). Although by no means exhaustive, the following section provides a scan of extant research related to online financial literacy programs and tools.

Online Modules and Websites

Online modules are perhaps one of the most popular web-based methods for financial literacy training. Proponents of this delivery model suggest that online modules may be an effective source of financial knowledge since their self-contained format allows for a consistent quality of training that is independent of instructors' capacity and subject-matter expertise (Wolla, 2017). One particular example of an online financial literacy module was studied to assess its impact on high school students' measured financial literacy. An assessment of *Soar to Savings*, a web-based learning module developed by the Federal Reserve Bank of St. Louis, demonstrated gains among learners' pre-test and post-test data students, providing evidence to suggest the module's effectiveness in increasing students' knowledge of basic financial concepts (Wolla, 2017). A limitation to the study is the absence of a control group to isolate and eliminate contributing variables. While findings of this study provide some evidence that online modules may be an effective tool for increasing financial knowledge, the scope of the research methodology limits the generalizability of the findings.

Nonetheless, research appears to support that online modules and online websites may help meet the academic needs of some students (Kuntze et al, 2019, Wolla 2017) , especially compared to traditional delivery models such as in-classroom sessions, or one-on-one counselling. Comparative research on student preferences of delivery channels have been shown to demonstrate that having higher levels of debt was significantly associated with the likelihood of showing a preference for online resources, which may be attributed to the social stigma associated with indebtedness. (Goetz et al, 2011).

Visual Interactive Tools

Visual interactive tools encompass learning instruments that promote engagement and tactile learning by allowing users to interact with financial literacy material online. Two examples of commonly-used visual interactive financial literacy tools include financial apps and online calculators. Their applications in the context of financial education research are briefly discussed in the next section:

Financial Apps

Lewis Mandell, a founder in the field of financial literacy, published a 2016 editorial that suggested that ubiquitous technology like smart phones could eventually be used to aid individuals by providing “point of sale” financial information to persons faced with imminent financial decisions (Mandel, 2016). Mandell envisioned a future where smart phone apps could reach a point of advancement so as to be able to provide on-demand financial advice, generated through an algorithm that vets an individual’s personal financial information against a comprehensive database of financial products and services. Considering the rapid pace of advancement in the field of cognitive computing, Mandell’s idea of an-AI powered source for just-in-time financial advice may not remain speculative for long. At the moment however, there exists a multitude of apps aimed at improving financial literacy by providing individuals with tactile ways to apply financial concepts, some of which are discussed next.

One such study involved a randomized controlled trial involving the Toshl Budgeting App. Attempting to test the effect of well-designed media tools in improving interest and attitudes towards personal finance, researchers separated participants into treatments groups, instructing the budgeting app treatment group to track their cash inflows and outflows, pre and post-measurement (Angel et al, 2018). Results from the study suggest that use of the budgeting

app, along with other digital “stand-alone” solutions did not contribute the treatment group’s self-reported interest in personal finance, disproving the perception that attractively designed apps or websites sufficiently influence attitudes towards financial literacy.

In Canada, the FCAC piloted the Carrot Rewards App as a means to improve knowledge, confidence, and behaviour by handing out rewards points in exchange for participating in financial quizzes related to budgeting (McLean-McKay & Leigh-Mossey, 2017). Participants in the pilot study reported significant improvements in budgeting-specific knowledge and confidence. However, while the importance of budgeting knowledge cannot be understated, it might be possible to argue that a more holistic solution may be required if individuals are expected to display consistent positive financial behaviours over time, throughout changing life stages.

Online Calculators

In a separate study aimed at testing which how visual interactive tools might improve individuals’ comprehension of the concept of interest compounding researchers developed and evaluated three different types of online interactive calculators which allowed users to investigate “what if” scenarios by controlling investment variables such as principal amount, interest rate, and investment duration. Using pre-test and post-test scores to compare financial literacy gains across all three user groups, the authors found evidence to suggest that learning occurred when using the tools that were purported to be less cognitively-taxing (Hubbard et al 2016). While findings of this research extend understanding of preferences around informational processing tools, it tends not to explain how the use of tactile tools influenced related elements of financial confidence and behaviour.

Video Narrative

Videos have emerged as a prevalent medium for teaching, particularly in the online space. The ability of the medium to generate cognitive and affective experiences has been attributed to video's increased adoption as a medium of instruction (Angel, 2018; "Success factors of online learning videos," 2014).

One related study attempted to measure the influence of video narratives in influencing attitudes towards key personal finance concepts, such as the importance of savings and the dangers of over-indebtedness (Angel, 2018). Researchers showed a documentary illustrating the outcomes of over-indebtedness to a group of young adults, in an effort to measure changes in attitudes towards personal finance issues such as savings and debt. Results from the post-viewing survey disprove the researchers' hypothesis that after witnessing the consequences of over-indebtedness and personal bankruptcy the audiences would self-report a more critical stance towards credit and a more welcoming attitude towards saving. Instead, there was inconclusive evidence to suggest a shift in attitude towards these topics. Despite these findings, other similar research might indicate that the jury is still out on video's potential impact on financial literacy. An experimental evaluation by Lusardi et al (2017) yielded evidence to support the relative effectiveness of video at increasing individuals' understanding of financial risk, and of improving participants confidence in their ability to make sound financial decisions.

To the extent that we can compile a full picture, the above collection of studies on the various types of financial education delivery methods and tools highlight that there is no shortage in well-intentioned efforts to curb the lack of financial literacy. However, despite the wide variety of programs and tools, it could be argued that many of these programs lack grounding in learning theory and research (Jinhee et al 2017). Furthermore, while studies on current web-

based financial education programs and tools suggest that they may be effective in increasing moment-in-time financial knowledge, it might be possible to argue that such interventions are not a silver-bullet for financial illiteracy (Hensley, 2015), and that an issue of such complexity require might require a far more thoughtful solution (Alsemgeest, 2015).

OSOSSes and Financial Literacy

The previous section demonstrated the breadth and depth of extant research involving structured, web-based financial literacy education programs and tools. In my review of related literature, I observed a lack of previous research into how OSOSSes may potentially augment ongoing financial literacy interventions. The scant research on OSOSSes and financial literacy provides a limited perspective into the phenomenon.

One related study conducted by researchers Casarin et al (2015) attempted to understand the implications of investors' exposure to online communities by surveying of users of an active online financial community. Hypothesizing that exposure to knowledge-sharing online communities might reduce the cost of information and skill acquisition, the researchers tested if online experience could compensate for investors' lack of financial education by serving as "learning scaffolds" to support individuals' financial literacy gaps. Findings from the study suggested that participation in online discussions alone had no impact on investor performance, leading the authors to conclude that a solid foundation of financial education is a prerequisite to capitalize on the knowledge available within the online community. Due to the online community's focus on investment markets, the authors emphasize that the results may be atypical to the specific domain. (Casarin et al 2015).

Other academic work in the domain have explored how OSOSSes promote reflective and collaborative learning, and more specifically, how they provide individuals an opportunity to

“learn in the wild” in conversation-sized pieces (Haythornthwaite et al, 2018). The inquiry into how observational learning of personal finance concepts occurs within OSOSSes may provide suggestions on how to support existing, structured financial literacy interventions. Within the broader pedagogical topography, the impact of individual differences have long been recognized as a determinant of learner outcomes. Further, the commoditization of data, coupled with the rapid pace of technological advancements, is resulting in swift transformations ingrained thinking such that relevant knowledge today may be obsolete tomorrow. Online personal finance communities may also provide learners a venue for meaningful, context-based understanding of foundational and contemporary personal finance concepts, and provide a source timely advice to unique and emergent personal finance situations.

