OLDER ADULTS' PERCEPTIONS OF FINANCIAL TECHNOLOGIES

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A Thesis Submitted to the School of Graduate Studies in Partial Fulfillment of the Requirements for the Degree Master of Arts

McMaster University MASTER OF ARTS (2012) Hamilton, Ontario (Health, Aging, & Society)

TITLE: Older adults' perceptions of financial technologies

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NUMBER OF PAGES: ii- 125

ABSTRACT

Western democratic societies are currently experiencing an interesting convergence of trends: population aging and rapidly advancing technology. In our increasingly digital economy, it is important to be reflective on the effects of technological evolution in our institutions. Older adults have observed many changes as we have entered the information age. Their experience with this evolution has been documented in the literature in understanding the acceptance and use of information and communication technologies (ICT), most frequently the personal computer. This thesis contributes to and extends the existing interdisciplinary scholarship on older adults and technology, broadening the scope from that of the individual to the societal level. I examine how institutional changes in the public sphere, specifically technological advances in the financial system accompanying the digital economy, are perceived by older adults.

A mixed methods study was conducted composed of a forty item mailed out questionnaire and twelve in person interviews recruited through the McMaster SHARE group. The analysis of this work was conducted with an interpretivist ontology, understanding the co-creation of technology and society. Theoretically, the life course perspective was important in framing this work. Analysis revealed three major themes that have been described in the thesis in individual chapters: ideas of subjective age, risk and trust, and gender and intersectionality.

Consistently in this project, discussions of financial technologies blended with older adults' perceptions of technology in a broader sense. This both evidenced the life course perspective and comments on the pervasive influence of technology in our society.

ACKNOWLEDMENTS

When I reflect on the process of creating this thesis, my heart is overwhelmingly filled with love and gratitude for the circle of support that has been with me along the way. There are many people to thank and credit in the production of this final product.

My supervisor, mentor, friend, Dr. James Gillett… I am still working on putting into words how important your support has been to me on this journey. Thank you for challenging me to push my limits and strive for greatness.

I am grateful for the work of the Gilbrea Center in their maintenance of the SHARE group and for granting me access to it. My gratitude goes out to Chris Due for assisting me in the process of recruitment of my participants. I feel very privileged to have been able to connect with so many wonderful members of the SHARE group. Thank you to all those who participated in my study, I am so blessed to have been able to learn from you and to share your stories.

My committee members, Dr. Ellen Ryan and Dr. Lori Campbell, thank you for all of your feedback, guidance, and investment in my development as a gerontologist.

There are many people in the Health, Aging, and Society department who contributed to the maintenance of my optimism and motivation to complete this study. Kristine and Lori, thank you for your encouragement and administrative help along the way. My colleagues in HAS- your supportive energy over the last two years has made all the difference.

My love and deep appreciation to my family, especially Mom and Dad, my first and best teachers, thank you for instilling your passion for education in me and cheering me on every step of the way. I am deeply indebted to Lisa and Joey for bringing so much light to my life and constantly reminding me to seek balance. To my Dan, who got me into this "mess" in the first place and is always there to encourage me to realize my dreams… I love you. Thank you to My Boos for always being there to live, love, and laugh. Finally, I would like to express my deepest gratitude to my grandparents: Nana, Grandma and Grandpa whose love inspires my work xo.

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CHAPTER ONE: INTRODUCTION

Western democratic societies are currently experiencing an interesting convergence of trends: population aging and rapidly advancing technology. In our increasingly digital economy, older adults must decide how to interact with institutions with proliferating dependencies on technology. We truly have entered an advancing information age. A core implication of this social shift is a widely held belief that information and communication technologies (ICTs), such as the computer, Internet and mobile telecommunications, have initiated fundamental compressions of time and space. As Harvey (1989) notes, it follows that we have qualitatively and quantitatively altered the exchange of information, knowledge, resources, and capital to an 'anytime, anywhere' basis. This alteration has profoundly affected our everyday lives. Everything from our interpersonal interactions, culture, and social institutions has been transformed. The nature of banking and the financial sector, for instance, is significantly changed with the introduction of technological innovations. Whereas once tellers predominated, now clients are expected to bank through instant bank machines, over the phone and, most recently online. As public institutions that require individuals to interact with them in order to maintain their autonomy, it is imperative that research explores the implications of such technological innovation on the lives of citizens. With the aging population requirement, do older adults face distinct and specific challenges in how they perceive and negotiate the use of financial technologies that are ever mitigating the relationship between the individual and their means of financial independence?

This thesis contributes to a growing body of knowledge on the relationship between older adults and technology. Considerable effort has been dedicated to understanding how older members of North American society interact with computers and other ICT (Selwyn, et al., 2003; Veenhof & Timusk, 2007). Current gerontological scholarship does not explore an understanding of the relationship between older adults and new information technologies, considering social dimensions such as involvement in the public sphere, like the use of social media, or the rise of a digital economy and its relevance to an aging population. Western institutions have rapidly evolved towards a digital mediation of interaction with citizens. It is important to understand these shifts especially in the context of the older demographics of society who have witnessed drastic changes over their life course. As Jamieson and Rogers (2000: 343) have argued:

> The requirement to learn to use new technologies is becoming pervasive in the lives of adults, young and old. For example, computer systems of various forms are prevalent in nearly every aspect of our lives, including video-cassette recorders, computerized library catalogues, electronic banking, information kiosks, multi-function answering machines ad infinitum.

In thinking about activities of daily living, financial management and interaction within the economy are clearly evident as important aspects of a self-determining lifestyle. This indication of maturation in adult life classifies banks as institutions that older Canadians necessarily interact with as part of an autonomous lifestyle. With Western society's entrance into the digital economy, financial institutions have rapidly advanced technologies that mediate the interaction between individuals and their money. In the presence of new technology, tensions emerge in the process of institutional development and older adults must decide on their approach to and categorization of machines in their

routine, deciding whether to renegotiate or not in the face of ever advancing technological options.

The purpose of this project is to examine how older adults (in the third age and older) perceive and approach the use of financial technologies. Using a life course perspective, a mixed methodological approach will be used to give depth to the current scholarship describing older adults' use of technology. As Neil Postman (1992: 18) has commented, "technological change is neither additive nor subtractive. It is ecological." The evolution of technologically mitigated societal interactions should be studied from a broad perspective (such as the ecological metaphor Postman suggests) as the ripples of change are far felt and often overlooked. Building on this broad approach to technology studies, this current project looks at the relationship between our increasing digitalized financial institutions and the older people who utilize them. In response to comments by researchers in social gerontology such Neil Selwyn (2003), that the current conversation surrounding older adults' relationships with technologies portrays a simplified dichotomy between 'successful users' and 'unsuccessful non-users', the data in this project was analyzed with open categories, receptive to the formation of new constructs and concepts in understanding this complex relationship. Through this approach, and adopting a life course perspective, the complex relationship between older adults and financial technologies has begun to be revealed.

For the purposes of this study, financial technologies are defined as any electronic device that mitigates the interaction between an individual and the bank. Examples include the Automatic Teller Machine (ATM), telephone banking (tele-banking), online

banking, and other mobile banking applications (such as apps on smart phones, tablets, etc.). This broad definition has been borrowed from concepts researched in the marketing literature as this scholarship has been well developed in describing human interaction with financial technologies (Akinci, et al., 2004; Gerrard & Cunningham, 2003). This conceptualization of financial technologies was piloted in initial interviews and generated discussion among older adults about the vastness of different options available to bank and the possibility of future advancements. Because of the rapid evolution of information technology in our society and the current trends toward digitalization in both the public and private spheres, it was important to remain open to expansion of this definition and use of related concepts (such as internet banking, e-commerce, and mobile commerce) interchangeably. Examples included in the definition of financial technology will continue to expand as new inventions are diffused and normalized in the continuous digital evolution of the financial sector.

In this study a life course approach to examine themes and relationships that emerged regarding older adults' use and perceptions of banking technologies was used. The life course perspective is a lens used in social gerontology to understand both the process of aging and the time period of "old age" as a multidimensional, lifelong development which is influenced by both time and space (Settersten, 2003). This interdisciplinary approach made it possible to study the experiences of older adults through a variety of methods and modes of inquiry. This lens was fundamental in framing and understanding the evolution of social interaction with technology and cohort experiences with technological revolutions. As Charness notes (2001), "research on computer use reminds us to be mindful of the roles that both chronological age and cohort

membership may play…" (p.4). Aware of this influence, this conceptual framework informed and situated the stories about banking technologies that were shared by the participants in this study, not in a deterministic fashion, but rather in attending to the importance of biography and chronology in people's lives.

The structure of this thesis is divided into several chapters. Initially, the review of the relevant literature and methodology is presented in order to situate this study in current scholarship. The analysis sections begin with a description of the perceptions' of older adults towards financial technologies, exploring tensions in the evolving relationship between older individuals and changing institutions in the digital economy. Using a life course perspective, factors that affect older adults' financial technology acceptance and use is reported. Through qualitative analysis, themes of risk perception and trust were apparent in this relationship. In keeping with the life course perspective, the analysis continues with an examination of the interaction between gender identities and family roles and the perceptions held about financial technology. Here the idea of intersectionality (McCall, 1995) was useful in analyzing gender and the experiences of older women and financial technology adoption. Understanding the reciprocal nature of the interaction between humans and technology, as McDaniel (2002) notes "… in development, adoption, uses and impacts, technologies are shaped by, as well as shape, social relations" (p. 536) was useful in exploring societal roles and the effects of financial technology on the digital economy in both the private and public sphere. This association is explored with the idea of perceived usefulness, a construct commonly discussed in the marketing literature, and an apparent theme in this study.

The common desire for human interaction was apparent among some older adults but was at tension with many individual's need to 'keep up with the times' and adopt evolving trends in financial management. Concluding this study, a discussion of the connection between older adults' perceptions of financial technologies and the difficulties in separating this construct from a discussion of the digital economy and the increasing impact of technology on the evolution of society in general suggests a need for further investigation.

CHAPTER TWO: LITERATURE REVIEW

The literature on financial technology and older adults is, at best, underdeveloped. Search results in major gerontology journals and databases provided no relevant results with search strings including a reference to aging (age or aging or old or older or senior) as well as reference to financial technologies (banking technology or financial technology). In preliminary investigation of the literature, a great deal of time was invested into understanding this area from all available angles. Search topics were broadened to include an understanding of technology in general (search strings referencing computers or technology) and found relevant articles both within gerontology and other relevant disciplines including: business, finance, and marketing; human factors; sociology; nursing; information, technology and computer studies; ergonomics; and psychology.

The broad scope of this research, and the limited existing literature on the topic, requires situating the study within a number of relevant bodies of knowledge in the social sciences. This literature review begins by describing the concept of technology and the related ideas of the digital economy and digital divide. This leads to an examination of the literature on technology adoption among older adults, specifically highlighting the substantial resources that have explored and modeled the relationship between computers and older adults. It concludes by introducing scholarship in the area of older adults and financial technologies (mainly found in the field of marketing), highlighting the need for further investigation into this domain from a social scientific perspective.

The use of technology is an enduring component of human societies currently and historically. In understanding technology, some scholars have defined it within a classification as a tool (Kirkpatrick, 2008). As a necessary part of our socially organizing

society, tools facilitate the human encounter with our environment. Understanding the use of these tools is essential to our understanding of our social experience. As Kirkpatrick (2008: 14) notes, "what technology means, then is the way of life specific to modern culture." It is widely acknowledged that we have a reached a point in time when the advancement of technology is moving at an increasingly rapid pace, and just as quickly altering the fabric of our society in predictable and unpredictable ways (Burdick, & Kwon, 2004; Charness, 2001; Rogers, 2001). In undertaking this research I relied on literature that provided an understanding of the advancement of technology in the area of aging. Conscious of the importance of this awareness I adhere to the advice of Kirkpatrick (2008: 6), "we should be as attentive to the design statements made through technology as we are to the actions of politicians." In other words, while technology often seems asocial and apolitical, its introduction into social worlds and the consequences of that introduction for older adults is inherently social and political and requires the attention of social scientists, through research, to provide an understanding of the complex relationship.

In the midst of this era of digital evolution, much of the literature on older adults and technology is framed within research on the *digital economy*. This idea has emerged as a way to describe our current late modern social and economic condition. The changing characteristics of information, computing, and communications can define what now drives economic growth and change in modern society. Terranova (2000) has described the digital economy as an intersection of the postmodern cultural economy and the information industry. Older adults need to negotiate their place in the public sphere,

the social spaces in which digital economy unfolds as technology evolves and institutions become ever digitalized. Ultimately though, the digital economy is a social construction, which Orlikowski & Iacono (2000) describe as a phenomenon that we are collectively enacting, both interpersonally and institutionally. Technology and the digital economy are organic. As Kirkpatrick (2008: 2) explains, "technology is always both socially constructed and sociologically determinate." We must seek to understand the role that technology plays in our lives and the lessons we can learn from observing our human perceptions of it.

The use of technology involves a social organization in which people are required to assume specific roles and to engage in practices associated with those roles. Some scholars, building on this view, call us to action, to take "responsibility to shape this phenomenon in ways that reflect what it is we want—for ourselves, our organizations, our communities, and our economies." (Orlikowski & Iacono, 2000: 357). An enacted approach to understanding technology follows from this view. Focusing on the work of Giddens (1984), this theory understands the relationship between organizations and technology as an ongoing sociotechnical production. As Orlikowski & Iacono (2000: 357) explain,

> Technology in this view is neither an independent, external force completely outside of our influence, nor a fully malleable resource that can be thoroughly controlled and bent to our will. Rather, the organizational changes associated with the use of technologies are shaped by human actions and choices, while at the same time having consequences that we cannot fully anticipate or plan.

Organizations can arguably no longer choose whether or not to engage in the digital economy. It is seen to be an essential aspect of flexible and evolving organizations.

Institutions such as banks utilize advancing technologies in order to interact with customers and improve their products. Banks of all sizes are choosing to run commercial activities over the Internet, since this new medium provides distinct advantages for all the parties involved. The banks diminish their costs and are able to expand their market. The users are able to enjoy a wider variation of products and their operations become increasingly convenient, unbound by office hours (Flavián, et al., 2006; Grabner-Kräuter & Faullant, 2008).

An instrumental component of this evolution towards the digital economy was the acceptance and proliferation of the at home personal computer, making Internet access commonplace in Western society. This development has been studied extensively, conducted insularly within a Canadian and North American context as well as internationally. Information is emerging daily about uses of technologies along social dimensions (OECD, 2001).

An important aspect of this study, relevant to age stratification and older adults is what has been described as the *digital divide*. This term denotes: "... the gap between those individuals and communities that own, access, and effectively use information and communication technologies (ICT) and those who do not" (BECTA, 2001; Hill, et al., 2008). This term has been discussed and conceptualized in the literature since the early 1990's with variation mainly agreeing on the key ideas of disparity in both access and use of information technologies, most commonly discussed being the Internet (Yu, 2006). This gap is widely considered an expression of and contributor to existing social and economic inequities and is related to the concept of information inequality, well

understood in the literature surrounding the information based society (Yu). As society's reliance on ICT increases, this lack of access can be described as becoming more consequential for social life (Beck, et al., 2004). Research evidence shows that everyday practices of engagement with new ICTs are embedded in complex social and physiological circumstances (Riggs, 2004; Wyatt, et al., 2002; 2005). Neil Selwyn, a sociologist at the London Knowledge Lab focuses on the place of digital media in everyday life. He is a highly influential researcher in this area who has written extensively on digital exclusion and the digital divide, examining the motivations and reasons underlying older adult's adoption, non-adoption, or some combination of technology (Selwyn, 2002; 2004; Selwyn & Facer, 2007; Selwyn, et al., 2003). His work importantly aligns with the scholarship of researchers such as Kim & Kim (2005) who aim to dispel the dichotomous categorization of technology adoption and unpacks the social political influences underlying the digital divide. Using mixed methodologies, his work reflects a desire to bridge understanding among sociologists in the concepts he studies mentioning the benefits of interdisciplinary research. It is important to examine the underpinnings of this divide within the context of commonly used technology as it is expected to be related to the trends among financial technologies that I will be investigating. His work highlights relationships between older adults and factors such as relative advantage and relevance which were themes discussed by participants in my study (Selwyn, et al, 2007).

