Tap, Play, Pay: Gamification and Mobile Payment Adoption in Older Adults

Zachary Robichaud* (Corresponding author)
School of Retail Management, Toronto Metropolitan University, Toronto, Ontario, Canada
55 Dundas St W, Toronto, ON M5G 2C3
Email: zachary.robichaud@torontomu.ca
Phone: +16478880211

Jenna Jacobson
School of Retail Management, Toronto Metropolitan University, Toronto, Ontario, Canada
55 Dundas St W, Toronto, ON M5G 2C3
Email: jenna.jacobson@torontomu.ca

Hong Yu
School of Retail Management, Toronto Metropolitan University, Toronto, Ontario, Canada
55 Dundas St W, Toronto, ON M5G 2C3
Email: hongyu@torontomu.ca

Tap, Play, Pay: Gamification and Mobile Payment Adoption in Older Adults

Abstract:

As retail and financial ecosystems become increasingly digital, understanding how older adults adopt and engage with mobile payment technologies has become increasingly important. Drawing on Life Course Theory, this study explores mobile payment adoption among older adults as an evolving process rather than a single behavioural decision. Sixteen semi-structured interviews were conducted with Canadian adults aged 63–80. Reflexive thematic analysis revealed a dynamic adoption journey captured in the Ageing Technology Adoption (ATA) Framework, comprising four phases: identity and motivation, competence development, use and engagement, and sustained engagement. Findings highlight older adults' adaptability, agency, and capacity for ongoing learning.

Keywords:

Gamification; Mobile Payment; Qualitative; Older Adults; Technology Adoption

Toucher, Jouer, Payer : La gamification et l'adoption des paiements mobiles chez les personnes âgées

Résumé:

Alors que les écosystèmes du commerce de détail et des services financiers deviennent de plus en plus numériques, il est essentiel de mieux comprendre comment les personnes âgées adoptent et utilisent les technologies de paiement mobile. S'appuyant sur la théorie du parcours de vie (Life Course Theory), cette étude examine l'adoption des paiements mobiles chez les personnes âgées comme un processus évolutif plutôt qu'une simple décision comportementale ponctuelle. Seize entretiens semi-dirigés ont été réalisés auprès d'adultes canadiens âgés de 63 à 80 ans. Une analyse thématique réflexive a révélé un parcours d'adoption dynamique, conceptualisé dans le cadre du modèle Ageing Technology Adoption (ATA), composé de quatre phases : identité et motivation, développement des compétences, utilisation et engagement, ainsi qu'engagement durable. Les résultats mettent en évidence l'adaptabilité, l'autonomie et la capacité d'apprentissage continu des personnes âgées.

Mots-clés:

Gamification; Paiement mobile; Recherche qualitative; Personnes âgées; Adoption des technologies

Practical Contributions

This study offers actionable insights for retailers, financial institutions, mobile payment providers, and technology designers seeking to support technology adoption and sustained engagement among older adults. The findings suggest that organizations should move beyond a one-size-fits-all approach and instead recognize mobile payment adoption as a dynamic process shaped by evolving needs, experiences, and life circumstances.

During the early stages of adoption, organizations should clearly communicate the practical benefits of mobile payments, emphasizing convenience, efficiency, security, and personal relevance. As users progress through the adoption journey, support mechanisms that foster confidence and competence become increasingly important. Accessible onboarding processes, intuitive interfaces, clear instructions, opportunities for self-directed learning, and intergenerational support resources can help older adults build the skills and self-efficacy necessary for continued engagement.

The findings further highlight the importance of designing systems that minimize cognitive burden while maximizing transparency and trust. Clear transaction feedback, visible security features, predictable system behaviour, and effective communication regarding updates and changes can reduce uncertainty and support long-term use. Designers should recognize that adoption is not a one-time event; older adults may periodically reassess their technology use as personal needs, health circumstances, and technological environments evolve.

With respect to gamification, the findings suggest that low-friction and value-oriented features, such as rewards programs, loyalty points, cashback incentives, and personalized offers, are more effective than highly competitive or game-like mechanisms. Older adults generally valued features that provided tangible benefits and enhanced everyday shopping experiences rather than entertainment-driven engagement.

Tap, Play, Pay: Gamification and Mobile Payment Adoption in Older Adults

1. Introduction

Digital payment technologies have become central to contemporary retail and service ecosystems, enabling faster, more convenient, and increasingly frictionless transactions (Dahlberg et al., 2015; Kar, 2021; Varadarajan et al., 2024). Within this landscape, mobile payment transactions conducted via smartphones and digital wallets are rapidly becoming normalized across both online and physical retail environments.

