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Grey digital divide: factors associated with older people's use of the internet for financial transactions in the UK

Abstract

Purpose – Grey digital divide is becoming a major challenge in today's world where everyone is expected to be tech savvy in order to use the internet and digital technologies for everyday living. Vulnerable people, especially older people, encounter several issues with online financial services such as online banking, online shopping, insurance policies, etc. The main purpose of this paper is to identify the factors related to online financial services through literature review and interviews and cluster them in four different sections: human, technology, society and the institutions that provide digital financial services.

Design/methodology/approach - Through literature review, this research establishes some of the factors that could act as barriers or facilitators in using digital financial services which leads to the classification of four main areas that are presented visually. Subsequently, 22 semi-structured interviews with older people (those aged 65+) and intermediaries resulted in identifying further factors.

Findings - The findings procured from the thematic analysis of 22 semi-structured interviews are mapped onto the four main classified areas to identify the novel and common factors and a conceptual model was formed from this merging process.

Originality - This type of model has not been developed yet. Hence, this model could be leveraged for undertaking additional research on the interconnections between the factors and investigating to what extent they can positively or negatively influence individuals in the adoption of online financial services.

Keywords

Older people; factors; online financial services; classification; conceptual model

1. Introduction

Older people confront various constraints that could prevent them to use the internet and digital technologies for their everyday life, resulting in digital exclusion for older people, or what is called the grey digital divide which "has the same levels as the broader digital divide concept, referring to the obstacles that older people encounter in terms of access (first-level divide), skills (second-level divide), and opportunities (third-level divide)" (Alexopoulou et al., 2022). The research reported in this paper specifically looks at the grey digital divide in relation to the older people's access to online financial services: any online service which involves financial transactions is considered to be a digital financial service, for example, online banking, online transport tickets and online shopping (Thomas et al., 2023). In the UK, ONS (Office for National Statistics) data demonstrate that the percentage of internet users in older age groups (those aged 65 and over) has been increasing over the years; however, the proportion of internet users in younger age groups are relatively higher than older age groups (ONS, 2020b). In 2020, only 65% of the older population used online websites to purchase goods in Great Britain whereas more than 90% of younger adults used the internet for shopping (ONS, 2020a). As well as this, only 51%, 38% and 18% of adults aged 65-74, 75-79 and 80+ used online banking in 2019, respectively (ONS, 2019). Also, only 13% of those aged 65 and over bought online transport tickets in 2020 and only 14% purchased online tickets for cultural or other events (ONS, 2020a). These statistics explicitly indicate that not only do older people barely use the internet but also they seldom use online financial services. Various reasons exist for older people's low usage of digital financial services, for

instance, lack of digital skills (Thomas et al., 2023), lack of experience/knowledge (Thomas et al., 2024), fear (Thomas et al., 2023, Thomas et al., 2024), interface issues (Thomas et al., 2024) and lack of help (Thomas et al., 2023).

Since data shows that over 65s are encountering difficulties with technology; this study focuses on older people who are aged 65 or over. Challenges could be interconnected with societal challenges, human/behavioural challenges or technological issues (Thomas et al., 2023). Technological factors (e.g., usability and digital skills), societal factors, businesses/financial providers and human-related factors such as fear, confidence, anxiety and disabilities could have an impact on the way people seek information to conduct online financial activities.

One of the main aims of this study is to comprehend the key factors related to online financial services through literature review and interviews and determine the challenges experienced by older people which excludes them from the adoption of online financial services or the issues they face while using these services. This paper intends to address two research questions a) which factors related to digital financial services have been identified in previous research reported in existing literature and b) which of these factors can be verified through empirical research and are there any novel factors?

The next section of this paper will discuss the research methods employed to carry out the study instead of a review of the literature since the literature itself is a dataset which was utilised to identify the factors that other researchers have discovered. The third section will outline the factors and describe how the categorised representation of the factors was formed and the fourth section explains the formation of a conceptual model derived from the interview findings and the integration with the initial classification of the identified factors. The final section sums up the whole research and explains how this research could be taken forward to enhance our knowledge of the complexities faced by older people with digital financial services.

2. Methodology

This research has two parts; the first part is the review of the literature to explore the broad range of factors that have already been identified in previous research. In order to discover the factors, literature related to online financial services was searched, for example, 'older people's interactions on online banking' and 'older people's use of online financial services.' A number of keywords were utilised to retrieve relevant papers such as "challenges", "digital financial services", "internet", "digital skills", "digital divide", "barriers", "UK" and "online shopping". Repeated searches and modified terms on scholarly databases such as Web of Science, Scopus and Google Scholar aided in discovering literature that was closely related to the topic; this included research conducted in the UK as well as other countries. A systematic retrieval process collated as many relevant papers as possible. Papers from the year 2000 onwards were utilised to gather information regarding older people in the use of online financial services. The 'Advanced search' function was used to collect more papers through the AND operator along with the keywords mentioned previously. Prior to reading each paper, abstracts were examined to ensure that older people were incorporated into the research. While reviewing each paper, citations that seemed relevant were noted; this assisted in gathering more information regarding the factors associated with older people in the use of digital financial services. There were limited studies on those aged 65 and over in the context of digital financial services. Therefore, studies which focused on those aged 55+ were also examined as this included the age category that this study was investigating. Reports, papers and journal articles were reviewed and brief notes on these papers were created on a Word document and placed under specific headings, for example, language, accessibility, usability and ethnic minorities. It was evident from these headings that factors could be grouped into specific sections. This coding process led to the identification of various factors that were categorised into four main areas. The classification of these factors are presented visually in Figure 1 (this figure is shown in the next section). This figure shows the key factors that were clustered into four groups: 'human', 'technology', 'society' and 'institutions that provide online financial services.'

