Financial Socialization for Digital Natives:

A New Way to Teach Children About Money

by

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# **AUTHOR'S DECLARATION**

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# ABSTRACT

This study hypothesizes that there is a need to disrupt traditional methods by which families teach children about money and illustrates a design solution that could effectively solve the problem. In doing so, it explores *how* technology can play a role in children's financial upbringing through a review of literature and a generative study conducted on 8 Toronto families with children between ages 5-12. Specifically, it explores *what* methods parents are currently using to teach children various financial life skills and *why* such methods work or do not work. The study reveals three major themes: 1) Children cannot fully make the connection between physical money they put in their piggy banks and digital money they see being used in the real world. 2) Parents find it difficult to consistently implement money practices at home such as chores and allowances, often due to time constraints and convenience factors. 3) Children get easily influenced by their peers and surroundings when it comes to their purchase decisions, making it hard for them to delay gratification. The project culminates in a conceptual design of an app that addresses these themes in the following ways: 1) Provides children a digital way to manage money that aligns with what they observe in the real world. 2) Enables parents to keep track of their children's finances and implement money practices easily and consistently. 3)

Helps children focus on their goals and make informed choices that supersede external influences such as peer pressure. The app works as a family tool, providing a way for all players in a child's financial life (parents, grandparents, siblings and other significant adults) to work towards a common goal and pass on values and skills of money management between generations. This study and the accompanying prototype contribute to the field of children's education technology and aid further research on the subject of digitizing financial education.

*Keywords:* financial socialization, digital natives, money, children, technology, education, family, parenting, generation alpha, personal finance, apps

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#### **INTRODUCTION**

*Financial socialization* is the process through which individuals develop their money habits, attitudes, and skills. This is primarily achieved through modeling behaviors, creating discussions and curating practical experiences at home (LeBaron et al., 2019). Indeed, the path to becoming a financially independent adult is a life-long journey shaped by social factors – eg. family, culture, peers, media and community. However, the world around us is changing. The prevalence of today's rapidly evolving technology is fast transforming all aspects of life and society, from the way we communicate to the way we spend time at home, at school, and out in the community (National Association for the Education of Young Children [NAEYC] & Fred Rogers Center, 2012). How then is a child's financial upbringing evolving with the new world?

The term *digital native* was coined by education expert Marc Prensky (2001a) to describe the generation of children growing up in the age of ubiquitous technology; these children speak "digital" as a primary language that they learn, communicate, and interact in. In his two-part article "Digital Natives Digital Immigrants", Prensky (2001a, 2001b) draws upon theories in neuroplasticity and social psychology to suggest that there has been a fundamental shift in the brain structures and thinking patterns of the new generation – and the magnitude of this change is comparable to when humans first switched from verbal communication to reading and writing. To put it simply, digital natives are hard-wired to think and process information differently than their parents' generation, and that is unlikely to change. Therefore, the onus is on the parents, educators and policy makers to find new ways to educate the new generation (Prensky, 2001a).

As the title "Financial Socialization for Digital Natives" suggests, this paper is constructed on the hypothesis that there is a need to evolve traditional financial socializing methods to fit the context, culture, reference points and learning patterns of digital natives. Digital natives are major consumers of digital products such as apps, games and videos starting

from a very young age (Rideout, 2017). Even before they take their first steps or say their first words, they intuitively know how to swipe and tap on screens to make things happen instantly, such as play their favourite cartoons or games. This style of consumption happens without having to wait or putting in any effort, and it is a world where seemingly everything is free. Admittedly, digital natives are growing up very disconnected from the economic realities of life, which could have detrimental effects on their financial future. Therefore, in order to effectively teach today's children about money, parents must connect the dots between the digital world and the physical world.

To substantiate this idea, I first argue that there is a strong need to promote financial literacy among children. I then provide evidence through literature analysis that the most effective way to teach children about money is through experiences that are aligned with the real world. I validate this further through a generative study, identifying the common gaps in financial education for children today - namely technological gap, implementation gap and generational gap. Finally, I provide the proof of concept of a digital app that aims to bridge these gaps in financial socialization for digital natives. The recommendations generated in this paper have been used to design a high-fidelity prototype of the app named Pocket Buddies, that serves as an example of a financial education tool for future generations.

### RATIONALE

Poor financial literacy among children and young adults is a rising concern worldwide (e.g. Garg & Singh, 2018; Jorgensen and Savla, 2010; Mandell, 2008; OECD, 2017;). Canada is no different. We are a nation suffering from record high consumer debt, rising housing prices, dwindling job prospects and soaring student loans – and yet, we feel better prepared to talk to our children about sex than we do about money (Dollars and Smart Sense, 2018). We are also often oblivious of our own lack of financial savvy (Ipsos, 2017) which could carry over to our children. To help with this, the Government of Canada employed a Task Force on Financial Literacy in 2009 with the aim of providing us with the "knowledge, skills and confidence to make responsible financial decisions" (Government of Canada, 2019). But given that we are behind on adult financial literacy, it will take a long time for these policies to meaningfully impact children.

The current state of children's financial education in Canadian schools is either nonexistent, outdated, or inadequate, depending on the province (Marr, 2016; Soman, 2017). The province of Ontario, for example, has only recently implemented a pilot project that will add financial literacy to the grade 10 curriculum (Gordon, 2017). At a younger age, the gap is being haphazardly filled by various non-profit organizations through daylong workshops and summer camps such as Money School Canada, Cent\$ible Students and Junior Achievement. In the meantime, as these programs and policies slowly make their way into our education system one school at a time, the world around us is changing rapidly. Canada is now ranked the number 1 most cashless society in the world (Osler, 2018). Before our eyes, retail stores are disappearing, cashiers are turning into robots and all our life's necessities are being instantly delivered to us at our doorsteps. With all these changes, it won't be long before the kids "lemonade stand" goes out of business because, frankly, nobody carries cash anymore! We ought to come up with newer, better approaches to financial education that align with the realities of today's world.

Fortunately, we don't have to wait for the government or our school system to intervene, because the best place for children to learn about money is at home (LeBaron et al., 2019; Schuchardt et al., 2009; Totenhagen, 2015).