Summary of Literature Review

To ground my exploration on how online communities might facilitate financial literacy, I opened this chapter with a brief look to the conceptual progression of financial literacy, providing a backdrop to situate the current perspectives on financial literacy mediators and the broad landscape of modern day financial literacy interventions.

A wide range of studies have been conducted to investigate how factors other than financial knowledge affect one’s financial behaviours and attitudes. An individual’s confidence in their financial knowledge (Forbes & Murat Kara, 2010; Kramer, 2016; Lim et al 2014) and their perception about their agentic capacity to manage their finances (Farrell, Fry, & Risse, 2016; Tang & Baker, 2016) have been found to have a mediating effect on financial decisions and financial outcomes. Other studies found evidence to suggest that exposure to parental socialization, either directly through modelling and instruction or indirectly through family communication patterns, generally predicated individuals’ financial attitudes, behaviours, and

financial knowledge (Hanson & Olson, 2018; Norvilitis & Maclean, 2010; Shim et al., 2015).

Research on socio-economic and demographic factors such as gender, age, educational attainment, income and family financial background (Ali, Anderson, McRae, & Ramsay, 2016; Anderson, Baker, & Robinson, 2017; Chen & Volpe, 1998; Collins, 2012; Kiliyanni & Sivaraman, 2016; Lusardi, Mitchell, & Curto, 2010; Potrich et al., 2018) also indicate that financial literacy is influenced by individual socio-economic and psychographic variables.

Studies on the various types of financial education delivery methods and tools demonstrate that despite the breadth of well-intentioned efforts to curb the lack of financial literacy, such interventions primarily focus on addressing the lack of financial knowledge. Despite the accessibility of online financial education programs and tools, some argue that because these programs lack grounding in theory and research (Jinhee et al 2017) few are able to affect long-term, positive financial behaviours and attitudes. Although studies have demonstrated that such interventions are generally successful at increasing measurable and self-assessed financial knowledge in the short-term, there is limited evidence to demonstrate effects on long-term financial behaviour and personal finance success (Hensley, 2015).

Advocates of financial literacy have argued that increasing financial knowledge may not be enough to promote healthy financial behaviours and attitudes, suggesting that “applying a normative process and a one-size-fits-all approach to financial education would cause detriment to the majority of consumers” (Alsemgeest, p.157, 2015). Considering the breadth of individual differences in literacy levels, attitudes and personal backgrounds, critics of current financial literacy models emphasize the need for interventions that are context-specific, accessible, and tailored to the cognitive level and skills of the individual while accounting for the non-cognitive and affective factors inherent in personal finances. While most financial education programs

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teach numeracy and basic foundational concepts of personal finance, the mediating impact of personal finance's "personal" side – one's attitudes, values, beliefs, and personality traits - is often ignored (Hira, 2012). There is a growing body of research that suggests that psychosocial factors may help illuminate the great deal of variation on other components of financial well-being and behaviour (Murphy, 2013).

. Appreciating all of these, it could be suggested that the ideal model of financial literacy education would need to be customized at the individual's level for it to be truly successful. However, execution of this ideal model presents a myriad of logistical and structural constraints. The participatory, conversational, and unstructured nature of OSOSSes may potentially address this challenge, however, there is a lack of literature on the mediating impact of OSOSSes on financial attitudes and behaviours. The notion that OSOSSes may help overcome some of these constraints gave rise to the following research questions, which informed my research design and methodology, outlined in the next chapter:

RQ1: In what ways does participation in OSOSS influence participants' financial knowledge, attitudes, and behaviours?

RQ2: How does examining this phenomenon through the lens of social learning inform future research and development of financial literacy programs?

Chapter 3: Research Design and Methodology

Introduction

As discussed in the previous chapter, a review of the extant literature on financial literacy revealed an opportunity to further explore how OSOSSes might help bridge the financial literacy divide that exists among individuals from diverse socioeconomic and psychographic backgrounds. Through my research, I hope to explore how informal learning may occur inside OSOSSes dedicated to personal finance, and how this may augment and complement existing financial literacy efforts. My review of related literature demonstrated that despite the breadth of financial education programs, and the depth of research in financial literacy, there are perceived inadequacies in the theoretical grounding of current interventions.

Using the lens of social learning, my research aims to extend understanding on how learning, through observation, reinforcement, and modelling, might be perceived to occur among participants of r/PersonalFinanceCanada. The following research questions shaped my research design:

RQ1: In what ways does participation in OSOSS influence participants' financial knowledge, attitudes, and behaviours?

RQ2: How does examining this phenomenon through the lens of social learning inform future research and development of financial literacy programs?

The following sections outline my study design, participant recruitment methods, setting, instrument, and research procedure. To set the stage for my findings and discussion, I provide a detailed description of my analysis method, followed by a recap of the research design and methodology.

Design

I chose to conduct a qualitative, exploratory inquiry because of my interest in understanding my participants' perceptions of the impact of their OSOSS participation on their financial knowledge, attitudes, and behaviours. The main goals of my research are to conduct an exploration into a phenomenon that has remained relatively uncharted, and to discern perspectives that would have been unattainable through deductive logic alone (Bansal et al, 2018). As the previous chapter of related literature revealed, financial literacy is influenced by a multitude of factors, not least of which include prior financial knowledge, motivations, and participant backgrounds. Since these factors are deeply personal and unique to each participant, a qualitative approach was best suited to allow me to approach these nuances in a way that would have been overlooked in a more standardized research design.

The small scale and scope of my study also influenced my research design. In the absence of statistically significant volumes of data, yielding a thick description of findings that could be generalizable to a larger population was neither feasible, nor desired. By becoming familiar with the data, I hoped to uncover a rich and layered description of the phenomenon and to understand the phenomenon within the context of the inter-relationships between a wide range of factors (Denscombe, 2010).

Participants

My study explored how the participation in OSOSS affect individuals' financial knowledge, attitudes, and behaviours. My population of interest involved community members of a widely-used personal finance OSOSS on Reddit, r/PersonalFinanceCanada (r/PFC), chosen specifically because it is a decentralized, participatory, web-based digital community where

conversations center around emergent personal finance topics, driven by community contributors.

Participants were selected through a combination of purposive and convenience sampling of active participants on r/PFC. My sample frame was defined on the basis of knowledge and familiarity with Reddit, determined by the length of time that they have been members of the OSOSS.

Inclusion Criteria

The primary characteristic that served as the grounds of participant inclusion is their level of engagement within the community, represented by their total number of posts. Since this study is concerned with perceptions among r/PFC participants, I sought to identify the community's most prolific participants by submitting a query on the forum r/subreddit_stats. The query outlined the community's top 300 commenters, which represented my list of possible participants.

Exclusion Criteria

I excluded Reddit users who were under the age of majority, and those who were relatively new to Reddit (> 1 year) as my study was contingent on participants being able to share perceptions resulting from participation in the OSOSS for an extended period of time. As Mayan (2009) posits, active members and leaders of communities typify ideal participants in qualitative studies since their immersion in the community gives them the grounding to provide the greatest amount of meaningful information and in-depth insights on the phenomenon of interest.

