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Exploratory study on the adoption of Financial Technology among Digital Natives and Digital Immigrants in Ireland

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Masters of Business Administration

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Abstract

The term Digital Native and Digital Immigrant were coined by Prensky (2001) and have been used as a general term to describe individuals who were born before and after 1980. However, there has been very little research done on this concept outside of school and university settings. The purpose of this exploratory research is to examine if the proposed characteristics that define a digital native from a digital immigrant exist among consumers of financial technologies within Ireland, and if so, are digital natives more likely to adopt financial technology solutions and trust FinTech firms. The UTAUT2 model was identified as the most appropriate model to explore what the determinants are that influence the adoption of financial technology services among Digital Natives and Digital Immigrants. A quantitative method was employed using an online questionnaire. The questionnaire received 209 valid responses from individuals ranging from 18 years of age to 65 years of age and over. The findings from this research will provide insight into which constructs influence consumers to use and adopt financial technologies, as well as which constructs divide the financial technology user base. From these findings incumbent banks and FinTech firms can look at ways to increase user adoption of financial technology among all age groups.

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Abbreviations

DNA Survey	Digital Native Assessment Survey
FinTech firm	Companies other than traditional banks that provide technological financial solutions
TAM	Technology Acceptance Model
UTAUT2	Unified Theory of Acceptance and Use of Technology 2

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Chapter 1 Introduction

With the proliferation of technology throughout our daily lives it has gradually transformed society, no more so than how younger generations interact, study, work or consume services. No longer is there a need to meet face to face, most activities or wants can be achieved online. According to Yong and Gates (2014) this digital generation, or millennials are different from generations of the past. They were born into the digital age and have spent their lives surrounded by and using technology, from watching television, playing video games, surfing the Internet and using mobile smart phones (Yong and Gates, 2014; Prensky, 2001). Due to this ubiquitous environment and the vast amount of time they spend interacting with technology has resulted in changing how this digital generation think and process information compared to past generations (Yong and Gates, 2014; Kesharwani, 2019; Prensky, 2001). They have been receiving digital input through their childhood and adolescent lives enabling them to speak in a native digital language, become more tech-savvy and seek for instant gratification (Kesharwani, 2019).

Prensky (2001) refers to this digital generation as Digital Natives. These are individuals born after 1980. For all others who were born before 1980, he refers to them as Digital Immigrants, as they have had to adapt and learn technology. Many have questioned these concepts of Digital Native and Digital Immigrant as being too simplistic for such broad generalisation. However, while there have been studies on testing the validity of these concepts the majority if not all have been conducted outside of Ireland and in universities and schools to see if the characteristics of Digital Natives can be applied to all students. What seems to be missing, is extensive research of these concepts on a board population base. With e-services, and e-commerce in its prime, does such a dichotomy exist among the consumer population, and if so, what does that mean for the Digital Immigrants? The Central Statistics Office Census (CSO) 2016 report states that Ireland's population has been getting older since the 1980's. In the 2016 Census 37.2% were aged 45 and over compared to 34.4% in 2011. A third, 33.2% of the population was less than 25 years old, while 29.5% were in the 25-44 age group. The 65 years and over group saw the largest increase in population since 2011, raising by 19.1% (CSO, 2016). As can been seen, most Ireland's population falls into the Digital Immigrant bracket.

To explore if Digital Natives and Digital Immigrants do exist among the consumer market in Ireland this study will look at the adoption of financial technology and to a lesser extent FinTech firms. This is due to the rapid rise of financial technology (fintech) solutions and FinTech firms in the Irish market. According to Gulamhuseinwala, *et al.* (2017) the difference between fintech users and non-fintech users are demographics and behavioural patterns.

1.1 Problem Area

According to PWC (2017) 82% of incumbents within the financial sector will increase their partnerships with FinTech firms over the next three to five years. KPMG (2018) state that JP Morgan Chase, Goldman Sachs and Citi Bank have all announced that they plan to rollout digital banks in the USA. Considering this, the fintech activity in Ireland continues to grow, resulting in many global companies looking to take advantage of Irelands' strong fintech ecosystem. Ireland is now seen as the powerhouse for fintech solutions and firms, and the perfect platform for these firms to launch within Europe (KPMG, 2018). With the growing drive towards online financial solutions and digital banks, does a digital divide exist among financial consumers with regards to the adoption of technology, and if so, is it because today's generation are digital natives, while previous generations, i.e., individuals born before 1980 are digital immigrants?

1.2 Project Approach

A review of the concepts of Digital Native and Digital Immigrants will be provided, as well as an understanding of the term 'FinTech'. Theories on the adoption of technology will be explored to identify the most appropriate for this social inquiry. A Quantitative method will be used to capture and analyse data. Open questions will be provided on the questionnaire to get a deeper understanding of some of the constructs for the adoption of financial technology. This approach will also allow for new themes to emerge.

1.3 Target Audience

The target audience for this dissertation are academics with an interest in Information Technology, Information System, Business, Marketing and Social Sciences. As well as professionals who work in finance, FinTech industry and Government bodies.

1.4 Research Question

1. Do Digital Natives and Digital Immigrants exist within the financial technology consumer base?
2. Since Digital Immigrants have to learn technology do they experience more anxiety when using financial technology compared to Digital Natives?
3. Are Digital Natives more trusting of FinTech firms than Digital Immigrants?

1.5 Structure of Document

Chapter 1

Provides background information on the research topic, lists the research questions, the methods used, and outlines the value and scope of the research.

Chapter 2

Reviews the literature on Digital Natives and Digital Immigrants to get insight and an understanding of the current knowledge and thinking behind these concepts. A review of the term FinTech, as well as the theories on the adoption of technology will be conducted.

Chapter 3

Methodologies and methods for research will be discussed. Their ontological and epistemology positions will be provided to demonstrate the reasons for choosing a particular methodology and method for this social inquiry.

Chapter 4

The Analysis, results and interpretation of the data will be provided as well as the types of tests that were conducted.

Chapter 5

Outlines the conclusions drawn from the analysed data.

Chapter 2 Literature Review

2.1 FinTech

FinTech Global (2018) state that 2017 had record funding in Ireland with $309.4 million in capital investment with Irish FinTech investments in Q1 of 2018 increased by almost 30% (Fintech Global, 2018). Due to the significantly large financial outlay and investments that are required in the FinTech sector it is fundamental that customer traction is achieved on a large scale for FinTech start-ups who rely on this metric for raising investment (Gulamhuseinwala, et al., 2017). It is also important for the more established financial institutions that want to realise the benefits of introducing a financial technology solution (Gulamhuseinwala, et al., 2017). Curran et al. (2003) states that due to the extensive cost, time and effort an organisation incurs when introducing a technological solution, it is vital that mass user acceptance and adoption is achieved. Gulamhuseinwala, et al. (2015) state that financial technology solutions have a higher usage among millennials. Wang et al. (2017) posit that physiological limitations of aging had a negative effect on mobile phone adoption among individuals who were aged 46 years and over in Taiwan. While Stewart and Jurjens (2017) found that the number of mobile users in Germany was increasing yet the adoption of FinTech services was extremely sluggish. In their research they found that out of 209 respondents, 99% had mobile devices but only 10% had used FinTech services. They posit that FinTech firms and traditional banks offering FinTech services need to persuade their customers on the benefits and value that can be obtain from the use of these services.