Literature on the digital divide is concerned primarily with exploring what roots causes of the divide and addressing solutions for how the gap between users and non users can be decreased. In examining Canadian social trends, scholars note that

> for all of the Internet's pervasiveness, studies of the digital divide remind us that there remain significant differences in access to and use of the Internet along socioeconomic and demographic lines, with age in particular identified as an important factor (Veenhof & Timusk, 2009: 25).

By understanding Internet use from an age-cohort perspective, we may provide additional insights into differences in Internet use. Examining recent trends in Internet use and adoption, Veenhof and Timusk discovered that in 2007, a majority of Canadian baby boomers (those individuals born between 1946 and 1964) used the Internet. This can be compared to a significantly fewer ratio of seniors (those over the age of sixty-five at the time) who went online (Veenhof & Timusk, 2007). Descriptive data from Statistics Canada develops our understanding of these trends. The Canadian Internet Use Survey (CIUS) measures the extent and scope to which individual Canadians use the Internet. A study drawing on the 2007 CIUS and the 2007 General Social Survey (GSS), to compare the Internet use of baby boomers with seniors aged sixy-five and older (in 2007) reveals that since the year 2000, growth rates of Internet use have been highest among seniors as they recorded their usage rates in 2007 that were nearly four times higher than in 2000. Comparatively, rates for those in younger cohorts, for example, people aged fifteen to twenty four had already reached a point of near-saturation by 2003 (ninety-four percent) and so left little room for high sustained growth rates. These findings suggest an eagerness among some older adults to adopt advancing technologies.

Reviewing the comparable data from American sources, one important ongoing project that has helped to frame our understanding of the social impact of computers is the PEW Internet and American Life Project (2012). This project aims to describe the current relationship between American's and their computers, over time examining trends among patterns of use and branching into the description of other information technologies. They have been examining these relationships since 2000, providing reliable longitudinal trends on a variety of themes concerning adoption and uses of information technology by Americans. Examining these trends among older adults, information from this project has provided a landscape of the demographics of ITC use among older adults, a report released by the project in April of this year revealed that one in five Americans do not use the Internet, older citizens were found to be among the adults least likely to be users with a common theme of 'lack of relevance', discussed in the analysis of my paper, to be a resounding reason against ITC adoption (Zickuhr & Smith, 2012). Many of the studies in this project are telephone-based surveys, and so have a variety of benefits and disadvantages, large-scale accessibility, being a main advantage, the above study for example was able to reach a large sample (2 277 adults). Inattentiveness and call screening have been noted as common drawbacks to random dialing surveys and so the results of these studies must be read with this in mind.

Internationally, the study of Internet use by older adults has been heavily contributed to by data from scholarship in Australia. Boulton- Lewis, et al. (2007), investigated Australian older adults and found that those who were interested in learning, keeping up to date, valuing communication, and being younger were more likely to learn

about technology. Through open-ended questions and qualitative analysis they found that older adults use the computer for purposes of communication, learning, family links, keeping up to date, enjoyment, staying mentally alert, and just using the computer (Boulton-Lewis, et al.,). In researching the relationship between gender and technology use results in this study showed interesting variance with another of their previous studies. White and Weatherall (2000) suggested that New Zealand older adults began using computers because technology was associated with modern life. They found the relationship between older adults and computers to be cyclic in nature, a positive experience feeding into an increased appreciation for technology and increased chance of use (White & Weatherall, 2000). Selwyn et al., (2003) found that older adults use computers and the Internet mostly for writing and editing letters, reports, and other documents and sending and reading (Wang, et al., 2011). In understanding barriers to computer use, many studies have been conducted. According Australia's Human Rights and Equal Opportunity Commission (HREOC, 2000), some of the potential barriers that may prevent older adults from having equal access opportunities to e-commerce and other on-line services can be physical, affordability and access to equipment, attitudes and awareness. In addition to the loss of some skill level with age, there is also the perception that older people are less likely to be aware of the value of computer skills, suffer from technophobia and be less motivated to develop information technology skills (Rosen & Weil, 1993).

A profusion of literature discusses the social consequences of technology, including the positive effect that e-mail can have on intergeneration communication and

social isolation (Selwyn, et al., 2003). The SeniorNet Survey on Internet use (2002), for example, revealed that older adults used the Internet to stay in touch with friends and relatives and to stay current with news and events. Themes of social importance surrounding technologies were revealed in the perceptions' of the older adults in my study. Ideas of keeping current, discussed in the SeniorNet study was communicated by my respondents as a desire to keep up with the times and was a motivating factor for some older adults to consider adopting financial technologies into their routines. Most of the subjects taught themselves to use the Internet (seventy six percent) (SeniorNet) interestingly contrasts the experience of many of the older adults in my study. There was a dichotomy among my respondents, some who discussed the importance of having a support in their learning process of ITC and others who have had a previous comfort with adopting new technology, especially in the work place, having a comfort with trying out new ways to adopt the Internet and other ITC in their lives.

A highly developed interdisciplinary research area, intent on understanding technology and innovation, is the modeling of technology adoption in older adults. Relevant to the responses of participants in my study, these models examine the underlying themes of the relationship between human and machine. Understanding the scholarship in this area was helpful in my analysis, providing me with a landscape of commonly understood themes and perspectives. In examining the literature for theory of technology adoption models, there were a number of angles used to approach the description of acceptance. Fishbein and Ajzen's Theory of Reasoned Action (TRA) (1975) and Ajzen's Theory of Planned Behavior (TPB) (1991) are two widely used, early

developed models to describe behaviours in general that have been used in research to understand technology adoption. The TRA refers to the attitude and intention to act in a certain manner by an individual. More specific models that are commonly used in this discipline include: Davis' Technology Acceptance Model (TAM) (1986) and Rogers' Innovation Diffusion Theory (IDT) (1995). These are specially designed to decipher technology acceptance behaviors in both work contexts and organizational environments. Davis' model depicts the causal relationships between system design features, perceived usefulness, perceived ease of use, attitude toward using, and actual usage (1986). In my work I have found that these themes can be more specifically applied when examining the relationships between certain demographics and technologies. I will discuss this in the analysis section of this paper in relation to older adults and their perceptions' of financial technologies. The Motivation Model (MM) (Davis, et al., 1992); TAM2 (Venkatesh & Davis, 2000), which is an extension of TAM; and decomposed TPB (Taylor & Todd, 1995) are models which were developed for different users in different contexts. There are also variables that are not in the models but which affect technology acceptance such as the idea of information technology innovativeness (Park & Jun, 2003) and word-of-mouth (Lee, 2003; Webster, 1991). These concepts bear relevance to the perceptions of older adults towards financial technologies in their social implications. The importance of peer experiences with technology and support from others in gaining access to technology were common themes.

In understanding financial technologies specifically, since TAM and TPB have been used in many studies to predict and understand user perceptions of system use and

the probability of adopting an online system (Gefen, et al., 2003; Hsu, et al., 2006; Wu & Chen, 2005), Lee (2009) suggests that they are the most appropriate tools for understanding online banking adoption. The appearance of the themes discussed above of perceived usefulness, etc., displays the robust and appropriate nature of these models in understanding financial technologies. Further study could be conducted within a framework of human factor research to utilize these in studies methodological grounded in these models. For the purposes of my work, awareness of these models assisted in recognizing themes in my respondents' experiences.

Relatedly, a large body of literature has been developed to understand how older adults learn new technologies. This is relevant to my research as an important underlying explanation of older adults experience and perceptions of technologies in their lives. Ardelt (2000) has summarized this literature quiet well in her discussion of learning goals for older adults, summarizing the themes to include: enabling elderly people, especially older workers, to keep up with technological and scientific advances to avoid marginalization; and helping elderly persons to improve the quality of their lives by teaching them self-reliance, self-sufficiency, and coping strategies in the areas of physical health and social relationships. In relation to technology adoption, it is now understood that knowledge intensive innovations, such as technological innovations, often necessitate considerable learning effort from the consumer (Saaksjarvi, 2003). These studies, while valuable to inform theory and underlying themes apparent in modernization research, do no more than mention institutional interaction with technologies, such as the financial sector and necessary technologies older adults interact with as part of an autonomous

lifestyle. They do not attempt to investigate the bigger picture and the connections between technological advancement and institutional change. In my work, I highlight the social context important to understanding the perceptions of older adults towards technological evolution and use this to incorporate an understanding of tendencies for learning these innovations.

Understanding the value of interdisciplinary approach to scholarship, I am interested in the intersection of the studies of aging and technology that has been developed in recent years. Gerotechnology (also described in the literature as Gerontechnology) is a relatively new term, which was suggested by Burdick & Kwon (2004), the editors of *Gerotechnology: Research and Practice in Technology and Aging*, to describe a fast moving field that represents a convergence of two, previously separate fields: social gerontology and technological studies. The goal of this area of research is to describe and understand that "we are in the midst of two striking trends: widespread population aging and rapid diffusion of technology. Both phenomena are very new in human history." (Burdick & Kwon, 2004: xxv). This literature acknowledges that technology in our contemporary society contributes to, among other notions, productivity, intellectual work, comfort, and safety. These are all important to older adults. In reviewing this emerging research area's literature Rodeschini (2011) found 287 articles discussing this topic. Ethics and concerns for older consumers are also major themes of this research. Technological innovation, Burdick & Kwon suggest, has inevitably and irretrievably altered the course of human lives. There is a theme of speculation in this literature, that the future association between humans and machines will likely be a

partnership. Recognizing the reciprocal relationship between technology and aging, and its potential provision of both challenges and opportunities this field provides an important context to the work that I conduct in this study.

More specifically to the area of financial technology, I have reviewed the marketing literature, as the phenomenon of online banking has been studied here from various perspectives. Some researchers have investigated the adoption and growth of online banking, while others describe the benefits to be gained from the Internet, in terms of organizational advantage (Gerrard & Cunningham, 2003; Jahangir & Begum, 2008; Sathye, 1999; Wang et al., 2003). Globally, banking systems are endeavoring to gather information on aspects that persuade customers to do their banking over the Internet. The adoption of e-banking by consumers is being extensively investigated by several scholars, but in reviewing the literature from banking and marketing studies, a trend towards dichotomous categorization of adoption rates of Internet banking technology has been apparent (Akinci et al., 2004; Gerrard and Cunningham, 2003). The downfall of this dichotomous approach is that it ignores the heterogeneity among the non-adopter/user category. Because most consumers of a new technology-based product or service have yet to adopt, a common assessment of this scholarship is that describing all non-adopters as a homogeneous population is inaccurate and inappropriate. It is important to be able to identify differences, not only between adopters and non-adopters, but also among non-adopters, as a means of identifying the consumer segments likely to be profitable in the future (Lee, et al., 2005). This literature has been important in describing trends and demographics. My approach to analysis allows for individual stories and themes to

become apparent and values the different perspectives and life paths relevant to technology adoption choices. This opens the analysis to a more multifaceted understanding to perspectives of technology and the meaning it has to older adults.

Relatedly, mobile services and their consumption have lately become an important issue among information systems (IS) and marketing scholars (Wang et al., 2006). In the International Journal of Bank Marketing, Finish researchers, Laukkanen and Kiviniemi (2010) report their findings from a study on adoption barriers of advancing financial technologies. Recognizing that the innovation adoption process imposes change on the consumer, and resistance to change is a normal consumer response to innovations (Ram, 1987; 1989) they set out, in a large survey based study to understand the effect of information and guidance offered by a bank on five adoption barriers. These barriers were categorized as: usage, value, risk, tradition, and image in a mobile banking context. In my work, similar themes have become apparent and will be discussed in the analysis section of this paper. This scholarship recognizes the societal impact on our understanding of technology. Laukkanen and Kiviniemi note that society's relationship with technology is temporal, remarking "in the present post-modern conditions like fragmentation of the markets and loss of commitment by consumers, we need alternative methods to understand and predict consumer behaviour" (2010, p. 372). This commentary on the evolution of interaction with technology provided refreshing insight to build upon in my awareness of the importance of societal context. The results of the study showed that the information and guidance a bank offers has the greatest influence on decreasing the usage barrier for customers, which mainly implies the functional usability of the innovation. If a

bank customer, for example, perceives mobile banking to be difficult to use they will need careful one-to-one customer education from the bank personnel. These researchers highlighted the importance of personal communication, reflecting the desire, common in some of my participants to have a social interaction component in their financial management routine. To overcome the risk barrier mobile banking could be offered on a trial basis to potential customers (Ram & Sheth, 1989) as it is suggested that the lower the trial ability of an innovation, the higher the innovation resistance is likely to be (Ram, 1987). The results of their study suggest that the information and guidance offered by a bank is of paramount importance when understanding customer perceptions of banking technologies. They have the most significant effect on perceived functional usability of the innovation and significantly increase the positive image associated with the innovation. Information and guidance significantly increase the customer's perceived value added provided by mobile banking and decrease the perceived risks related to the innovation. Laukkanen & Kiviniemi (2010) results were in keeping with the themes noted in previous work by Ram and Sheth finding that functional barriers (usage, value and risk) are correlated.

Finland has been recognized as a world leader in online banking (Mattila, et al., 2003). As early as 2000, forty percent of all banking transactions in the country were conducted over the Internet, the highest adoption rate in the world (Mattila et al. 2003). In a marketing study of the older adult population (sixty-five years and older), it was found by Mattila and colleagues that in general, the older cohort tended to be part of what the authors describe as "laggards" who have a negative attitude towards the adoption of new

technology. Their results included the trends along themes of socio-economic status: older adult bank consumers with high levels of education were found to be more likely to use Internet banking than less-educated mature consumers, internet banking was more common among higher-income mature customers than among lower-income earners, and mature customers who had held what was described by the researchers as "more responsible positions" in working life were more likely to use Internet banking than those who had held "less responsible positions" (Mattila, et al.).

Lee (2009) found that security, financial, time, social, and performance risks all emerged as negative factors in the intention to adopt online banking. Attitude and perceived usefulness were also demonstrated in this study demonstrated to have a significant effect on the intention to use online banking (Lee, 2009). In researching use of technology by older adults, among all the variables suggested to be relevant, perceived usefulness is widely recognized to be the most important variable to predict technology acceptance (Chau, 1996; Igbaria, et al., 1996; Wang, et al., 2011).

In my pursuit of describing the landscape of older adults' perceptions of financial technologies I reviewed the social gerontology literature and gained an understanding of the extensive research that has been conducted on the computer (and other information technologies) and the various aspects of technologies' relationships with older adults. In understanding this relationship, there is a general consensus that lifelong learning and continued education for older persons are essential in a society that is characterized by rapid technological changes (Moody, 1986; O'Brien, 1992; Thornton, 1986; Willis, 1985). Additionally, the importance of perceived usefulness has been widely recognized in the

field of electronic banking. According to Davis, et al. (1992: 18), perceived usefulness refers to consumers' perceptions regarding the outcome of the experience, these authors defined the term as "the individual's perception that using the new technology will enhance or improve her/his performance."