There are no studies on online financial services as a whole; previous researchers focused on one type of financial service in their studies such as online banking or online shopping that concentrate on the barriers faced by older people (those aged 65+) in using a specific financial service. This was evident through the literature review. Hence, ONS data and factors mentioned in various papers regarding older people's internet use, online banking and other services were utilised to explore the factors that could be applied to online financial services as well. Each paper was manually checked and each factor mentioned in the paper, either as a barrier or as a facilitator, was noted. These factors are displayed in the four areas shown in Figure 1.

The second part of the study is the engagement with intermediaries and older people including those from ethnic minority groups. Once the categorisation of the factors were conducted, 22 semi-structured interviews were carried out with older people and intermediaries (employees and digital carers that provide digital support to older people); this included 15 older people aged 65+ and 7 intermediaries. Intermediaries were included since there were difficulties in recruiting older people aged 65 and over. To bridge the research gap, older people (those aged 65+) from ethnic minority groups were included. Therefore, interview participants consisted of older people from Britain and first-generation immigrants from China, India and Pakistan. Participants were recruited through charity organisations such as 'Glasgow's Golden Generation' (Generation, 2023), 'Wing Hong' (Hong, 2024) and the 'Well' (Well, 2024). A few participants were recruited through snowball sampling. In other words, study information was passed from one person to another to gather as many participants as possible. A grounded theory approach was followed to gather as much qualitative data from the participants as possible until no new information was being collected from participants.

This study deliberately chose semi-structured interviews as a data collection instrument to allow the respondents to provide more details and contexts of their experience. A conversational approach was taken to allow the participants to discuss their experiences adequately. Different interview questions were asked to intermediaries and older people (See Appendix). Questions related to the challenges they experienced in using five online financial services which were identified through ONS were asked to older people. Services included online banking, online shopping, online insurance policies, tickets to cultural/other events, and online transport service. Intermediaries were asked about the challenges they identified while helping older people with such services; they shared anecdotal evidence which helped to identify older people's experiences with digital financial services. Each participant was numbered since their personal details were anonymised, for example, OP1 to indicate Older Person 1, DC1 to indicate Digital Carer 1, E1 to indicate Employee 1. Some of the early findings of these interviews were already reported in previous papers (Thomas et al., 2023, Thomas et al., 2024). Ethics approval was acquired prior to conducting the interviews with the participants.

Interviews were recorded using a voice recorder on the phone and each participant was asked around 7-8 questions. Some participants required an interpreter due to language issues; therefore, two interpreters assisted with the interviews at two organisations. Recordings were transcribed using Otter (transcription software) and subsequently thematically analysed using NVivo (data analysis software). During the interviews, interviewees' voice tone and expressions were observed which aided in coding the transcripts. Transcripts were analysed multiple times to create themes and codes.

Following the thematic analysis, three key challenges were identified (these are mentioned in section 4.2) by reviewing the codes on NVivo and all the findings were mapped onto Figure 1 to recognise the factors that have already been identified through the interviews and to determine the novel factors; this resulted in a conceptual model as shown in Figure 2. Not all the factors shown in both figures are barriers, some act as facilitators. Figures 1 and 2 will be discussed in the upcoming sections.

To sum up, the methodological approach mentioned here makes two contributions, one is a classification of all the various factors identified through literature and the second one is the mapping of the interview findings to the first figure where different fonts/styles were utilised to differentiate non-identified factors, identified factors and new factors explored through interviews (Figure 2). The

next section explains the first contribution which is the four main areas where the factors recognised in the literature were clustered and a visual representation of these factors is displayed at the end of the section (Figure 1).

3. Research Literature on factors related to digital financial services

3.1 Human factors

Previous studies have discussed a number of human/behavioural factors in the context of online financial services, for example, characteristics like self-efficacy and anxiety are elements which can affect older adults' intention to use online banking services (Peral-Peral et al., 2020). Customer satisfaction is another important element and it is easily influenced by interface design and the service providers (Branch, 2011). Hence, people are only satisfied if they perceive that the products/services provided by online financial providers are secure and beneficial. Moreover, factors such as attitude, trust, perceived ease of use and perceived usefulness can influence adults' adoption of online shopping; some individuals' trust in online transactions is affected due to security issues (Guritno and Siringoringo, 2013). Also, older people's fear hinders them from employing the internet as they lack confidence and knowledge (Vaportzis et al., 2017). Additionally, disability is a factor which can impede older people from leveraging internet; their skills deteriorate as they grow older (Curran et al., 2007). Thus, they confront more problems in the use of internet even if they have an interest in adopting digital financial services.

Furthermore, studies have indicated that demographic factors such as age and gender have an impact on the adoption and use of online financial services. Age was found to be a factor influencing older adults' attitude towards internet (Klimova et al., 2018). Internet usage decreases as the age increases in older adults (Ivankina et al., 2017). This is a consequence of declining cognitive functions in the latter stages of life (Kim and Han, 2021). In addition to the issues related to the aging process, a gender gap exists where older women use internet banking services at a lower frequency than men (Ramón Jerónimo et al., 2014). This gender gap could be linked to gender norms of society to some extent.

Another factor which affects older adults' use of online financial services is the place of residence. People in urban areas are more likely to adopt internet banking than those living in suburban and rural areas (Onyia and Tagg, 2011). A study carried out in a rural area showed that young and middle-aged adults are more active on internet banking websites than older people (Gorbacheva et al., 2011). Majority of the people in an urban area have good education, income and jobs; users find internet banking easy to use and they perceive that it is safe to use these online services (Priyanka et al., 2015). Educated senior citizens in urban areas are more aware of e-banking services (e.g., credit card, debit card, mobile banking, internet banking, mobile apps) as compared to those in rural areas; awareness and usage of these services are lower in rural citizens than urban people (Lakshman and Sulaiman, 2019). This clearly depicts that digital financial services are more utilised by older people in urban areas.