As these systems become embedded in everyday consumption, ensuring equitable access and participation is critical. This is particularly relevant for ageing populations, who represent a financially significant yet underexamined demographic in digital payment research (Nunan & Di Domenico, 2019; Eisend, 2022). Older adults may face distinct challenges related to digital confidence, trust, usability, and cognitive effort, highlighting the need for a more holistic understanding of their technology adoption experiences (Schroeder et al., 2023).

In response to these gaps, this study adopts a Life Course Theory perspective to examine how older adults adopt and engage with mobile payment technologies over time. Rather than treating adoption as a single behavioural outcome, the study conceptualizes technology engagement as an evolving process shaped by personal agency, social relationships, learning experiences, changing life circumstances, and broader technological transformations. Particular attention is given to the role of gamification and reward-based features within this adoption journey. Accordingly, this study addresses two research questions:

RQ1: How do older adults adopt and engage with mobile payment technologies across later life?

RQ2: What role do gamification features play in supporting sustained engagement with mobile payment systems?

2. Literature Review

2.1 Digital & Mobile Payments

Mobile payment technologies have become an increasingly important component of contemporary retail and service ecosystems. By enabling consumers to complete transactions through smartphones and digital wallets, mobile payments offer convenience, efficiency, and flexibility across both online and physical shopping environments (Dahlberg et al., 2015; Kar, 2021). Research has demonstrated that mobile payments can enhance transaction speed, reduce friction during the purchase process, and improve perceptions of service quality (de Kerviler et al., 2016; Goldfarb & Tucker, 2019).

Despite their growing prevalence, adoption remains uneven across demographic groups. Older adults are often underrepresented in digital payment research despite representing a growing and economically significant segment of the population (Nunan & Di

Domenico, 2019; Eisend, 2022). Existing studies suggest that concerns related to trust, privacy, perceived risk, usability, and digital confidence may influence older adults' willingness to engage with mobile payment technologies (Mubarak & Suomi, 2022; Schroeder et al., 2023). As mobile payments become increasingly embedded within everyday retail participation, understanding how older adults adopt and engage with these technologies has important implications for digital inclusion, consumer well-being, and marketplace participation.

2.2 Life Course Theory, Older Adults, and Technology Adoption

Life Course Theory provides a useful framework for understanding how technology adoption evolves across the lifespan (Elder, 1994; Elder et al., 2003). Rather than viewing technology adoption as a single behavioural decision, Life Course Theory emphasizes that behaviours are shaped by the interaction of individual agency, social relationships, historical context, and major life transitions (Elder et al., 2003). Key principles include human agency, linked lives, timing of life events, and the influence of broader social and technological change.

Within the context of ageing and technology adoption, Life Course Theory suggests that engagement with digital technologies is influenced not only by current needs but also by accumulated experiences, prior learning, changing social roles, retirement transitions, health-related changes, and evolving support networks. Older adults draw upon previous experiences and social relationships when evaluating new technologies, while simultaneously adapting their behaviours in response to changing circumstances.

This perspective challenges deficit-based assumptions that portray older adults as passive or technologically resistant (Nunan & Di Domenico, 2019; Eisend, 2022). Instead, it highlights their capacity for adaptation, learning, and self-directed engagement. Applying Life Course Theory to mobile payment adoption allows for a more dynamic understanding of how adoption unfolds, evolves, and is sustained over time.

2.3 Gamification

Gamification refers to the use of game-design elements within non-game contexts to encourage participation and engagement (Deterding et al., 2011). Within financial technologies and mobile payment systems, gamification frequently takes the form of loyalty programs, points systems, rewards, achievement badges, personalized offers, and spending insights.

Prior research has demonstrated mixed findings regarding the effectiveness of gamification. While rewards and incentives may encourage initial participation, more complex game-like elements do not necessarily produce sustained behavioural change (Toda et al., 2017; Cermak-Sassenrath, 2022). Furthermore, relatively little research has explored how older adults perceive and engage with gamified financial technologies.

Given the growing integration of reward-based systems within digital payment platforms, understanding the role of gamification among older adults is increasingly important. Rather than assuming that all users are motivated by the same game mechanics,

researchers must consider how motivations, preferences, and life experiences influence the perceived value of gamified features.