The key areas of research that I have covered in this literature review provide a foundation among which to build the analysis provided in this thesis on the use of financial technologies among older adults. Research about the use of technologies helps to define and articulate the often shifting nature of financial technologies as they have and continue to evolve over time and the economic and social forces that drive this shifting landscape. Studies of technology adoption provide insight into the factors that lead or prevent older adults from taken up financial technologies, a key question in my research. And last, the limited research on older adults and financial technologies map out what has been done in this area and the limitations of this work, the main one being a lack of attention to a theoretical and social scientific perspective.

CHAPTER THREE: METHODOLOGY

A mixed methodological approach was used in this study. There are several advantages to mixed methods. As Morgan (1998) discusses, quantitative methods can be used to enrich findings from studies that have a primary qualitative focus benefiting from the principle of triangulation (Denzin, 1970; Krause, 2002). I adopted the definition of mixed methods offered by Johnson and Onwuegbuzie (2004) "the class of research where the researcher mixes or combines quantitative and qualitative techniques, methods, approaches, concepts or language into a single study" (p. 17). I appreciate the freedom and creativity offered to the mixed methodologist, and the ability to use all the research tools possible to understand my research questions. This blends well with my commitment or belief that is it important to fully explore the data privileged to me by my respondents. As many social researchers have noted, I see the value in both positivist and interpretivist tools in understanding our social reality. As Johnson and Onwuegbuzie (2004) have affirmed, I seek to minimize the weaknesses and maximize the strengths of both paradigms in my study. My research ethic aligns with Hoshmand's (2003) suggestion that when methods are mixed successfully social phenomena can be more effectively understood.

This research consisted of two phases: a mailed out questionnaire and in person interviews. Because of the exploratory nature of my topic, the study was designed to describe the landscape of the perceptions of the older adults in my study on financial technologies. The surveys were useful to gain an understanding of general themes related to perceptions of technology. Results from this initial phase informed questions in semi-structured qualitative interviews. Supporting this vision of methodology is Ragin's (2000)

vision of social science as moving beyond a narrow viewpoint toward research methods that view causation as a diverse combination of events.

Trained as an undergraduate in the Health Sciences I value the contribution of the information provided by raw numbers and quantitative data analysis. Through my post graduate work in the community, conversing with older adults and hearing their stories, I came to my graduate studies eager to explore research that valued the human story. I have explored various qualitative methods in preparation for this study and have approached my thesis eager to contribute to the mixed methodology literature, contributing work robust with both forms of knowledge.

Phase One

The first phase of investigation took the form of a mailed out questionnaire. Three hundred and ninety nine surveys were mailed out to members of McMaster's Senior's Helping Advance Research Excellence (S.H.A.R.E.) group. A forty six percent response rate was achieved with one hundred and eighty two participants responding. The demographics of the respondents included a gender distribution of sixty-three males (thirty five percent of total respondents) and one hundred and nineteen females (sixty five percent). The respondents' age range was distributed with the youngest being born in 1953 (59 years old in 2012) and the oldest participant born in 1917 (95 years old at time of study). The Mean (M) age was 79 years old at the time of study (SD 7), born in 1933. A forty-one-item questionnaire with both closed and open-ended expansion on questions was developed. Although it has been documented in some social gerontology research that older adults tire with a lengthy survey (Wang, et al., 2011), because of the previously

stated exploratory nature of my research it was necessary to include questions which fully probed the topic (See appendix for distributed survey). Once the survey had been refined with input from my supervisors it was mailed out to 399 members of the McMaster Seniors Helping Advance Research Excellence (S.H.A.R.E.) group.

The McMaster S.H.A.R.E. group a volunteer research group initiated by Dr. Ellen Ryan at McMaster University. This group is composed of adults over the age of sixty who have registered to be available to participate in various studies. Some S.H.A.R.E. members are volunteers who come in to McMaster to participate in a variety of research projects and other members, who live in various parts of Canada, complete questionnaires in their own homes. In utilizing this group, it was important to understand both the strengths and weaknesses this conveyed to my study. The major benefit of utilizing this group was the efficiency and robustness it provided in respondents. Recruitment had already been conducted and participants are willing to participate in so a strong participation rate was expected and achieved (as mentioned above, a forty six percent response rate).

The weakness of the sample is the demographics of the group. Growing mainly out of retired teachers, this volunteer opportunity attracts a rather narrowly focused segment of the older adult population. A common critique of academia is its lack of focus on diverse populations. Unfortunately, my study bears some of that limitation, as the volunteers comprising S.H.A.R.E. are a majority upper-middle class, white, well-educated population. This has significance in the representation of the results and the replica ability of the study with other populations.

Developing the Questionnaire

Pilot interviews were conducted with three older adults from the community to receive feedback on the questions (both style and content), ensuring they would be designed correctly to test the true question at hand with the larger participant pool. After the questions were developed and edited, particular attention was paid to how the question ordering. I was mindful of the order of the questions because the placement can have a greater impact on the result than the particular choice of words used in the question (Synodinos, 2003). When determining the order of questions within the questionnaire, I considered how questions early in a questionnaire may have unintended effects on how respondents answer subsequent questions. Researchers have demonstrated that order effects influence participant response, that is, the order in which questions are asked can influence how people respond; earlier questions – in particular those directly preceding other questions – can provide context for the questions that follow (Fowler, 1995; 2002; McFarland, 1981).

The choice of words and phrases in a question is critical in both expressing the meaning and intent of the question to the respondent, and in ensuring that all respondents interpret the question the same way. Even small wording differences can substantially affect the answers people provide (Fowler, 2002; Synodinos, 2003). Through editing drafts on the survey and peer revision, questions were developed that I had confidence distributing to my participants to collect data. The variables analyzed were nominal

(categorical) level variables. Statistical tools generally referred to as log-linear models for nominal level variables were utilized with survey results analyzed and using SPSS 20.0 software. When one nominal-level variable is considered to be dependent on a set of predictor variables, log-linear models are also known as logit models or logistic-regression models (Knoke & Burke, 1980). Demographics were first analyzed by determining ratios and percentages in order to understand the constitution of my participants.

Once these basic statistics were understood, the main statistical tool to understand and describe relationships in my data that was used was odds ratios and the Pearson's chi-square test (sometimes referred to as the likelihood- ratio statistic). Odds ratios are the ratio of events to non-events (Morgan & Teachman, 1988). Testing whether two odds ratios are different from one another requires use of the chi-square statistic. In this powerful test, associated with the model of independence, the ratio is computed by comparing the expected frequencies with the observed frequencies (Walsh, 1987). In this test, the model specifies that there will be no association between the variables in questions, termed the null-hypothesis. As Morgan and Teachman state, there can be numerous models that might be compared with the observed data; computing the chi-square statistic that measures the fit of each to the observed data can compare any two models. My objective as a researcher was to find a model that fit the data well enough that the chi-square value is small ($p<0.01$) in relationship with the degrees of freedom in the analysis. This was important as it indicates deviations of observed data to data

predicted by the model in a robust relationship. Logistic regression analysis allows us to specify a model that we believe should fit the data and then to test competing models.

Concurrently, qualitative analysis was conducted on the survey responses. Written explanations were requested for many of the items on the questionnaire and many respondents thoroughly completed this component of the tool. Using open coding, I searched for themes in the data and grouped responses to understand patterns in older adults' perceptions (Morgan, 1998). In order to ensure sincerity in my work, a key component of good qualitative research, I was mindful of my biases as a researcher as a young, avid user of technology (Tracy, 2010). I was careful to practice self-reflexivity as I analyzed the survey comments and maintained the integrity of their contribution by my awareness of my personal opinions and perceptions of financial technologies.

Contingency tables using Pearson's chi- square test were used in the analysis of the survey data, as this is a reliable means to analyze categorical variables, testing relationships between these variables (Cochran, 1954; Elliott & Woodward; 2006, Moore, 2010). A number of significant relationships among the variables measured were found and will be discussed along with qualitative description in the following section of this paper.

Phase Two

Twelve, guided or semi structured, interviews were conducted in this phase of my work in order to provide the story or the "grand narrative" as described by VanderStoep and Johnson (2008) of my research. The benefit of the structure of core questions to the interview with the allowance for fluidity is consistent with my research ethic. I utilized

the opportunity to connect with older adults to help describe the landscape of my topic. In designing interview questions, I utilized themes from the first phase of my study and was attentive to develop open-ended, single-issue questions as advised by best practices in the field (Patton, 2002; VanderStoep & Johnson, 2008).

As a novice qualitative researcher, I relied heavily on the suggestions of my advisor for best practices and was counseled to approach the interview process with a relaxed style, attempting to generate a conversation with my participants. I was privileged to be able to conducts face-to-face interviews in ten of the individuals' homes, two meetings were conducted in neighbourhood coffee shops due to participant comfort level. Meeting in the home was an invaluable contribution to my study as it contributed to the comfortable, easy conversation interview style that I set out to create. Interviews were recorded with the permission of my participants so as to minimize the note taking necessary during the interview and allow for a more comfortable atmosphere to be created. On a few occasions I interviewed people who lived with a spouse or roommate. I was mindful of Zipp and Toth's (2009) research on the influence of the third party on an interview. Spousal presence during an interview has been demonstrated to lead to greater agreement between husbands and wives on a variety of attitudinal and behavioral items in research. I therefore conducted interview strictly one-on-one to avoid any bias in the data and increase the rapport I created with my participants.

After going through confidentiality agreements with my participants and giving them a brief reminder of the topic of my study, I began each interview by asking the participants to discuss their past experience with technology in either work or home life in

their middle age. The purpose of this was to gain a background understanding of individuals' life course and naturally lead me to questions more refined to financial technology use and perceptions of that. After initial nervousness was overcome conducting my first interview, I was able to establish a concrete rapport with my participants, supporting open and fluid conversation in my interviews. This generated honest and open sharing of stories that provided my work with the "rich vigor" necessary for good qualitative exploration (Tracy, 2010).

Once data was collected from all of my interviews, I began the transcription process with the aim to produce a detailed and systematic recording of the themes and issues addressed in the interviews and to link the themes and interviews together under a reasonably exhaustive category system. Recordings were listened to and spoken word was transformed into written documentation. Here, it was interesting to be self-reflexive of my own personal attachment to words and phrases and make conscious effort to transcribe dialogue word for word, aware that as Lapadat and Lindsay (1999) have recognized, any act of transcription is an interpretive act. I did not completely transcribe the recordings as many interviews diverged into unrelated topics at times. In my transcription, summary of these departures was made in order to be able to understand any related themes while coding the data. This flexibility of the process speaks to my previously stated agreement with Lapadat and Lindsay's (1999) understanding of this process as interpretivist in nature.

Understanding the best practices of scholarship in qualitative investigation, I continuously reflected on my work, using memos and field notes after each interview was

conducted. At times throughout my research, I also wrote myself memos about how to categorize the data that I was uncovering (Field & Morse, 1985). In my interaction with both the research data and the literature, this reflection enabled the categorization of content into meaningful themes, limited of personal bias or time lag effects. Initial data was methodically coded into categories and organized into conceptual structures conformant with the research focus on the perceptions of banking technologies of older people. In evaluating the categories created in my analysis I maintained a goal of phenomenological validity, anticipating that my interpretation of data expresses the lived experiences of my participants and others like them (VanderStoep & Johnson, 2008). In general my research ethic acknowledges the difficulties of the task of understanding other people's perceptions, I attempt to offset my own bias as a researcher and portray a true depiction of the perceptions of those who I was privileged to interview. As Tracy (2010) suggests, meaningful coherence is an essential component of good qualitative research. I seek here to situate my study in relationship with connected interdisciplinary work to immerse fully into the milieu of this topic.

Defining Old Age

A usual criticism of social gerontology research is the common ambiguity of the construct of old age (Andrews, 1999; Jolanki, 2000; Tulle- Winton, 1999). This difficulty in definition arises from theoretical differences both in the scholarship of aging and in people's everyday experiences in the most appropriate way to define the aging experience. Commonly scholars understand aging as a chronological experience, choosing the number years after birth as an appropriate measure for studying the aging

process (Andrews, 1999). While there is a move to a more interpretivist definition of aging, taking into account the experience of the older adult, this is not always pragmatic in practice for recruitment. For this study, because of the previously defined age categorization of the S.H.A.R.E. group, the decision of age construction was out of my hands. Participation was based on the participant pool from the S.H.A.R.E group including those individuals with a chronological age of sixty years and over. A benchmark definition of old age can be obtained from The United Nations (2001), which defines older adults as above sixty-five years old in developed countries or above sixty years old in developing countries, according to recent average life expectancies. In this study, I discuss the construct of age and its definition further, mindful of the social construction of age and the need to explore it from multiple lenses. In analyzing the perceptions' of my respondents many felt that chronological age was not an articulate enough measure for describing their relationship to technology and digital evolution in their lives. Adopting a life course perspective was appropriate to understand the life phases of those in my study both in terms of an individual and cohort lens and their relationship to technologies in their lives.

CHAPTER FOUR: THE LIFE COURSE PERSPECTIVE

A wide range of approaches to the study of technology use have been advanced in the social sciences. From a more functional and applied perspective, the field of Human Factors research is described by Salvendy as "the role of humans in complex systems, the design of equipment and facilities for human use and the development of environments for comfort and safety" (1997, p. xvii). The goal of researchers in this field is to match the demand of a system to the capabilities of its user. More specific to financial technologies, there has been some research in the human factors literature to understand older adults' experiences with financial technology. A study published in 1996 by Wendy Rogers and her colleagues focused on the importance of training older adults to use automatic teller machines (ATMs).

The research on financial technology use especially among older adults tend toward a more applied orientation and often lack a strong theoretical grounding in social gerontology. Human factors research, for instance, is focused on design and training implementations for older individuals. Focusing on age specific training for computerized tasks, this work paid little attention to the theoretical underpinnings and perspectives of the population being studied focusing on training techniques for older adults. It has been a common critique of studies such as this that studies lacking theoretical understanding cannot be effective without the grounding of a gerontological approach (Kuutti, 1996). I seek to contribute to this theoretical understanding implementing a life course perspective to understand the perceptions' older adults have towards technologies they interact with

in their everyday lives, such as financial technologies.

The theoretical approach in this study aligns with a trend in developmental research toward considering the life course as influential in understanding our social circumstances. In order to understand an individual's perspective, the trajectory of the life must be considered. This is the approach taken when researching within a life course perspective, which gives consideration to the influence of the historical context of a person's life. My interpretive analysis of the data in my study was undertaken within this prevalent social gerontological framework (Elder, 1995; George, 1993). This theory looks at the timing of events in a person's life in relation to the historical context of those events, and the implications associated with that person's gender (Elder, 1974).

Sociologist, Glen Elder Jr., was one of the early authors to write about a life course perspective (Hutchinson, 2008). In the early 1960's, he began to analyze data from three pioneering longitudinal studies of children that had been undertaken by the University of California, Berkeley. As he examined several decades of data, he was taken with the enormous impact of the Great Depression of the 1930's on individual and family pathways (Elder, 1974). He began to call for developmental theory and research that looked at the influence of historical forces on family, education, and work roles. He continues to be one of the main influences behind its development.