Socio-economic factors could also have an impact on older people's use of internet (König and Seifert, 2020). Non-users of digital banking services have lower income, lower education and are likely to be unemployed (Tekin and GULERYUZ, 2020). Furthermore, lack of experience or knowledge hinders some older people from utilizing online financial services (Kaijanen and Stenberg, 2018). This indicates that these older people would require additional support to learn and acknowledge the importance of technology in our everyday lives. In addition to this, older people who lack financial literacy skills could face problems with digital financial services. Financial literacy skills are the ability to examine and leverage financial products to handle personal finances (Capuano and Ramsay, 2011). Older people could experience money management problems as they grow older (Mitchell and

Lusardi, 2022). Lack of financial skills will affect older people when they approach retirement (Klapper et al., 2015). Hence, it is vital to increase their financial literacy skills.

Although with the aforementioned challenges encountered by those aged 65+, older people from certain ethnic minority groups also experience several issues with online financial services. Older people aged 65 and over from Asian ethnic groups are unlikely to utilise the internet compared to those in White ethnic groups (GOV, 2019). This could be a result of the language barrier faced by ethnic minority groups (Moore, 2000). Individuals whose second language is English tend to experience more difficulties with digital services (Harvey and Brazier, 2022). This explicitly demonstrates the minimal usage of digital financial services by older people from ethnic minority groups; therefore, it is vital to educate them about technology through additional support.

3.2 Technological factors

Online financial services are becoming beneficial to citizens and financial service providers in different ways. For example, Open Banking is being followed by nine banks in the UK and it allows banks and third parties to share data to produce better financial apps and services for customers (Banking, 2021). Open banking which was introduced in 2015 allows banks to share data through open APIs, this enabled fintech companies to access users' bank account data to create apps that are advantageous for users, for example, users can use apps to compare banking services (e.g., investments, overdraft) and choose the one which will be profitable for them (Staff, 2017).

Although digital financial services are becoming useful, the proliferation of technology is excluding vulnerable people from society due to many factors. For instance, older people have issues with the accessibility and usability of websites. Accessibility is the ability of an individual to access online websites (Gerrard and Cunningham, 2003). Anyone should be able to use online services regardless of disability or other health conditions. While web accessibility has increased by 24% in older adults since 2013 (ONS, 2020b), accessibility errors on banking websites still remain a problem; websites with high accessibility errors have to focus on developing online services for all groups of people, including vulnerable individuals (Akgül, 2018). Previous research demonstrated that young people are targeted when developing websites which results in the digital exclusion of older people in the technological realm (Milne et al., 2005). With regard to usability, older people are facing issues linked to navigation and interface design (Kurniawan and Zaphiris, 2005). If new online services are carefully designed, older adults and other vulnerable people will be able to use online websites without any complications; consequently, more people will be able to purchase goods, view bank statements and pay utility bills (FinanceFoundation, 2016). Developers are expected to follow the web guidelines which advocate for inclusivity, for example, providing text alternatives on webpages so that it can be altered into bigger prints or other forms, involving vulnerable people in the design process and providing techniques to aid users to navigate the pages (W3C, 2019). Yet, older people are still confronting problems with digital financial services. Moreover, some people are concerned about security; they will only utilise such services if they know how their data is being handled (Yoon and Steege, 2013). Individuals' trust on online transactions is affected due to security issues (Guritno and Siringoringo, 2013). This indicates that people are cautious when they are dealing with their finances due to their fear of losing money.

On the other hand, some older people may not have access to equipment due to financial limitations (Hayes and Martin, 2007). In the UK, 34% of older people aged 65 and over do not have an internet connection in their household (Ofcom, 2022). Also, broadband access is a major issue in rural areas (Polasik and Wisniewski, 2009). An Africa-based study divulged that access to an internet connection is still not available for many individuals in rural areas; even if there is internet, most rural dwellers cannot pay for the connection as it is very expensive (Onyia and Tagg, 2011). Not having access to equipment elevates the grey digital divide. 'Digital divide' is the gap between those who have access to technology and those who don't (Gunkel, 2003). Lack of digital skills and lack of access are two promoting elements of the digital divide (Bélanger and Carter, 2009). In the UK, a lack of digital

skills is found only among 30% of older people who are aged 65 and over (AgeUK, 2023). In addition to this, a lack of awareness is seen in older people (Morris et al., 2007); they are not conscious of all the available digital services (Wu et al., 2015). This could be a result of the lack of advertisements on the advantages of online services such as online banking (Lichtenstein and Williamson, 2006). This proves that the digital divide would foster digital exclusion until older people overcome the barriers to accessing online financial services.

3.3 Institutions that provide online financial services

Online financial services, for instance, online banking are provided by banks and community organisations such as credit unions. Despite the fact that online banking provides various insurances, other financial providers provide this service, for instance, M&S and Admiral. One of the popular websites that is commonly used to compare insurances (for example, home insurance, travel insurance and car insurance) is comparethemarket.com which enables the user to choose a deal and provide their card details to purchase the most desirable offer.

In terms of online banking, users can transfer money to existing/new payees without the need to travel to a bank nearby. People carry out online transactions on banking websites as well as e-commerce websites such as Amazon, Next and eBay to buy and/or sell products. Payments for goods purchased via online can be easily conducted through Fintech products, for example, PayPal, GooglePay and ApplePay.

International money transfer service (e.g., MoneyGram, WesternUnion) is another online financial service which is commonly used by ethnic minority groups to send money to their home country. Additionally, transport service tickets are convenient to purchase online and users receive more discounts on flight/hotel tickets by using websites such as Skyscanner and booking.com. Government websites are also used to easily pay for car tax and passport renewals. Regardless of all the available services/products, as previously mentioned using ONS data, users aged 65 and over scarcely buy online transport tickets and tickets for cultural or other events (e.g., cinema). This clearly depicts the necessity to develop inclusive digital financial services.