3. Methodology

This study employs a qualitative research design informed by abductive reasoning and reflexive thematic analysis (Earl Rhinehart, 2021; Proudfoot, 2023). The research is guided by Life Course Theory (Elder et al., 2003), which provides a framework for understanding how technology adoption is shaped by personal histories, social relationships, life transitions, and individual agency. Sixteen semi-structured interviews were conducted with Canadian adults aged 63 to 80 who actively used mobile payment technologies. Interviews explored motivations for adoption, learning experiences, perceptions of trust and security, daily use practices, gamification features, and reflections on future engagement. Through iterative analysis, findings were synthesized into the Ageing Technology Adoption (ATA) Framework, a dynamic and recursive model of mobile payment adoption among older adults (see Figure 1).

Participants were recruited through snowball sampling (Noy, 2008), and interviews were conducted via Zoom, recorded, and transcribed. The interview guide explored themes including digital literacy, platform engagement, gamification, trust, and future use. Data were analyzed iteratively, resulting in the development of a multi-phase framework.

Table 1: Descriptive Statistics

Name	Age	Gender	Household Size	Employment Status	Brand of Smartphone	Number of Cards	Type of Cards	% of Total Purchases with Mobile Payments
R1	65	W	3	Retired	Apple	3	V, M, A	30%
R2	75	W	2	Retired	Apple	3	V, A, D	40%
R3	68	W	1	Retired	Apple	1	V	25%
R4	68	W	2	Part-time	Apple	1	V	25%
R5	63	W	2	Part-time	Apple	3	V, D, D	25%
R6	72	M	2	Retired	Apple	2	V, A	10%
R7	70	M	2	Retired	Apple	1	D	10%
R8	71	W	1	Retired	Samsung	1	V	10%
R9	80	M	2	Retired	Apple	3	M, V, D	97%
R10	64	W	2	Retired	Apple	2	M, M	90%
R11	64	M	2	Retired	Apple	4	V, M, A, D	29%
R12	65	M	3	Part-time	Apple	3	V, A, D	31%
R13	65	M	3	Retired	Apple	1	V	30%
R14	63	M	2	Full-time	Apple	5	V,	75%
R15	64	M	2	Retired	Apple	1	M	27%
R16	63	M	2	Retired	Google	1	M	90%

*Type of Card: V = Visa, M = Mastercard, A = Amex, D = Debit Card (Bank Card)

4. Results & Discussion

The findings are organized around the Ageing Technology Adoption (ATA) Framework (see Figure 1), which conceptualizes mobile payment adoption as a dynamic and recursive process shaped by agency, life-course experiences, social relationships, and changing technological contexts. Rather than progressing through a strictly linear sequence, participants frequently revisited earlier phases as technologies evolved, new challenges emerged, and personal circumstances changed.

Phase 1: Identity, Motivation, and Purpose: The adoption journey begins with the establishment of personal relevance and purpose. Participants evaluated mobile payment technologies based on how well they aligned with their values, goals, lifestyles, and everyday routines. Convenience, efficiency, independence, and perceived usefulness emerged as primary motivators (Mitzner et al., 2010; Berkowsky et al., 2017). Social influences, including family members, friends, and broader societal shifts toward contactless payments, also shaped initial adoption decisions. Participants demonstrated considerable agency in determining whether mobile payments aligned with their personal needs and preferences.

Phase 2: Self-Efficacy, Competence, and Learning: Following initial adoption, participants entered a period characterized by learning, experimentation, and confidence building. Competence was developed through repeated use, self-directed learning, intergenerational support, and trial-and-error experiences (Czaja et al., 2006; Desai et al., 2022). Family members often played an important role in facilitating adoption by providing technical assistance and reassurance. As participants gained experience, they reported increased confidence in their ability to navigate mobile payment systems and troubleshoot minor challenges.