During my initial stages of research design and methodology planning, a more rigorous, stratified sampling method was considered to make the sample frame more representative of the

broader r/PFC population (Merrigan et al, 2012). However, due to constraints presented by the limited scope of my research, I opted to employ a mix of purposive and convenience sampling methods. The convenience sampling method, although generally perceived to be the least rigorous sampling approach due to participants' selection being based on availability, was suitable for my study given its narrow scope and considering resource constraints (Farrugia, 2019). During the recruitment stage, my participant list was determined on a "first to hand" basis in that participants were chosen because they happened to agree to take part in the study (Denscombe, 2010). I employed a minimum target of three participants, which I achieved and surpassed with my final participant count of four.

Setting

In considering my research environment, I deliberated using web video tools since the medium would have enabled me to gain a fuller, more robust exchange by capturing not only verbal but also non-verbal signals, and by allowing verbal expressions to dictate the cadence of the interview (Salmons, 2015). However, since privacy and anonymity are key features of Reddit, I was cognizant of the possible impact that medium in consideration might have on my recruitment success. Additionally, in consideration of the delicate nature of the subject, I made the decision to conduct my interviews using a medium that is both convenient and easily accessible to participants, and one that is respectful to potential sensitivities. I opted to conduct my online interviews using Reddit's online chat tool, a standard site tool, since all of participants has access to it. By doing so, I hoped to reduce the forethought and setup required from my participants prior to the interview, and limit possible obstacles to participating in the study. The choice to conduct my interview within the Reddit environment also honours the belief that

research questions that explore a phenomenon situated online are reinforced when the method of research chosen closely mirrors the natural setting under investigation (Salmons, 2015).

Instrument

To balance the rigidity of a structured, closed-ended interview with the extemporaneity and candour often encouraged in unstructured interviews, I prepared a list of a standard, open-ended questions with prompts and probes to stimulate further discussion (Salmons, 2015; Merrigan, et al, 2013). Following best practices of question development, I avoided leading questions and resisted the use of overly technical language. Although the interviews were conducted through online chat, I believed it remained important to build rapport and encourage a sense of ease with each new interviewee. I accomplished this by breaking the ice with some conversation starters, and by mindfully using non-academic language in the exploratory conversation. As each of my interviews progressed, I assumed the role of a metaphorical gardener, “prepared but adaptable in cultivating each unique interview relationship” (Salmons, 2015).

Procedures

Upon receiving approval from University of Alberta’s Research Ethics Board, I recruited participants from the period of June 25 to July 1st. After gathering my list of prospective participants through a query of the 300 most active posters on r/PFC, I sent each prospective participant my Letter of Initial Contact through the Reddit direct message tool (“DM”). My note provided a general overview of the phenomenon being explored, along with information on how the interview will be conducted, and expected time commitment. To compensate participants for their time investment, I offered an honorarium in the form of a \$25 Amazon gift card, remitted to participants by email within 24 hours following the interview.

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To reduce the number of touch points, I also asked participants to provide an email address along with their indication of interest, so that I could transmit the Letter of Informed Consent and Interview Guide as the next steps. With the aid of the digital signing tool HelloSign, I asked participants sign the consent form using their Reddit username only since for the purposes of this study, their real-life identity was not required. Once I received the signed consent forms from my participant, I provided them a list of possible times and dates, and set a time to meet via online chat.

I provided participants a copy of my interview guide with my Letter of Informed Consent, to ensure that participants understood the scope of my research and my interview objectives, so that they may better judge their willingness and ability to participate in the study. The practice also provided participants an opportunity to reflect and collect their thoughts in advance, which was helpful towards my objective of obtaining richer data on the phenomenon.

At the beginning of each scheduled interview I asked each participant if they had any questions about the consent form and interview guide. Once I was confident that there were no further questions, I proceeded with my exploration. Each interview lasted approximately 60 minutes, and since the interview was conducted using Reddit's asynchronous chat tool, the online conversation was automatically transcribed and remained in both parties' chat history for future review. The self-transcribing feature of the online chat ensured a high a level of transcription accuracy and veracity as it negated the need for a manual transcription.

Analysis

I employed a combination of conventional and directed content analysis to my data corpus. My decision to begin with a conventional analysis was shaped by the desire to first

describe the phenomenon that I was exploring before attempting to situate my finding within the theoretical framework of social learning.

Choosing the In Vivo coding method for my first round of coding, I found that that taking excerpts from the actual language used by my participants offered me a heightened awareness of my participants' perspectives, and allowed me to encapsulate the meanings intrinsic to their experiences (Saldaña, 2015). The action-oriented words and evocative phrases that I underscored using this method of coding helped shape meanings and provided an initial body of themes for my second round of coding. Following Saldaña's (2015) recommended approach, the In Vivo coding process also allowed me to take ownership of and acquaint myself with the various perspectives represented in the data.

For my next round of coding, I used the concept or analytic coding method. Using the initial series of codes gathered from my first round of coding, I lumped together common concepts to assign a macro level of meaning to the analytic body of work (Saldaña, 2015). The codes I assigned through my initial round of In Vivo coding provided me with a collection of conceptual processes to categorize under a broader scheme, which then allowed me to assign a specific concept to each collection of In Vivo codes (Saldaña, 2015). As this method is highly interpretive, I took special care to dissociate potential biases from the theoretical framework as I developed my concepts.

Once I was satisfied with my conceptual codes, I applied a directed content analysis approach guided by the main tenets of the social learning theory in an attempt to situate the concepts within the social learning framework. Through this "reverberative" process, I made sure to not only be alert to patterns and themes, but also to the anomalies, divergences and nuances that do not fit neatly into the predetermined categories (Saldaña, 2015). Rather than sweeping

divergent insights under the rug, I explored these negative spaces in an effort to truly scrutinize the phenomenon (Hsieh & Shannon, 2005).

The directed approach has been acknowledged to present challenges to interpretive paradigm. To combat this, I formatted my interview questions in a manner that did not provide participants cues to answer my interview questions in a way that agrees with the phenomenon.

Reliability and Validity

Although traditionally associated with the positivist tradition, reliability and validity are equally important in qualitative research. Reliability is defined as “the consistency of measurement over time, across settings, and among participants and text” (Merrigan et al, 2015) which appears rather incongruent with the interpretive paradigms philosophy of multiple valid interpretations of reality, and as such, could be substituted with credibility, coherence, dependability and transferability in interpretive contexts. Recognizing this, I focused on providing an internally consistent logic of interpretation in a coherent manner, following Miles and Huberman’s (1994) suggested technique of clustering similar concepts together and building a logical chain of evidence. In addition, I also ensured that I kept an audit trail to help me retrace my interpretive steps, documented through analytic memos, notes, interview transcripts (Merrigan, et al 2015). Other strategies that may have been to increase the credibility of my findings include gathering sufficient data to reach theoretical saturation, however due to the limited scope of my research this was not possible.