The term 'FinTech' has been discussed and debated in many business, finance and technology journals but there is still no definitive definition for FinTech (Zavolokina et al. 2016; Soloviev, 2017). The term remains somewhat ambiguous, this could be due to the novelty or the rapid growth of the FinTech industry (Varga, 2017; Zavolokina et al. 2016). The term FinTech is a living body with a flexible and changing nature, it is continually evolving as new innovative solutions are developed and new entrepreneurs enter the market, transforming the way in which financial services are delivered (Varga, 2017; Zavolokina et al. 2016; Gulamhuseinwala et al. 2017). The term is sometimes used to refer to innovative technological solutions that provide highly efficient, low cost, improved business processes and flexible financial services that satisfy consumer needs (Zavolokina et al. 2016; Soloviev, 2017; Fernando et al. 2018; Varga, 2017). This could be through the use of digital channels or decentralised ledger technologies that remove the need for an established financial institution. Others use it to refer to companies and start-up's that specialise in providing innovative technological financial service solutions (Gomber et al., 2018, Varga, 2017; Chishti and Barberis, 2016; Gulamhuseinwala et al., 2017). According to the Financial Stability Board (FSB) 2017 report, and the Basel 2017 report on Banking Supervision (2017) "FinTech" can

be useful to describe a wide range of technologies that enable financial innovations. That is, Fintech is the convergence of financial services and information technology (Fenando *et al.*, 2018; Kim and Choi., 2015). However, while the core elements of the term may have been agreed, its scope remains ambiguous and not clearly defined (Varga, 2017). For this study FinTech firms will refer to organisations that are not traditional banks such as AIB, or Bank of Ireland but provide financial technology services, while financial technology will refer to the solutions such as Online Banking, Mobile banking, and Electronic Wallet.

2.2 Digital Natives and Digital Immigrants

The term "Digital Natives" and "Digital Immigrants" was coined by Prensky (2001) to describe the generation gap in the use of technology between people who were born before and after 1980. Prensky (2001) posits that a significant discontinuity has happened between the two generations since individuals born after 1980 are the first generation to have grown up with technology. They have spent most of their lives surrounded by digital technology such as computers, video games, digital music players, cell phones and other technological gadgetry. This has resulted in them expecting to receive information instantly, they prefer graphics over text, have 24x7 mentality, function best when networked, prefer games over serious work and are apt at multi-tasking (Prensky, 2001; Helsper and Eynon, 2010). They enjoy the "fun" elements which are associated with the use of technology and strive for instant gratification and frequent rewards (Prensky, 2001; Helsper and Eynon, 2010). Boonsiritomachai and Pitchayadejanant (2017) found that hedonic motivation for the adoption of mobile banking was the most salient factor among generation Y, i.e. individuals born after 1980. They posit that individuals within this age group are quick to find and learn technology, as well as being able to quickly consume information resulting in them finding it easier to conduct financial transactions online compared to previous generations. According to Pinzaru and Mitan (2016, p.155) Digital Natives refuse to live in an analogous society and use digital technology in almost every activity whether it be for work or for entertainment. They have been socialized differently from the older generation, no longer is the need to call over to a friend's house to listen to a new record, the sharing of music no longer requires a physical space due to the internet and social networks (Palfrey and Gasser, 2008; Prensky, 2001). Palfrey and Gasser (2008) state that Digital Natives are tremendously creative in how they express themselves, which would have been very different from how their parents would have at their age. That Digital Natives see information as something which can be controlled and reshaped. They can quickly learn how to use new technology with very little effort and are dependent on the connected space for the majority of information they need to live their lives (Palfrey and Gasser, 2008).

Digital Immigrants refers to individuals who have not grown up with technology but have had to learn to adapt to their environment by adopting technology either through work or through pure fascination of technological innovations (Prensky, 2001). He suggests like all immigrants, the Digital Immigrant has retained some aspects of the past, such as turning to internet as a secondary source rather than a primary source of information. Reading software manuals instead of expecting the program to teach them how to use the features of the software. According to Prensky (2001) Digital Immigrants have little appreciation for the new skills that the Digital Natives have acquired. These skills are totally foreign to the digital immigrant, they can be slow to learn these new skills and accept changes (Obeidat and Young, 2017). While Prensky's (2001) categorisation to describe the generation gap between the younger generation who are at ease with the digital environment in a way that the older generation would not be, is very appealing due to its binary nature of presenting two oppositions. It is this overly simplistic categorisation and generalisation to a homogeneous, diverse and varied group of individuals and their relationship with technology that needs future examination (Bayne and Ross, 2007). According to DiMaggio and Hargittai (2001) there are significant differences in how and why young individuals use technology. Krause (2007, p.126) states that while these generalisations about the younger generation and their familiarity with technology are useful, they leave out the fact that not all individuals of that generation would have the same experiences and opportunities when it comes to the use of technology. He posits that there is little acknowledgement of these subgroups in the literature. Palfery and Gasser (2008) state that the biggest concern about the digital culture is the digital divide, i.e. the gap between kids in developed countries who would have access to technology and kids in less developed countries who would not have the same opportunities and exposure to technology. Helsper and Eynon (2010, p.505) state that a lot of the studies on digital natives and digital immigrants is based on young people and their parents and not on young people as part of a wider population. They also question the fact that a lot of the evidence for these concepts are based on data from the USA. They posit that if age is a defining factor that determines if someone is a digital native then there is no solution to resolve the digital disconnect between older generations and younger ones.

Bayne and Ross (2007) criticise the fact that one's age will determine whether they will have an inadequate relationship with technology or not or that the immigrant will never be a digital native or be as good with technology as a younger peer (Stoerger, 2009). They also don't approve of Prensky's negative use of the word immigrant to describe heavily accented, unintelligible foreigners. According to Oblinger and Oblinger (2005) age may be less important than the exposure an individual has to technology. They state that individuals who would use technology excessively would have similar characteristics to digital native. That due to the pervasiveness of technology in our professional and personal lives most individuals would demonstrate some characteristics of digital natives regardless of age (Oblinger and Oblinger, 2005). Malaquias *et al.* (2018) found that as the interactions between an individual and mobile banking increased, their perception of how easy it was to use the technology also increased.

Littlejohn and Vojt (2011) found that students who were in technical disciplines would use technology more than students that were in non-technical disciplines. This was due to the course requiring more interaction and exposure to technology tools rather than all students of that age being digital natives and preferring technology. Hoffemann *et al.* (2014) expanded Prensky's categorization of digital native and digital immigrants by identifying a third grouping, based on age, web experience, and education. They refer to this third group as Naturalized Digitals. They define individuals in this group as follows (Hoffmann *et al.* 2014, p.155);

"Includes middle-aged professionals who are active and competent Internet users. These users are too old to qualify as digital natives but too heavily engaged in online media to be considered digital immigrants".

Digital Naturalized have an open attitude to new technology and are quick to adopt it and become avid and creative users of it.

According to Judd (2018) there is a lack of empirical evidence to support Prensky's concepts of digital natives and digital immigrants. Chisthi and Barberis (2016) state that while younger consumers are more used to using technologies and gadgetry, the difference between digital natives and digital immigrants is their perspective. They posit that unlike the digital native, a digital immigrant makes a conscious choice to use an online service to pay a bill, while the digital native would not have that thought, as they would never have factored the use of bank branches into their lives. Metallo and Agrifoglio (2018) echo this sentiment through their study on the usage of Twitter. They found that generational differences had an indirect effect on continued use behaviours. Bhannagar *et al.* (2000) found that older consumers were more open to purchasing on the Internet, as do consumers who have a lot of experience using the internet. Helsper and Eynon (2010) found that individuals with the most experience of using the internet used it more, regardless of their age. They posit that while there were differences in how each generation used technology, there were also similarities which were based on how much experience the individual had. The use of technology by individuals was along a continuum rather than a dichotomous divide between users and non-users.

A lot of the studies on Digital Natives and Digital Immigrants has been focused on the dichotomy between current students and their teachers, and the challenges or changes that need to happen in the academic domain to bridge the gap. But, with advancements in technology and especially in financial technology (FinTech) does such a dichotomy exist between consumers of financial technology services and products who were born after 1980 compared to those who are born before this period?