3.4 Society

Since the existence of policies such as EDI (Equality, Diversity and Inequality) exist to eradicate discrimination by including everyone in activities/services (Edinburgh, 2021), several charity organisations aim to deliver support and encouragement to older people in the context of digital inclusion. For example, AgeUK (AgeUK, 2024) provides support to older people through the Digital Champion Programme where volunteers (Digital Champions) are trained to assist older people in increasing their digital skills and confidence. Moreover, initiatives like Connecting Scotland (ConnectingScotland, 2022) provide training, devices and support to those who are having issues accessing online; digital champions help these individuals to carry out online activities, for example, they help them with email tasks, Wi-Fi settings, online shopping etc. Also, libraries provide training sessions to improve individuals' digital skills (GlasgowLife, 2023). However, sensitive information is not shared during the sessions. Hence, the assistance that older people receive from these sessions on online financial services could be limited. However, people who require help on banking tasks visit post offices as they provide assistance with withdrawing and depositing money into an account (PostOffice, 2021). While post offices provide face-to-face support, banks provide digital support through a third-party mandate. Banks such as Barclays (Barclays, 2021) and NatWest (NatWest, 2021) allow a third party to be enrolled for digital banking; this is only allowed if the customer is mentally capable. Furthermore, churches (Moore, 2000) and temples (Glasgow, 2024) provide support to vulnerable people. This would encourage older people especially those from ethnic minority groups

to learn and enhance their digital skills by engaging with other individuals in their communities. Digital support could be gained through digital carers (i.e., family, friends or relatives) (Thomas et al., 2024). A report stated that 86% of young individuals aged between 16 and 24 act as digital carers (Ofcom, 2022). These digital carers spend several hours assisting older people with online financial services and they could utilise this time on other activities (Thomas et al., 2024). Even though digital carers provide assistance, social influence could have an impact on older people's intention to adopt online financial services (Martins et al., 2014). Therefore, some older people try to make an attempt to use the internet due to persuasions from family and friends; these persuasions could be positive or negative (Lin et al., 2013).

Despite the fact that organisations and policies stimulate digital inclusion, financial scams in society hinder older people from accessing digital financial services due to fear of losing money. Older people are often tricked through fake phone calls, websites and messages (Finance, 2021). Fraudsters are aware of the fact that personal details can be easily collected through older people. These scams could drastically increase fear in older people resulting in non-use of internet services.

3.5 A Categorised Representation of the Factors

Since a number of factors that could be interrelated to online financial services were determined through literature, a visual representation of these factors was created (see Figure 1). All the factors mentioned in the previous sections were included in Figure 1 under four different sections: 'Human', 'Technology', 'Society' and 'Institutions' that provide online financial services. Literature has already shown that factors are linked in one way or another, for example, language, lack of knowledge and ethnic minorities are interconnected; those from ethnic minority groups may face English language issues and their lack of knowledge about financial services can cause further difficulties (Moore, 2000). Another interconnection could be seen between income, job and education; older people with higher socioeconomic background tend to use internet more (König and Seifert, 2020). In addition to these interrelations, some of the factors shown in Figure 1 could act as facilitators, for example, 'charity organisations' is a facilitator but it can be a barrier for those who do not have access to them since most such organisations are city-based which would be an issue for those living in rural areas. Some factors could act as challenges such as poor education, low income and language barrier; these elements could positively or negatively influence an older person's intention to adopt/use online financial services.