The life course perspective is a theoretical model that has been emerging over the last forty-five years, across several disciplines. Sociologists, anthropologists, social historians, demographers, and psychologists—working independently and, more recently, collaboratively—have all helped to give it shape. It posits that early experiences may affect later life choices and transitions (George, 1993; Henretta et al., 1993b; Moen, 1991;

O'Rand & Henretta, 1982) and that lives are interdependent (Elder, 1995). This approach points to the context of transitions for example, how the timing of social change affects individuals and how individuals, in turn, negotiate their environments as well as the factors shaping these transitions. Hutchinson (2008: 8) explains this framework very well when she describes the life course perspective as "how chronological age, relationships, common life transitions, and social change shape people's lives from birth to death. Of course, time is only one dimension of human behavior; characteristics of the person and the environment in which the person lives also play a part."

In adopting this framework in my research, I have been mindful that historical context influences significant events in a person's life and the significance of those events (Moen, 2001). This perspective also gives meaning to one's personal structure and consumer behavior. Changes in social and economic climates, longevity, and fertility, influence the life course of men and women and how gender is defined for the cohort (Moen, 2001). This framework has been credited with validating the power of social change to shape individuals in their development. As Settersten (2003) notes, the life course lens is valuable because of the value placed on looking both retro and prospectively when investigating a social phenomenon.

When researching within this framework there are key terms that an investigator must take care to explore in an individual's life course narrative. These staple concepts are cohorts, transitions, trajectories, life events, and turning points (Hutchinson, 2008). In this work I will discuss these concepts in relation to the use of financial technologies among older adults.

Cohorts entering later life in the beginning of the twenty-first century grew up following the Second World War and have had a very different life course experience compared with earlier generations. Women, in contrast to earlier cohorts in particular have experienced a longer attachment to the labor market, affecting their understanding of both familiar roles and transitions into post working roles. As Arber, et al. (2003) observe, drastic changes in the social fabric of the family (increased divorce rate and acceptance of homosexual relationships for example) have contributed to the distinction of this current cohort of older adults to previous ones. Some older adults in my study are of the generation who came of age during the sexual revolution and feminist movements (Solomon & Szwar, 1994). These social turning points can be understood to influence perceptions of change and ideas of acceptance of social evolution.

In my research, support for the life course perspective has been clearly portrayed. A natural, unsolicited response to my introductory question in my interviews ("please tell me about your experience with financial technology") revealed a strong relationship between my participants' perceptions of financial technologies and their experiences with technology in general. Connections between use and adoption of technology in previous areas of life (for example workplace, social networks, community exposure, etc.) have translated into levels of acceptance and appreciation of technological advancement in the financial sector. The perceived value and innovation adoption has been communicated in relation to cohort effects. Many respondents have communicated gravitation towards long routed patterns of behaviors in banking transactions, indicating satisfaction with their current routine and no curiosity or desire to change.

The infancy of the intersection of financial technology research and older adults creates an opportunity for this research to begin and remain conducted in best practices of vigorous interdisciplinary research. In order to practice good research, strong theoretical routes and appropriate methodologies are of paramount importance. Engaging in best practices in this study I have been mindful of the connection between older adults' life courses and their perceptions' of financial technologies. This life course perspective will be used to help illuminate key areas identified in this research – age, trust and risk, and intersectionality – about the perspectives toward the use of financial technology among older adults.

CHAPTER FIVE: PERCEPTIONS OF AGE

In my study one of the key themes that emerged was perceptions of age shaping the use of technologies among older adults. The tensions between age and financial technologies centered around three main issues: perceptions of age categorization, older adult self-stereotyping, and ageism. In this section I discuss how these ideas became apparent through the analysis of my interactions with older adults. Mindful of the role of the life course in developing this relationship, ideas surrounding subjective age, life stages, and technology's relationship to ageism will be discussed. Advances in financial technologies have created a space where perceptions of age become important. In discussing banking with older adults, their opinion of their own personal age came into play in understanding how they interact with the financial system.

Prior to discussing the emergent themes from this section, it is necessary to discuss the idea of subjective age as central to this study and to social gerontology broadly (Barak & Gould, 1985; Barak & Schiffman, 1981; Blau, 1956, Uotinen 1998; Goldsmith and Heines, 1992). As Goldsmith and Heines (1992) show, research has shown us that many personal and social behaviors are linked to our subjective age (1992). Understanding an older adult's perspective, how old they feel and understand themselves to behave can be informative to a researcher as we undertake the task of understanding lifestyle and conduct. It is therefore important to unpack the meaning of age to those individuals who we study. In social gerontology, being aware of an older adult's self-perceived age helps to illuminate differences among individuals within a cohort. While chronological age was used as a measure on the questionnaire in order to establish

temporal understanding of the historical evolution of the financial institution, a discussion of subjective age occurred with the interviewees in order to gain a deeper understanding of their perspective. This understanding can lead to greater accuracy and consistency when age is a central construct in research (Goldsmith & Heiens, 1992).

Our youth oriented culture imparts a feeling on people as they age that they must look and act in a young fashion; keeping up with technology places a similar social pressure upon older adults. Many of the respondents in this study expressed an interest in wanting to appear to be able to stay up to date in terms of technology. Many participants cited intergenerational motivations for this desire, most commonly indicating that technology assisted them with interacting with younger generations (personally and not: grandchildren, children, economics, etc.). Discussing this, a comment by an older woman that I interviewed summarized this well,

> I can't tell you enough how important learning the computer has been in maintaining my relationship with my children and grandchildren. Skype has been a joy in my life the past couple of years to interact with my children who live in America. And so you see that motivation was there to learn… for my family, to be able to see them and watch my granddaughter play the piano, it's a miracle to me… I guess that's where my confidence in computers grew out of and from there that was it. I needed to learn what else I could do, once I just saw how they could be used, my curiosity was sparked when my kids would talk about what else I could be using the computer for. Now I really try to keep on top of all the new technology. I still find it challenging to use, but I have this feeling now that if I just keep on top of it then I am not left behind. I now know how in the dark I was before.

While this discussion highlights the social importance that interaction with technologies is rooted in, the theme of keeping up with the times is clearly evidenced. Once technology is made accessible to an individual and its usefulness if made apparent, a desire to keep

on top of the digital evolution is sparked. This transfers technology to other parts of an individual's life becoming a cyclical relationship and increasing an older adult's propensity to keep up with the times.

Relatedly, the theme of vitality was consistent with participants in my study who were interested in learning how to use novel financial management technologies. This term is related to the vague concept of successful aging, which dominates contemporary gerontological research (Bowling, 2007; Villar, 2011, Young, et al., 2009). Although a definition of this term is as yet to be clearly agreed upon in the scholarship, it can be understood for the purposes of this paper to incorporate ideas from scholars such as Palmore (1995) of survival, health, and life satisfaction; and Rowe and Khan's (1997) ideas of social engagement, and Bowling's contribution of a multi-dimensional continuum of success.

Self-perceived successful aging was influential in older adults' relationships with financial technologies. When describing her perceptions of the technologies currently used in her banking routine, one woman interviewed stated,

> I feel as though if I put my mind to it, I could learn it. I taught myself how to use the computer, so why couldn't I use a cell phone (for banking)? It may be a lot of practice, but I think that's all it is… practice.

Here, an understanding of life course was important. This woman has been very active in her community for as long as she can remember. She enjoys trying new things and described herself using the characteristics incorporated in the concept of successful aging. Her energy and enthusiasm for life-long learning was clear indication of her courageous attitude when approaching financial technologies. This concept can was also revealed in

my work from the point of view of those who have not been as successful in their aging process. Many older adults suggested feelings of being overwhelmed or hopeless in their experience with financial technologies. One woman in her eighties described her feeling of age,

> I have to be careful how I say this, because I don't want to come across as unhappy, but when you are in your eighties something changes. Your energy level is lower, and that affects your gumption. At least for me, I noticed a big difference in myself when I turned eighty my adventurousness has been tamed. And I see this in my ambition to learn new things. I just don't have it in me to pick up and learn how to use the computer or the cell phone. So a lot of these technologies you ask about for banking are beyond my thought process. I am just not there.

Perceiving herself as being older and lacking energy has dramatically affected this woman's ability to adopt technology into her routine. Older adults who feel a lack of vitality or lower levels of health have a decreased ambition or confidence in approaching novel technology. This could be related to a lack of available energy necessary to invest in the new task. In conceptualizing this, it has been helpful to reflect of the life stages model suggested by Laslett (1989) in that older adults in their 'third stage' of life may bring greater vitality and energy to new technologies than another older adult in a later 'fourth stage'.

Age Categorization

Laslett's (1989) work on the third vs. fourth age in a *Fresh Map of Life* is also instructive in understanding the way age categorization emerged as a theme among respondents. In this book, he advocates four ages or stages of life, moving beyond categorization using chronological age. In understanding the relation of the four life stages, Laslett notes that they are not experienced exclusively as stretches of years. The first age he discusses is the

era of dependence, socialization, and education. Commonly conceptualized as childhood and demarcated with chronological age limits, this stage in Laslett's theory is about development and learning (1989). The second age is portrayed as the era of independence, maturity and responsibility. Here Laslett describes what would commonly be conceptualized as adolescence and early adulthood, including goals of earning and saving in this categorization. In place of adult working years and retirement, the third age has been conceptualized in this theory as the era of personal fulfillment and transitions into the fourth age, where an individual return to a final dependence and decline (Laslett, 1989).

In my work, the categorization of participant's by older adults was conducted because of the structures in place in the S.H.A.R.E. group. This provides valuable demographic information, but is lacking the emphasis of life course transitions and roles that are highlighted in Laslett's model. In this study, when my participants' discussed aging, their perceptions were linked more toward personal achievements, roles, and feelings of age than the chronological number. This was then related to their perceptions of financial technologies.

In the survey, an item related to perceptions of autonomy and use of technology for banking revealed interesting results. In discussing whether she viewed financial technologies as helpful for older adults to remain autonomous in their aging process, one older woman explained, "Like any tool, technology can be both helpful and unhelpful. It has little to do with age, but perhaps with other disabilities." There is a need to move

beyond chronological conceptualizations of age to understand the complex relationship between people and our evolving digital society.

Many participants indicated that a change in their perceptions and use of financial technology would occur in the event of a transition to the fourth age, perceiving experience with decreased mobility and/or mental acuity to be important factors in deciding to adopt technology. This theme was common in both the survey responses and the interviews I conducted. One woman in her mid-seventies described her experience with this,

> I couldn't be bothered to be concerned with staying on top of the newest trends. But If I were housebound, I would definitely get a computer. You know, if it were difficult for me to get around my home, I would get a cell phone. I know that my needs can increase with age.

Many participants do not view themselves as currently being "old". This is evident both in the above commentary about future planning and in many responses to the questionnaire items inquiring about future projected uses of technologies and perceptions of autonomy supported by technology.

There was a continuum of future projected uses of financial technologies in the survey comments. These commonly ranged from those older adults who are not planning for technology to be needed in their future, to those who can project possible changes in their lives and see technology playing a role in their successful management. A typical response to no change in future projection was, "Why should I change something that I am satisfied with?" Respondents who were unsure of change in future projection said,

> I can't tell, if my personal circumstances change, it may be necessary and/or helpful to embrace more (financial technology)… but who can tell what will happen in the future?

In contrast, like the below respondent, older adults in the study who were thoughtful regarding changes in future projection claimed that:

> If I became less mobile and unable to access my bank it (use of financial technologies) will have to change. It occurs to me I am eighty-six years old and each year I will be getting older. So I am at a stage where I can't walk up the street to the bank to do what I need to do then I suppose the computer could help be independent.

These responses were not significantly related to respondents' ages, supporting again a need to look beyond chronological age when understanding the life course of older adults. Although many respondents did not see the benefits of financial technology for themselves in their current situation, they indicated towards acceptance and use of technology in adverse future circumstances.

This relates also to the idea of perceived need, communicated in the gerontechnology literature regarding in technology acceptance (Burdick & Kwon, 2004). Analysis of this shows an interesting tension in the data. Respondents indicate that they would be willing to adjust their financial routines if and/or when a change in their health and wellbeing occurred (for example, age related decline was indicated commonly). Respondents' projected views of technology adoption were contrasted with the comfort and acceptance of technology that is necessary for adoption as a long-term process. This time-consuming process has been demonstrated both in the literature (Flavián, et al., 2006; Hill, et al., 2008; Lee, 2009) and my research responses, highlighting the importance of trust building and learning in the adoption of new technologies. Here, again, a life course having early (early to midlife) exposure to technology, allows an

individual to incorporate it into their routine and perceive it as beneficial. One interviewee communicated this in retelling her experience with adopting technology. She was a librarian working in the twilight of her career as computers were first introduced into the library system,

> It has taken time, patience, and perseverance to get proficient at the technology. But it has been very much worth it. I know that my employer was very helpful in this, providing us with thorough training and instilling in us a mindset that we cannot harm the computer, so not to be afraid to try new things out on it. And you see that you know when you press the wrong key and the screen goes blank, without experience one may panic, but we had this idea that the machine was in a way indestructible.

Training and exposure to new technology during her career, even though it was only for a few years, was beneficial in her adoption of technology into her lifestyle post retirement. Having a high level of education and a propensity towards lifelong learning benefited this woman.

The technology adoption research discussed in the literature review of this paper, insight can be gained into the context of computer adoption. Rogers' (2003) Diffusion of Innovations model provides a useful framework for examining differences between those seniors who enroll in computer training courses and those who do not. In this model, Rogers' noted that late adopters tend to be skeptical about the innovation and must make absolutely sure it is worth trying out. On the other hand, earlier adopters tend to feel more confident and willing to take chances, and thus feel less anxious about the innovation. These results lend themselves to the perceptions' of the older adults in my study. As one respondent noted,

> I suppose I am a risk taker. I have always liked to try new things. I

> guess I always think the grass is greener on the other side.

Other older adults who have not developed this relationship to novelty and change through their life experiences are more leery of incorporating financial technology into their routines. In discussing lack of adoption of financial technologies with one of my male interviewees he simply stated,

> I am too stubborn to change. It's easier to stay the same than it is to change.

This self-awareness and acceptance of personality traits was common among many participants. Older adults who are comfortable in their situations do not seek change for the sake of change itself. This aligns with scholarship in the gerontology literature on Atchley's Continuity Theory (1989). Life experiences have carved out patterns of behaviour and routines that create stability in an age of uncontrollable changes.

Cohort effects come into play in understanding learning. This generation was of a time where extended education was the minority. Those who were learning did so through books. If you wanted to learn a new skill, you would buy a book and try it out. In contrast, currently as technology increases, it is self-perpetuating. You use the technology to learn new skills. You need to have a basic understanding of the tool that you will use before you can pick up the new skill you want to learn. Basically for technology, one must have a grasp on using the skills required to operate a computer before one can utilize the internet and gain all the benefits of the services provided online (eg online banking). Respondents indicated that the barrier of learning the computer was enough to discourage them from utilizing the online banking services,

> The computer was the first thing I ever tried to learn where the book didn't help me. Which is interesting for a lot of people. In my generation it was common to go to a book to learn about something. But in this case, it's difficult. You have to actually do it to understand it. So you are susceptible to forming opinions form others experiences.

The influence of patterns of and exposure to different learning environments must be understood in the context of older adults and perceptions' of financial technologies. This leads us to an understanding of the place and treatment of older adults in our society.