Limitations

While my use of online chat tools facilitated improved accessibility to a broader set of participants and allowed research participants to maintain online anonymity, its benefits are tempered by potential disadvantages such as an increased likelihood of technical issues and the

absence of observable body language (Pearce, et al, 2014). Indeed, as my interviews progressed, I noted a perceptible lag between question and response, which I attributed to limitations in the communication medium and to possible participant multi-tasking. Salmons (2015) acknowledges this phenomenon in her book, suggesting that it may lead to a misinterpretation of temporal cues. The conversation lulls and the absence of non-verbal cues did constrain the richness of interaction, especially compared to a traditional, face-to-face interview model. Despite this, the use of Reddit's online chat tool was deemed as the most appropriate the technology due to the phenomenon of interest and in view of possible participant sensitivities.

The limited size of my sample admittedly constrained the thickness of my data. A more rigorous sampling method, along with a broader sample set may yield a larger, more diverse set of findings. I attempted to overcome these limitation by analyzing and coding my data to the point of saturation, so as to present rich data that is layered and nuanced (Fush and Ness, 2015).

Summary of Research Design and Methodology

This chapter outlined the qualitative design of my exploratory inquiry into the impact of OSOSS participation on individuals' financial literacy. My research questions are as follows:

RQ1: In what ways does participation in OSOSS influence participants' financial attitudes and behaviours?

RQ2: How does grounding this phenomenon using the social learning theory inform the future development of financial education programs?

Guided by the above research questions, I recruited participants from a well-known OSOSS on Reddit, r/PersonalFinanceCanada. Through a combination of purposive and convenience sampling methods, four participants were interviewed via the Reddit online chat tool. A \$25 Amazon gift card was provided to participants as honorarium.

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The self-transcribing nature of the Reddit online chat tool eliminated the need for manual transcription and eliminated challenges related to transcription veracity. Using a combination of inductive and deductive coding styles, I analyzed my data through a combination of In Vivo, concept, and directed coding. To preserve my audit trail, I preserved analytic memos and notes outlining the conceptual progression of my data analysis. The following chapter outlines findings of my inquiry.

Chapter 4: Findings and Discussion

The following research questions guided my data collection:

RQ1: In what ways does participation in OSOSS influence participants' financial knowledge, attitudes, and behaviours?

RQ2: How does examining this phenomenon through the lens of social learning inform future research and development of financial literacy programs?

Findings

The table below provides some background information on the participants, including rationale, participation style, subjective measure of financial literacy prior to joining r/PFC, and sources of prior financial knowledge.

Participant	What brought participant to r/PFC	Prior financial literacy (level, sources)
1	Curiosity was piqued when he heard it mentioned at an event	"4/10" Learned through lived experiences and parental instruction
2	Learned about r/PFC from another personal-finance OSOSS	"Confident on the basics" Self-guided research
3	"Curiosity about assumptions" Looking for situation-specific tips	"Parents instilled financial knowledge... benefit of his (father's) lifetime of expert financial knowledge (and) mother's frugality"
4	Found the sub while casually browsing Reddit	"Had some basics about personal finance" through random googling, another forum, word of mouth, and friends"

Table 1. Participant background and prior financial knowledge.

Participants cited both curiosity and information-seeking as the main motivators for joining r/PFC. While majority of the participants indicated that curiosity about the site and its contents brought them to r/PFC, half also revealed that they were drawn to the community in search of financial advice specific to their personal circumstances. Participant 3 shared that a

particularly challenging financial situation led him to the OSOSS, in search of financial management strategies:

“...we were having financial trouble at the time and I was looking for any tips on controlling expenses to survive until things improved.”

Although he declined to provide specifics, Participant 4 also cited information-seeking as his initial purpose for joining r/PFC.

Emergent Themes

As discussed in my research design and methodology chapter, I subjected my data through various rounds of coding, which produced the following key themes:

- Participation styles
- Financial behaviours and attitudes
- Perceived benefits

The subsequent section provides an overview of the findings within these emergent themes, followed by a discussion of the findings.

Participant engagement in r/PFC

When probed to describe the nature of their participation in r/PFC, all participants admitted to observing more frequently than posting in the OSOSS. Participants offered a range of descriptions to define the level and nature of their OSOSS engagement, from being a *“fly on the wall”* (Participant 1) and *“searching (for answers) to see if it has been asked before”* (Participant 4). All participants indicated that they mostly observe, rather than actively engage in OSOSS discussions.

Participant	Comments on Participation	Participation Style	Contribution to r/PFC discussions
1	<i>“Fly on the wall”</i>	Mostly observes	<i>“I contribute when I think I can actually contribute”</i>

2	<i>"I haven't ever posted any of my questions; I do learn quite a bit from reading other members' responses"</i>	Mostly observes	<i>"Able to answer a lot of the common basic questions that come up"</i>
3	<i>"Mostly an observer; participated early on with budget threads"</i>	Mostly observes	<i>"Corrected a lot of bad information on Ontario tenant law"</i>
4	<i>"I'll start by searching if a question has been asked before, if not I'll start a post"</i>	Mostly observer	No direct response

Table 2. Participation Styles.

Financial behaviours and attitudes influenced from r/PFC participation

Beyond adding to their reservoir of financial knowledge, all participants acknowledged that their involvement in r/PFC has had some impact on their financial behaviours and their overall attitudes towards personal finance. An emergent theme among the participant group was the shared perception of having gained context-specific knowledge that enabled them to make informed financial decisions. Increased confidence also emerged as a common sentiment among half of the participants, while the other half alluded to the OSOSS' influence in affecting a broader awareness and objectivity towards their personal finances. Below is an outline of relevant participant responses and themes:

Participant	Financial behaviours	Financial attitudes
1	Developed investment plan with clear steps <i>"Started investing my TFSA"</i>	Confidence boost <i>"I already feel more knowledgeable than most of the general population"</i>
2	Applied knowledge in evaluation of financial choices	Awareness of broadness of personal finance

	<p><i>“Learned how to evaluate whether it’s worth it to own rental property”</i></p> <p>Applied knowledge in helping others</p> <p><i>“Helped my girlfriend (who rents out part of her home”) to prepare her tax return”</i></p>	<p><i>“Show how much there still is to learn”</i></p> <p><i>“And how it can be worth it to hire a professional if you really need to get into one of those complex topics unexpectedly”</i></p>
3	<p>Applied budgeting concepts</p> <p><i>“Wants vs. needs budgeting”</i></p> <p><i>“Helped me learn how to objectively view my finances – asking others made me question assumptions of my own”</i></p> <p><i>“Going through our budget and identifying things that could be cut helped us survive in Toronto on a single part-time salary for 3 years”</i></p>	<p>Critical viewpoint toward mainstream investing</p> <p><i>“I learned that most people are really just sheep following the leader and have very poor investing habits”</i></p>
4	<p>Budgeting behaviours</p> <p><i>“I got some budgeting tips...especially when it comes to discretionary spending”</i></p>	<p>No perceived change in attitude</p> <p><i>“In terms of effect, I don’t think it changed anything really, due to my personal circumstances I tend to pay a bit more attention to my personal finance than the average person”</i></p>

Table 3. Financial behaviours and financial attitudes.

Perceived Benefits of r/PFC participation

When asked about the effect of r/PFC participation on their overall financial literacy, most participants responded echoed a positive sentiment. In addition, participants also offered a mostly positive view towards the general usefulness of r/PFC as a source of information.