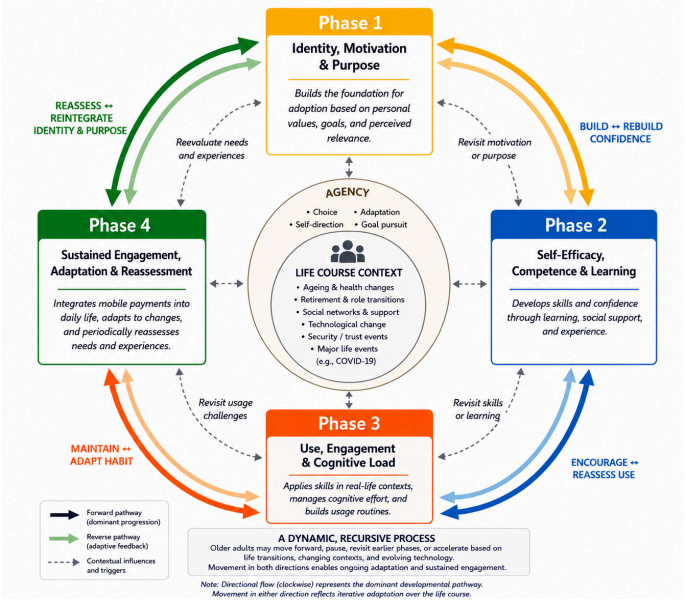
Phase 3: Use, Engagement, and Cognitive Load: Once participants became active users, ongoing engagement was influenced by usability, trust, security perceptions, and cognitive effort. Participants valued intuitive interfaces, clear transaction feedback, and predictable user experiences (Vaportzis et al., 2017; Wang et al., 2019). Excessive complexity, unclear instructions, and frequent system changes increased cognitive burden and occasionally disrupted engagement. Trust remained a central consideration, with participants emphasizing the importance of security, reliability, and transparency throughout the payment process.

Phase 4: Sustained Engagement, Adaptation, and Reassessment: Long-term engagement was characterized by routine integration, adaptation, and periodic reassessment. Participants incorporated mobile payments into their daily shopping behaviours while continuing to evaluate whether the technology remained useful and relevant. Changes in health, mobility, financial needs, technological developments, and retail environments occasionally prompted reassessment of usage patterns. This finding highlights the dynamic nature of adoption and supports a life-course understanding of technology engagement.

Across all phases, participants demonstrated adaptability, resilience, and a willingness to learn. Contrary to deficit-based assumptions, older adults actively negotiated technological change and exercised agency throughout the adoption process. Gamification played a

secondary but meaningful role. Participants responded positively to low-friction features such as rewards programs, loyalty points, cashback incentives, and personalized offers when these features provided tangible value (Hamari et al., 2018; Koivisto & Malik, 2021). In contrast, highly competitive or game-like elements were generally perceived as unnecessary and offered limited influence on sustained engagement.

Figure 1: Ageing Technology Adoption (ATA) Framework |



5. Theoretical Contributions

This study makes five primary theoretical contributions. First, it advances technology adoption research by introducing the Ageing Technology Adoption (ATA) Framework, a process-oriented model that conceptualizes mobile payment adoption as a dynamic and recursive journey rather than a single behavioural decision. Second, the study extends Life Course Theory into the context of retail and financial technologies. By illustrating how adoption is influenced by agency, social relationships, accumulated experiences, and changing life circumstances, the findings provide a richer understanding of technology engagement across later life. Third, the findings challenge deficit-based narratives surrounding older adults and technology use (Nunan & Di Domenico, 2019; Eisend, 2022). Rather than portraying older consumers as resistant or incapable technology users, the study highlights their adaptability, resilience, and capacity for ongoing learning. Fourth, the study contributes to digital inclusion scholarship by demonstrating that engagement with mobile payment technologies extends beyond functional technology use. Participation in digital payment ecosystems can support independence, confidence, autonomy, and continued participation in contemporary marketplace activities. Finally, the study contributes to gamification literature by demonstrating that the effectiveness of gamified features is highly context-dependent. Among older adults, low-friction rewards and value-oriented incentives were more influential than competitive or highly game-like mechanisms. These findings refine existing assumptions regarding gamification and suggest that functional value may be more important than entertainment-oriented engagement in financial technology contexts.

6. Work Cited

Berkowsky, R. W., Sharit, J., & Czaja, S. J. (2017). Factors predicting decisions about technology adoption among older adults. Innovation in aging, 1(3), igy002.

Cermak-Sassenrath, D. (2022). Should I Play or Should I Go?: Identifying Challenges for Gamification. In *Handbook of Research on Cross-Disciplinary Uses of Gamification in Organizations* (pp. 24-61). IGI Global Scientific Publishing.

Czaja, S. J., Charness, N., Fisk, A. D., Hertzog, C., Nair, S. N., Rogers, W. A., & Sharit, J. (2006). Factors predicting the use of technology: findings from the Center for Research and Education on Aging and Technology Enhancement (CREATE). *Psychology and aging*, *21*(2), 333.