Ageism

In this study I was mindful of the influence of ageism in our society. Defined by Butler (1969: 243) as "the systematic stereotyping of and discrimination against people because they are old, just as racism and sexism accomplish this with skin color and gender", this encourages viewing people not as individuals but as members of a social category. Research has been conducted on the relationship between modernization and technological advancement and has been displayed in this study both on interpersonal and institutional levels.

Interpersonally, analysis of the survey item inquiring about assistance at the bank revealed what could be viewed as ageism. Bank tellers often offer older adults help in using the available technologies. A majority of respondents (sixty-six percent) answered positively to the question on the survey,

> Have you been offered assistance by your banking institution with utilizing the technology they provide?

In the written explanation of answers to this question one older gentleman revealed that,

> When at my bank, the representatives consider my age and give me considerable assistance. They are very patient with me.

The theme of assisting older adults with using the banking technology provides interesting pause for thought. In understanding the life course and the experiences of many older adults with technology it is important to understand the varying degree of comfort older adults experience in their interactions with technology. The tendency to offer assistance can be viewed as part of a stereotype commonly held that older adults are incompetent and helpless (Novak & Campbell, 2006). By offering unsolicited assistance, even from a place of kindness, ageism perpetuates helplessness in the older person. Although this could be viewed as a positive action, where the older adult is being encouraged into the public sphere through the use of technology, the assumption that they will need assistance and that patience and care will be needed serves more to stereotype older adults then serve them.

It has been argued that age is not, by itself, a barrier to the acceptance and use of technology (Charness, 2001; Green & McAdams, 2003), but there are equity issues that are likely to disproportionately impact on older people, even those in the third, rather than the fourth age. This is not the result of aging alone, but of other factors including income, employment status, place of residence, education, ethnicity, and societal values (Hill, et al., 2008).

In understanding societal values, ageism is one form of discrimination likely to

affect most of us at some point in our lives.

> The use of chronological age in an arbitrary fashion to determine when someone is to be regarded as 'old' is being challenged by the increase in life expectancy. Paradoxically when life expectancy has been increasing, a recent trend has been for definitions for the 'elderly' to move down to 55 years, even as low as 50 years (Foskey, 2001: 2).

Ageism and technology can be thought of to have a reciprocal relationship with each other, as Culter (2005) has noted. A recent report from the National Research Council noted that technology is typically developed by younger adults, for the use of younger adults, and marketed at younger target groups (Pew & Van Hemel, 2004). As Calasanti and Slevin have noted,

> As a form of oppression, ageism *does* touch on everyone, even those who are the most advantaged and privileged in our society. Ageism matters, then, as another form of oppression intersecting with previous ones (2001:99).

This creates a platform for institutional ageism to occur. Quantitative analysis through the use of chi-square calculations illuminated this theme in my study.

Some participants embraced the opportunity for life long learning that financial technologies can provide. This was evident in the choices participants made in their leisure activities and in discussion of their relationships' with computers. Cohort flow, as discussed by Riley, et al. (1972) was influential in the acceptance and adoption of new technology. As the younger respondents in my survey discussed a desire to utilize technology it was evident that past experiences with availability of technology helped to inform their choices.

An understanding of the life course of these two cohorts is important to understand the following analysis. A common understanding in life course theory is that a stratification of experience occurs when difference cohorts simultaneously enter the same historical context (Elder, 1975). In this case, I examine the current historical time period of rapid technological advancement and expansion of the digital economy. I have been mindful of the differing paths that older adults encountered to come to this point in time. The depressed conditions of the 1930's have been well documented by early life course researchers to be influential in the timing of role transitions for people at that time (Elder; Ryder, 1970). Other factors such as age or social status during events such a social movements, war, times of prosperity, etc. influence the development of individuals and their experiences.

In examining institutional ageism, a key association was found between age cohort and stated level of computer knowledge. Younger adults in this study, born in 1933 or after (the mean year of birth among participants) were more likely to state that they had knowledge of computers. Older adults born before 1933 were more likely to state absence or limited knowledge of computers, χ^2 (2, N= 182)= 6.11, p=0.047. With two degrees of freedom indicated in this sampling distribution, this chi-square result of 6.11 is greater then the significantly necessary 5.99 indicating a relationship at the 0.05 level. Examination of the cell frequencies revealed that a significantly greater proportion of younger participants (73%) felt knowledgeable in computer use while the percentage of those self identified as knowledgeable in the older cohort was significantly less then expected, only 55%. This can be understood in terms of cohort flow and life status

transitions. Opportunities to interact with technology in the work place (as previously discussed) translated into later life inclusion in the digital economy. In discussing the relationship between computer technology and financial applications, one respondent explained her perspective,

> I am comfortable with banking technologies, however I know that if older people have not used a computer before retiring, they often are reluctant to trust ATMs.

Inability to interact with advancing technology is perceived by older adults to be a pattern of behaviour.

This trend was extended from knowledge to actual use of technology. A relationship was found between age cohort and computer use, χ^2 (2, N= 182)= 9.65, p=0.01. With two degrees of freedom indicated in this sampling distribution, this chi-square result of 9.65 is greater then the significantly necessary 9.21, indicating a relationship at the 0.01 level. An examination of the cell frequencies revealed that 76% of younger respondents use their computers on at least a daily or weekly basis. More respondents born before 1933 then expected indicated using their computers on a less frequent (monthly) basis. This trend was illuminated by an older woman I spoke to who was in the older cohorts of adults,

> I purchased a computer a few years ago, on advice from my son. I have yet to sit down and use it on my own. I am sure the thing would break down if I tried to use it without the help of someone in my family… How can I trust something I don't understand? … For banking I have automatic withdrawals and go to the teller when I need to take out cash.

This woman's experience highlights the isolation from technological advances that can occur even if they attempt to enter into the digital evolution. Intimidation has been fostered through a lack of life experience interacting with technologies.

Interestingly, this relationship was not observed when asking participants about their self perceived comfort level with computers. The null hypothesis was not rejected when examining the relationship between cohort and self reported comfort level with computers, χ^2 (2, N=182)= 2.878, p= 0.23. This indicates that there is no significant relationship between comfort and age. Cohort does not dictate perceptions of comfort within the context of computer technology. This provides pause for optimistic reflection, that if encouraged to enter into the technological sphere, older adults who learn how to interact with technologies can achieve a level of comfort, regardless of past experiences. Ageism associated with technological advancement can be overcome with increased efforts to expose older adults to technologies and training for those who have not had previous experience to help overcome usage barriers.

CHAPTER SIX: PERCEPTIONS OF RISK AND TRUST

The current trend in many aspects of our society toward ever increasing efficiency through the use of technology has transformed the interaction between institutions and the public. Banks are not immune to this shift and have greatly altered the interaction between themselves and their customers through the use of financial technologies such as the automatic teller machine (ATM), debit machine, and the popularization of personal computers (both at home and in the office). Many questions arise for consumers with this shift in the technological evolution of the financial industry. The perception of risk regarding, and the linked concept of trust in, public institutions raise some of these questions when thinking about the association between older adult consumers and their banking institutions.

In analyzing the responses from my study, the theory of perceived risk (from the consumer behaviour literature) has proven useful in understanding consumers' perceived risk as a multi-dimensional construct (Lee, 2009). This framework has been applied to explain consumer behavior and decision-making since the 1960's and defines perceived risk as a customer's perception about lack of trust and the potential adverse effects of purchasing a good or service (Taylor, 1974). In recent decades the definition of perceived risk has transformed as people have engaged in online transactions. Initially this concept was primarily related to fraud or product quality, but today it is related to financial, psychological, physical, or social risks in online transactions (Forsythe & Shi, 2003; Im, et al., 2008). Many studies have revealed that customers perceive different dimensions of

risk, including four main themes revealed in the perceived risk literature: financial, security, time, and social risks.

Financial and Security Risks

The perceived risk literature discussed customers' concerns about the potential of both financial losses and security. These themes were related in my study as many older adults discussed the idea of risks to their finances being impacted on by security concerns. There are a few common themes around which these fears center and they are related to knowledge translation. In my study, knowledge was an important indicator of older adults' perceptions of financial technologies.

An association between self-reported level of computer knowledge and ATM usage was found, χ^2 (2, N= 182)= 20.65 p= <0.001. An examination of the cell frequencies revealed that 71% of those who stated a limited knowledge of computers preferred to use the in person teller for their banking interactions, compared to 36% of those who perceived themselves as knowledgeable of computer who used the in person teller. This trend was also observed in the preference for use of the ATM (28% of limited knowledge respondents, 63% of knowledgeable respondents). Knowledge here was a pull factor towards using financial technologies. Older adults who are more educated on both the risks and the advantages associated with a given financial technology will be more likely to adopt.

Qualitative analysis of survey responses supports the theme of knowledge. In explaining why she chooses not to use the ATM, one woman explained,

> Because I am not knowledgeable of technology in general, I do not understand this technology.

Another participant commented, “no experience, knowledge, or training!!!” when explaining her choice against using financial technologies. This relationship logically follows a constructivist view of learning, which is a pedagogy whose research has been well documented (Jonassen, D., et al., 1999). We build our knowledge on previous constructs and find confidence in learning when we have a basic, related understanding of a relevant concept. Being able to transfer knowledge and understanding from one context to another is a central tenant of the constructivist learning process. The extension here in my research to older adults’ comfort with adopting new financial technologies contributes to the support of this pedagogy and offers extension for the creation of training methods. Knowledge can diminish fear of the unknown. In the case of financial technology perceptions, this is related to ideas of security risk.

The idea of losing control of a personal account was a theme related to both financial and security risks. The fear of resulting financial loss caused by internet or credit card banking mistakes in entering the specifications of transaction were cited both in the consumer behaviour literature and in my study (examples of this include, errors in account number or amount of money in banking online or using the ATM) (Hanafizadeh & Khedmatgozar, 2012). In conducting an interview with an avid computer user who does not use online banking this gentleman stated that he prefers to use the personal teller instead of financial technologies,

> Computers are only as good as the input and errors are hard to trace and to correct. Dealing with a bureaucracy can be an exercise in frustration. I would never use telephone banking because of this and I don’t know if I even trust myself to bank over the computer.

He enjoys using a computer for email communication with family at home, but did not view the computer as a safe method of financial transaction. Financial risks are perceived when an individual does not have faith or fully understand the technological system.

Another aspect of this risk is the financial vulnerability that many older adults find themselves in after retirement. Many seniors today are not in a position to be precarious with their finances. A common concern of the participants in my study was that of losing money that they relied on for security in their retirement. Many respondents who were concerned with loosing finances cited a belief in the impossibility of compensation by their bank in any case of errors in transaction. A woman who prefers to use the bank teller explained,

> All this new technology provides the bank with a way out, a lack of accountability. Who's to say that they will believe me if I go to the bank and complain that my account number has been jeopardized? I've read far too many stories in the newspaper about fraud at the ATM machine and the Internet… no way - it's not worth the headache in my book.

She, like many other older adults, perceives the risks involved with incorporating technology into her financial routine to be too great to attempt to change her habits.

In contrast to this belief however, there is a continuum of comfort that can be seen among older adults who are more knowledgeable of the security placements the financial industry have in place. One woman I spoke with who utilizes the computer to bank online from home described her perception of the use of technology,

> I am not worried about losing my money on line because I know that my bank would return it to me. If my card is compromised, I know the bank would get me a new one. If someone stole from me over the Internet, same thing… the bank would take care of it. They make so much money; they don't need to worry about small cases of theft. Yes, it would upset me,

> maybe feel like an invasion of my privacy, but that is a risk I am willing to take.

Education can help to better equip older adults to utilize financial technologies. When they are prepared with the right information, and not just hear say from the media or influences from their social network, acceptance on the evolution of the bank is much easier. This helps to motivate older adults reception towards financial technology use.

In previous studies of Canadian social trends, e-commerce was related to levels of Internet experience as well as security concerns (Veenhof & Timusk, 2009). The researchers found that most active online consumers are less likely to report high levels of concern about online credit card use. Seniors tend to have less online experience than users under sixty-five, and seniors and boomers alike also tend to express high levels of concern over Internet security. For example, similar proportions of boomers and seniors who owned credit cards (approximately sixty percent) said they would be very concerned about using their credit card online in 2007, significantly more than credit card owners aged sixteen to forty-four (forty-six percent) (Veenhof & Timusk, 2009). Following this it is important to note that many studies on financial technology adoption have cited customer unawareness of services as one of the most important reasons of customers' reluctance for adopting Internet banking. Marketing research has found that having an awareness of the advantages and services of financial technology has a significant positive effect on adopting and using Internet banking (Howcroft, et al., 2002).

Time Risk

A second theme in line with the literature on perceived risk that was apparent in my study was the concept of time risk. Perceptions of time commitment and the value of learning

new technologies were factors in the adoption of financial technologies. Those respondents who expressed concerns about the time commitment needed for older adults to learn new technologies mitigating their finances were more likely to be against technological evolution. Some respondents were fearful or angered with the prospect of learning a new technology to bank with. They also perceived this difficulty as a possibility of too much time necessary to devote for solving problems caused by using financial technologies (such as proving transaction errors). In discussing this with an older woman who describes herself as very active in her community she stated, "I'm not likely to invest much time or effort in improving my skills on a computer or any other machine. I would rather spend my time reading a book, or volunteering, or doing pretty much anything, rather than extending my use of technologies for banking purposes." Each individual constructs the value of time differently. As we age and retire from many prescribed roles in our lives, older adults have the opportunity to assert their choice of activities and the division of their time spent. One gentleman explained on his survey, "I do enough to occupy myself. With my age, I don't want to learn anything new." In response to the question asking about why not to utilize the ATM. Atchley's (1989) Continuity Theory of aging is useful in understanding this. Continuity theory proposes that older adults are led by their past experiences as primary adaptive strategies for age related changes. This is a related concept to the life course perspective as Cohler (1982) has noted that continuity is linked with an individual's personal history. It must be understood that although the word continuity can be synonymous with sameness and permanence, the usage of the word in this theoretical perspective is much more fluid,

> Continuity Theory assumes evolution, not homeostasis, and this assumption allows change to be integrated into one's prior history without necessarily causing upheaval or disequilibrium. An evolutionary theory also allows the individual to have goals for developmental direction. (Atchley, 1989)

Because of the diversity of older adults previous life courses there were interestingly, many other participants who perceived embracing financial technology as an opportunity for growth. Some people described themselves as "lifelong learners" valuing the opportunity to continuously learn, technology was included in this category for many respondents. In discussing this with one participant she simply stated, "learn and grow; stop learning and decline!" She related this not only to her approach to financial technology, but to many challenges she faced in her life. As White and Whetheral (2000) have examined, attitudes toward information technology (IT) are strongly linked with the personal usefulness of and direct experience with and personal ownership of IT. Study findings illustrated how involvement with and use of IT by older adults is cyclic and serves to reinforce continuing involvement (White & Whetheral, 2000).

Social risk

Consumers' perceptions are related to experiences and perceptions of those in their social networks (Al-Somali, et al., 2009; Hanafizadeh & Khedmatgozar, 2012). Older adults in my study who discussed negative attitude of family, friends, or colleagues toward financial technologies were more likely to discuss concerns associated with financial technologies. While discussing banking with an older woman who only utilizes the bank teller for her financial interactions, she explained,

> So far my banking has gone smoothly, although I have had friends who have encountered serious problems. You know things that you hear about

> in the newspapers all the time, telephone fraud, credit cards opened in their names. Why take the risk? So many people end up down and out. That won't happen to be at the teller.