Gulamhuseinwala *et al.* (2017) state that financial technology (FinTech) products have a higher usage among 25 to 34 year olds than among older generations. They refer to these individuals as 'digital natives', tech-savvy individuals who have a greater need for financial services. They found that a lack of trust was a salient reason for Digital Immigrants not to adopt FinTech services and products. This would suggest that Digital Natives are far

more trusting of FinTech firms that Digital Immigrants. Obeidat and Young (2017) found that both groups, Digital Immigrants and Digital Natives feared paying for goods before they were delivered, however this fear or lack of trust was mitigated through online security measures that strengthen the customer's trust in online shopping. Trust has been identified by some researchers as a mediating variable on the intention to adopt technology (Berthon *et al.* 2007; Johnson, 2010; Giest, 2017; Dovey, 2009; Zhang *et al.* 2018). Wu and Ke (2015) found that trust acted as a strong mediator in the influence of perceived risk. This finding was echoed by Ashraf *et al.* (2014, p.87) who looked at e-commerce adoption among Canadians and Pakistani and found that regardless of the cultural differences trust was the first step towards the adoption of technology in both cultures. However, among the Canadian participants, building trust was more important. Berthon *et al.* (2008) posit that building trust with online customers becomes significantly important when purchases are large. Due to the lack of personal contact with employees during an online transaction customer have genuine concerns about the legitimacy of the online vendor leading to a lack of trust, this will impact their intention to use the vendor's services. Such sentiments could be true for Fintech's. Fintech's are vendors who sell financial products and services online or through other digital technologies. Many Fintech's do not have any physical branches so there is no direct physical contact with Fintech employees. All service encounters are online, some Fintech's use chatbots instead of real call centre staff. Non-Fintech users could be concerned about the legitimacy of the FinTech company and the products they sell. Fintech's need to build up trust with potential customers due to the perceived risk the customer may feel about their personal savings or investments. Bhannagar *et al.* (2000) found in their study on internet shopping that products which had higher expenditure levels had higher product risk compared to other products. Financial products would have high expenditure due to the nature of the product; this would require the customer to have a level of trust in the FinTech for them to procure the product or use the service. Grabner-Krauter and Kaluscha (2003) state that a lack of trust is one of the most frequently cited reasons for consumers not to purchase from Internet vendors. Nelms *et al.* (2017) suggests that Fintech solutions like Bitcoin and many other sharing economy start-ups are not only proposing to change the infrastructures in place for the holding and transfer of money but are also looking to build trust. Ashraf *et al.* (2014) found that trust played a critical role in the adoption of e-commerce by influencing Perceived Usefulness and Perceived Ease of Use.

Metallo and Agrifoglio (2018) found in their analysis that the differences in behaviour between older and younger generations was due to perception rather than generational differences. Older generations perceived Twitter to be a useful tool for work, enabling them to share ideas with peers and co-workers, while the younger users perceived it as a useful tool for sharing information to retain and build social relationships. Obeidat and Young (2017) study on online shopping usage between digital natives and digital immigrants found no significant difference in perceived enjoyment of online shopping, in perceived usefulness, perceptive ease of use or intention to use online shopping. Perceived usefulness and

Perceived ease of use has been identified as a significant determinant for the adoption of technology (Park and Chen, 2007;Patil, 2016; Cimperman *et al.* 2016; Lingyun and Dong, 2008; Hu and Lu, 2003; Sono *et al.*, 2018; Raitoharju, 2005; Koul and Eydgahi, 2018; Alzubi *et al.* 2018). One of the most cited is Davis (1989) Technology Adoption Model (TAM).

2.3 Technology Acceptance Model

According to Sono *et al.* (2018) perceptions of technological characteristics vary from one individual to another. These perceptions are based on an individual's cognitive processes and beliefs with regards to the technology. Davis (1989) states that there are two determinants that influence a user to accept or reject technology. They are; "Perceived Usefulness" and "Perceived Ease of Use". Perceived Usefulness is defined as (Davis, 1989, p.320):

"The degree to which a person believes that using a particular system would enhance his or her job performance"

He posits that within an organisational context, people are rewarded for high performance, so if they perceive the use of a technology as being advantageous, i.e., useful, then it is more likely the user will choose to use and adopt the technology. Ashraf *et al.* (2014) posit that 'Perceived Usefulness' was a significant influence on a customer's intention to use ecommerce services. However, Davis (1989) warns that even if the person perceives the technology to be useful, if at the same time they perceive that the usage of the system is too complex or difficult then they will refrain from using it. If older generations perceive financial technology services and products too complex it could be an inhibitor for their adoption of these services. Davis (1989) refers to this construct as 'Perceived Ease of Use". Gulamhuseinwala *et al.* (2015) found 'ease of use' to be a key determinant for the adoption of FinTech services. The setting up of consumer accounts was easier to do in FinTech companies than it was in traditional financial institutions. Ozsungur and Hazer (2018) state older people and older workers 'perceived ease of use' is far more important. That is, the effort required to use the technology.

There have been a number of applications of Davis's (1989) TAM model as researchers (Venkatesh and Bala, 2008; Venkatesh and Davis, 2000; Hsu and Lu, 2003; Melas *et al.* 2011;Dogruel *et al.* 2015; Verma *et al.* 2018) looked to extend the constructs within this model to provide greater insight into what determinates influence the adoption of technology in various social contexts. The most recognised are Venkatesh and Davis (2000) TAM 2, and Venkatesh and Bala (2008) TAM 3 model. These models explored the social influence and cognitive processes to further explain perceived usefulness and usage intentions. Due to the amount of literature and competing models for the adoption of technology, each espousing various determinant that influence user intention and behaviour,

Venkatesh, Davis and other academics looked to empirically test eight prominent models. These models were tested in four organisations over a six-month period. The purpose was to produce a unified model (Venkatesh *et al.* 2003). The output from their analysis and tests was the creation of a model called the Unified Theory of Acceptance and Use of Technology (UTAUT). However, these theories focused on adoption of technology in a professional environment and did not explore the motivations and intentions of consumers to adopt technology. Venkatesh *et al.* (2012, p. 158) acknowledge that while the application of UTAUT model had added value, there still remained a need to investigate the salient factors that influence and motivate consumer behaviours to adopt and use technology, which they posit would be different from employees. To address this Venkatesh, Thong, and Xu (2012) developed the UATUT2 model. Three new constructs were added, (Venkatesh, *et al.* 2012):

Hedonic Motivation is the fun or pleasure derived from using a technology. Conceptually it is similar to playfulness. Wu and Ke (2015) found playfulness to be a stronger influencing factor for purchasing items online. They defined Playfulness as a personality trait that makes a person more likely to interact creatively and imaginatively with people and objects. They state that individuals with a high level of playfulness are more likely to accept and apply new technologies. According to Prensky (2001) Digital Natives enjoy the "fun" aspects that are associated with the use of technology.

Price Value is the cost or pricing that a consumer incurs through procurement or licensing of the technology. According to Venkatesh *et al.* (2012) this is an important difference between a consumer and an employee. As the employee does not incur the monetary cost for the privilege of using the technology, Gulamhuseinwala *et al.* (2015) states that one of the reasons to use Fintech's is due to them providing more attractive rates and fees than the established financial institutions. Carlin *et al.* (2017) study on smartphone adoption for financial services found that fewer financial fees and penalties were incurred by Millennials and Generation Xers who had adopted this technology.

Habit is defined as the extent to which an individual will perform a behaviour automatically (Rosenstein and Grant, 1997). Martin (2008) states that a habit can be a simple or complex behaviour. These behaviours are learned slowly over time through repetition. He posits that the reason for Bill Gates success was because his software habitually became necessary to participate in the modern world, a habit we cannot break. Rosenstein and Grant (1997) state that Habits are activities that are routinely performed. If, as stated by Prensky (2001) and Palfery and Gasser (2008), Digital Natives have grown up with technology, and its use has changed the way they think, process information, study, work, or interact socially then their use of technology would be habitual as defined by Martin (2008) and Rosenstein and Grant (1997). El-Masri and Tarhini (2017) found that habit was a significant influential predicator of the adoption of e-learning systems.