# LITERATURE REVIEW

Financial socialization theories suggest that children learn from "observation, instruction, and practice" (Whitebread & Bingham, 2013, p. 17). In section 1 of the literature review, I expand upon these three principles of financial learning, providing evidence that learning through practice or experience is the optimal method. In section 2, I provide specific examples of how experiential learning can be applied to financial socialization. Finally, in section 3, I discuss the role of technology in financial socialization for digital natives, grounded in contemporary influences and examples. The literature review will later inform the discussions section of this study, connecting existing theory to new findings, thus providing the guiding principles of the prototype design.

# SECTION 1: HOW CHILDREN LEARN FINANCIAL SOCIALIZATION

Research has shown three primary methods through which children learn from their parents about money: i) Learning by observation. ii) Learning by discussion iii) Learning through experience. Each of these have been discussed below:

#### Learning by Observation

One of the earliest ways in which children learn from adults is through observation and imitation. Much like how an infant would mimic the facial expressions and gestures of an adult (Meltzoff, 1998), each of us has the innate ability to learn from our surroundings through observation. Bandura (1977), who calls this *social learning*, stated:

Most human behavior is learned observationally through modeling: from observing others, one forms an idea of how new behaviors are performed, and on later occasions this coded information serves as a guide for action. (Bandura, 1977, p. 22)

This is particularly true for children who implicitly acquire their parents' behaviours and attitudes through day-to-day observation. LeBaron et al. (2019) further linked observational learning to financial socialization explaining:

Children whose parents model sound financial behaviors will likely imitate those behaviors not only in childhood but also into emerging adulthood and beyond. (LeBaron et al., 2019, p. 437)

Therefore, if children grow up observing their parents making financially responsible decisions such as putting money aside for a rainy day or living within a budget, they could inadvertently acquire similar values and behaviors in life (Serido & Deenanath, 2016; Hira et al., 2013). However, the same would hold true if parents model poor financial habits. Therefore, parents who are aware of this implicit learning method can use it to their advantage by modelling behaviors they would like to see in their children and minimizing those they do not wish to pass on. In other words, they can act as a good role model.

### Learning by Discussion

As opposed to learning by observation, which is implicit, learning by discussion is an explicit way in which children can learn through conversation with their parents. It is primarily how they are able to "make sense of their social worlds". (Djik et al., 2018, p. 1908). There is evidence of parent-child discussions being a beneficial technique in teaching social behaviors (Djik et al., 2018; Moschis, 1985), morals (Berkowitz & Grych, 1998), beliefs (Werner et al.,

2014), life choices (Wilson et al., 2010) and habits (Backett & Alexander, 1991). This includes examples of learning about health, sexuality, empathy, advertisements, media and violence.

Furthermore, there is evidence of parent-child discussions bearing positive outcomes in financial socialization. (LeBaron et al., 2019; Danes & Dunrud, 2005). Whitebread & Bringham (2013) recommend that parents find opportunities in daily decisions to have a conversation. For instance, if a child wants to go to the movies, parents could talk about the various costs associated with the activity which includes monetary costs (such as paying for gas, snacks, drinks and tickets) and non-monetary costs (such as time and energy). This could also be an opportunity to discuss other alternatives such as renting a movie and evaluating which option would be considered a better financial decision. The key, therefore, is to find teachable moments in everyday situations where parents and children can discuss money in a meaningful way.

# Learning by Doing

The process of learning by doing is known as experiential learning (Felicia, 2011). A body of literature suggests that children learn best through experience (Kirkham et. al, 2002; Watkins, 2001; LeBaron 2019; Whitebread & Bringham, 2013). The theory of inductive learning reasons that learning from experience is more effective than learning through instruction because it allows a child to apply the knowledge acquired from past experiences to new situations (Kirkham et. al, 2002). Experiential learning can further lead to metacognition, or learning to learn (Watkins, 2001), where children are able to evaluate their experiences in conjunction with their "goals, strategies, effects, feelings and context of learning" (p.7). Therefore, whereas learning through observation or discussion can help children repeat actions and mimic behaviors,

learning through experience can go much deeper as it enables children to internalize, reflect and keep learning. LeBaron et al. (2019) explains this as a cyclical process:

[A child] gains external experience, reflects on the observations of that experience, forms new abstract concepts from that reflection, and reapplies what is learned to new experiences. (LeBaron et al., 2019, p. 438)

Many studies have provided evidence of experiential learning in the context of financial socialization. Tang and Peter (2015) discovered that hands-on financial experience has a direct and significant impact on financial knowledge. Jorgensen & Savla (2010) found that children who handled their own money and made their own transactions at the supermarket were financially more knowledgeable, responsible and confident in their decisions. In a 2018 study, LeBaron et al. found that early experiences in working, saving, having a bank account and living within a budget, all led individuals to grow up as financially responsible adults. Work by Kim and Chatterjee (2013) further established that the experience of owning a bank account and managing spending habits in childhood led to an increased propensity to save in adulthood. In recognition of this, the "Bank at School" program in the US has enabled students to "open a saving account at school, make deposits, calculate simple interest and track their saving balance" (Tang & Peter, 2015, p. 123). According to LeBaron et. al (2019), not providing children with sufficient economic experiences in their childhood may impede their financial abilities in adulthood. Work by Schug and Birkey (1985) further adds that these experiences could help children combat the influences of consumerism propagated by media and advertisement (Schug and Birkey 1985).

Indeed, there is much evidence rooted in literature that tie experiential learning to financial socialization. However, there is yet to be studies conducted to explore what these early

financial experiences for children may look like in the context of digital money, such as online banks and payment methods. In the following section, we will review some existing examples of experiential learning in financial socialization.

# SECTION 2: USING EXPERIENTIAL LEARNING IN FINANCIAL SOCIALIZATION

Children are social learners, largely influenced by parents, siblings, peers, school, media and other social agents (Schuchardt et al., 2009). While it is still common today for adults to curate financial lessons at home using pocket money and piggy banks, children find it more exciting to participate in practical activities such as going to the real bank or taking weekly grocery trips (Whitebread & Bringham, 2013). So, what kind of financial experiences can parents create for their children?