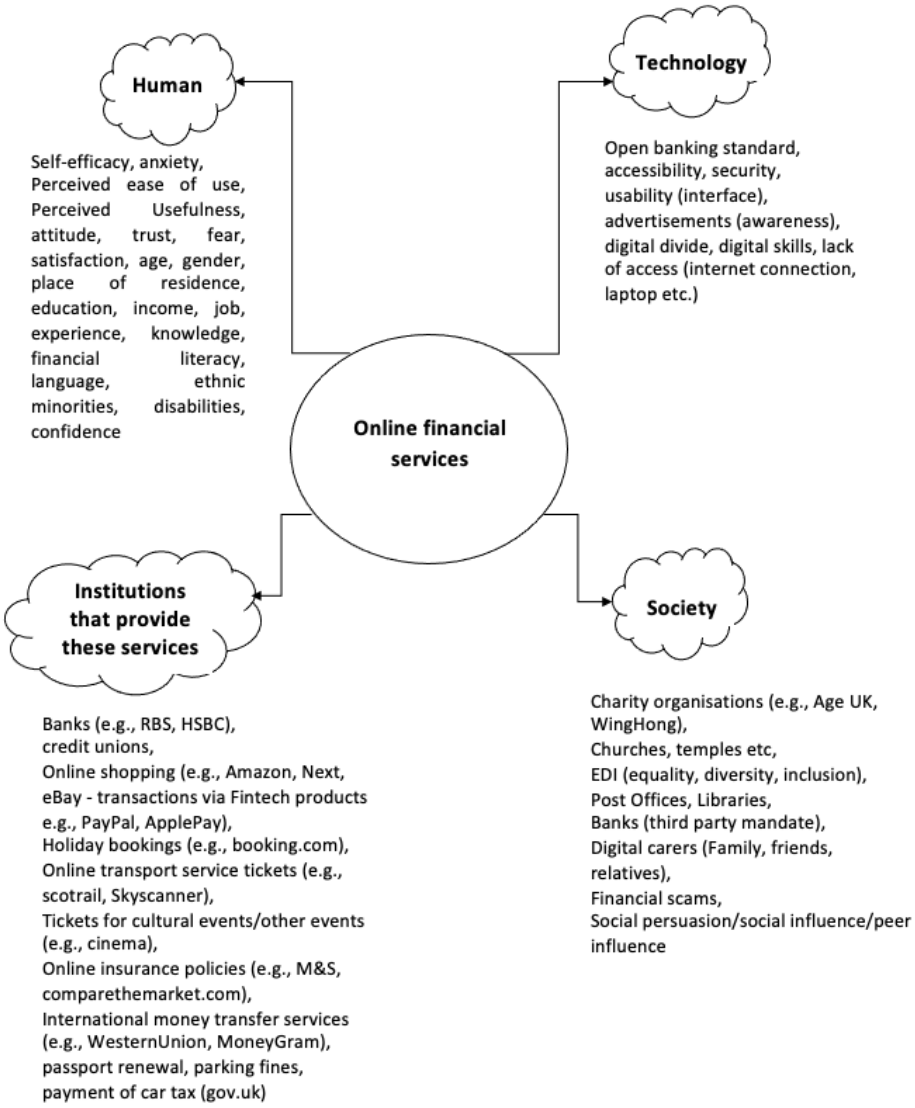

Figure 1. A categorised representation of the factors related to older people's access to digital financial services

4. Interview Findings

4.1 A Conceptual Model

Following the thematic analysis of the 22 interviews, factors related to online financial services were identified and these were mapped onto the factors shown in Figure 1. A conceptual model was created to illustrate the factors which were identified through interviews and the ones that are novel (see Figure 2). In Figure 2, the factors written in bold text are novel factors, factors shown in italics style are common factors determined through interviews (i.e., the factors that were shown in Figure 1 which were validated through the interviews) and the normal font are the factors that were shown in Figure 1 but not discovered through the interviews.

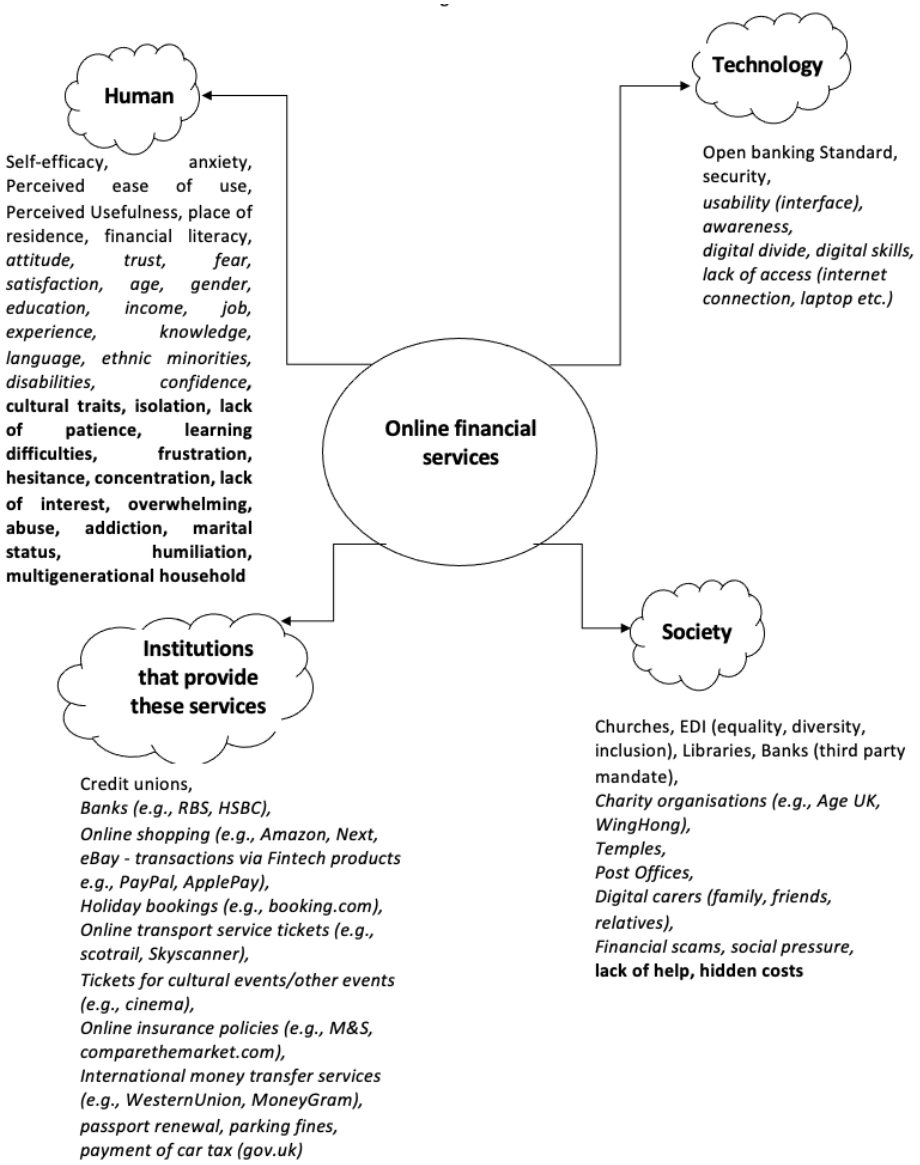

Figure 2. A conceptual model showing factors related to older people's access to digital financial services

Not all the factors shown in Figure 2 are challenges, for example, 'digital skills' could act as a facilitator or a barrier since some older people have poor digital skills and some have higher skills. Some factors could create more complexities for people depending on the nature of the task or depending on the type of financial activity or service that they are carrying out, for instance, 'online shopping' could be difficult for those who have difficulties in undertaking certain tasks on shopping websites, for example, adding/removing items from an online shopping basket, this could be a complex task for some older people: "Once my friend told me she ordered something instead of one item she ordered 10 items and she didn't know how to delete it" [OP1]. Specific financial services or tasks associated with such services could be a barrier for some individuals.