The UTAUT2 model has four moderating variables that were found to be significant. They are Experience, Voluntariness, Gender and Age. Ozsungur and Hazer (2018) found Usage Behaviour, Perceived Usefulness, Perceived Ease of Use, Communication Technology and Self-Efficacy to be higher among males than females in their study on the adoption of communication technologies among the elderly. Bhatnagar *et al.* (2000) had mixed results regarding gender and online shopping. Men would use the internet to procure hardware and electronic goods more than women, while women would use the internet to shop for legal services. One would expect that among Digital Natives gender is not significant, however according Lee *et al.* (2017, p. 482) the lack of female students in computer science programs is one of the most troubling challenges facing the discipline today. CSO (2016) state that within Ireland more than four out of five (82.4%) graduates in Engineering were male, and 79.3% of graduates in Information and communications technology were also male. According to Deloitte (2018) Fintech has a gender diversity problem. They state that not only are there a lack of women working in FinTech companies, but too few FinTech companies have women founders and the most significant to this social inquiry is that females are under-represented in FinTech user base. They posit, that this last issue of gender inequality in FinTech user base is under studied and not discussed enough. The reason for this is that no large scale FinTech publish figures on gender split, but the limited reports which are available suggest that men are more likely to login into mobile apps designed for financial management. Helsper and Eynon (2001) found that men were more likely to use the Internet as the first port of call compared to Women. Carlin *et al.* (2017) found that men tend to adopt new technology and access information at a higher rate than women in all age groups, Millennials and Generation X. However, their population sample was solely extracted from a software aggregation provider called Meniga who are based in Iceland. With Ireland having a larger population and perceived as a powerhouse for FinTech companies due to its strong fintech innovation ecosystem the gender gap within the FinTech user base may not be as significant (KPMG,2018).

According to Venkatesh *et al.* (2003, p.446) anxiety was not a direct determinant for acceptance and usage behaviour. However, their tests were conducted in an Organisational setting. Anxiety has been identified by many academic's (Wilson *et al.* 2016; Wang *et al.* 2017; Cimperman *et al.* 2016; Gelbrich and Sattler, 2014; Rosen and Maguire, 1990) as an inhibitor for the adoption and usage of Fintech solutions and services. Gelbrich and Sattler (2014) posit that the anxiety a user experiences when using technology can have a direct negative effect on their intention to use a technological service. This sentiment is echoed by Cimperman *et al.* (2016) who posit that anxiety was a salient factor that prevents adoption of technology or intention to use technology among the older generation. Wang *et al.* (2017) found that anxiety was a significant prohibited for the adoption of mobile usage among individuals aged 46 years and over. Advancements in mobile technologies are heavily utilized by financial organisations. The demographics in Wang *et al.* (2017) and Cimperman *et al.* (2016) findings both correlate to Gulamhuseinwala *et al.* (2015) adoption of FinTech report. Yet, Rosen and Maguire (1990)

found that computerphobia which is caused by anxieties, is as likely to happen in younger people as it is in older. However, their study was conducted in 1990, which means that Digital Natives were 10 years of age or younger and not included in their study.

Many academics (Venkatiesh *et al.* 2012; Farooq *et al.* 2017; Nair et. al. 2015; Oechslein *et al.* 2014; El-Masri and Tarhini, 2017) have used the UTAUT2 model to examine the adoption of technology. Gharaibeh and Arshad (2018) used the UTAUT2 model to investigate the adoption of mobile banking services which is a FinTech service. They posit that the UTAUT2 is more applicable for these types of studies as it focuses on the context of customer usage, while the UTAUT is more applicable for the adoption of technology among employees. Rondan-Cataluna *et al.* (2014) found that the UTAUT2 model contained a better explanation power than the other technology models they compared it to.

2.4 Theoretical Model Adopted

Due to the findings in the Literature review the theoretical research model that will be adopted for this social inquiry is Venkatiesh *et al.* (2012) UTATU2 model presented in Figure 1. The model will be extended to include Digital Native and Anxiety as two moderating variables. The theoretical model proposed is depicted in Figure 2. It is believed that this proposed model can be used to explore the adoption of Financial Technologies among both Digital Natives and Digital Immigrants. This model will be used to empirically test the following hypothesis:

H1: Individuals born after 1980 have more Digital Native characterises than individuals born before 1980

H2: Individuals born after 1980 will perceive financial technologies easier to use than individuals born before 1980

H3: Individuals born after 1980 will perceive financial technologies more useful than individuals born before 1980

H4: Individuals born before 1980 experience more anxiety when using financial technology than Individuals born after 1980

H5: Digital Nativeness is a moderating variable for behavioural Intentions to use and adoption financial technology

H6: Anxiety is a moderating variable on the behavioural intentions to use and adopt financial technology

H7: Individuals born after 1980 are more trusting of FinTech firms that individuals born before 1980
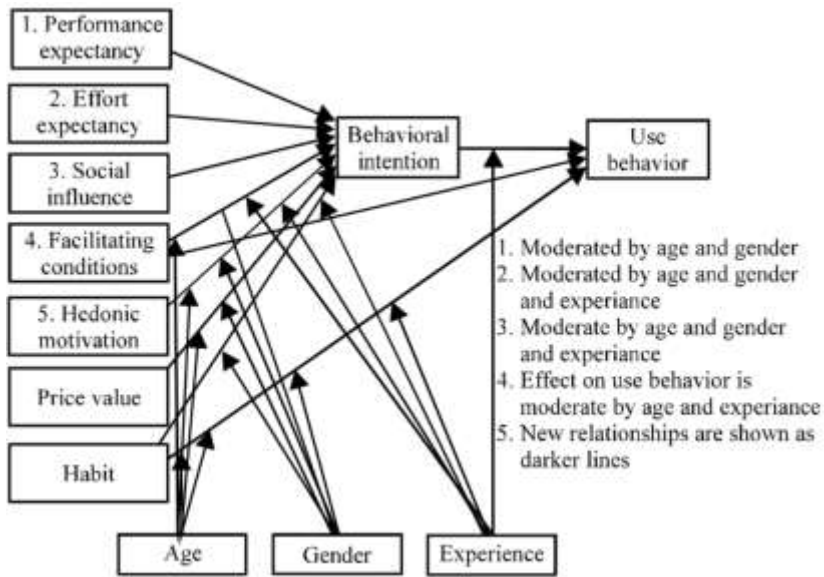
Figure 1 UTAUT2 model source Gharaibeh and Arshard (2018)
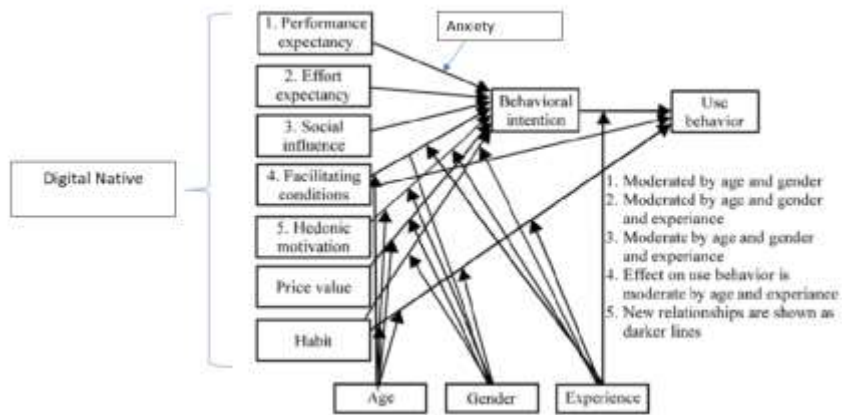
Figure 2 UTAUT2 model Digital Native and Anxiety

Chapter 3 Research Methodology and Methods

Saunders *et al.* (2009) pose that research philosophy is the development of knowledge for a specific domain. They state that the two main concepts when thinking about research philosophy are ontology and Epistemology. Ontology is concerned with the nature of reality, while epistemology is about how we came to know about that reality (Saunders *et al.* 2019; Krauss, 2005). Saunders *et al.* (2019) state that each contains important differences that will influence the methods and processes the researcher will consider for the research process. Methodology is a model that contains theoretical principles, it is a framework about how research is conducted within a certain paradigm (Sarantakos, 1998). Methods are the tools and techniques employed by the researcher to gather and analyse data for the purpose of producing empirical evidence (Sarantakos, 1998, p.32). Saunders *et al.* (2009) states that the debate between ontology and epistemology is usually contextualised in whether the researcher chose a positivist or interpretivist research philosophy. However, they state that regardless of which position within ontology and epistemology that the researcher has adopted, the most important thing is the research question. The following section will discuss the main paradigms that are used in the social sciences, as well as the justification for the chosen discipline for this social inquiry.