Participant	Perceived benefits on own literacy	General perceived benefits of OSOSS
1	Increased knowledge and confidence	Construction of knowledge

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	<p><i>"I may not have much equity now, but I feel more prepared to take it on in the future in a more responsible way"</i></p> <p>Increased knowledge</p> <p><i>"I've picked up random facts about so many odd subjects that are a good place to start my own research"</i></p> <p>Vicarious positive and negative learning</p> <p><i>"Both due to successful people's advice, or desperate questions."</i></p>	<p><i>"The sub is usually constructive, so even if I'm wrong by a little or a lot, I learn"</i></p> <p>Ability to help others/return the favour</p> <p><i>"Based on upvotes and replies, I know I've helped others like they've helped me"</i></p> <p>Feeling of belonging</p> <p><i>"It's somewhat a virtual community kind of thing"</i></p> <p>Positive reinforcement</p> <p><i>"The weekly Triumphant Thursday thread idea is cool & positive. Kind of helps to balance out the seemingly weekly headline about Canadians being super in debt and financially in trouble. "</i></p>
2	<p>Increased knowledge and confidence</p> <p><i>"I've banked a lot of knowledge that I haven't necessarily had to use yet...but now I feel like if I ever did, I'd have a basic grasp of how it works"</i></p>	<p>Important tool for self-guided research</p> <p><i>"It's become really important tool for people to self-educate and get detailed, unbiased information about important topics like finance...PFC people are pretty dedicated to giving correct information and that's a change from other traditional sources of financial info (e.g. asking your bank) that are primarily motivated by selling financial products"</i></p>
3	<p>Scaffolding/reinforcement of existing knowledge</p> <p><i>"It reinforced the PF knowledge my parents instilled in me more than anything... If I didn't have (this) I think PFC would have been detrimental"</i></p> <p><i>"Gaps in knowledge get filled in, even if it means you're embarrassed by your posts"</i></p>	<p>Constructive discourse</p> <p><i>"A logical thrust and parry...Internet forums 'one-upmanship' is a very similar thing"</i></p>
4	<p>Scaffolding/reinforcement of existing knowledge</p>	<p>Accessibility of information</p>

	<p><i>“The advice is more ‘corrective’ and an add-on to my plan, rather than the foundation”</i></p>	<p><i>“If the title (of the post) catches my eye in terms of relevancy, then I would open it”</i></p> <p><i>“Otherwise, if I’m looking for something specific, I would just search for it.”</i></p>
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Table 4. Perceived benefits of r/PFC

Despite participants’ broadly favourable perceptions towards r/PFC, an important parting insight was shared by one interviewee (Participant 3) underscoring the possible dangers of r/PFC to “less knowledgeable investors”. He further states:

“People are so focused on the rate of return...that they have stopped thinking critically. Ease has replaced due diligence and they’re willing to settle for pennies on the dollar so they don’t have to think too hard about their financial choices.”

Considerations towards this warning are further explored in the findings and discussion section.

Social Learning and OSOSS

As outlined in my research design and methodology section, I applied a directed content analysis to the content codes that emerged from my initial inductive coding, guided by the framework of social learning. The social learning theory posits that individuals learn, either deliberately or inadvertently, by observing and imitating others (Bandura, 1971). The theory further extends that imitation of observed behaviour occurs when characteristics of the model are attractive and relevant to the observer (Ormrod, 1990) and behaviours regulated through the vicarious positive and negative reinforcement. Using this definition, I used these main theoretical tenets as the framework to guide my analysis of inductive concept codes, outlined below:

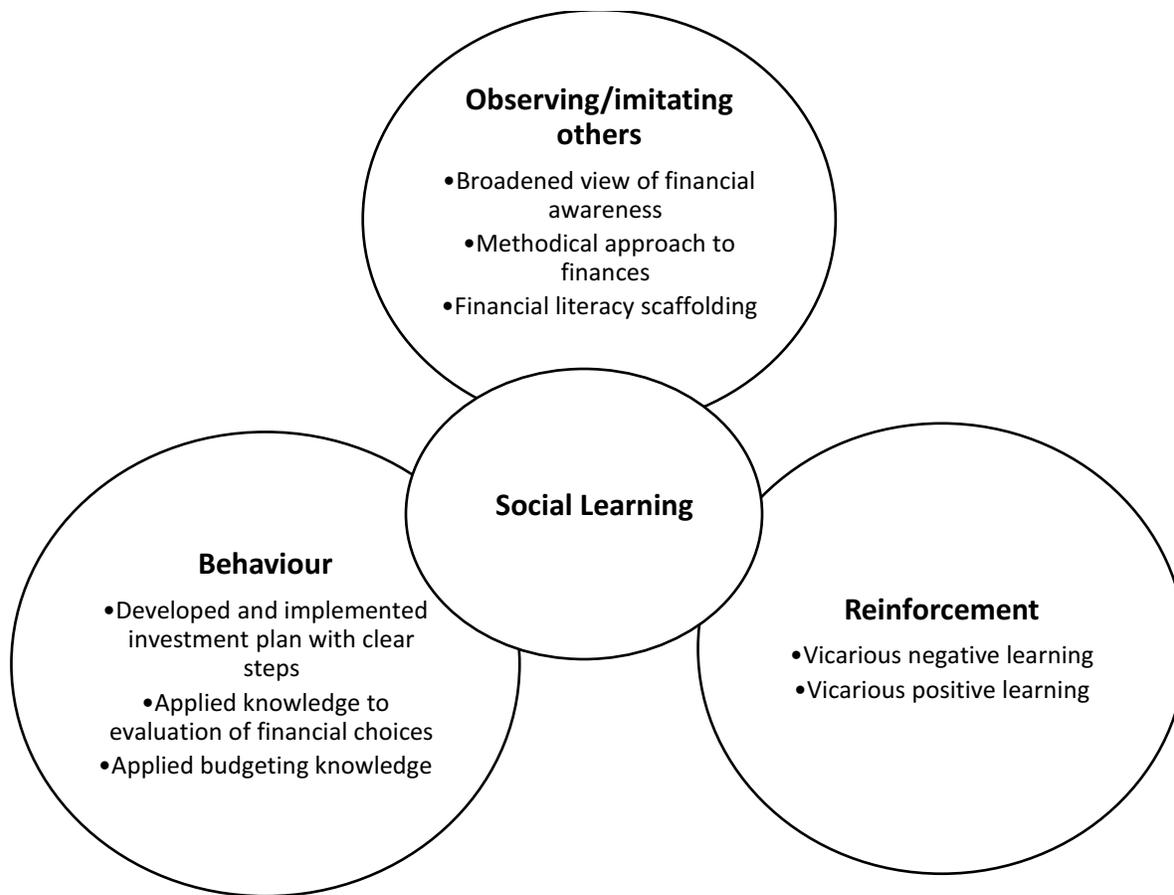


Figure 1. Emergent Themes in Perspective of Social Learning

Discussion

Despite the availability of a wide range of standardized financial tools and programs, perceived inadequacies in such interventions' ability to sufficiently bridge the financial literacy gap are apparent after a review of existing, related literature. To the extent that we can compile a full picture, while majority of today's financial literacy programs are typified by a standalone, one-size-fits-all model, evidence is rather limited that that this approach sufficiently meets unique, individual learning needs. Furthermore, while modular financial instruction has been demonstrated to increase measured financial knowledge over the short term (Wolla, 2017; Angel, 2018; McLean-McKay & Leigh-Mossey, 2017), uncertainty remains about the long-term impact on financial knowledge, behaviours, and attitudes. While most will not dispute that "personal

finance” is extremely personal, and that each person’s financial journey is influenced by unique situational factors, an apparent gap remains in circumstantially-relevant, context-driven, and easily accessible sources of financial knowledge. Professional financial advisors can partially meet this need, however, information-seeking is often hampered by a perceived lack of access to objective financial advice, as expressed by some participants.