With regard to new factors, it is evident from the Figure 2 that 14 novel factors were added to the 'human' section. Although some of these factors could be identified through individual papers on specific online services, these factors are new in the context of online financial services and are discussed in the following sections.

4.2 Human

The three main challenges experienced by older people are fear, lack of digital skills and lack of experience/knowledge. These factors can be seen in Figure 2.

Fear was a factor which was identified especially in all the ethnic minority older people. One of the reasons for their fear was their "experiences with online scamming before" [OP2]. As discussed earlier, financial scams elevate fear in older people which impedes them from using online services. In addition to this, older people "tend to make a lot of mistakes especially on online...it's harder to kind of fix that mistake" [OP3]. This clearly tells us that older people are facing fear from the difficulties in resolving any problems they confront while using online services. As well as this, lack of digital skills could be linked with the fear factor: "She tried to kind of buy something from online but she asked her husband to check it.... She didn't actually click checkout so she never purchased anything but her husband was saying that she ordered everything completely wrong. So that was like the first and the last time" [OP3]. This clearly indicates that not only do older people have a fear of using websites but this fear could be developed from the lack of digital skills ('technology' factor) which prevents them from using online financial services independently. This means that fear and lack of digital skills are interconnected. Moreover, having additional digital support from family or friends (referred to as digital carers here) could negatively influence an older person's intention to use online services; they are aware of the fact that there is always someone to assist them which could prevent them from enhancing their digital skills. Along with these challenges, a lack of experience/knowledge could influence older people's intention to use online financial services: "Most of them didn't grow up with technology. They're not used to using technology. So, they really don't have much experience" [E1]. Since older people were not born in the world of technology, most of them never had the opportunity to use technology and the ones that do, "they're much confident to use more advanced apps and services" [E1].

In terms of novel factors, 'cultural traits' is a new factor since one of the digital carers mentioned that Asian women in the house interact more with other Asian women which stops them from learning the English language. This issue is linked with other factors, for example, those who have language issues may lack digital skills and therefore require digital support from others. Another factor is isolation; older people who are disabled are often isolated: "So I think if people are quite isolated then they're kind of further isolated by kinda not having access to these technologies" [DC1]. However, it was noted that those who were married or lived with someone usually received digital support from their partner who was familiar with technology: "So I just look at the thing and I tell him. This is the slippers I want. I want this" [OP4]. Older people who lack digital skills are dependent on their families. This type of support is obtained through multigenerational households as well: "he doesn't really bother because his kids does it.....wife and daughters do all that stuff" [OP5].

The other new factors identified through interviews that act as barriers were lack of patience, learning difficulties, frustration, hesitance, overwhelming, abuse, addiction and humiliation. Factors in the 'human' section could interconnect with factors in other groups in one way or another, for example, older people could feel humiliated due to previous financial scams: "I probably would go for a more official company, a more recognised company because I did feel pretty humiliated. I just felt pretty stupid" [OP6].

4.3 Technological factors

No new technological factors were identified through this study. However, technological factors discovered from the literature review were corroborated through the interviews. For instance, interface issues were one of the common factors mentioned by older people and intermediaries: "Some websites is that they might just have buttons, but they don't explain what the buttons do. So, say for example, on like asos (shopping website) or something you can favourite items. It's just a wee love heart. I think like if you're used to online shopping, then you know that the love heart means to favourite an item or the picture of the basket means head to your basket and look what you've got

before you checkout. Whereas for someone who's never really not used to navigating those websites, then it's a little bit harder to instinctively know what that picture buttons mean" [E2]. This means that older people may have issues with specific activities related to online financial services. If older people have difficulties in understanding the icons, then this would lead to complexities in carrying out the transaction on the final page. Moreover, older people have confusions when they click on a button to go to a different page and they have no idea why they are on that page and it's difficult for them to go back to the previous page [OP3]. This is directly linked with digital skills; older people's low usage of online financial services prevents them from acquiring basic digital skills. This, thereby, magnifies the grey digital divide in society.

4.4 Institutions that provide online financial services

With regard to 'institutions that provide these services', older people use various websites to leverage online financial services. Those who utilise online financial services use Amazon, eBay, booking.com, EasyJet (flight tickets), Scotrail (train tickets), Cineworld app (cinema), comparethemarket.com (insurance policies) and government websites are used to renew passports and to pay car tax. However, those who lack digital skills pay car tax through post offices. Banks such as NatWest, Virgin, HSBC, Bank of China, Bank of Scotland, Barclays, Bank of India and RBS are being used by older people but not all of them utilise online banking services. Bank of China is commonly used by older people of Chinese ethnicity due to the language barrier: "She'll just go in there to speak Chinese to them and they'll understand it completely fine" [OP7].

4.5 Society

In terms of 'society', two new factors were identified: lack of help and hidden costs. Older people who tend to live alone require significant help from others: "She had no friends and family. She always needs help from someone to do any task on online" [E3]. It is not straightforward for people who live by themselves to receive assistance from others as they do not have connections with the external world. Also, one digital carer mentioned that everyone is busy working. Hence, when they come back home after work, they rarely speak with their mother. This clearly indicates that older people may not receive digital support from their families even if they have an interest in learning technology. Digital carers who assist family and friends with online financial services spend their time and effort (hidden costs) without any hesitance: "She will learn but easily forget it, it's not just her, I noticed even my auntie and uncle, they're very keen to learn something. For example, I teach them something. Oh, they're very happy to learn...after maybe just half an hour they forget it" [DC2]. Digital carers are aware of the fact older people have difficulties in learning anything new but this does not hinder them from aiding their older family members or friends. Despite the fact that digital carers spend their time and effort that could be easily utilised on other activities or jobs, they are also facing a direct cost which is the monetary aspect. Older people are also facing some hidden costs. They spend money traveling to various shops and banks to carry out basic financial activities. This means that they spend time and effort through in-person activities which could be conducted through online financial services.