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3.1 Ontology

Ontology is concerned with the characteristics of existence, i.e., what are the universal characteristics of things that exist? (Willis, 2007). In Ontology there are two premises, they are objectivism and subjectivism (Saunders *et al.* 2009). According to Saunders *et al.* (2009, p.111) the Objectivist stance is that social entities exist in a reality that is external to social actors, while Subjectivists believe that social phenomena is created from the perceptions and actions of social actors.

3.2 Epistemology

Epistemology is concerned with what constitutes as acceptable knowledge in a particular field of study such as the natural sciences (Saunders *et al.* 2009, p.112). According to Willis (2007) Epistemology questions how we can know things exist? For this study two research philosophies were examined due to their popularity among academic researchers, Positivism and Interpretivism. According to Sarantakos (1998) positivist and interpretive paradigms are

the most accepted among social scientists. The purpose was to identify the most appropriate philosophy for this social inquiry based on the research question, time constraints and limitation of resources.

3.2.1 Positivism

Positivism originated as the philosophy for the natural sciences (Lee *et al.* 2014). According to Hartono (2008) the Positivist view of the social world is that it is independent of human consciousness. They believe they are separate from the phenomena being observed and do not influence in anyway during the observation, allowing for the data which is being gathered to be value-free (Krauss, 2005; Weber, 2004). According to Krauss (2005) Positivists believe that the purpose of science is to measure what we can observe, anything beyond that is impossible. According to Longshore Smith (2005) Positivist embrace the doctrine of a value-neutral empiricism, and a utilization of scientific method for both the social and natural sciences. They believe the world and the universe are deterministic, they are governed by natural and unchangeable laws of cause and effect (Krauss, 2005; Hartono, 2008; Sarantako, 1998). The Positivist researcher will use deductive reasoning to test existing theories so they can be confirmed or refuted. This leads to further refinement of that theory, so it is better at predicting reality (Saunders *et al.* 2009; Krauss, 2005). From these theories' hypotheses will be tested to derive generalisations from the data that was gathered and analysed (Saunders *et al.* 2009). However, such mathematical methods are based on axioms. According to Goldstein (2005) Kurt Godel's Incompleteness theorems demonstrates that not all axioms of arithmetic can be proven or disproven, meaning that the truths we infer from them are not immune to revision (Lee, 2004). Potentially the concept of objective truth as prescribed by the Positivist is a socially constructed myth (Goldstein, 2005, p.25).

3.2.2 Interpretivism

Interpretivists believe that reality and the individual who observes are not separate (Weber, 2004). Saunders *et al.* (2005) states it is necessary for the interpretivist researcher to understand the differences between humans in their roles as social actors. The term 'social actor' is derived from the theatre and is used to describe how humans act out a part in society in accordance with their interpretation of their role and the role of others. The role of the researcher is to step into the world of the subject being observed so they can understand the world from the subject's point of view (Saunders *et al.* 2005). According to Weber (2004) they believe that reality has both subjective and objective characteristics. The subjective reflects the individual's perceptions and understanding of the world, while the objective causes them

to continually question their perceptions and understanding through their experiences and their interactions with other social actors (Saunders *et al.* 2005; Weber, 2004).

According to Weber (2004) it does not matter if a researcher chooses a Positivist or Interpretivist stance, the theories and constructs they use to describe a phenomenon are all socially constructed. Weber (2004) posits since methods in one paradigm can be used in another, the methods alone do not indicate if the researcher is an interpretivist or positivist. Both types are seeking the same goal, which is to enhance our knowledge and understanding of the world around us.

3.3 Philosophy Adopted

The main philosophy adopted will be one entrenched in the positivist tradition. However, certain methods will be used to gather greater insight into the perceptions and experiences of participants with regards to user anxiety of financial technology solutions and trust of FinTech firms. As previously mentioned, a Positivist researcher can use methods that are essentially associated with the Interpretivist discipline to gather greater insight. According to Weber (2004) Positivists tend to use surveys as one of their preferred methods for the gathering of large amounts of empirical data that can be statistically analysed to uncover underlying regularities. An online web questionnaire will be used for the gathering of data. This is in line with studies (Kesharwani, 2019; Teo, 2013; Wagner and Acier, 2018; Obeidat and Young, 2017) of a similar nature where the gathering and analysing of large data was required to validate or refute the generalisation of the characteristics that define a Digital Native and Digital Immigrant. The questionnaire will also determine the constructs of the UTAUT2 model for the adoption of Financial Technology. Some questions in the questionnaire will be open ended to get greater insight into the experiences and perceptions of participants.

3.4 Approach used for Scientific Research Inquiry

According to Bhattacherjee (2012) scientific knowledge is the body of theories and laws used to describe a phenomenon or a behaviour of interest through the application of scientific method. He states that the goal of scientific research is to build scientific knowledge by discovering laws and to postulate theories that can explain a natural or social phenomenon. However, these theories are only explanations which are provided by the researcher to explain the phenomenon that is being observed. Depending on how well these theories fit with reality will determine how good a theory is. Bhattacherjee (2012) states that scientific research

consists of both observations and theories, that is, it operates at both an empirical level and theoretical level. At the theoretical level the researcher looks to construct abstract concepts that describe the natural and social phenomena and their relationship. At the empirical level the researcher looks to test the theoretical concepts and relationships to see how accurately they reflect the reality of the phenomenon that is being observed. This testing of theory helps to refine the theoretical model over time to provide a better representation of reality (Bhattacherjee, 2012). He posits that to only infer from observations and not use theory is not considered a valid scientific research. For this social inquiry the constructs of the UTAUT2 model will be used to explore the adoption of financial technology among both Digital Natives and Digital Immigrants. There are two common approaches for social inquiry, one is the exploratory research known as inductive reasoning and the other is an objective approach known as deductive reasoning (Tacq, 2011).

3.4.1 Deductive Reasoning

Deductive Reasoning is the dominant research approach in the natural sciences. From a covering law or theory, the researcher deduces an observable consequence that they plan to empirically test (Pelissier *et al.*, 2002). Bradford (2017) states a common form of deductive reasoning is the syllogism. A Syllogism has two statements, the major premise and minor premise. For a logical conclusion to be reached the first premise must be true. A prime example of a syllogism within this research would be;

First premise: all digital natives are tech savvy, Second premise: individuals born after 1980 are digital natives. Conclusion: This would lead to the conclusion that anyone born after 1980 would also be tech savvy.