Whitebread & Bringhan (2013) provide a few practical examples for parents. For instance, a dollar-shopping trip can be arranged in order to teach a child concepts related to value and exchange. The child will only have \$1 to spend and experience the dilemma and decisionmaking that comes with having a budget. Similarly, to teach concepts of earning an income, children can be allowed to complete tasks that require them to give up time and effort in exchange for money. To put simply, they can be given jobs. This lesson could be further tied with experience in window shopping that shows a child what they can and cannot afford with the wage they earned. Delaying gratification can be taught by setting up a savings jar for the next item a child desires to purchase something, and a chart can be made to visually track progress. Some examples of digital solutions that attempt to deliver such experiences have been provided in the next section.

In my research, I found a few examples of children displaying financially responsible attitudes and behaviors as a direct result of the experiences provided by their parents. For instance, a 9-year-old whose parents took him to the thrift store once learned that for the same amount of money he would use buying one toy at ToysRUs, he would get 5 equally nice toys at Value Village. As a result of this experience, he started spending his money wisely. Another 12-year-old was allowed to go into the bank and exchange his Canadian dollars for U.S. dollars during their visit to Disney World, Florida. Watching his money shrink not only helped him grasp the complex idea behind currency exchange but also discouraged him from spending all his money because he understood that the U.S. dollar was more expensive.

However, Whitebread & Bringham (2013) also warn that the experiences curated need to be age-appropriate. For instance, a child younger than 5 years old may understand that you need to pay money in exchange for things but may not be able to comprehend that certain things cost more than others. Similarly, it could be challenging for a child younger than 7 to understand that using a credit card to pay is also an exchange similar to cash. This concept of age appropriate money experiences was expanded upon by author Beth Kobliner (2013) in the book "Making Your Child A Money Genius (Even If You're Not)" where she provides parents with age-by-age financial socialization strategies substantiated by a myriad of research. To sum up, experiential learning could be a powerful tool in financial socialization when the experiences are rooted in everyday settings with age appropriate practices.

#### SECTION 3: USING TECHNOLOGY IN EXPERIENTIAL LEARNING

In this section, I review Presnky's (2001) theory on how digital natives learn and what role technology currently plays in their education. I then specifically explore educational apps, categorizing them into educational games, gamified educational apps and productivity apps. From this review, I conclude that productivity apps are the most ideal when it comes to teaching children about money.

#### How Digital Natives Learn

Children today think, learn and process information very differently from their parents. According to Prensky (2001a):

Digital Natives are used to receiving information really fast. They like to parallel process and multi-task. They prefer their graphics before their text rather than the opposite. They prefer random access (like hypertext). They function best when networked. They thrive on instant gratification and frequent rewards. They prefer games to "serious" work. (Prensky, 2001a, p.2)

In contrast, *digital immigrants* (those who did not grow up with technology but rather 'immigrated' into it) tend to learn "slowly, step-by-step, one thing at a time, individually, and above all, seriously" (Prensky, 2001a, p.2). Prensky compares this dichotomy to a language barrier, emphasizing that digital immigrants must learn the language of digital natives in order to be able to provide them education. He argues that every subject can be and needs to be taught in a new way because digital natives are simply unable to learn the old way – their brains are physically different (Prensky, 2001b).

#### Using Technology in Education

Many studies have correlated the use of technology at home to higher educational attainment (Danby et al., 2018; NAEYC & Fred Rogers Center, 2012; Takeuchi, 2011). A qualitative study on preschoolers in central Scotland found that the use of technology at home can significantly augment learning in children, but only when it is used in collaboration with family members (Stephen, et. al, 2013). Takeuchi (2011) adds that technology should "let parents interactively participate in media activities with their children, whether one room or one thousand miles apart" (p.6). Moreover, technological tools are most effective when they are "hands-on, engaging and empowering" (NAEYC & Fred Rogers, 2012, p.6). Based on this evidence, the types of digital tools that afford hands-on, collaborative and real-time experiences (i.e. mobile devices such as smartphone and tablets) could be deemed the best educational tools. Furthermore, a study by Danby et. al (2018) found that most parents feel that tablet devices, particularly educational apps, help children's learning as well as social and emotional development. It is therefore no surprise that the ownership of tablets among children in America have gone up 6 times between 2013-2017 (Rideout, 2017). Fortunately, there is also evidence that mobile and tablet devices have improved young children's "fine motor skills, communication and opportunity for learning and cognitive engagement (Danby et. Al, 2018, p. 167).

#### Example of Technology in Learning

Thus far, I have found three kinds of apps that have provided experiential learning for children – games, gamified apps and productivity apps.

Among children's educational games, Minecraft is a favorite these days. It is a game that allows players to build worlds together from remote locations using simple building blocks. While the world they build is virtual, the experience of teamwork, collaboration and working with the community are real social skills that children learn from the game. Furthermore, the game allows children to build complex machines and environments which have been used by educators to teach spatial geometry, digital story-telling and project management to name just a few (Nebel, et al 2016).

Gamification is different from games in that it makes the education game-like through rewards and challenges, but the app in and of itself is not a game. This has implications in learning both hard skills such as language (eg. Duo Lingo for kids), soft skills such as time management (eg. HabitRPG) and healthy life habits (eg. Zombie, Run!). Although not originally created as a fitness app, Pokémon Go can be used as an example of a gamified experiences to attain healthy habits. In this augmented reality version of the popular children's cartoon, players can walk outdoors in the real world and collect virtual creatures called Pokémon. The more they walk, the more they can catch and the more in-game rewards they earn. It is perhaps the most closely studied app in gamification and benefits have been associated with factors such as increased physical activity, more time spent outdoors, improved mood, socialization skills and spatial awareness (Marquet et al. 2017).

The third category of educational apps are productivity apps such as Purp To-Do List & Goal Tracker (app that helps children stay organized), MyScript Calculator (for Math help) and PizMo Go – Instant Text Capture (for reading help). Contrary to popular ideas of how children need rewards for everything, these productivity apps are not driven by any extrinsic reward but would merely act as a tool for productivity. The motivation to use such an app therefore would be similar to why an adult would use a productivity app – it would solve a problem that user has.

This category of apps is built to solve real world problems, which aligns best with the literature on experiential learning and financial socialization reviewed in the previous section.