Another aspect of 'society' is charity organisations where support is provided to those who lack digital skills to use online financial services: "She will ask people from here at Wing Hong to buy insurance for her and she'll just give them the money, but they will be the one to buy stuff online for her" [OP2]. Chinese people confront a language barrier and therefore employees are conscious of their constraints in using technological services. Sessions are also provided by organisations such as 'Glasgow's Golden Generation' to increase older people's digital skills as society is turning into a digitalised realm due to the closures of high street banks; older people have the pressure to learn technology: "So many local branches have closed down. If you don't know how to do online, you're going to be kind of stuck, trying to kind of.... sort your money or transfer money or pay bills because those places will no longer exist" [OP8].

5. Conclusion

This study contributes to information science field, especially to information behaviour and information practices of older people. Information behaviour concentrates on the cognitive aspect and information practices rely on the societal factor, for example, people's interactions with communities to seek information (Savolainen, 2007). Due to the evolution of technology, most of the financial services have moved online. Nowadays, financial activity is a significant part of everyday life activity. This study sits within the context of everyday life information seeking (ELIS) as people leverage internet for activities such as online shopping and online banking to seek information on a daily basis (Savolainen and Kari, 2004). Savolainen and Thomson (2022) describe an expanded model that could be leveraged to comprehend the key components of information practices in everyday lives (information seeking, information use, information sharing and information creation) that are required to understand the various information behaviours of individuals. Moreover, this model provides insights for researchers to acknowledge the significance of information practices when developing effective services for people. Additionally, the Unified Model of Information Seeking Behaviour (Agarwal, 2022) is similar to Savolainen's expanded model but the former can be applied to various domains (everyday life, academic and workplace) where the contextual factors (personal, situational and social) are taken into consideration. Although the existence of multifaceted information behaviour models depicts how individuals seek and use information in everyday lives, the context-specific conceptual model proposed in this study predominantly focuses on the key factors that act as facilitators or barriers that older people face in accomplishing digital tasks for undertaking financial activities as part of their everyday life such as buying online items, conducting international money transfers and buying a flight ticket. Previous models concentrate on information practices as a whole whereas the model provided in this study aims to highlight the factors interconnected with digital financial services that were derived from specifically concentrating on older people aged 65 and over.

This research commenced with a review of the literature which resulted in a visual representation of the categorised factors that contribute to older people's use of digital financial services (Figure 1). This figure can be easily used to assess different groups and subgroups to acknowledge the factors that could act as barriers and facilitators with regard to digital financial services. In Figure 1, challenges and facilitators are associated with specific online financial services (e.g., banking, shopping etc) since qualitative data regarding online financial services were not reported collectively in previous studies. Following the semi-structured interviews, findings were mapped onto Figure 1 to distinguish the common and novel factors.

One of the key contributions of this research is Figure 2 which provides insights into the factors related to online financial services. Since the findings were derived from qualitative data, Figure 2 enhances our basic knowledge and understanding of digital financial services. It was evident from this conceptual model that some challenges and facilitators were common and some were novel therefore this is adding new knowledge regarding the factors that contribute to older people's use of online financial services. Factors shown in both figures incorporate facilitators, and some factors may have some implications to financial services, for example, fear could be a barrier but organisations that provide support are not barriers; these are contributing factors. The presence or absence of formal/informal support could play a role but may not necessarily be a barrier.

The factors shown in the conceptual model could be considered in future studies to determine what role they play and how these can be addressed to reduce the grey digital divide. Future research could focus on how the common challenges that were previously identified interact with the new factors and how a combination of some of the factors can have implications for the overall user efficacy in using online financial services, and thus reduce the grey digital divide. The identified factors could lead to future interventions that could be applied to everyday information practices of older people which would assist them in using digital financial services. Figure 2 also paves the way for undertaking further research as to how these factors interplay and have influenced positively or

negatively on online financial activities and to what extent these factors may pose implications for a particular type of user group(s) with specific digital financial services.

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Appendix

Interview Questions

Semi-structured interview script for adults whose first language is English

Open ended questions:

Prior to the interview, participant and researcher will introduce themselves to each other (2 mins)

1. Find information on demographic factors:
    - What is your gender? Male or female
    - What is your education level? (High school, college degree or undergraduate/masters/PhD degree)
    - Are you retired/working?
        i. What was/is your occupation?
        ii. What was/is your income? (over £12,570 - £14,732, over £14,732 – £25,688, over £25,688 – £43,662, over £43,662 – £150,000, over £150,000)
    - Are you living – alone/with a partner/in a multigenerational household?
    - What is your marital status? (Married/not married)
    - Are you part of first generation or second generation?

2. Go through each online financial activity in the following list and ask questions for each item:
    - Online shopping (e.g., clothes, shoes, accessories)
    - Internet banking
    - Buying or renewing existing insurance policies (e.g., car insurance, home insurance, health insurance etc)
    - Tickets to cultural or other events
    - Bought a transport service (e.g., flight ticket, local bus, train, taxi (including Uber))

Questions for each activity shown above:

1. How do you carry out this activity? (Online, in-person, help from someone or other ways) Explain your answer.

If participant conducts this activity via **online** then ask the following questions:

i. How often do you carry out this activity? (did you use it in the last 3 months or did you use it over 3 months ago)
ii. Which website do you use? Which device do you use? (e.g., laptop, mobile, desktop)
iii. What kind of challenges do you experience while using this online financial service (e.g., fear of financial scams, lack of confidence, lack of digital skills, lack of equipment, website design issues, lack of internet/financial knowledge etc) Please explain your answer.
iv. Do you receive help on this activity? If yes, what kind of help are you provided with (organisations, demo sites, phone calls etc)? Is it helpful? Do you think you'll always require help with this activity? Please explain your answer.