For the above conclusion to be true, the first premise must be true. If the first premise is not true, then the conclusion is wrong even though the statements are logically sound. As stated by Bradford (2017), it is possible to come to a logical conclusion even if the generalisation is wrong. However, the conclusion would also be untrue. The researcher can start with a general statement or hypotheses and examine outcomes to reach a logical conclusion (Trigueros, 2018). Deductive reasoning starts with the scanning of theory so logical conclusions can be derived in the form of hypothesis. From this the researcher seeks to test if the theory applies to specific instances (Trigueros, 2018). Based on the empirical testing conclusions are drawn (Spens and Kovacs, 2005). The method is used for testing hypothesis and theories (Bradford,2017).

For this research the literature on Digital Natives and Digital Immigrants, as well as the established UTAUT2 model, will be used to develop general statements and hypothesis. These statements and hypothesis will be empirically tested using data gathered from the

online questionnaire so that logical conclusions can be drawn which will further our knowledge on these concepts. A criticism of deductive reasoning is it can create a rigid methodology that does not allow alternative explanations of what is happening (Saunders *et al.* 2007, p.125).

3.4.2 Inductive Reasoning

Inductive Reasoning is the opposite of deductive reasoning. Bradford (2017) states that Inductive reasoning makes broad generalisations from specific observations and through inductive inference the researcher goes from the specific to the general. It is exploration of specific data that has been gathered to develop theories which can be related to the literature (Bradford, 2017; Saunders *et al.* 2007). With Inductive reasoning the researcher gathers data to get a sense of the problem under investigation. The data is analysed to uncover patterns, the researcher then makes generalisation statements which results in the formation of a theory (Saunders *et al.* 2007, p.126; Bradford, 2017).

According to Bradford (2017) the problem with Induction is while all the premises in the statement may be true, the use of inductive reasoning can lead the conclusion to be false. An example of this problem with inductive logic, if I had a deck of cards, the first card I pull from the deck is a King. The second card I pull from the deck is also a King. Based on this one could infer that all future cards I pull from the deck will be kings.

3.5 Generalisation

Tsang and Williams (2012) posit that generalisation is a form of induction. However, Hume's Problem of Induction has proven that inductive inference is not justifiable regardless of sample size. Such inference would require the uniformity of nature. This assumption that the uniformity of nature will be consistent in each application is beyond the evidence that has been provided. According to Lee and Baskerville (2003) logically we cannot generalize beyond the limits of our experiment and control group, we can only demonstrate the effect on the specific conditions that the experiment and control group have in common, whether that is age, intelligence or socioeconomic status. But researchers can attempt generalisation by guessing laws and testing some of these generalisations in other specific but different conditions. This social inquiry will look to test the validity of the generalisations that determine what constitutes someone as a Digital Native by testing these characteristics for the adoption of financial technology among two demographics; people born before 1980 and people born after 1980. To do this a coalition between both paradigms of Positivism and Interpretivism will be used. For the measuring of Digital Native characteristics and adoption of technology a more

positivism approach will be employed. The reason for this is that Positivist researchers use quantitative methods to collect large amounts of empirical data that can be statistically analysed in the hope to detect the underlining regularities (Weber, 2004). This will allow for a Deductive approach to be used. The adoption of such an approach will enable the testing of the ascendants of the chosen theory. This will provide a framework for the gathering of data but will help to develop logical hypotheses which can be empirically tested to see if the chosen theory is a good fit for this social phenomenon.

For an understanding of why individuals trust or do not trust FinTech firms or feel anxious about using financial technology open questions on the questionnaire will be employed. This will allow for a more inductive approach enabling the emergence of new themes. These new themes will add to the current knowledge and further develop the theoretical model. It is hoped that by adopting both deductive and inductive reasoning it will further our knowledge on Digital Natives and Digital Immigrants and the determinants that influence their behavioural intention to use and adopt financial technology. According to Krauss (2005), for a researcher to be able to define the reality of a social phenomenon a triangulation of methods and techniques is required.

There are issues with drawing conclusions from observations that are not matter of fact and have not been experienced, as well as drawing conclusions from beyond the researcher's sample size. It is acknowledged this research will only demonstrate the habits, preference and perceptions of the sample population who share common age and have partaken in this study. However, unlike most other studies on Digital Natives and Immigrants which have only focused on students and their parents or teachers, this study is looking at the adoption of financial technology among Digital Natives and Digital Immigrants. The sample population is not confined to the same university or classroom, the only requirement is for the participant to be over 18 years of age and to be an Irish resident.

3.6 Research Strategy

According to Bhattacherjee (2012) scientific method is a set of standardized techniques that are used to develop scientific knowledge. These techniques will not only define how the researcher can make valid observations, but how they should interpret the results and how the results can be generalised (Bhattacherjee, 2012). Bhattacherjee (2012) posits scientific method enables the researcher to independently test theories. He also states there are a variety of approaches and techniques that can be used for collecting and analysing of data, such as qualitative and quantitative methods. Regardless if the research is quantitative or qualitative, they are all based on some assumption of what constitutes as valid research and which method is the most appropriate for the social inquiry (Myers,1997). The choice of

research method will influence the ways in which the researcher collects the data (Myer, 1997).

3.6.1 Qualitative Research

Myers (1997) states that Qualitative research was developed in the social sciences. It enabled researchers to study social and cultural phenomena. To do this, the researcher uses methods such as case studies, interviews, questionnaires, documents, and participant observation (Myers, 1997). Qualitative research is sometimes referred to as subjective research. Barnham (2014) states that qualitative researchers use smaller samples but look for more in-depth data. He posits that qualitative research looks to get under the surface of participants responses, so they can identify what respondents really think compared to quantitative methods. He states that qualitative research should look at how people think rather than what they think, this removes the concerns about qualitative research validity, as it no longer is seeking to discover 'mental facts', but the mental structures people use to understand the world around them. However, according to Sykes (1991) while the research method can be useful in obtaining information from respondents on how they think, its lack of objectivity and its proneness to researcher bias prevents it from being able to provide data that can be replicable in other studies to produce a qualitative fact (Barnham, 2014; Hammarbert *et al.* 2016). Its use of small purposively selected sample sizes also prevents from making an inference with regards to the prevalence of a phenomena in the broader population (Sykes, 1991; Hammarbert *et al.,* 2016). According to Barnham (2014) all qualitative research can offer is an "interpretation" which has been constructed in the mind of the researcher (Willis, 2007; Smith, 2008).

3.6.2 Quantitative Research

According to Barnham (2014) quantitative research elicits numbers and percentage that have the status of facts within a given sample. The search for facts within the quantitative research can be thought of as a series of 'What?' questions, for example in the context of this research, what percentage of the sample populate trust FinTech firms. He posits quantitative research has a firm intellectual platform that has been derived from the physical sciences. This informs the researcher of what criteria should be used to ensure that the data is both valid and reliable. Spector and Meier (2014) state quantitative methods can provide insightful information about the levels and distribution of variables, and their relationships. This method can introduce statistical controls over biases. The task of quantitative research is to create a representation of the target population and test if that representation is true (Barham, 2014).

Punch (2005) states that quantitative data is about quantity and numbers, it is information about the world represented by numbers. The researcher uses measurements to assign numbers to data, this data can be people or events. These techniques turn the raw data into useful information. There are two types of operations the researcher can use on analysis of the data, they are counting and scaling (Punch, 2005). Counting is the counting of numbers, this approach is used on nominal data, as it is impossible to define the category numerically or rank this type of data. Examples of nominal data would be how many people use the internet for Leisure activities. Scaling is where the researcher envisages some trait along a continuum/scale. There are points along the continuum that represents the level or percentage of the particular trait, ranging from 100% to 0%. The data used here is ordinal data, where the participant is asked how strongly they agree with a specific statement (Saunders, 2009).

3.7 Data Collection Techniques

A web-based questionnaire was used for the gathering of data for this social inquiry. Snowball sampling and opportunistic approach was used to attract participants for this social inquiry (Duckett and Pratt,2001). The questionnaire was posted on social media channels such as Facebook, LinkedIn, and WhatsApp to recruit an adequate number of participants. This is similar to methods used by Wagner and Acier (2017) and Yong and Gates (2014) who used online channels such as websites, electronic forms, and social networks to recruit participants.