### Example of Technology in Financial Education

Some games available through the app store simulate some aspect of financial education. For instance, Super Market Cash Register enables children to role-play as cashiers and Bank ATM Simulator that teaches children to use an ATM machine. However, these have done very poorly in the app store with little or no downloads and ratings. On one hand, as games, they don't do a very good job in creating continuous challenge and excitement for children. On the other hand, the games seem too far detached from what literature suggests parents would like to teach their children – for instance, playing with a virtual, cash registry while fun, does not teach any norms, values or behaviors that are fundamental to financial socialization. In my research, I found that the financial values that parents wanted to teach their children were related to their long-term success - such as learning about opportunity cost, delaying gratification and saving for a goal, none of which were reflected in these games. The type of games that I found in the category of children's financial education were more or less virtual simulations of items or symbols related to money that did not teach any valuable lesson or experience.

In the category of gamification, I found Peter Pig's Money Counter that teaches children how to count coins and then use the rewards to buy props to dress a pig. This, at the very least, has some educational value when it comes to understanding money. However, once a child learns all the coins, there is no motivation to play despite the in-game rewards. Moreover, in my research I found that money counting, while also taught in school, does not have implication in real life as few families use physical cash to pay for things. Therefore, parents are unable to model behaviors and curate practical experiences using physical money unless they go out of

their way to obtain cash. Most financial educational apps that I found under the gamification category were related to math and counting (eg. Amazing Coin, Counting Money & Money Grabber) and therefore did not reflect the principles of financial socialization.

The best apps that I found in the category of children's financial education are the productivity apps that deliver well on the real-life aspects of money. For instance, RoosterMoney is an allowance tracker and chore manager that has been highly rated by The Wall Street Journal, Forbes and The Huffington Post. The reason this style of app has done better than gamification and games is because children feel intrinsically rewarded when lessons are based on their own money. The app then merely becomes a tool, and the lesson comes from the real world – which is reflective of the theories of financial socialization and experiential learning that I have reviewed earlier in this paper.

#### **METHODOLOGY**

The recommendations generated in this paper have been used to design a high-fidelity prototype of a digital app as an example of a financial education tool for future generations. Therefore, there are two types of methodology that have been used: 1) Research Methodology 2) Design Methodology.

# Research Methodology

This project explores the problem of children's financial education and identifies a technological solution. As such, I chose a target group of young Toronto families with children between ages 5-12 years old, with the presumption that a broad age group would reveal a diversity of thoughts and insights. I conducted a generative study on a total of 8 families and assessed their needs in terms of family dynamics, learning styles, relationship with money and technology. Specifically, I explored *what* methods parents are currently using to teach their children various financial life skills at home and *why* such methods work or do not work. Furthermore, I considered the unique needs of each generation that influences a child's financial upbringing, identifying friction points that could be avoided and common goals that could be incorporated in the technological solution. The findings were reviewed in conjunction with the literature analysis to identify an app-based solution that could serve the family financial socialization practices. All necessary approvals were obtained from the Ryerson University Research Ethics Board (RB) prior to starting the research study.

# Sample

A total of 8 participants were recruited via online flyers posted on various parents' groups on Facebook. There were 2 criteria for eligibility: 1) Parents living within the Greater Toronto

Region. 2) Parents with children between ages 5-12. This age group of children, sometimes referred to as *grade schoolers*, are post pre-school and pre-high school students. According to the American Academy of Pediatrics, at this stage of development, children are introduced to various real-world challenges and develop life experiences and cognitive functions that help them build confidence (Ages & Stages, n.d.). The rationale behind such a broad age group for children was to obtain a diversity of insights into financial socialization practices in families with younger, older and multiple children and get a deeper understanding of children's knowledge, attitude and behavior towards money matters at various ages. This helped in envisioning a solution that could grow with the child as their level of understanding and responsibilities evolve.

The age range, coupled with recruitment via social media, also helped obtain a pool of participants with a high level of diversity in terms of participant income, cultural background and family composition. Participants included single and dual income households of low, medium and high incomes. Among the parents were first- and second-generation immigrants, single parents and same-sex couples. The households had 2 or 3 children of both genders, but none with a single child. There were children going to both public and private school as well as families living in the city and in the suburbs. Participants who volunteered, however, were all female parents, although in some cases their significant other was around and contributed to the contextual insights gained.

### Procedure

Generative research is a methodology used in the field of User Experience (UX) that helps researchers define a problem that they are trying to design a solution for. It involves obtaining a deep contextual understanding of participant's lives, behaviors, attitudes and perceptions without a specific problem or solution in mind (Estes, 2019). This discovery-based approach was fitting for my project as financial literacy and education technology are both broad topics. My objective was to explore parents' attitudes, preferences and opinions about children's financial education, technology use and money practices at home and uncover what problems existed, what solutions they were using and what were the gaps. Therefore, it was important that I familiarized myself with all aspects of their family life – starting from everyday routines to special occasions, house rules, family culture, technology use and conversations and practices around money. This required in-depth face-to-face interviews within the context of participant's home and family settings. Therefore, I designed hour-long interview sessions in participants homes. The interview style was semi-structured, and fully adaptable to each participant, taking cues from their situations and surroundings.

The interview questions were of three types:

- Guided Questions: Each session typically included some variations of open-ended questions that guided the conversation around money, education and technology. For instance: i) What lessons are you currently teaching your children about money? ii) What are your house rules around screen-time? iii) What was the last purchase your child made? These were conversation starters to then delve into the *whys* and *hows* of the topics and uncover the culture, values, norms and beliefs that drove their everyday parenting decisions.
- 2) Situational Questions: Every time a parent shared an example or an anecdote, it was an opportunity to ask specific situational questions such as "So what did your child do with the \$100 grandma gave on his birthday?" or "What happened after you refused to buy your child another set of Pokémon cards?". These were instrumental in

uncovering day to day friction points and overall pain points that parents face. Moreover, they helped unpack some of the more generic answers provided by parents and revealed what things were like in reality.

3) *Observational Questions:* Since the interviews took place in participant's homes, I had the opportunity to make observations above and beyond the scope of interview questions and answers. For instance, if a child was watching something during the interview, or there were collections of toys or artwork displayed, or if grandma called mid-interview, I had an opportunity to ask questions and learn more about them. This gave me a deeper understanding of their home situation, family life, and relationship dynamics. Moreover, being in their own homes put the participants in a more relaxed state of mind, contextualized their narratives and minimized self-reporting bias.