OSOSSes such as r/PFC may provide an alternate means to augment current financial interventions by meeting individuals where they are and providing a venue for context-based financial learning and “point-of-sale” financial advice. The social aspect of OSOSS may also allow participants to learn by observing interactions and responses of fellow community members who may have experienced similar challenges or display similar qualities as participants themselves. These considerations guided my discussion of the findings related to my two research questions:

RQ1: In what ways does participation in OSOSS influence participants’ financial knowledge, attitudes, and behaviours?

As outlined in my literature review, current financial literacy interventions provide individuals access to structured training on basic financial concepts such as budgeting, interest compounding, debt management, and investment management. Despite their wide availability and accessibility, most studies conducted on such tools provide little evidence to suggest that they are successful at influencing individuals’ financial attitudes and behaviours over the long-term. Unlike episodic training programs, OSOSS provide conversation-sized pieces of knowledge that may help transform abstract financial knowledge to concrete, real-life data which may influence individuals’ financial attitudes and behaviours. In my exploration of how the

social aspect of r/PFC affect participants' financial behaviours and attitudes, the following themes emerged:

A broadening effect on financial awareness. Due to the qualitative design and limited scope of my capstone research, a measurable change in participants' financial literacy could not be identified. Despite this limitation, participants indicate a positive perception towards OSOSSes potential in increasing their financial awareness. The wide variety of topics discussed within OSOSSes may have a broadening effect on participants' scope of general financial knowledge, which then serve as a foundation for future training and exploration. For some participants, OSOSSes can be credited for expanding horizons to concepts beyond their immediate range of experience or thought. For other, r/PFC can encourage self-reflection about their own financial knowledge and ability. One participant in particular (Participant 2) cite the broadening effect on awareness to a resulting increased appreciation for the value of professional advice especially when navigating complex financial situations – a stark contrast to another participant's (Participant 3) sobering view on the possible dangers of r/PFC participation. Findings from related literature suggesting that financial education may have a moderating impact on ones' propensity to misjudge their own financial capacity (Lim 2014), appear to align with the former, more optimistic view on the impact of r/PFC participation. However, the latter perspective invites future discussion into the pitfalls of relying on OSOSSes as an information source.

An objective lens to view personal finances. Financial decision-making unencumbered by bias and emotions may be a challenge for many. OSOSSes can provide individuals a neutral lens to appraise their financial situations, providing a mechanism to detach emotions from logic. For example, the concept of distinguishing wants from needs (Participant 3) is often more than

just a question of economics. In a perfectly objective world, one might suggest that scarce resources would naturally be allocated towards meeting basic survival needs, however, most people's purchasing decisions are often not as clear-cut. The ability of r/PFC to provide a setting where one can view their own financial situations through the eyes of an outsider may encourage an increased impartiality in financial decision-making. Financial blind spots, often caused by proximity to a situation, may be instantly recognized by less familiar eyes.

Financial education scaffolding. The notion of OSOSSes ability to serve as scaffolds for financial education was first explored by Casarin et al (2017) in an earlier study on the effect of OSOSS participation on investor behavior. This theme re-emerged in my participants' responses, where all indicated that knowledge encountered in r/PFC, either through observation or discussion, helped "reinforce", "correct", or "enhance" their existing foundation of knowledge. A particularly thought-provoking insight from one participant alludes to the nature of OSOSS interactions as a "logical thrust and parry" fostered through "Internet oneupsmanship", which is then perceived to further facilitate knowledge construction. Open communication, as explored in previous research conducted by Hanson and Olson (2018) appear to positively impact financial literacy.

RQ2: How does examining this phenomenon through the lens of social learning inform the future research and development of financial literacy programs?

The social learning theory is premised on the notion that learning in social contexts occur through individuals' observations of others, and that learning is reinforced by observing positive and negative consequences of others' behaviours. As outlined in the findings chapter, participants interviewed for this study characterized their participation in r/PFC as primarily observational and passively information-seeking. From their observations, participants have

expressed a perceived increase in financial awareness, attributed to their observation of online asynchronous discussion and, to a lesser degree, direct interactions with other participants in the OSOSS.

When probed to share specific examples of situations of knowledge acquisition and application directly resulting from the OSOSS, most participants were able to cite concrete behavioural instances of learned financial concepts. Examples of responses include the development and implementation of a clear, step-by-step investment plan (Participant 1); the application of a numbers-driven approach to evaluating the investment potential of rental property (Participant 2); and a methodical application of household budgeting process that involved re-evaluating expenses against household income (Participant 3).

Vicarious positive and negative reinforcement, a key tenet of social learning which is said to occur when observers witness rewarding or punishing consequences arising from models' behaviours (Gruver & Chen, 2015) was directly alluded to by one participant (Participant 1) when emphasizing learning by reading "successful people's advice or desperate questions". In this instance, second-hand learning may be reinforced when observing how others are positively rewarded for good financial knowledge, behaviours or decisions ("successful people") or are punished for unsound financial choices ("desperate people").

Responses from participants in this study suggest that social learning may occur in Online Self-Organized Social Systems, by providing a setting where individuals learn by observation, imitation, and modeling. Other emergent themes also provide evidence to suggest that a collective, social construction of knowledge may also occur within such spaces.

Limitations

Due to the size of the scope of my exploratory research, findings from this study present limitations on statistical generalizability of insights. In addition, the purposive and convenience sampling approach are generally perceived to be less rigorous than other probability sampling methods, tempering the external validity of my findings. A sample population that is more representative of the demographics of the OSOSS under investigation may have yielded a more heterogeneous dataset which may have led to richer, more nuanced insights. The use of Reddit's online chat tool also presented limitations to the fullness of data as it did not provide a mechanism to capture non-verbal cues.

An additional limitation to the study is that while themes from the data analysis support the primary tenets of social learning, it tends not to explain long-term mental and behavioural changes among participants, identified as a gap in extant financial literacy research. As such, future studies could take a longitudinal approach to examine the long-term impact of OSOSS participation on personal finance success.

Summary of Findings and Discussion

This study explored the impact of OSOSS participation on individuals' financial knowledge, behaviours, and attitudes. Although participants interviewed for this study indicated taking a primarily observational and passive information-seeking approach to OSOSS their participation, all participants credit their involvement in r/PFC to contributing to their financial knowledge, behaviours, and attitudes. Examples of financial behaviours include tangible applications of personal finance concepts, such as investment management, budgeting, and investment evaluation. In addition, interviewees also credit their OSOSS participation for attitudinal changes by: increasing confidence in one's ability to manage personal finances;

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reinforcing the importance of professional advice; and encouraging critical financial evaluation in the face of mainstream thinking. Viewed through the theoretical lens of social learning, findings of this study suggest that OSOSS may be useful in supporting participants' financial knowledge by providing individuals an opportunity to learn by observing community members' positive and negative financial outcomes. This ability to learn vicariously within the virtual OSOSS sandbox may minimize potential lifelong effects of financial missteps.