Dahlberg, T., Guo, J., & Ondrus, J. (2015). A critical review of mobile payment research. Electronic commerce research and applications, 14(5), 265-284.

Desai, S., McGrath, C., McNeil, H., Sveistrup, H., McMurray, J., & Astell, A. (2022). Experiential value of technologies: a qualitative study with older adults. *International Journal of Environmental Research and Public Health*, *19*(4), 2235.

De Kerviler, G., Demoulin, N. T., & Zidda, P. (2016). Adoption of in-store mobile payment: are perceived risk and convenience the only drivers?. Journal of Retailing and Consumer Services, 31, 334-344.

Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011, September). From game design elements to gamefulness: defining" gamification". In *Proceedings of the 15th International Academic MindTrek conference: Envisioning future media environments* (pp. 9-15).

Earl Rinehart, K. (2021). Abductive analysis in qualitative inquiry. Qualitative inquiry, 27(2), 303-311.

Eisend, M. (2022). Older people in advertising. *Journal of Advertising*, *51*(3), 308-322.

Elder Jr, G. H. (1994). Time, human agency, and social change: Perspectives on the life course. Social psychology quarterly, 4-15.

Elder Jr, G. H., Johnson, M. K., & Crosnoe, R. (2003). The emergence and development of life course theory. In Handbook of the life course (pp. 3-19). Boston, MA: Springer US.

Goldfarb, A., & Tucker, C. (2019). Digital economics. Journal of Economic Literature, 57(1), 3-43.

Hamari, J., Hassan, L., & Dias, A. (2018). Gamification, quantified-self or social networking? Matching users' goals with motivational technology. *User Modeling and User-Adapted Interaction*, *28*(1), 35-74.

Kar, A. K. (2021). What affects usage satisfaction in mobile payments? Modelling user-generated content to develop the "digital service usage satisfaction model". Information Systems Frontiers, 23(5), 1341-1361.

Koivisto, J., & Hamari, J. (2019). The rise of motivational information systems: A review of gamification research. International journal of information management, 45, 191-210.

Mitzner, T. L., Savla, J., Boot, W. R., Sharit, J., Charness, N., Czaja, S. J., & Rogers, W. A. (2019). Technology adoption by older adults: Findings from the PRISM trial. The Gerontologist, 59(1), 34-44.

Mubarak, F., & Suomi, R. (2022). Elderly forgotten? Digital exclusion in the information age and the rising grey digital divide. INQUIRY: The Journal of Health Care Organization, Provision, and Financing, 59, 00469580221096272.

Noy, C. (2008). Sampling knowledge: The hermeneutics of snowball sampling in qualitative research. *International Journal of social research methodology*, *11*(4), 327-344.

Nunan, D., & Di Domenico, M. (2019). Older consumers, digital marketing, and public policy: A review and research agenda. *Journal of Public Policy & Marketing*, *38*(4), 469-483.

Proudfoot, K. (2023). Inductive/deductive hybrid thematic analysis in mixed methods research. *Journal of mixed methods research*, *17*(3), 308-326.

Schroeder, T., Dodds, L., Georgiou, A., Gewald, H., & Siette, J. (2023). Older adults and new technology: Mapping review of the factors associated with older adults' intention to adopt digital technologies. JMIR aging, 6(1), e44564.

Toda, A. M., Valle, P. H., & Isotani, S. (2017). The dark side of gamification: An overview of negative effects of gamification in education. In Researcher links workshop: higher education for all (pp. 143-156). Cham: Springer International Publishing.

Vaportzis, E., Giatsi Clausen, M., & Gow, A. J. (2017). Older adults perceptions of technology and barriers to interacting with tablet computers: a focus group study. *Frontiers in psychology*, *8*, 1687.

Varadarajan, R., Tan, F., Sah, A., Anckaert, L. (2024). State of consumer digital payments in 2024. McKinsey & Company. Retrieved from: https://www.mckinsey.com/industries/financial-services/our-insights/banking-matters/state-of-consumer-digital-payments-in-2024

Wang, S., Bolling, K., Mao, W., Reichstadt, J., Jeste, D., Kim, H. C., & Nebeker, C. (2019, April). Technology to support aging in place: Older adults' perspectives. In *Healthcare* (Vol. 7, No. 2, p. 60). MDPI.