#### **Data Collection and Analyses**

All interviews were audio-recorded with REB approval and parents' consent. The audio files were transcribed into scripts where each participant was assigned a pseudonym. The pseudonym key was kept in a separate file away from the transcripts. In addition, some photos of toys and artifacts (such as piggy banks, toy collections and artwork) were collected with the consent of parents in order to help with the analysis of the data, but no participant or their children were photographed. These measures ensured that the data was appropriately deidentified before analysis began and participant privacy and confidentiality complied with REB guidelines.

An affinity diagram was used to study the data to find themes and patterns. Affinity diagramming is a popular method used in design research where insights from interviews are recorded in post-it notes which are then organized and reorganized into clusters until a story emerges (Hanington & Martin, 2012, p. 12). While using this method, I recorded around 30-50

observations per participant and organized them into 4 broad categories 1) Problem 2) Emotions 3) Channels 4) Deficiencies. *Problems* would entail anything that would curtail parents' efforts to raise their children to act responsibly - for instance, peer pressure, time constraint, controlling screen time etc. These were obtained through guided and situational questions. *Emotions* such as pride, fear, guilt were recorded primarily through observation, tone and body language. *Channels* included all tools, resources, items and places that were relevant to a child's financial circumstances - such as Dollarama, Piggy Bank and YouTube Toy Reviews. *Deficiencies* were specific examples of the problem with existing solution parents were using to teach their children about money - for instance lack of physical cash. As patterns began to emerge, I reorganized the post-its, grouping similar observations together, putting the most observed occurrences on top of the diagram till I found distinct themes.

# Design Methodology

The principles of Design Thinking (Dam & Siang, 2019) were used to identify best practices and guide the creative process of the app. I used insights from my user interview, contextual notes from the interview settings and guiding principles from my literature review to empathize with my users, define the problem, ideate a solution and develop a prototype. At the empathy stage, I identified the key players in a child's financial upbringing as the child, the parent and grandparent and learned about their unique goals, motivations, actions and emotions. The insights from the affinity diagram was used to identify three distinct themes that helped define the problem. At the ideation stage, I created a journey map that brought together the three users and the three themes into a single experience that was inspired by one of the interview anecdotes. The journey map helped me create wireframes and ultimately a prototype of an app using the software Adobe XD.

#### FINDINGS

There were three recurring themes that emerged from the generative study. I have categorized them as: i) Technology Gap ii) Implementation Gap and iii) Generation Gap.

#### Theme 1: Technology Gap

This theme revealed that there is a need for a digital tool for children to manage and keep track of their money. Currently, in the absence of such tools, parents are implementing old generation's methods to solve the problem for a new generation, which is not working well. Moreover, the technology that parents are using for their own money management is far more advanced than what they are using to help their children practice money. The findings pertaining to technology gap are discussed in the sections below.

# Lack of Technology

Piggy banks were used in every household, primarily to store cash and coins received as gifts or allowances. However, most children could not fully make the connection between physical money they put in their piggy banks and the digital money they saw being used by their parents in the real world. Below are some examples:

Lamisa, a stay-at-home mother of two girls shared about her 6-year-old daughter:

My daughter recently learned how to count money in school. It was the first time she saw any cash or coins because she is used to seeing us use debit or credit cards....I don't think she understood it was the same money.

Heather, a single mother of two girls 5 and 9-year-old noted:

They have wallets and piggy banks, but they are not best at counting or keeping them [the money] safe. They end up playing with it....When we go to Dollarama,

they want everything they see....I say I don't have cash, they ask "oh where is your credit card?". They don't get the concept yet. It's too abstract.

### Solutions in the Absence of Technology

Darleen, who has a 12-year-old son and a 10-year-old daughter had a solution to this problem. She suggested:

Farmers markets are great for kids because it's all cash. They can see physical [money being used]. In a world where even monopoly is electronic, it's so hard to show them that money diminishing.

In fact, Darlene went through great lengths to bridge the gap between physical and digital money to teach her children the concepts of budgeting. Every week, she filled a bucket with a \$1000 in loonies with an empty bucket next to it. She told the kids that their budget as a household was \$1000 a week – and every time a bill was paid, food was purchased or service was incurred, they had to physically count and transfer the money from the full bucket to the empty bucket. She wanted her children to watch the money diminish with every purchase decision. Her plan worked to some extent, but the model was not sustainable long-term as it took up space, time and energy to implement.

Most parents agreed that cash was no longer a part of their everyday lives. Some said they had to go out of their way to withdraw cash from the bank to keep the allowance going, but it wasn't always feasible. In fact, there were occasions when parents found themselves in need of cash (for instance to tip for pizza delivery person) and ended up dipping into their children's piggy bank.

# Theme 2: Implementation Gap

This theme revealed that there is a need for an easy way for busy parents to implement and keep track of their chosen method of financial education for their children. Moreover, they can't do it alone. They need help from all the participants in their children's financial upbringing - this entails both parents and grandparents (if involved) to be on the same page. The findings pertaining to implementation gap are discussed in the sections below.

# Lack of Consistency

Just like Darlene and her money-bucket lesson, many parents admitted to not being able to remain consistent in the financial practices they established for their children at home. Others said they had a problem getting started as they could not find the time to, for example, take the children to the bank to open accounts or set the terms and expectations for allowance. Below are some examples:

Heather talked about her multiple failed attempts with allowance with her daughters:

I tried allowance a few times, couldn't stick with it. With my older kid I was planning to give \$5 [based on good behavior each week]. She forgot to ask, I never followed up, it [the allowance system] kind of disappeared.

Janine, who had a chore chart hanging on the fridge for her two daughters explained:

We are super busy in the morning and I need to get out the door. So, it's faster if I do it [the chore]. I guess it's my fault I need to be more consistent.

# Lack of Unity

Many also felt that their financial lessons were being undermined by the grandparents who would purchase toys or give the children extra cash without any reason or occasion. Below are some examples:

Monica, mother of 3 boys (4, 6 and 9 years old), complained:

The grandparents spoil them....my parents buy them gifts sometimes weekly....I would like them [my children] to have new toys only on special occasions. The influx is constant, and this is beyond my control.