If participant **doesn't conduct this activity via online**, then ask the following questions:

i. Are there any reasons for not completely using this online financial service (e.g., fear of scams, lack of confidence, lack of digital skills, lack of equipment,

website design issues, lack of internet/financial knowledge etc). Please explain your answer.

ii. Do you think you can only carry out this online activity if you receive help from someone? Why?

3. Are there any similar financially related tasks that you carry out online or through other ways (e.g., payment of council tax, payment of car tax, payment of fines etc). Please explain your reasons for not conducting the activity through online OR please explain the challenges that you face while using this digital service.

4. What are the implications of not using the online financial services? Can you give me some examples (e.g., extra time is needed to carry out the tasks, journey to a bank to transfer money, journey to a shop to buy something, what do you do when an item is out of stock in a shop etc)

5. Do you think online financial services are useful? Why?

6. Do you prefer in-person payments or online transactions? Why?

7. Any other comments?

Semi-structured interview script for adults whose first language is not English and for those who are from ethnic minority groups

Prior to the interview, participant and researcher will introduce themselves to each other (2 mins)

1. Find information on demographic factors:
    - What is your gender? Male or female
    - **This question is for those from ethnic minority groups**: What is your ethnicity? (Chinese or Pakistani)
    - What is your education level? (High school, college degree or undergraduate/masters/PhD degree)
    - Are you retired/working?
        i. What was/is your occupation?
        ii. What was/is your income? (over £12,570 - £14,732, over £14,732 – £25,688, over £25,688 – £43,662, over £43,662 – £150,000, over £150,000)
    - Are you living – alone/with a partner/in a multigenerational household?
    - What is your marital status? (Married/not married)
    - Are you part of first generation or second generation?

2. Go through each online financial activity in the following list and ask questions for each item:
    - Online shopping (e.g., clothes, shoes, accessories)
    - Internet banking
    - Buying or renewing existing insurance policies (e.g., car insurance, home insurance, health insurance etc)
    - Tickets to cultural or other events
    - Bought a transport service (e.g., flight ticket, local bus, train, taxi (including Uber))

    Questions for each activity shown above:

    1. How do you carry out this activity? (Online, in-person, help from someone or other ways) Explain your answer.

If participant conducts this activity via **online** then ask the following questions:

i. How often do you carry out this activity? (did you use it in the last 3 months or did you use it over 3 months ago)
ii. Which website do you use? Which device do you use? (e.g., laptop, mobile, desktop)
iii. What kind of challenges do you experience while using this online financial service (e.g., **Language**, family problems, fear of scams, lack of confidence, lack of digital skills, lack of equipment, website design issues, lack of internet/financial knowledge etc) Please explain your answer.
iv. Do you receive help on this activity? If yes, what kind of help are you provided with (organisations, demo sites, phone calls etc)? Is it helpful? Do you think you'll always require help with this activity? Please explain your answer.

If participant **doesn't conduct this activity via online**, then ask the following questions:

i. Are there any reasons for not completely using this online financial service (e.g., **Language**, family problems, fear of financial scams, lack of confidence, lack of digital skills, lack of equipment, website design issues, lack of internet/financial knowledge etc). Please explain your answer.
ii. Do you think you can only carry out this online activity if you receive help from someone? Why?

3. Are there any similar financially related tasks that you carry out online or through other ways (e.g., payment of council tax, payment of car tax, payment of fines etc). Please explain your reasons for not conducting the activity through online OR please explain the challenges that you face while using this digital service.

4. What are the implications of not using the online financial services? Can you give me some examples (e.g., extra time is needed to carry out the tasks, journey to a bank to transfer money, journey to a shop to buy something, what do you do when an item is out of stock in a shop etc)

5. Do you think online financial services are useful? Why? **Question for those having language difficulties:** Do you think it would be easier to use online services if you received it in your own language? Explain your answer

6. Do you prefer in-person payments or online transactions? Why?

7. Any other comments?

Semi-structured interview script for volunteers/employees and for those who aid older people with online financial services

Prior to the interview, participant and researcher will introduce themselves to each other (2 mins)

1. What kind of difficulties do you find in older people's use of online **financial** activities? (e.g., fear of financial scams, language issues, lack of confidence, lack of digital skills, lack of equipment, website design issues, lack of internet/financial knowledge etc) Please explain your answer using examples.

2. **Question for volunteers/employees**: Do male or female older adults seek for more help? Do you know any other information about them, for example, education, occupation, income, ethnicity, do they live alone, first/second generation etc.

3. What kind of digital financial services do they seek help for (e.g., internet banking, online shopping, buying insurance policies etc) Which websites do they commonly use? E.g., RBS, Bank of Scotland, amazon etc)

4. Do you feel frustrated when you have to repeat the instructions to older people? Any other personal challenges e.g., losing patience when helping older people?

5. How do you help older people on digital financial services? (e.g., do you direct them to demo sites, phone calls etc) Is it helpful for them?

6. **Question for volunteers/employees**: How frequently do you provide help, on which aspects, and how much time do you spend for such help sessions/activities?
   Question for relatives and friends (digital carers): How much time do you spend to help older people (e.g., 2 hours per week, 1 hour every 2 days etc). Do you get these hours out of studying time, entertainment time, sleep time etc? Do you feel your time is lost when you provide help for older people? Why?

7. Do you think more older people will use digital financial services if there are concrete solutions? In what ways could we provide:
   a. help/support around technological barriers (for example, website design issues - clear instructions on websites, larger font size etc)
   b. training around personal issues like confidence, fear, trust etc.
   c. support around language issues, digital skill issues, financial literacy issues etc
   d. support around any other specific issues that you can think of?

8. Any other comments?