This approach resulted in referrals as family, friends and colleagues re-posted the questionnaire on their social media accounts. In total 255 responses were received, of which 209 could be used. No random selection criteria technique was used, this is similar to other studies (Teo, 2013; Wagner and Acier, 2017, Yong and Gates, 2014) of a similar nature. Teo (2013) who created the Digital Native Assessment Survey focused on three schools whereby participants were aged between 12 – 16 years. Wagner and Acier (2017) focused on University students of the University Nantes, and Yong and Gates (2014) conducted their study on pre-university students during their first week of University. Teo (2013) states that based on his target population, the generalizability of findings to larger populations would be limited. This study has not focused on students belonging to a school or university, nor has it limited its target population to just students. Various demographics were captured as part of this study. Also, the academic achievements and country of birth also varied among participants resulting in a more diverse sample population. Unfortunately, there was no encompassing scale that captured Digital Native and Digital Immigrant, Trust, Anxiety and Technology Acceptance. To overcome this, questions on Trust were derived from Lee and Turban (2001) on Trust for Internet shopping, while Anxiety were adopted from Sam *et al.*

(2005) study on Self-Efficacy, and Computer Anxiety, and Technology Acceptance questions were modelled on Verrecchia (2016) Mobile Banking Adoption.

3.7.1 Web Questionnaire / Survey

Granello and Wheaton (2004) state that there are benefits with using a web-based survey that makes it very appealing to professionals. These advantages are reduced time, low-cost, easy to enter data, the format can be flexible, and they can capture additional information. For this research time is a significant constraint on the gathering and analysing of data. Also, there are no financial incentives for individuals to partake in this study, so the method for capturing data must be low cost, accessible for participants regardless of location, and not require a significant amount of time. However, Phillips and Stawarski (2008) posit that questionnaires are more flexible than surveys. They propose that surveys are only used when attitudes, beliefs and opinions are to be captured. Survey questions can capture yes or no response, or ranking scale questions that solicit a range of responses from participants often on a five-point or seven-point scaling system where the respondent indicates if they "strongly agree" or "strongly disagree" with a statement. While questionnaires can also include open-ended questions, checklists, multiple choice questions, two-way questions, and ranking scale questions. The questionnaire for this research consisted of checklists, open ended and rank scaling questions. For usage of the Internet the participants were requested to click on the activities they use it for on a daily basis. For adoption of technology questions, a Likert 7-point scale was employed. Longshore Smith (2006) suggests that such methods only present a casual description of mapping inputs to outputs but lacks the necessity that explains the connection. He states that a reliance on statistical methods only asks the "what" but not the "why". To overcome this, some of the questions will be open-ended to allow participates to provide additional information on their reasoning for why they don't trust FinTech firms or why they feel apprehensive about using financial technology solutions. The employment of the Likert-7-point scale is in-line with similar studies that have examined Digital Natives and Digital Immigrants.

Questions based on the Digital Native Assessment (DNA) survey, which has four quadrants, examine if an individual has grown up with technology, are they comfortable with multitasking, reliant on graphics for communication and do they seek instant gratification and rewards. While the DNA survey has been validated as a reliable survey for the identification of Digital Natives, its primary purpose has focused on students in schools and universities to see if they exhibit these characteristics. The purpose of this research is to see if Digital Natives are more likely to adopt financial technology and trust Fintech firms more than Digital Immigrants. The DNA survey was also created in 2000 and there have been rapid advancements in technology since then. To overcome these challenges, questions in the

survey were contextualised, and adapted to focus on the adoption and usage of financial technology services. Questions relating to work and study were moved as they were deemed less pertinent and resulted in a long list of questions that took over 30 minutes to complete. The target population were not in a classroom setting or using financial technology for the purpose of work productivity. Phillips and Stawarski (2008) state that to improve response rates for questionnaires and surveys the researcher should not try to ask all possible questions as this could result in a reduced response rate. They propose to design a questionnaire so it will maximize the response rate while ensuring reliable responses, and to only ask questions that will provide the specific data that is needed. Teo (2013) who created the Digital Native Assessment Survey suggests that further research should continue to refine and potentially add or remove items to increase the reliability of the survey. Unfortunately, the steps taken for this research have had the opposite effect, and have limited the reliability of the questionnaire used in this study for the identification of Digital Natives and Digital Immigrants and has prevented this study from being able to collaborate or refute findings of other journals that have used the Digital Native Survey for their assessment. That being said, the data gathered of perceptions and options of participants are still valid and will provide insight into their perceptions of trust and anxiety, as well as if there are any differences between the two generations in the sample population that makes one more of a digital native than the other.

The questionnaire was piloted among a group of five individuals. The group ranged in gender, age and nationality. From the pilot group questions were amended to provide more context and clarity. Phillips and Stawarski (2008) suggests that stakeholders should be involved in the questionnaire design, and questions should be tested to ensure they will be clearly understood. Having a non-Irish national helped to ensure that the questions being asked were straightforward and clear.

3.7.2 Data Analysis Method

SurveyMonkey was used for the online questionnaire. The data from SurveyMonkey was extracted into Excel. The responses from the Likert 7-point scale were coded from 1 meaning "Strongly disagree" to 7 meaning "Strongly Agree". Other variables such as age, education, country of birth was also coded so the data could be copied into SPSS for statistical analysis.

3.8 Statistical Methods

Before the data can be analysed using statistical methods, the data captured must first be assigned value. These are usually numbers that can be assigned to objects or concepts which

are central to the phenomena under observation (Boslaugh and Watters, 2008). Measurement is the process of assigning numbers to objects so that mathematical methods can be used to describe objects and their relationships (Boslaugh and Watters, 2008). According to Boslaugh and Watters (2008) there are four types of measurement; Nominal Data, Ordinal Data, Interval Data and Ratio Data. Boslaugh and Watters (2008) defines these as:

Measurement Types	Description	Reason for use
Nominal Data	Nominal Data is when the number functions as a name or label and does not have any numeric meaning.	An example of this in this study is gender. For this analysis all Males participants were given a numeric value of 0, Females were given a numeric value of 1, and Other was given a value of 2.
Ordinal Data	Ordinal Data refers to data that has some meaning order. An example of this is the Likert- 7-point scale that was used in the online questionnaire. Higher values represent more of the digital native characteristic than lower levels	A Likert 7-point Scale was used for the Digital Native questions
Interval Data	Interval Data is data that has a meaningful order and has a quality that equal intervals between measurements representing equal changes in the quantity of what is being measured.	This type of measurement was not required as part of this study
Ratio Data	Ratio Data is similar to Interval data, but it has a natural zero point. Examples of this type of data could height, weight or income.	This type of measurement was not required as part of this study

Table 1 Measurement Types

For this study only nominal and ordinal measurements was used. Nominal was used to identify the gender of participants, while ordinal measures was used for questions relating to the digital nativiteness of participants. To analyse the various data types that were used in this study various statistical methods were employed. These consisted of inferential and descriptive statistical methods. The types of tests that will be conducted on the quantitative data are presented in Table 2.