Fariha, mother of 2 boys (5 and 9 years old) had a similar story:

My younger one has now equated that grandma=money. So, when my parents come over, he sits on their lap and says "can I have some money?"

Darlene said this was a constant source of friction between her and her parents:

My kids have been given a lot of money [by their grandparents] for a long time – my parents get mad because I go and put it in the bank. My parents send them a cheque, I put it away. Now they send him cash and cheque.

Therefore, the implementation gap not only came from the parents own busy lives, but also from the fact that not all the players in the child's financial social life were on the same page. This broke consistency and led to conflicts.

#### Theme 3: Generation Gap

Bringing back Prensky's (2001) theory on Digital natives vs. Digital Immigrants, the third theme (Generation Gap) reveals the gap in what is deemed valuable by the two generations. The values of digital natives are driven by their peers, which in turn is influenced by media and advertisement (eg. popstars, social media influencers, trending games, toys or merchandize).

Whereas their parents have their own set of values, shaped by their personal beliefs, life experiences, culture and parenting goals that they hope to pass on to their children. Theme 3 reveals some of the intergenerational frictions and compromises that I found to be common in the families.

# **Peer Pressure**

Kathy, mother of a 7-year-old boy and a 4-year-old girl who values frugal living shared that her son frequently succumbs to peer pressure:

"Beyblades are \$20 each. That's what the kids in school are into right now. It's a whole world of peer pressure... If you don't have a Beyblade, you fall out of the boy group, because that's what all these boys are doing every recess and lunch. So, if we are financially able, we want our kids to be a part of whichever group they want to be in" Monica who has three boys added:

Peer pressure also comes from the siblings. My younger wants what the other two have. There was a time when you would need 3 of something. Siblings have their mini collections because they are not sharing all the time.

# **Generational Conflicts**

In order to avoid conflict, some families said they try to avoid shopping with kids. Fariha shared:

I don't go to the grocery shop in-person anymore as it would come with these extra purchases....Even at a grocery store, there are hot wheels, that they [my children] potentially 'need'...So now we have Walmart groceries just delivered. Materialism and clutter continued to be a common friction point, especially among families living downtown:

At least once a week they [my children] want to go to the dollar store...but it [the toys] ends up in the trash, nobody uses it....Even the donation centers don't accept because they have so much

Another parent, Janine, said whenever she tried to get her daughters to give away their toys the girls would protest and claim they needed everything they owned. Even when they were explained that the toy could be shared with somebody less fortunate, the girls pushed back. So, she started donating the toys secretly hoping that the girls wouldn't notice – and they didn't. Monica shared a similar story about her three boys who always complained when they saw their mother give away their toys. But once the moment passed, they would quickly forget about it.

# **Emotional Compromises**

The study identified guilt (eg. I don't want my child to feel sad that I gave away their toy) and fear (eg. I don't want my child to be an outcast in his social group) to be the overriding emotions that made parents overlook financial values they were trying to teach. This often led to avoidance tactics such as not going to the shopping mall or stealthily donating toys to declutter. Most parents wished that their children would make good decisions on their own – for instance decide not to make an impulse purchase or willingly donate a toy. "My son has no impulse-control" said one mother "He is responsible with his own money now because we buy him things, but I fear once he is on his own, he will spend it all".

#### DISCUSSION

It can be understood from the first theme (Technology Gap), that if we want children to be money savvy, they need to at the very least take their own money seriously. However, this cannot be achieved if the money they own remains physical while the rest of the world uses digital money. Bills and coins in the piggy bank simply do not align with how digital natives understand money. Moreover, the process of counting and keeping track of money in the piggy bank is too slow and tedious. Revisiting Prensky's (2001b) theory on how the digital natives are hard-wired to think fast and act instantly, whether it is \$50 or \$500 that a child owns, the money needs to be stored, tracked and accessed digitally. Therefore, the technological solution that arises from this theme is a digital wallet.

It is also interesting to note that not being able to see physical money could potentially lead to a false, and even contradictory assumptions of how money really works. For instance, one parent shared that her son has "always" loved the chiming payment sound at the checkout counter whenever something was purchased. "It is exciting for [my son]" she said, explaining how it meant for the child that he would now get to go home with new things. Whitebread & Bringham (2013) found that these early life experiences form a child's fundamental assumption of how the world works. Therefore, the child in this case would assume – you go to the store, you put things in your cart, you hear the chiming sound and you go home with new things. The chime would be perceived to serve the exact opposite of its true purpose. This suggests the need for the digital wallet to visually depict the inflow and outflow of cash with every saving and purchase decision, which informs one of the features of the prototype design.

Theme 2 (Implementation Gap) suggests that piggy-bank cash system is not convenient for parents either. For instance, most family shopping trips end with parents paying with their

cards at the checkout. Even if there is an understanding that the child will pay the parent back for their purchase, it is a hard process to keep track of. Due to this inefficiency, a perfectly good teachable moment in spending might be lost. In order to tackle the problem from both ends, parents and kids, money itself needs to exist on the same platform. If the real world of money is cashless and digital, then kids' world should not be any different. Once a common platform has been established, only then can various foundations (eg. saving, spending and sharing) be laid. This finding underlies a key feature of the app design where parents (and even grandparents) are able to use the same platform to establish a unified approach to their family financial socialization needs.

A technological solution may not be hard to implement, as observing families in their home atmosphere confirmed my assumption that technology was a big part of every household. Two of the households were fully smart homes with voice commands and cameras performing tasks such as turning on the lights and checking who was at the door. The rest were varying degrees of technology assimilation – starting from a device in every room to a more digitized version of the central family TV room. All children but 1 owned or shared a tablet with a sibling, while 3 of them had their own cellphones. Regardless of age, gender or personality of a child, they were all extremely comfortable using all mobile and digital device.

Theme 3 (Generation Gap) brings to surface the world of peer pressure and consumer mindset that today's children are a part of. While this is perhaps the toughest pain point to address, my findings were concurrent with LeBaron's (2019) theory on experiential learning suggesting that when children are empowered with their own purchase decisions, they put more thought into what they buy. Sometimes, that means a child will decide against a frivolous purchase even though all the kids have the item in question. Other times they could spend all

they have on frivolous items – both experiences can teach valuable lessons. Darleen shared that her daughter who wanted an American Girl toy for \$28 because all her friends had it put it right back on the shelf when she was asked to spend her own cash. The app design therefore has a decision-making component that helps children understand opportunity cost real-time.