Perhaps one of the more interesting themes that emerged from my research is the generally positive perception towards r/PFC as a source of socially-constructed knowledge, broadly viewed as trustworthy and objective. Crowdsourcing financial advice in lieu of seeking information from traditional, qualified sources such as financial institutions points to a distrust towards financial establishments, whose interests may be perceived to be in conflict with the very individuals they serve. Participant insights indicate that OSOSS could be a possible source of exercise of care or due diligence to inform financial decision-making. However, as maintained by one participant (Participant 3), advice from OSOSS should not be perceived the end-all and be-all, and that further due diligence is required. With consideration of the findings outlined in this chapter, I present my concluding thoughts, findings in context, and possible directions to expand my research.

Chapter 5: Conclusion

The democratizing effect of second-generation, web-based technologies has given rise to an increased accessibility and availability of financial literacy programs and tools. However, there is conflicting or limited evidence to support the long-term positive effects of such interventions on overall personal finance success. I explored how r/PersonalFinanceCanada, a popular Online Self-Organizing Social System (OSOSS) may provide emergent and situationally-relevant financial knowledge to community members, and influence participants' financial attitudes and behaviours. My inquiry into this phenomenon was guided by the following research questions:

RQ1: In what ways does participation in OSOSS influence participants' financial knowledge, attitudes, and behaviours?

RQ2: How does examining this phenomenon through the lens of social learning inform the future discussion and development of financial literacy programs?

This final chapter provides a summary of key findings, situates these findings within the broader realm of financial literacy, and identifies future opportunities to expand on my research.

Summary of Findings

A previously discussed in my review of related literature, the unstructured and conversational nature of OSOSSes may help augment current gaps in structured, standalone models of financial literacy program. Participants in this study indicate that observational and participatory learning are key benefits to their involvement in r/PFC, a popular, knowledge-based Reddit community devoted to personal finance. Impacts on financial behaviours and attitudes include a perceived increase in financial knowledge and confidence, broadened awareness of the personal finance landscape, an ability to view personal finances in an objective and critical

manner, and a “scaffolding effect” on prior financial knowledge. Viewed through the lens of social learning, insights from participants suggest that the ability to observe others’ online interactions and posts provide a vicarious learning opportunity, reinforced either positively through stories of success, or negatively through accounts of financial failure. These considerations may provide insights to inform future development of financial literacy programs, with particular attention to the influence of observational learning and social construction of knowledge in instilling positive financial attitudes and influencing healthy financial behaviours. In light of the generally positive perceptions of participants towards OSOSS as a source of helpful and reliable financial knowledge, proponents of financial education may also further explore how principles of trust mechanism that underpin crowdsourced-data may be integrated into future instructional design.

Future Direction

The limited size and scope of my study presents an opportunity to expand my research findings to a broader population of OSOSS participants, perhaps in a longitudinal manner to fill the existing gap in long-term financial literacy research. In addition, to supplement rich insights gathered from my research design and methodology, an analysis of discourse occurring within OSOSSes may uncover additional dimensions that speak to social contexts unique to the individual. As outlined in my literature review, financial literacy is mediated by unique, individual psychographic variables. An analysis of participant discourse may paint a picture of a financial reality/realities unique to the author/s of discourse.

While the emergent themes from study suggest a generally positive perception of OSOSS participation outcomes, future studies on the possible hazards of online participation may also be explored. “Pump and dumps” are a growing trend of securities fraud that commonly occur on

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social media sites like Reddit, frequently involving online manipulators who promote a company's stock by claiming to have exclusive insider information aimed at artificially inflating, or "pumping" stock prices. Once the run-up in stock prices reach the desired level of frenzy, fraudsters then "dump" or sell their stocks en masse, driving stock prices back down, leaving unknowing investors holding the bag. (Wasik, 2013; Hanke & Hauser, 2008). Similar to the "fake news" phenomenon, social networks can also be used to spread misinformation online, turning a trustworthy source into a digital menace (Walters, 2018).

Summary of Conclusion

Despite the increased availability of financial literacy programs and tools, mediated by innovations in information and communications technology, persistent financial challenges among Canadians indicate that access to financial knowledge may not be sufficient to address gaps in financial literacy. While there is evidence to support the positive impact of existing financial literacy interventions on short-term, financial knowledge, evidence to support their effect on long-term knowledge, attitudes and behavior is rather limited. OSOSSes may present an opportunity to support existing interventions by providing a broadly accessible venue for bite-sized, situationally-relevant personal finance knowledge and advice. Currently, there is a lack of research into how participation in OSOSSes influence individuals' financial literacy. With this in mind, the following research questions guided my inquiry into this phenomenon:

RQ1: In what ways does participation in OSOSS influence participants' financial knowledge, attitudes, and behaviours?

RQ2: How does examining this phenomenon through the lens of social learning inform future research and development of financial literacy programs?

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My qualitative study explored the perspectives of four participants of r/PersonalFinanceCanada, a popular OSOSS devoted to personal finance. Findings suggests that increased financial knowledge, broadened awareness of the personal finance landscape, an ability to view personal finances in an objective and critical manner, and a scaffolding effect on prior financial knowledge through observational and participatory learning occurred among participants of the study. Future scholarly pursuits expanding on my research findings may include a longitudinal study of on a broader sample and population. Additionally, a discourse analysis to complement rich qualitative findings may reveal a deeper understanding of unique, individual financial realities of OSSOS participants. Finally, further research exploring the contrasting perspective of adverse effects of OSOSS participation on financial outcomes, may provide a rounded and more tempered perspective of the phenomenon.

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Appendix A: Initial Letter of Contact

Hello,

My name is Dennise Yambao and I am a graduate student working under the supervision of Dr. Thomas Barker in the Faculty of Extension in the Master of Communication and Technology program at the University of Alberta. I am conducting a study that seeks to explore how participation in Online Social Self-Organized Systems – in particular, r/PersonalFinanceCanada, affects perceived financial literacy among Canadian adults. I am reaching to you because I believe that your active participation in r/PersonalFinanceCanada gives you the ability to provide significant personal insights about the phenomenon that I am studying, and such, I am hoping that you might be interested in volunteering as a participant in this study.

Participation in this study involves taking part in an interview conducted online, using Reddit's online chat tool. The interview questions will focus on your personal experiences as an active member of the r/PersonalFinanceCanada community, and your perception on how your involvement in this community impacts your subjective financial literacy. The interview will take approximately 45-60 minutes. I may also send you follow-up questions within two weeks of our interview through Reddit's private messaging tool.

In appreciation for your time commitment, you will receive remuneration in the form of a \$25 Amazon Gift card, sent to you by email within 24 hours following our online chat. I would like to assure you that the study has been reviewed and has received ethics clearance through the University of Alberta's Research Ethics Board.

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If you are interested in participating, please respond to this private message with a “Yes”, and I will provide you with a document outlining the research details such as purpose and background, procedures, confidentiality, and consent details. I will also include a copy of my interview guide, so you can review in advance and provide official written consent.

Again, the final decision to participate in the study is yours. Please let me know you have any questions.