As one eighty-eight year old female caregiver I interviewed stated,

> You hear so many stories about fraud… with the ATMs and on the internet. We need to be careful with our money. When you are retired, you have to be conscious of your budget. Why take the risk?

This woman's perceptions were more commonly stated among female respondents. This theme will be explored in a later discussion of the role that gender plays in understanding the relationship between older adults and financial technology.

> I wouldn't even know where to start to think about using those machines. I am a people person and am very happy with my current situation. I don't need to change my routine, to use a machine just for the sake of trying out the newest thing? That's just not for me.

In evaluating family dynamics, preliminary conversations with older adults indicated that adult children and grandchildren were helpful in learning and using technology in the home. This had lead me to hypothesize that my respondents who indicated living near (within one hour drive) their adult children would be more likely to have a computer, as they would be able to receive help from their adult children or grandchildren to use the computer. An analysis of this relationship revealed, however that this was not the case and the opposite was in fact shown to be true.

An association between adult children living far away (greater than one hour drive) and personal computer ownership was found, χ^2 (4, N= 182)= 46.47, $p<0.001$. An examination of the cell frequencies revealed that 85% of those who have children living far away own a personal computer. If the adult children lived far away, the older parents were more likely to have a computer at home. One explanation for this relationship is

communication opportunities afforded by the home computer. Many respondents indicated an appreciation for email and Skype in communicating with their family members, especially grandchildren,

> I think Skype is the best invention. I can see the little angels (grandchildren) across the country in real time it's just a miracle to me. When grown children live at a distance it is helpful to be independent. I can access advice electronically.

Technological advancements rather than being a social risk were seen as a benefit for some older adults in that they were able to overcome barriers to networks through new media.

Building Trust

In understanding the theme of perceived risk in older adults' perceptions of financial technologies, the related topic of trust needs to be considered. As Mutz (2005) describes, trust is linked with commerce. As far back in time as the exchange of good and services has transpired between individuals, people have needed to build trust to be able to interact with each other. Mutz (2005: 397) has summarized the commentary in the literature stating "…what supplants a need in modern society for trust in face-to-face, known others is trust in systems or institutions that regulate impersonal relationships and prevent consumers from exposure to risk." Emphasis on technological improvements in the name of efficiency are taking over spaces where interpersonal interaction was once valued. This statement by Mutz (2005) is a clear indicator of the current climate of social interaction. Trust is a central pillar in society. It is not an overestimate to discuss here the essential nature of this seemingly abstract concept. Without this component our institutions, such as the bank simply could not function. Our system could not work.

Older adults have experienced a shift in societal values, and while some my welcome this with open arms, a majority of respondents in my study are more skeptical of the risks involved with rapid advancements of technological use in their financial mediation. The interesting comments from my interviewees here were discussing trust along the lines of faith. Many people who would adopt the technology had an unwavering "faith" in it. One woman described her trust in financial technologies in a blunt, matter of fact tone,

> I know that the bank will take care of my finances it doesn't matter if I use the ATM, or the computer or the telephone… going to the teller… it's all the same service. Why wouldn't I use the technology that is available to me?

To some older adults, even when probed with examples of other people experiencing challenges with technology they would respond with unwavering trust in their financial institutions, "I am a loyal Royal Bank customer and I know that they will do right by me."

Life experiences play a role in how an individual organizes their relationship with banking technology. Erikson (1963) saw the development of the capacity to trust others as an essential element in the development of a healthy personality and successful social adjustment. But in my study the trust that is of central importance is that of institutional trust, related to public attitudes towards new technologies.

CHAPTER SEVEN: GENDER AND INTERSECTIONALITY

The complex concept of gender has been an important theme in understanding the perceptions' of older adults on financial technologies. In researching the gendered life course it has become apparent that there is a need for scholarship to be conducted in understanding this component of gerontology. As McMullin (1995:173) has affirmed, there is a remarkable "lack of theoretical development concerning the relationship between gender and aging." In the literature reviewed, the most common theoretical perspective discussing issues related to gender and aging is that of the Life Course. This work, as Hatch (2000) has recognized, stress the linkages between gender differences at earlier and later stages. This opportunity for scholarship lends clear support interdisciplinary work to be conducted. Here, I have used the idea of intersectionality to accompany the life course perspective used throughout this study. Intersectionality interweaves the role of multiple components of social relations, including influences such as age, socioeconomic status, race, sexuality, and gender and makes possible a more complex understanding of social phenomena (McCall, 2005).

In this analysis, gender predominates because the sample is primarily homogeneous and consists of members from mainstream culture in relation to race and class. The respondents in this study are mainly white, upper middle class professionals. The chief means by which they are marginalized or disadvantaged, and might experience social adversity is through gender and age. The ways in which this disadvantage is experienced is generally through the lens or the structures of the family. It is through a gender and family dynamic that the conditions of intersectionality are experienced and

expressed among respondents. The age ranges of older adults participating in my study have been researched previously to have many gendered cohort influences (Arber & Ginn, 1991; Arber, et al., 2003; Fuwa, 2004; Gibson, 1996). The intersectionality of gender and age provide a lens through which to analyze the data collected from respondents through a mixed method approach.

The Experience of the Older Woman

Findings indicated that intersectionality is useful in explaining the trend for older women in my study to be underrepresented as users of financial technologies. A relationship was discovered between experiences with technologies in roles early in the life course and acceptance of adoption of technology later in life. This was communicated in a gendered experience in work and familial roles. Those older adults who had exposure to computer training while in their career before retirement were more likely to own and use a home computer then those who did not. Life course analysis is important here to understand the influence of gender on roles and transitions, revealing a disadvantage for females beginning early in life and affecting relationships with technologies later on. Gender was related to perceptions and choices of financial management and uses of technologies where women's limited experiences with technologies in their working lives cemented previously created routines which lead to a decrease in their acceptance of technologies later in life.

Women's lives are typically and conventionally contingent lives, shaped around the experiences of others: their husbands, children, and parents (Michinov, 2007). In order to understand the life course of the women in my study, thoughtful consideration of

existing life patterns, taking into account the hidden domestic and care work that has been the province of women was necessary. Again, the life course framework becomes instrumental in my analysis. Understanding the historical background a cohort will give insight into behaviors and coping skills that were learned. Women born in the 1920's were raised during the Depression. The parents of these women often took status into consideration when allocating personal resources. Maintaining a social front was often important sometimes resulting in the withholding of 'information from friends and neighbors' (Elder, 1974). The background of many women born in the 1920's also shows the mother having the greater influence in running the household (Elder). As young girls who were born in the 1920's watched their parents, they often learned from their mothers about running the household and managing money. As women age and have to take on new roles, they will look to the coping skills learned in their youth. One respondent in my study discussed this,

> I have always been responsible for budgeting for our family. The bankbook that the teller updates for me every other week is an important tool for our finances. I would not change this by going to the ATM. I am not sure if it can update the book for me, but I don't care to find out. I have managed without it for many years.

Intersectionality is important in understanding the diversity emerging among some family structures. For some older adults financial manager is a role they are committed to play in the family structure. In discussing this with the participants in my study the gender roles were mixed on this with both male and female assuming this role in different households. In some cases the family manager was the wife, responsible for household purchases and budgeting. In many cases however, the husband was the overseer of household finances

and decisions. This is in line with a lot of the literature on family dynamics. In explain why she avoids using banking technologies, one older woman stated,

> I know that I have avoided it (financial technologies), but it's because my husband has always been involved with the finances, and I do not want to take on that role.

This avoidance of change and perpetuation of role patterns is a critical component in understanding the relationship between older adults and their financial institutions. The division of housework can be understood to be a rationale process of decision-making in a family. Economic theory can be useful in understanding this, as Beck (1993) explains, the partner with the highest market income is more likely to spend less time on domestic chores. Social capital and position in the labour market have been commonly cited as influential to the pattern of household work splitting (Presser, 1994; Bittman et al., 2003; Fuwa, 2004; Stier & Lewin-Epstien, 2007). Gender from this viewpoint is an indirect influence on the division of labour within the home as it has an effect on the wages of the family members.

Family Roles

Familial roles have been found to play a role in the tensions of banking and technology. While the advancements being made are increasing rapidly, traditions imbedded in the family structure are less likely to change. In understanding this theme it has been important to be mindful of the idea of "linked-lives" (Elder, 1974; 1998). This concept describes how individuals' life paths are played out in tandem with the life courses those who compose the social network of a person including parents, spouses, children, friends, and co-workers (Binstock & George, 2001; Elder, 1974; 1998; Ryff & Seltzer, 1996).

Ample research has been conducted on the importance of viewing the couple as the unit of analysis (Blau, 1998; Henretta, et al., 1993; 1992; Smith & Moen, 1998; Szinovacz, 1987). The effects of this partnership and its influences on lifelong patterns need to be understood.

In speaking with one woman of her experience as a caregiver, her role in the family and her experience with financial technology, a clear relationship between her perceptions of banking machines and her experience in her family was displayed,

> I have no problem with other people using the banking machines, but they aren't for me. I haven't done enough business. I didn't work after my first son was born, and my husband didn't want me to. He preferred me to stay at home and look after things here. Those were different time though you know, I mean, I never drove, I like simple things, I'm just sort of old fashioned I guess.

This woman discussed her role as a "housewife" as a primary deterrent away from financial technology. She expands to describe her experience with banking, and its link to her family structure,

> He (husband) was old fashioned shall I say, slightly male chauvinist. He felt a woman should be home. He was a dear sweet man but he felt that I should be a homemaker for our family. Don't forget, this was common in my generation. We kept our roles in the family, so I didn't have much to do with the business side of it all…. just the weekly errands and money to do the shopping. I visit the teller to do all those simple interactions.

The experience of role continuity has been that women generally experience greater role permanency in the current population of older adults as they age compared to men, who frequently undergo role disruption related to departure from paid work (Beales 2000; Gibson, 1996). These transitions influence the relationship that older men construct with change. A relationship was displayed between the respondent's choice of bank

management (teller vs. ATM) and perceived future changes to banking routine, χ^2 (2, N= 182)= 4.96, p=0.084. With two degrees of freedom indicated in this sampling distribution, this chi-square result of 4.96 is greater than the significantly necessary 4.61, indicating a relationship at the 0.1 level. Examination of the cell frequencies revealed that a significantly greater proportion of those older adults who preferred to use the teller to bank (78%) did not perceive any changes to their future banking routine, in terms of technological adoption. Of those respondents who self-identified as financial technology adopters, a significantly greater number then expected perceived themselves to be open to future changes in their use of technologies to mitigate financial management (33%). This readiness to adopt and flexibility in routine are characteristics that have been built through a life course experience.

Work and Financial Technology

Having a previous positive experience and training in technology provides men with a base comfort to build upon and expand their experiences with technology beyond their interactions of training in a work setting. In discussing the role that technology plays in his life, one retired gentleman discussed his use of technology at work,

> I used the computer at work for scheduling and for emailing and for anything to do within the company. Generally I am pretty good with it (technology). I know that there are limitations to my skill, I can only troubleshoot problems with the computer to a point, but I enjoy operating it (the computer) and have found many uses for it in my life.

In describing his use of technology now, after retirement this gentleman was proud of his competency with financial technology stating,

> … I can't believe I haven't been using it all along. I started with the online banking two years ago because my son had discussed with me the idea of

> transferring money over the Internet. I tried it out just as an experiment and was very pleased with the result. Since then I am confident with the banking online.

Comparatively, women of the cohorts studied have had less experience in the roles of working outside the home. They have been perceived to be greater contributors to household domestic chores, in following from lifelong roles that assign them primary responsibility in this domain of activities (Beales 2000; Lopata 2002). One of these roles has traditionally been financial interaction for household purchases (including grocery shopping, errands, etc.). Women have developed patterns of interacting with their finances, building a habit and comfort with using a teller to manage their bankbooks.

> I have never used an ATM whatever that might be. Why would I use an ATM machine (or any machine) when my routine is perfectly good? I visit a knowledgeable and above all, pleasant teller. I have no interest in changing that.

The intersection of gender and age is influential in the association between older adults' preferences of banking service delivery, past work experience, and current home computer use. This relationship represents a gendered affiliation in older adults' relationship to financial technologies. A strong association between computer use in more recent career and home computer ownership was found, χ^2 (4, N=182)= 82.12, p< 0.001. With four degrees of freedom indicated in this sampling distribution, a chi-square result of 82.12 represents a robust association here, as it is much greater than the significantly necessary 18.47, indicating a relationship at the 0.001 level. An examination of the cell frequencies revealed that 90% of those who used a computer in their most recent career were personal computer owners. In comparison with those who did not have access to a computer in their most recent job, 46% did not own a home computer. Mindful of the

influence that gender plays in the life course analysis of older adults, work can be understood from a multidimensional viewpoint. This relationship displays the gendered experience of older adults with financial technologies, as the woman's traditionally limited role in the working world outside of the home would contribute to a gender differential in this experience.

An association between computer use at work prior to retirement and choice of banking service delivery preference was found, χ^2 (2, N=182)= 15.51, $p < 0.001$. With two degrees of freedom indicated in this sampling distribution, a chi-square result of 15.51 represents a significant association here, as it is greater than the significantly necessary 13.82, indicating a relationship at the 0.001 level. Examination of the cell frequencies reveals that 67% of respondents who did not use a computer in this more recent career described preference towards interacting with an in person teller over using the ATM. In describing why she doesn't utilize financial technologies, one woman explained, "because I am not knowledgeable of technology in general, I do not understand this technology." Among those who utilized a computer in their workplace 62% responded with a preference to utilize the ATM instead of the personal teller. Simon (1995) asserts that work and family roles have different meanings for males and females. Solomon & Szwabo (1994) theorized that part of the older man's identity is maintained by the continuation of meaningful task oriented behaviors, including those that help support a household. Technology and e-services can come into play here when trying to understand how older adults interact with financial management. Learning to utilize technology and stay current with changing trends provides the man with a locus of

control, which in turn provides him with a sense of meaning. Responses from men in the study indicated an acceptance of technology as a pathway to independence. Avoidance of dependency was a clear motivator for some as they looked forward in their aging trajectory and made plans for the projected physical symptoms of aging,

> I like that I can go online and review my account. I cross check the purchases with my paper statement and receipts. It's extra insurance that I have been on top of the finances. There is no end to the capabilities of the machine (points to his computer). I know that as long as I am half with it, I will be able to look after myself using this.

This usage has become habitual and translates in many cases to a comfort with technologies outside of the home. Older men need to establish a routine with which they are comfortable and confident. For some this was a barrier to accepting new technology in the financial management of the household. One gentleman explained on his survey, "I am content with the way things are. I do not need to try new technology." Aging men have been found to be more likely to experience feelings of rejection and or decreased self-esteem when they no longer earn a living. A related explanation of why men are more drawn to technology is that they know the possibilities for social interaction. It has been revealed that they are generally less likely to have sustained networks of social support, especially if they had relied heavily on social interaction in the work place for such support during their working years (WHO, 2001). Having experience with technology in work settings, older men, compared to women, are more advantaged in setting up social networking using technology.