In addition to being responsible for their own money, if a child actually earns the money, there will be an even deeper sense of responsibility when it comes to making financial choices. Applying Kirkham's (2002) theory of inductive learning, it can be predicted that if a child experiences earning a wage for a job, putting that money aside for something they want, and finally using it to buy their desired item – the experience could then be replicated once they are in college, for instance, and want their first car. It will not cross their minds to buy first and pay later as their formative experiences would have taught them to save first. Therefore, I have included a way for parents to assign jobs to their children and for children to experience all the decisions that come with earning a paycheque - which is an excellent practice for the future.

#### **SOLUTION**

Based on the discussion of the various problems that hinder financial socialization for digital natives, the solution I have designed is a productivity-style app for kids. It draws on today's educational/life management style tools that are well suited for this generation. The app addresses the three themes of the study in the following ways: 1) Provides children a digital way to manage money that matches what they observe in the real world. 2) Enables parents to keep track of their children's finances and implement money practices easily and consistently. 3) Helps children make good choices through personal experience, sense of ownership and a visual depiction of their progress that would make them place their personal goals above external influences such as peer pressure and media ads. The app also solves for the intergenerational tension observed in regard to money by aligning family members on financial education.

The prototype has been designed based on three layers of users - the child, the parent and the grandparent. The underlying objective is to help the child reach his goal with the help of the parent and grandparent. The user journey of the prototype addresses the three major themes of technology gap, implementation gap and generation gap in the following ways: 1) The app helps the child organize his funds and visualize how his hard work is contributing towards his goals. 2) The mother easily assigns a job and follows through with the weekly salary transfer without breaking consistency. 3)The grandma can see what his grandson is saving for and give him a little boost without getting into a conflict situation with the parents. Everyone is working together to teach the child the value of hard work, saving and delaying gratification.

# **IMPLICATIONS AND FUTURE RESEARCH**

This is a small-scale study, but to my knowledge the first of its kind to research financial socialization for digital natives. Previous studies such as LeBaron (2019), Jorgensen & Savla (2010) and Danes & Dunrud (2005) have extensively reviewed various social aspects of raising financially responsible children. Other studies (e.g. Danby et al., 2018; NAEYC & Fred Rogers Center, 2012 and Takeuchi, 2011) provided evidence for the use of technology in education. However, the role of technology in financial socialization lacks research to date. Therefore, I hope my findings and the accompanying prototype will contribute to the field of children's education technology and aid further research on the subject of digitizing financial education for children. Looking forward, the prototype will undergo iterative testing to validate and build on the design and interaction choices made as a result of the generative study. It is essential in design thinking to test prototypes early and often to ensure the end product developed accurately meets the users' needs. As such, future versions will home in on the various ages and stages of a child's life, customizing the solutions further so the tool can evolve with the generation.

# CONCLUSION

This study suggests that there is a need for a technological intervention in children's financial education. This is guided by the literature that financial education is largely a social process and our social landscape has been disrupted by technology. The study reveals that there is a technological gap between the tools to teach money concepts at home and the realities of money today, an implementation gap between parents desire to help children practice money at home and the reality of their day-to-day busy lives and a generation gap that drives a wedge between parents & grandparents and children & their peers. The solution proposed is a design that bridges all three gaps through one app.

# References

- Ages & Stages [online]. (n.d.). Retrieved from https://www.healthychildren.org/English/agesstages/Pages/default.aspx
- Backett, K., & Alexander, H. (1991). Talking to young children about health: methods and findings. Health Education Journal, 50(1), 34 38. https://doi.org/10.1177/001789699105000110
- Bandura, A., & Walters, R. H. (1977). Social learning theory(Vol. 1). Englewood Cliffs, NJ: Prentice-hall.
- Berkowitz, M. W., & Grych, J. H. (1998). Fostering goodness: Teaching parents to facilitate children's moral development. *Journal of Moral Education*, 27(3), 371-391. doi:10.1080/0305724980270307
- Dam, R., & Siang, T. (2019). 5 Stages in the Design Thinking Process. Retrieved from https://www.interaction-design.org/literature/article/5-stages-in-the-design-thinkingprocess
- Danby, Susan (Professor of education), Fleer, M., Davidson, C., & Hatzigianni, M. (2018). *Digital childhoods: Technologies and children's everyday lives*. Springer.
- Danes, S. M., & Dunrud, T. (1993). Teaching children money habits for life. *University of Minnesota, Minneapolis*
- Dijk, A., Poorthuis, A. M., Thomaes, S. and Castro, B. O. (2018), Does Parent–Child Discussion of Peer Provocations Reduce Young Children's Hostile Attributional Bias?. *Child Dev*, 89: 1908-1920. doi:10.1111/cdev.13087
- Dollars and smart sense: Why every Canadian child needs to be financially literate (2018, February 08). The Globe and Mail. Retrieved from https://www.theglobeandmail.com/
- Estes, J. (2019). Generative vs. Evaluative Research: What's the Difference and Why Do We Need Each? | UserTesting Blog. [online] UserTesting Blog. Available at: https://www.usertesting.com/blog/generative-vs-evaluative-research/ [Accessed 25 Jul. 2019].
- Felicia,P. (Ed.). (2011). Handbook of Research on Improving Learning and Motivation through Educational Games: Multidisciplinary Approaches: Multidisciplinary Approaches. iGi Global.
- Garg, N., & Singh, S. (2018). Financial literacy among youth. International Journal of Social Economics, 45(1), 173-186. doi:10.1108/IJSE-11-2016-0303
- Gordon, A. (2017, March 23). Ontario launches plan to teach high school kids financial skills. *The Star.* Retrieved from https://www.thestar.com/
- Government of Canada. (2019, April 16). Financial Consumer Agency of Canada. Retrieved from https://www.canada.ca/en/financial-consumer-agency/programs/financialliteracy/financial-literacy-history.html
- Jorgensen, B. L., & Savla, J. (2010). Financial literacy of young adults: The importance of parental socialization. *Family Relations*, 59(4), 465-478. doi:10.1111/j.1741-3729.2010.00616.x