Sincerely,

Dennise Yambao

MA Communications and Technology, 2017

University of Alberta

Appendix B: Letter of Consent

Study Working Title: Crowdsourcing financial literacy: how Reddit participation affects
perceived financial literacy among individuals

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Background

There has been an increase in the amount financial literacy interventions following the Great Financial Crisis of 2009. A review of extant literature suggests that most traditional interventions treat learners as passive recipients of information, despite growing evidence to suggest that learners' unique psychosocial characteristics may contribute to overall financial literacy. Online Self-Organized Social Systems (OSOSS), such as Reddit, have been proposed to provide an ideal venue for episodic learning and interactive knowledge-sharing, providing a context-rich environment that views participants as subjects in their own learning. However, little research has been conducted to explore this phenomenon.

You are being asked participate in this study because of your active participation in the Reddit community r/PersonalFinanceCanada. You were selected because you are currently one of the top commenters in the community, which I believe this makes you well-positioned to provide meaningful insight into how your own involvement in the community has affected your understanding of personal finance concepts.

You were identified as one of the top commenters of the subreddit through a query of subreddit_stats. Findings of my study will be used to meet the final requirements of a graduate capstone.

Purpose

The study's findings will be used to meet the final project requirements for a Master of Arts in Communications and Technology. Results of the study will also add to the body of literature in the use of OSOSS in informal learning

Study Procedures

Semi-structured, one-on-one interviews conducted online through the use of Reddit online chat. Interviews will be scheduled based on participant availability.

Participant responsibilities will include participation in 45-60 minute online chat, as well availability for follow-up questions sent to you by email or using the Reddit private message tool. In total, participation responsibility will not exceed 75 minutes, factoring both online chat and responding to follow-up questions.

Interviewees will be selected based on level of activity on the subreddit [r/PersonalFinanceCanada](#).

Benefits to the Participant

You will receive a \$25 Amazon Gift Card as honorarium for participation, paid to you via email, within 24 hours following the online chat. Intrinsic benefits may include the intrinsic rewards you may derive from contributing to the body of knowledge of how Online Self-Organized Social Systems may be used to improve financial literacy among adults.

Potential Risks

Your participation in the study will require approximately 45-60 minutes for individual online chats, with possible follow-up emails for clarification, totalling 75 minutes of expected participation time. These demands on your time may be viewed as a potential risk.

The survey will contain questions that will refer to your personal financial knowledge and behaviours, which may cause some participants discomfort due to the delicate nature of the subject. When you feel some discomfort at responding some questions, please feel free to ask to skip the question. Data collected through the interviews will be coded so that your name will not be associated with your comments.

Potential Conflicts of Interest

The investigator does not have any financial interest in Reddit, financial literacy programs, or in the phenomenon being studied.

Confidentiality

Your Reddit username will be removed and replaced with a random identifier following the transcription, to provide anonymity in the data analysis and findings. Raw data will be kept confidential and secure, but will be accessible to the researcher and capstone project supervisor.

Data will be digitally-stored in a restricted-access, password protected location for a minimum of five years following the completion of the research project, and will be destroyed in a manner that meet the University of Alberta's minimum standard of data destruction, in a way that guaranteed privacy and confidentiality.

The investigator will transcribe the online interview and provide you with a copy of the transcripts upon request. You have the right to review and edit the recordings. You may request the investigator to leave out specific statements that you are not comfortable being published. These will not be used and they will be erased from all relevant documents.

Voluntary Participation

You are under no obligation to participate in this study. If you choose to participate in this study, you may withdraw at any time, without any consequences of any kind. If you do participate in the study, and then choose to withdraw at a later date, you will still be entitled to receive your \$25 honorarium within 24 hours of notification of withdrawal of consent. You may refuse to answer any questions you are reluctant to answer, and still continue to be part of the study.

Freedom to Withdraw

You may withdraw your consent any time prior to or during the interview and discontinue participation without any penalty. If you wish to withdraw your consent, you may do so by sending a withdrawal notification to the researcher, either through the Reddit private messaging tool or by sending an email to the researcher. You may also withdraw your consent during the online interview.

You will be provided the opportunity to review transcripts as well as the final report prior to submission to ensure that you are comfortable with how your data will be presented. After this review, data may no longer be withdrawn from the study. You may also request a copy of the final paper.

Further Information

If you have any questions or concerns about the research, please feel free to contact the research of the research advisor at the following contact numbers/emails:

Dennise Yambao

yambao@ualberta.ca

(403) 389-1373

Dr. Thomas Barker

ttbarker@ualberta.ca

The plan for this study has been reviewed by a Research Ethics Board at the University of Alberta. If you have questions about your rights or how research should be conducted, you can call (780) 492-2615. This office is independent of researchers.

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Consent Statement:

By providing my Reddit username and checking this box, I am agreeing to the following statements:

I have read this form and the research study has been explained to me. I have been given the opportunity to ask questions and my questions have been answered. If I have additional questions, I have been told whom to contact. I agree to participate in the research study described above and will receive a copy of this consent form. I will receive a copy of this consent form after I sign it.

Reddit Username

Date

Name of Person Obtaining Consent and Signature

Date

Appendix C: Interview Guide

Preface:

Thank you for taking the time to chat with me today! I appreciate your willingness to share your experiences with an “internet stranger”, and I really look forward to learning more about your perceptions around how your participation in the r/PersonalFinanceCanada community affects your own financial literacy.

Before we begin, some housekeeping items – I just want to remind you of the following:

- This interview will remain confidential, but I may take excerpts of your responses and use it in my discussion of findings. Not to worry, I will make sure to run everything by you before I do so, and I won’t include any personally-identifying information without your consent.
- You are under no obligation to respond to my questions, so if you find that I’m asking something that makes you a bit uneasy or you simply prefer not to respond, you are welcome to do so. It won’t mean that you’ll be removed from the study, and it won’t affect the honorarium that you are eligible to receive for your participation.

Ice-breaking, context-setting:

- How did you become involved with this subreddit?
- How long have you been an active member of this community?
 - Probes: any interesting stories or learning from your time here?
- Before becoming involved in this subreddit, what would you say your level of comfort or knowledge was when it came to common personal finance concepts?

Probes: financial planning, investing in the stock market, debt, real estate, tax planning

- How did you attain this level of knowledge? (Formal training, life experiences, trial and error?)

Social learning:

- From your perspective, how does observation of people's subreddit participation – reading their posts and responses – affect your own financial knowledge?

Probes:

- Can you describe, if any, learnings that occur simply by observing or reading what people share? (Observational learning)
- Tell me about how these observations affect your outcome expectancies when it comes to financial decisions?
- How do you decide which observations (posts) to extract information or learn from?
- How would you characterize your participation on this forum?

Probe:

- Information seeking or sharing?
- How has your active participation (contribution, not just observing) in this subreddit affected your level of knowledge around financial concepts?
 - Can you think of some anecdotes to concretize?
- How does participation in the forum affect your perception or self-belief in your own ability to manage your finances?

Probe:

- Can you provide an example?
- How did that make you feel?
- What sort of impact would you say that your interactions or relationships with other community members have on your desire to continue learning about personal finance?

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Probe:

- What makes you say this?
- Are there any other aspects of community participation do you believe helped you learned about the concept?

Probe:

- Why do you think this is the case?
- Was there anything that we didn't cover today that you would like to add?