An association was found between gender and preference for mode of financial management, either using the in person teller or ATM for banking transactions. Chi-

square calculations revealed a significant relationship, χ^2 (1, N= 182)=5.03, p=0.025. With one degree of freedom indicated in this sampling distribution, the chi-square result of 5.03 is slightly greater than the significantly necessary 5.02, indicating a relationship at the 0.025 level. Significantly fewer females than expected indicated a preference for the ATM machine (40%); instead more males than expected (57%) indicated a preference for this form of financial management. The inclination towards use of technology can be explained using the life course understanding of exposure to technology in early stages of life. The idea that in general many of the older adults in this study participated in very traditional gendered life course trajectories; the male participating in the work force and the female taking on a role of familial care giving. This would provide her with less exposure to the transitioning digital economy and increased use of computers in the work force, limiting her training at an earlier stage of life. As previously discussed, without exposure to the usefulness of the technology in other aspects of daily routines, it is less likely for older adults to seek out changes incorporating technology in already formed daily activities such as household financial management.

Perceptions of Need and Perceived Usefulness

Understanding an older adult's motivation to utilize technology for financial management is important. In my research, perceptions of need and self-reflection on personal response to change evidently linked to the topic of financial technology adoption. A strong concept of demonstrated need satisfaction was apparent in both phases of my study, relative to the idea of financial needs versus wants. This is related to the concept researched in marketing literature of perceived usefulness (Lee, 2009). In participant responses,

motivations would tend more strongly towards accepting a financial technology if there was a strongly perceived demonstrated needs satisfaction. This was, in many cases, linked to the importance of a particular technological advancement improving quality of life. Support for this notion has been found in studies of information and communication technology (ICT) adoption by older adults to be an important component of older adult adoption (Wang, 2011). My research supported this finding and extended it to financial technologies. When an individual felt that a given financial technology would satisfy their needs, they were likely to adopt or consider making a change to incorporate the technology into their financial management routine. These perceptions were rooted in past experience and can be understood from a life course perspective. It has been documented in the literature on new technology adoption that men consider perceived usefulness to a greater extent than women in making their decisions regarding the use of a new technology, both in the short and long-term (Venkatesh & Morris, 2000). Men in my study were more process, or task oriented in their approach to financial technologies.

> I knew that the banking could be done online, but until I researched the tasks that I could accomplish from home I didn't want to jump into it… Knowing that I can transfer funds, pay bills, and monitor my spending from my personal computer, makes the online banking practical for our (his and his wife's) lifestyle.

As Jahangir & Begum (2008) have investigated, there is widespread evidence proving the substantive effect of perceived usefulness on adaptation intention of technology (Venkatesh & Davis, 1996; Tan & Teo, 2000). The research suggests that perceived usefulness is an important factor in determining adoption of innovations. As a consequence, the greater the perceived usefulness of using electronic banking services is

perceived to be, the more likely that electronic banking will be adopted. Respondents were content with their current relationship with financial technologies,

> As previously indicated, I use only that technology that suits me and my needs. I still use cash instead of a debit card for most purchases to maintain good control over expenditures. I use a credit card occasionally to gain extra points or dollars as bonus points. Also, I only buy what I need!

Many respondents in my study indicated that they did not feel the need to use technology in their banking routines. A large majority of those who felt this, indicated that they were "very content" with the way they currently source their banking services (mainly an in person teller). In speaking with a seventy five year old gentleman about this he simply stated, "others can do whatever they like, my needs are simple." Survey explanations supported this theme with many indicating that their relationship with financial technologies were, "so far, so good, all my needs are being met." Participants in my study communicated the association between having a computer and developing a comfort using financial technologies. Understanding a relationship between having access to a computer at home and choice of banking service delivery preference was found, χ^2 (2, N=182)= 11.08, p= 0.004. More respondents without a home computer than expected indicated a preference for utilizing the personal teller (70% from examined cell frequencies). The opposite was found (although not as strongly) amongst personal computer owners, with more than expected indicating a preference towards the ATM (57%). This indicates a barrier in place for those without a home computer, having limited choices in their financial management. Those older adults who have access to technology at home have a choice about which service delivery method they prefer to use.

A continuum of acceptance and responsiveness to financial technologies was apparent in understanding how life course influences gendered relationships to technologies.

A significant relationship was also found between having a computer at home and satisfaction with financial technology, χ^2 (6, N=182)= 30.92, p< 0.001. With six degrees of freedom indicated in this sampling distribution, this chi-square result of 30.92 is greater than the significantly necessary 22.46, indicating a relationship at the 0.000 level. Examination of the cell frequencies revealed that a significantly greater proportion of respondents who own a home computer (60%) are very satisfied with their use of financial technologies in their banking routines. A greater number of older adults than expected who do not have a computer at home indicated dissatisfaction with their banking (5% compared with the 2% of those who have a computer at home).

When asked to expand and explain reasons for this choice a number of common themes were apparent. Qualitative analysis of the survey comments to this question revealed themes discussed in the precious section: perceived lack security and increased risks, desire for social interaction, and lack of affiliation and comfort with machines to be strongly associated with a personal choice to prefer to use the teller. These non-computer user comments are common to other studies on use of computers by older adults (Czaja & Sharit, 1998; Hawthorn, 2000; Morris, et al., 2005; Saunders, 2004; Wagner, et al., 2010).

The above relationship was further illuminated by the association found between amount of home computer use and banking service delivery preference, χ^2 (2, N=182)= 7.75, p= 0.021. 81% of those respondents who described their home computer use as monthly (less frequent) preferred to use the ATM over the in person teller. This was

compared to those who more frequently utilize their home computers being more evenly distributed in preference (under 56%). In the open ended explanation described by respondents, many regular computer users indicated a slight affiliation to the ATM or indicated having no preference, making their choice of service delivery more on convenience, "It's not a preference for me. The choice is made by the length of the lines, I go for convenience." Once a technology is made accessible to some older adults, perceived usefulness is attained which creates options for mitigating an older adult's interaction with the digital economy. In response to the question about any future changes to technology adoption expected one participant indicated, "No because my needs are basic." Some respondents perceived that "the range of services offered over the Internet was much narrower than the range that could be sourced through in person interaction", perceiving that the range of services was perceived to be limited. One gentleman commented,

> We (he and his wife) adopt what technology we can see a need to- what will benefit our lifestyle. If we don't need it, then why would we use it?

Perceived usefulness has not been demonstrated to these individuals. Understanding the older adults desire to know the benefits of a given financial technology has implications for how financial institutions go about offering this service to older customers.

The concept of autonomy was influenced by respondents' gendered perception of needs. A relationship was discovered between service delivery preference and perception of technology in providing autonomy in aging, χ^2 (2, N= 182)= 9.91 p=0.01. With two degrees of freedom indicated in this sampling distribution, this chi-square result of 9.91 is greater than the significantly necessary 9.21, indicating a relationship at the 0.01 level.

Examination of the cell frequencies revealed that 74% of those who prefer to use the ATM over the in person teller regard technology in general as a helpful tool for older individuals to remain autonomous. Among those respondents who indicated a preference for using an in person teller over the ATM, significantly less people than was expected viewed technology as instrumental in independent aging. Examination here of the gendered tension reveals that men are more likely to view technology as helpful in remaining autonomous in aging. Women, the gender less likely to be receptive to using the ATM, are at a disadvantage here because of their lack of exposure to technology.

Research in the United States provides a picture of the current Internet gender climate. The PEW Internet and American Life project is a valuable resource. Information in a report publish in 2005 reveals that younger women are more likely than younger men to be online; older men are more likely than older women to be online: 86% of women ages 18-29 are online, compared with 80% of men that age. On the other hand, 34% of men 65 and older use the Internet, compared with 21% of women that age.

A significant relationship was found between frequency of use of computers and comfort level with them, χ^2 (4, N= 182) = 84.17, $p<0.001$. With four degrees of freedom indicated in this sampling distribution, this chi-square result of 84.17 is much greater than the significantly necessary 18.47, indicating a relationship at the 0.000 level. An examination of the cell frequencies revealed that a greater number of older adults than expected utilize their computers daily. Ninety percent (90%) indicated a high comfort level with the machine. Those who indicate only using their computers monthly, however, were less comfortable with 62% responding that they were uncomfortable with

the technology. This relationship can be extended to the use of other technologies, such as the ATM, useful in managing older adults' finances.

In understanding the relationship between older adults and financial technologies, efforts must be placed on examining the perceived usefulness of a given technology. Perceived usefulness is a key factor to be mindful of when thinking about marketing and training older adults in using technologies.

Social Comparisons

The life course transitions and roles of women are central to developing an understanding of the importance of social comparison in perception of technology. Social comparison, looking to others for confirmation of our actions, is a well-documented theory of social behaviour and psychology outside of the context of aging (Chou & Chi, 2001; Michinov, 2007; Snyder, 1974). Study into the relevance of this theory amongst the aging population has been emerging in the gerontological research since Heidrish and Ryff 's (1993) investigation into the effects on personal wellbeing of "upward and downward" comparisons among older women. Further research has been conducted to support the notion that social comparison is an important activity for older adults in their creation of self-concept (Robinson-Whelen & Kiecolt-Glaser, 1997). Venkatesh and Morris (2008) have noted the importance of subjective norms in determining technology adoption decisions among women. Peer pressure and superiors' influence have been shown to be determinants of subjective norm in technology adoption contexts for women (Venkatesh & Morris, 2008). I have found this to be relevant to financial technologies. One woman, in discussing her adoption of financial technology discussed her embarrassment at her

lack of knowledge of the machine,

> I just decided that I needed to master it (her debit card). I looked around at the people using it when I would be in line at say the grocery store and saw some women who looked to be older then I am, (laughs) yes it's possible, and I decided that I had no excuses. Generally I am a fairly stubborn woman. Once I put my head to something, I make it happen. And in this case, I was fed up with myself, like I said it's embarrassing when you haven't really entered the twenty first century.

Understanding the complexity of the social relationship and the role that familial interactions play on our perceptions, the role of marital status and partnership on perceptions of older adults towards technology was evaluated. In evaluating the relationship between marital status and home computer ownership chi-square results revealed, χ^2 (6, N= 182)= 12.65, p=0.05. With six degrees of freedom indicated in this sampling distribution, this chi-square result of 12.65 is greater than the significantly necessary 12.59, indicating a relationship at the 0.05 level. Comparisons of the cell frequencies revealed that amongst marital status, the greatest proportion of respondents who are married (80%) own a home computer.

In the interviews conducted, female respondents of varying marital status indicated differences in managing their finances. Single, never married women were likely to have had experience with technology in their social roles prior to retirement and indicated that they would not feel intimidated in trying out a new technology to assist them with their finances. In contrast, widowed women indicated that they are very mindful of their finances. This took the form of protectionism over their money and an unwillingness to change their routine, as they did not feel security in trying something

new. They were content with their banking habits and didn't know enough about the other options to make a change,

> What I don't know can't hurt me. I am comfortable with my routine. I am not in a financial position to take risks and try out the latest fad… visiting the in teller at the bank makes me feel secure. They know my face and I feel that they would be helpful if I had any trouble with my banking. Machines can't give you that protection.

Research by Kahnah and Kahana (2003) indicated that although the life course plays a role in the shaping of an individual, people can be "proactive" in their response to situations. We respond to the world and can minimize stress by adapting to change and being able to plan ahead. In my interviews, this theme was a prevalent narrative. One older woman spoke of her role as a caregiver and how this played into rearranging the financial roles in the household. Her husband has dementia, and previous to his decline had been an accountant very comfortable with managing the family finances. In this instance, technology proved to be a useful tool for the transition of roles. She was able to help her husband feel that he had some purpose in the administrative household tasks, but she convinced him that by allowing her to learn to use online banking it could be more convenient for them and he could be maintain his role by being involved, watching the banking process even when he did not want to leave the house any longer,

> My husband in the last few years in his life, he was losing his memory. So what I noticed was that he wasn't paying the Visa bills on time. So I talked him into letting me pay the bills on line because it would save us money. He would get me to print off the transactions so that he could still look over the statements. So I guess you could say that I just started to do it for myself and as well as him. I just did what I had to do. When life throws something like dementia at you, you can't stop to ask why, you just have to adapt… and so I went to Mohawk and took a computer course. I was really getting good at the computer; I understood it and so he (husband) would say to me some times "transfer some money over so that we don't

> have to go over to the bank." I guess I just gradually got more and more into doing the banking on line.

From a life course perspective this is can be explained as an example of the role transitions and age related tensions that couples experiences. Technology is a method useful to maintain balance in a relationship, keep an appearance of independence, over seeing what needs to get done to ensure that tasks are being completed properly. In thinking about this in the context of financial management, we see how encompassing these transitions can be for older adults. Intersectionality is helpful in understanding the multidimensional aspects the aging process in relationship to digitalizing institutions. Understanding the continuum of usefulness and responsiveness to technology adoption is necessary in evaluating the complexity of technology adoption in old age.

Further examination of the influence of marital status revealed a relationship between marital status and bank service delivery preference, χ^2 (3, N= 182)= 9.58, p=0.022. An examination of the cell frequencies revealed that more never married individuals then expected (72%) indicated a preference for utilizing the ATM over the personal teller. This relationship was also found among divorced or separated individuals (77%). The opposite relationship was found among widowed individuals; more widow(er)s indicated a preference for utilizing the in person teller (60%). Married respondents were least divisive in their service delivery choice, an almost even split between service delivery methods.

One dimension on which the current cohort of older women is clearly disadvantaged compared to men is formal education (Knodel & Ofstedal, 2003).

Although this trend is currently shifting in younger generations, it is an important demographic to understand when studying the current older segments of our population. In our work oriented culture, men belonging to the cohort of the older adults in my study generally draw their understanding of themselves and sense of power from their role in their careers. Research conducted by Solomon and Szwabo (1994) have provided us with an understanding of the many social factors that contribute to the different aspects of an individual's personality. It must be understood that these factors are based on a man's age cohort and come into play when he must assert his manhood (Solomon & Szwabo). At work, an individual's gendered identity continues to develop, setting patterns in place for retirement. It is this development produces a man's sense of pride and power. One woman I interviewed described this gendered relationship to pride and success when discussing technology adoption in her social network,

> Older woman my age are going into it (technology) more than their husbands… older men don't like to not be good at something, but the woman have always had to *just do it*…Well, it is just in our nature. We (women) have had to adapt and be flexible to changing household circumstances, raising children is all about that… you can't make it through that without learning to adapt and accept situations… you learn to just do the best you can. You know that you will be the job done, because in many cases at home, it just has to be.

Gender distinctions are socially constructed. One way "gender matters" is in the social roles and relationships at different stages of their lives that society deems as normal (Binstock & George, 2001). In understanding gender as a social construct it is important to unpack the meanings and associations with both male and female life course development.

In order to understand the meaning of financial technologies for widows, it is important to discuss the adoption of the social role of the spouse as an individual enters into marriage. Each person must adjust to their new role and shared new social reality (Berger & Kellner, 1970; Utz et al., 2004). Familial roles are defined and routines are created. Spousal death represents a severing of the emotional attachment to one's life partner (Bowlby, 1980). Holmes and Rae (1967) characterize widowhood as one of the most distressing of all life events and note that however impactful, relatively little is known of the social consequences of this event in the literature. It is ecological, causing an individual to have to reconfigure all of their daily routines, decisions, and renegotiate a new social order while dealing with grief. In discussing this, an older woman that I interviewed explained,

> I am concerned that I might make a mistake on the machine since I have only had to worry about banking since my husband died two and a half years ago.

This was also discussed briefly from a male perspective,

> I just go about my routine. My wife was primarily responsible for all of the day to day stuff (banking included here) but now… well I just like that I live close to the plaza where I can get my errands done, my groceries, banking, you know, its all right there. Pauses, I don't really think about it… I just do it I suppose.