- Kobliner, Beth. (2017). Lead Make Your Kid A Money Genius (Even If You're Not): A Parents' Guide for Kids 3 to 23. New York, NY: Simon & Schuster.
- LeBaron, A. B., Hill, E. J., Rosa, C. M., & Marks, L. D. (2018). Whats and hows of family financial socialization: Retrospective reports of emerging adults, parents, and grandparents. Family Relations, 67(4), 497-509. doi:10.1111/fare.12335
- LeBaron, A. B., Runyan, S. D., Jorgensen, B. L., Marks, L. D., Li, X., & Hill, E. J. (2019). Practice Makes Perfect: Experiential Learning as a Method for Financial Socialization. *Journal of Family Issues*, 40(4), 435–463.
- Mandell, L., & Klein, L. S. (2009). The impact of financial literacy education on subsequent financial behavior. *Journal of Financial Counseling and Planning*, 20(1), 15.
- National Association for the Education of Young Children & Fred Rogers Center for Early Learning and Children's Media at Saint Vincent College. (2012). *Technology and interactive media as tools in early childhood programs serving children birth through age 8*. Washington, DC: NAEYC. Retrieved from http://www.naeyc.org/files/naeyc/file/positions/PS technology WEB2.pdf.
- Prensky, M. (2001a). Digital natives, digital immigrants part 1. On the Horizon, 9(5), 1-6. doi:10.1108/10748120110424816
- Prensky, M. (2001b). Digital natives, digital immigrants part 2: Do they really think differently? *On the Horizon*, 9(6), 1-6. doi:10.1108/10748120110424843
- Hanington, B., & Martin, B. (2012). Universal methods of design: 100 ways to research complex problems, develop innovative ideas, and design effective solutions. Rockport Publishers.
- Hira, T. K., Sabri, M. F., & Loibl, C. (2013). Financial socialization's impact on investment orientation and household net worth. *International Journal of Consumer Studies*, 37(1), 29-35. doi:10.1111/ijcs.12003
- Ipsos. (2017). Most Canadians feel they're financially literate. Our survey says otherwise. Retrieved from https://www.lowestrates.ca/reports/lr-financial-literacy-canada-report.pdf
- Kim, J., & Chatterjee, S. (2013). Childhood financial socialization and young adults' financial management. *Journal of Financial Counseling and Planning*, 24(1), 61.
- Kirkham, N. Z., Slemmer, J. A., & Johnson, S. P. (2002). Visual statistical learning in infancy: Evidence for a domain general learning mechanism. *Cognition*, 83(2), B35-B42. doi:10.1016/S0010-0277(02)00004-5
- Marquet, O., Alberico, C., Adlakha, D., & Hipp, J. A. (2017). Examining motivations to play pokémon GO and their influence on perceived outcomes and physical activity. *JMIR Serious Games*, 5(4), e21. doi:10.2196/games.8048
- Marr, G. (2016, September 2). How Canadian kids are taught financial literacy from coast to coast. *Financial Post*. Retrieved from https://business.financialpost.com/
- Meltzoff, A.N. (1988). Infant imitation and memory: Nine-month olds in immediate and deferred tests. *Child Development*, 59, p. 217-225. Chicago.
- Moschis, G. (1985). The Role of Family Communication in Consumer Socialization of Children and Adolescents. *Journal of Consumer Research*, 11(4), 898-913.
- Nebel, S., Schneider, S., & Rey, G. D. (2016). Mining learning and crafting scientific experiments: A literature review on the use of minecraft in education and research. *Journal of Educational Technology & Society*, 19(2), 355-366.

- Osler, J. (2018, November 30). The future of cash in Canada. *CBC News*. Retrieved from https://www.cbc.ca/
- Rideout, V. (2017). The Common Sense census: Media use by kids age zero to eight. San Francisco, CA: Common Sense Media.
- Schuchardt, J., Hanna, S. D., Hira, T. K., Lyons, A. C., Palmer, L., & Xiao, J. J. (2009). Financial literacy and education research priorities. *Journal of Financial Counseling and Planning*, 20(1), 84.
- Schug, M. C., & Birkey, C. J. (1985). The development of children's economic reasoning. *Theory & Research in Social Education*, 13(1), 31-42. doi:10.1080/00933104.1985.10505494
- Soman, D. (2017, December 6). Why financial literacy should be taught in every school [Web log post]. Retrieved from https://theconversation.com/why-financial-literacyshould-be-taught-in-every-school-88458
- Serido, J., & Deenanath, V. (2016). Financial parenting: Promoting financial self-reliance of young consumers. In J. J. Xiao (Ed.), *Handbook of consumer finance research* (2nd ed., pp. 291-300). New York, NY: Springer.
- Stephen, C., Stevenson, O., & Adey, C. (2013). Young children engaging with
- technologies at home: The influence of family context. *Journal of Early Childhood Research*, 11(2), 149-164. doi:10.1177/1476718X12466215
- Takeuchi, L. (2011). Families matter: Designing media for a digital age. In New York: *The Joan Ganz Cooney Center at Sesame Workshop*.
- Tang, N., & Peter, P. (2015). Financial knowledge acquisition among the young: The role of financial education, financial experience, and parents' financial experience. Financial Services Review, 24, 119-137.
- Totenhagen, C. J., Casper, D. M., Faber, K. M., Bosch, L. A., Wiggs, C. B., & Borden, L. M. (2015). Youth financial literacy: A review of key considerations and promising delivery
- Watkins, C. (2001) Learning about Learning enhances Performance, Institute of Education School Improvement Network (Research Matters series no. 13)
- Werner, N. E., Eaton, A. D., Lyle, K., Tseng, H., & Holst, B. (2014). Maternal social coaching quality interrupts the development of relational aggression during early childhood: Coaching and relational aggression. *Social Development*, 23(3), 470-486. doi:10.1111/sode.12048
- Whitebread, David and Sue Bingham. 2013. *Habit Formation and Learning in Young Children*. London: Money Advice Service.
- Wilson, E. K., Dalberth, B. T., Koo, H. P. and Gard, J. C. (2010), Parents' Perspectives on Talking to Preteenage Children About Sex. *Perspectives on Sexual and Reproductive Health*, 42: 56-63. doi:10.1363/4205610