Managing one's own finances is an important component of maintaining autonomy and as one ages and experiences transition of roles, such as widowhood reception to technology adoption was communicated in a number of ways. As described above, some respondents communicated this as a need to move on and adopt a new routine. Others discussed a

disinterest in risk taking with money now that they had to make a change in their lifestyle. Older adults communicated the awareness of their financial positions.

Intergenerational Influences

The experience of gender follows through generations and influences perspectives on intergenerational activity. Older people communicated that they find it difficult to interact with younger generations because the technology gets in the way. Their life course has not brought them through a time of this form of interaction and so it appears to be alien to them, where there is a perception that younger individuals in western society view and utilize technology as second nature. A grandmother I interviewed highlighted this in her discussion of technology in her life,

> Technology provides younger people with a distraction. When my daughter picks me up to go watch my grandson's hockey game he will say "Hi Grandma" without looking up from his device, whatever its called. I think about how this separates generations, you know, instead of bringing them together.

Further research on the role of gender and intergenerational perspective of the influence of technology should be conducted. In my work, those who discussed intergenerational influences were female, but the sample size was large enough to only suggest the gendered influence, which displayed a continuum discussed among respondents. Others who I interviewed differed in from the perspective of technology being a barrier, highlighting the positive aspects of technology allowing for social networking. The need to communicate with relatives overseas and how the computer has allowed this interaction to occur with increased speed and efficiency. The majority of participants

communicated a balanced opinion of technology in regards to social and intergenerational uses.

The invention of the credit card was highlighted by respondents in my study as a turning point in not only the technological revolution in the financial sector, but in changing society in general. Some interviewees discussed credit cards as essentially a gateway into their experience with technology, having been unaccepting of technology in their earlier encounters with the financial sector, many older adults find themselves allured to the credit card. Upon reflection many were able to describe this adoption of the credit card as a pathway to other incorporation of technology in managing their personal finances,

> I enjoy the freedom that my credit card provides me… the teller explained to me that I could pay my bill over the ATM, the phone, or a computer. So I thought, why not? And a nice lady walked me through the steps to use the ATM. Now I can be flexible, use the machine when I am in a rush, or go to the teller when I want to be more social.

There was a continuum of receptiveness to credit card technology. Other respondents mentioned this as a detriment to our society. Even if they utilized the cards, they discussed how this was not the way that people should interact with their money. Here intergenerational ideas of generativity, as described by Villar (2011) were highlighted. Based on the work of Erikson (1968; 1982) this term conceptualizes a developmental stage at end of life concerned with a need to guide and ensure the wellbeing of future generations. Older adults discussed remorse over a society that is greed based. Spontaneous explanations of desire for a better world for their children and grandchildren were common,

> I worry for the economy that we are leaving behind for younger generations. I think about easy it is to spend on a plastic card, how carefree technology makes it to accumulate debt and I just pray that I have taught my children enough about the way the system works…

One woman I interview elaborated on this idea. Noting that finances should be carefully planned, the idea of being able to purchase something on impulse, while an attractive option, changes people's relationship to their money,

> We live now in such a rushed society. No one knows how to save anymore. You can't tell the haves from the have nots, and I don't know if that's such a good thing. Everyone needs to show off and keep up. So they can buy everything on credit, who knows if they have a second mortgage or not? And look where that problem got the U.S. not so long ago. I'm not kidding, it could happen here to. People spend beyond their means.

Even the meaning of money, is evolving, as people can digitally access their finances currency is moved from the physical realm to that of the virtual. Older adults experience this change in varying ways and express their perceptions of the digital evolution in their mindfulness for future generations.

The intersection of gender and age has been communicated to be multi-dimensional. The perceptions of older adults of financial technologies are influenced by familial roles and life transitions. Life experiences inform receptiveness to the digital evolution through the concept of perceived usefulness and social structures. Not only is financial technology conceptualized in this way, but perceptions of technology in general should be understood from a life course perspective.

CHAPTER EIGHT: CONCLUSION

As stated in the introduction of this paper, technological advancement has an ecological effect on our society. One of the recurring themes in this study is that a life course perspective is necessary if we are to adequately understand the complexity of older adults' interactions with increasingly digitalizing institutions. Furthermore, the findings of this study point to the importance of the individual narrative in relating the often complicated relationship and history that people have with technologies, especially those technologies that they are dependent upon, ironically, for their own autonomy. Personal roles, life transitions and the considerable societal influences of cohort effects all contributed to making sense of information contributed to by respondents in this study. Through this study, themes of age perceptions, risk and trust, and intersections between gender and age were revealed to be relevant to the understanding of older adults' perceptions of financial technologies.

The construct of age was found in my study to center on three main concepts: perceptions of age categorization, older adult self-stereotyping, and ageism. Tensions surrounding financial technologies and age were discussed around the idea of 'keeping up with the times'. Both cohort influences and an individual's experience with lifelong learning influence older adults perceptions' of self, abilities, and stereotyping. Ageism was present both on an individual level and in the barriers of technological adoption by institutions.

Supporting previous scholarship in older adult and technology studies, interactions with financial technologies were influenced by perceptions of risk and levels of trust. Life

course experiences underscore an older persons' continuum of tensions and responsiveness in adopting financial technologies. Risk is understood in this study as a multidimensional construct, categorized into three useful forms of risk: social, financial, and time.

Intersections between gender and age were revealed to be an important lens in understanding the connection between age and gender in financial technology perceptions. This theory supports an overarching perspective of life course well as it values an interdisciplinary approach to research. The homogeneity of the respondents in categories such as socio-economic status, race, and sexuality allowed for an analysis to be conducted focusing on gender and age as the marginalizing factors. This highlighted the importance in understanding familial role and work in perceptions of financial technologies. Older women in my study, influenced by cohort effects, were at a disadvantage in adopting financial technologies. This stemmed from exclusion experienced in workplace settings outside of the home. Perceptions of usefulness and need were also important in understanding the relationship between older adults and technology. Intergenerational tensions arose and were discussed in terms of generativity among older adults.

Throughout this study, it was an interesting process of evaluation to separate financial technologies from technology in general. Older adults discussed their experiences with financial technologies in tangent to technology in a broader sense. Life course experiences were clearly evident in the perceptions of older adults towards technology in general.

Human beings have habitually gathered in public places for centuries, from the forum of ancient Rome, to the sidewalk cafes in Paris (Cheang, 2002). Some scholars, such as Oldenburg (1999: 16) use the term ‘‘third places’’ to describe public settings ‘‘that host the regular, voluntary, informal and happily anticipated gatherings of individuals beyond the realms of home and work’’. An important characteristic that makes third places suitable for such informal and voluntary gatherings is the option that people have to be as anonymous, impersonal, or social as they choose to be. This choice is the crucial component here. In my work, it was evident that the key to understanding the older adults' perspectives was to listen for their perceptions of choice. In interacting with technology, influenced by an individual's life course, older adults need to be able to articulate their decision or sense of participation and self-regulation. Without this sense of self, defenses against change, such as technological advancement are built. Defense takes many forms. In my work this was communicated as narrowly focused perceptions of risk, locust of control. Furthermore, third places are relatively inviting places to be in not just because of the informal and spontaneous nature of the setting, the nature of the social interaction is also nonobligatory.

Currently there has been some push back by the big banks to reestablish themselves in the public sphere, to become places of gathering once again. Incorporating technology into the space to draw people in (the use of i pads for example), offering lounge style banks where discussions of financial matters can take place over casual conversation and modern design esthetic, and hiring friendly open to communication staff to service customers are examples of this. Further research should build on the findings of

this study to understand the meaning of the bank as a public space. Understanding the bank as a location for social interaction, intergenerational activity, and autonomy, research is needed to appreciate the effect of the digitalization of institutions (such as the bank) on the quality of life of older adults.

The gerontology literature suggests an approach to successful aging based on the work of Baltes and Carstensen (1996). The idea of older adults choosing to select, compensate, and optimize in order to adjust to the process of aging is useful to understand in the context of adaptive aging. It is interesting to imagine how the upcoming cohort of older adults, the Baby Boomers', will interact within the digital economy. Their generally higher levels of education and societal pressure towards lifelong learning would offer interesting cohort comparisons in perceptions of financial technologies.

It is hoped that this research will aid financial institutions in understanding technology receptiveness among older clients. Mindful of a continuum of use and the need for usefulness to be clearly portrayed to older adults, training and accessibility can be adapted.

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APPENDIX A

Survey of Seniors' Perceptions of Banking and Technology

Since the introduction of the Automated Teller Machine (ATM) in the late 1960's the banking sector has experienced exponential growth in the use of technological advancement in serving its customers.
The purpose of this survey is to examine Canadian seniors' use of technology in their banking and their perceptions of change in banking technologies and service provision.

'Banking technology', for the purposes of this survey, refers to be any banking services that do not involve person-to-person contact (i.e. ATM, tele-banking, online, etc.).

Thank you for taking the time to complete this survey. Please **circle** the appropriate responses in the questions below, or fill in the blank provided.

If you feel uncomfortable answering a question, or would prefer not to answer a particular question, please skip to the next question.

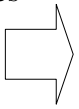
Section A: Background Information

1) What is your gender?
- ( ) Male
- ( ) Female

2) What year were you born?
19_____

3) What is your present marital status?
- ( ) Married/common law
- ( ) Divorced/Separated
- ( ) Widowed
- ( ) Never Married

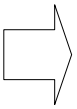
4) Do you have children?
- ( ) No
- ( ) Yes



If yes:
How many children do you have? _____
How many sons? _____
How many daughters? _____

5) Do any of your children live nearby (within a one-hour drive)?

( ) Yes
( ) No



If yes:
How many sons live nearby? _____
How many daughters live nearby? _____

6) What is your current employment status?

( ) Employed full-time
( ) Employed part-time
( ) Retired
( ) I was not in paid employment
( ) Other: Please elaborate

7) What is your present or most recent occupation? _____

8) In your present or most recent occupation, how would you describe the frequency of your computer use?

( ) Often
( ) Sometimes
( ) Never

Comments:

9) Do you have a computer in your home?

( ) No
( ) Yes

If yes, how often do you use your home computer?

( ) Very often (daily)
( ) Somewhat often (weekly)
( ) Not very often (monthly)
( ) I do not use the home computer.

If no, do you think you would use a computer if you have one in your home?

( ) Yes
( ) No
( ) Not sure

10) How would you describe your present level of knowledge about computers?
( ) I feel very knowledgeable.
( ) I feel somewhat knowledgeable.
( ) I feel I have limited or no knowledge.

11) How would you describe your present comfort level in using computers?
( ) I feel very comfortable using a computer.
( ) I feel somewhat comfortable using a computer.
( ) I do not feel comfortable using a computer.

Section B: Banking Routine

1) What banking institution(s) do you bank with?
( ) TD Canada Trust
( ) Scotiabank
( ) CIBC
( ) BMO
( ) Royal Bank
( ) Other_____

2) If you bank at more than one banking institution, which is your primary banking institution?

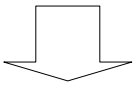
( ) TD Canada Trust
( ) Scotiabank
( ) CIBC
( ) BMO
( ) Royal Bank
( ) Other_____

3) Do you consider yourself loyal to your primary banking institution?
( ) Yes
( ) No

4) How many years have you been banking with this institution? _____

5) Over the years, have you ever switched banks?

( ) No
( ) Yes



If yes, why?

_____

If no, why not?

_____

6) How often do you frequent your banking branch?

( ) More then once a week
( ) Once a week
( ) Twice a month
( ) Once a month
( ) Other _____

7) Please describe your banking routine.

_____

_____

_____

_____

8) What services have you accessed from your bank in the last 90 days?

( ) In Person Teller
( ) Online banking
( ) Telephone banking
( ) In person customer service representative
( ) Debit Card
( ) Online investing (Stock management)
( ) ATMs
( ) Banking Apps (on cell phones or iPods)
( ) In person financial advisor
( ) Other _____

9) What do you enjoy most about your banking experience?
(Please choose all responses that apply)

( ) Proximity to home
( ) Efficiency
( ) Comfort
( ) Socializing
( ) Accessibility/Ease of use
( ) Feeling of security
( ) Friendly/helpful bank staff
( ) Other_____

Section C: Service Provision

1) How well do you feel your bank understands your needs and addresses them with services?

( ) Very well
( ) Somewhat well
( ) Not very well

2) How would you describe the level of services provided by your bank over the past few years?

( ) The level of service has improved.
( ) The level of service has remained about the same.
( ) The level of service has declined.

If you feel the level of service has improved, please explain why _____

_____ .

If you feel the level of service has declined, please explain why _____

_____ .

3) How would you rate the accessibility of technology (ATMs, online tools, etc.) provided by your bank?

( ) Very accessible
( ) Somewhat accessible
( ) Not very accessible

4) Do you prefer to interact with a teller or use an ATM machine at the bank?

( ) Teller
( ) ATM
Please explain why _____

_____ .

5) Have you been offered assistance by your banking institution with utilizing the technology they provide?

( ) Yes
( ) No

6) How would you rate your level of knowledge of the banking technology available for your use?

( ) High
( ) Medium
( ) Low

7) How interested are you in utilizing new technology involved with banking?

( ) Very interested
( ) Somewhat interested
( ) Not interested

8) Please choose all technology you use regularly for your banking:

( ) Internet
( ) Online banking
( ) Telephone banking
( ) Debit Card
( ) Online investing (Stock management)
( ) ATMs
( ) Banking Apps (on cell phones or iPods)
( ) Other _____

9) Is there anything that prevents you from making more use of any of the above banking technology? Please explain.

_____

_____

_____

_____

_____ .

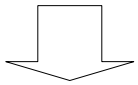
10) For any technology that you are currently not using, please choose those that you would be interested in learning more about or using in your own banking routine:

( ) Internet
( ) Online banking
( ) Telephone banking
( ) Debit Card
( ) Online investing (Stock management)
( ) ATMs
( ) Banking Apps (on cell phones or iPods)
( ) Other _____

Section D: Assistance with Banking

1) Do you require any assistance with your banking?

( ) No
( ) Yes



If yes, please explain what you need assistance with?

_____

If yes, who do you look to for help with banking? I

_____

2) Are there any barriers to your use of new technology for banking?

( ) No
( ) Yes

If yes, what are they?

_____

3) Are you aware of any assistance offered by your bank to make new technologies accessible to you?

( ) Yes
( ) No

If yes, what are they?

_____

4) Do you have any concerns regarding security and new banking technology?

( ) Yes
( ) No
Please elaborate

5) Do you have any concerns with increased technological advancement in the banking sector?

( ) Yes
( ) No
Please elaborate

6) Do you perceive technology as a helpful tool to allow individuals autonomy and independence as they age?

( ) Yes
( ) No
Please elaborate

7) Looking forward, do you see your use of technology changing in regards to your banking routine?

( ) Yes
( ) No
Please elaborate

8) Overall, how satisfied are you with your use of technology in your banking?

( ) Very satisfied
( ) Somewhat satisfied
( ) Not satisfied

9) What do you feel is the greatest benefit for you of the technology now available for banking?

10) What do you feel is the greatest challenge for you with the technology now available for banking?

11) Is there anything else you would like to tell us about your own experiences with technology for your banking?

Thank you for taking the time to complete this survey. Discussing banking routines may cause some respondents to feel anxious or uneasy. If you would like some support with your banking routine please contact your preferred banking branch for assistance with banking technology:

TD Canada Trust	1 866 222 3456
Scotiabank	1 888 615 8991
CIBC	1 800 456 2422
BMO	1 877 225 5266
Royal Bank	1 800 769 2511