Statistical Methods	Description
Cronbach's Alpha	Cronbach's Alpha will be used to determine the interval consistency or reliability of items in the Likert 7-point scale that was used in this study. According to Panayides (2013) who sites Jum C Nunnally in his 1978 paper on Psychometric Theory recommends reliabilities of 0.70 or above but not beyond 0.80 for basic research. For important decisions a reliability of 0.90 to 0.95 is recommended.
Shapiro-Wilk's test	Shapiro-Wilk's test uses a null hypothesis to test that normality exists within the sample distribution. If the data is normally distributed than the p value will be greater than 0.05, i.e. $p > 0.05$. If this is the case the null hypothesis will be accepted. If the p value is less than 0.05, i.e. $p < 0.05$, then the alternative hypothesis will be accepted.
Independent t-test	Independent t-test is a parametric hypothesis testing for real valued data. It tests whether the mean of a sample differs significantly from an expected value, or whether the means of two groups have a significantly statistical difference from each other (Boslaugh and Watters, 2008
Mann-Whitney U	Mann-Whitney U is a non-parametric test. It is used to characterize ordinal data. This test will only be used if the data is not normally distributed when comparing both groups within the sample population. (Boslaugh and Watters, 2008)
Kruskal Wallis H test	Kruskal Wallis H test is an extension of the Mann-Whitney U test, it allows for more than two groups to be compared in order to test the null hypothesis that there is no median difference for at least two of the groups (Boslaugh and Watters, 2008
Spearman Rank-Order Coefficient	Spearman Rank-Order Coefficient will be used to rank the relationships between the variables captured under the UTAUT2 determinants and participants behavioural intention to adopt financial technology. This method will be used to show the monotonic relationship between these ordinal values.

Table 2 Statistic Tests

3.9 Thematic Analysis

Thematic Analysis method was used for the identifying and analysing of patterns in qualitative data (Braun and Clarke, 2006). Clarke and Braun (2013) posit that thematic analysis is an analytic method rather than a methodology, as it does not require adherence to any particular theory resulting in it being flexible in its theoretical application.

Clarke and Braun (2013) define the following phases within the Thematic analysis, but state these phases are not linear, but rather it is a recursive process. They posit the following steps (Clarke and Braun, 2013);

Familiarisation with the Data

They state the researcher becomes familiar with the data by re-reading the data and makes analytic observations.

Coding

Coding involves generating labels for important features of the data that are relevant to the research question. This is an analytic process that capture both the semantic and conceptual reading of the data.

Reviewing Themes

This process involves checking that the themes work in relation to both the coded extracts and the full dataset. They posit that the researcher should reflect to see if the themes tell a convincing story about the data and begin to define each individual theme, their relationships. This can result in collapsing themes, splitting a theme into two or more or discarding them so the development process can start again.

Defining and naming themes

This is the process of writing a detailed analysis of each theme to understand the story the theme is telling so that it fits into the overall story about the data and identifies the essence of each theme.

Writing-up

Writing up requires the stitching together of the narrative and data extracts to convey to the reader a coherent and persuasive story about the data.

From the Literature review it was believed that Trust and Anxiety would both be significant moderators for the adoption of financial technology services and firms. A qualitative approach was conducted to see if there were any emerging themes that could further develop our knowledge and understanding for the adoption of financial technology and firms. To do this, each response from the Trust and Anxiety constructs were individually examined to ensure familiarisation with the data. The data was analysed to identify common phases across both data sets. Colour codes were used to group common phrases together. This allowed for quick re-reviews of the data to ensure all emerging themes were identified and correctly grouped together. Each common phase was extracted and counted so that data could be coded.

3.10 Ethic Consideration

To ensure approval was received to conduct this research the National College Ireland ethics form was populated and submitted to the ethics committee. As part of the cover page of the online questionnaire participants were informed of the purpose of study before they were asked to provide their consent. They were also informed all responses were confidential, that their participation was voluntary, and they could opt out at any time. Participants were also informed any information that could potentially identify an individual such as email addresses would be anonymised. Before any participant could partake in the survey, they would be required to select a consent button.

Chapter 4 Findings and Analysis

This chapter details the characteristics of the sample population and will present the statistical analysis from the online questionnaire and the emerging themes from the open-end questions. The quantitative method will show if the characteristic that define a digital native compared to a digital immigrant are present among this sample population, while a qualitative method will identify any new emerging themes with regards to Trust and Anxiety that can further develop the Venkatesh *et al.* (2012) UTAUT2 model.

4.1 Demographics

All respondents had to be an Irish resident and over the age of 18 years. The gender of the sample is summarised in Table 3. A total of 255 respondents took the online questionnaire, of the 255 only 209 responses could be used. This was due to the survey capturing participant's age and gender before confirming if they were an Irish resident. If the participant was not an Irish resident, they were prevented from being able to continue with the survey even though their initial participation had been captured as a metric. Of the 209 participants 58% were Male, 40% were female and 1% identified themselves as 'other'.

DigitalNativenessCompositeScore * Gender

DigitalNativenessCompositeScore

Gender	Mean	N	Std. Deviation	% of Total Sum	% of Total N
Male	52.0492	122	7.83176	58.5%	58.4%
Female	51.8941	85	8.89492	40.6%	40.7%
Other	50.5000	2	.70711	0.9%	1.0%
Total	51.9713	209	8.22573	100.0%	100.0%

Table 3 Gender

The age group of the respondents for the study was distributed between the ages of 18 years of age to 65+ years of age, with the highest number of respondents, 40.2%, falling into the 31-39 age category. The second highest was the 40-54 age category at 32.5%, the lowest age category was the 18-24 at 3.8% followed by the 65+ at 5.3%. Due to the low level of participants among these two age groups it was decided to divide the generations into two categories, people born before 1980 and people born after. Originally it was hoped that there would be a significant number in each age category to see if there were any differences between the Digital Natives who grew up in the 1980's when PCs started to become common place and the more recent Digital Natives who have grown up with social media and

ecommerce.   As well as any difference among Digital Immigrants in the various age categories.

DigitalNativenessCompositeScore * Age

DigitalNativenessCompositeScore

Age	Mean	N	Std. Deviation	% of Total Sum	% of Total N
18-24	57.1250	8	11.07684	4.2%	3.8%
25-30	54.7391	23	6.68252	11.6%	11.0%
31-39	52.9405	84	7.05290	40.9%	40.2%
40-54	51.1324	68	8.84005	32.0%	32.5%
55-64	50.0667	15	6.62750	6.9%	7.2%
65+	42.8182	11	8.72718	4.3%	5.3%
Total	51.9713	209	8.22573	100.0%	100.0%

Table 4 Age

The highest level of education was an Undergraduate degree at 30%. This was followed by a master's degree at 27%. The age category for individuals who achieved these qualifications was 25 – 54 years of age. This means that the majority of participants in this study have a 3rd level education qualification. Hoffemann *et al.* (2014) stated that there is a 3rd grouping who they refer to as Naturalized Digitals. They define these individuals as middle-aged, educated and having web experience. They posit that these individuals are competent users of the Internet and are engaged in online media but too old to be considered digital natives.

DigitalNativenessCompositeScore * Education

DigitalNativenessCompositeScore

Education	Mean	N	Std. Deviation	% of Total Sum	% of Total N
Junior Certificate	48.6000	5	11.12654	2.2%	2.4%
Leaving Certificate	52.8696	23	10.87242	11.2%	11.0%
Post Leaving Certificate	50.5714	14	8.50081	6.5%	6.7%
Diploma	50.8286	35	8.30834	16.4%	16.7%
Undergraduate Degree	52.4603	63	8.07790	30.4%	30.1%
Master's Degree	53.0702	57	6.73970	27.8%	27.3%
PHD	47.0000	1	.	0.4%	0.5%
Other	49.0000	11	8.64870	5.0%	5.3%
Total	51.9713	209	8.22573	100.0%	100.0%

Table 5 Education

4.2 Experience

Participants were asked if they had ever used Internet Banking, Mobile Banking, or one of the pay channels such as Google, Apple or Samsung Pay. They were also asked if they had used other financial technologies. If they confirmed they had used another financial technology service, they were asked to list what they were. Internet Banking was the most popular financial technology solution with 92%. Digital Natives made up 55%, while 45% of Digital Immigrants had used Internet Banking. The reason for the popularity of Internet Banking could be because it has been around longer than the other solutions. Mobile Banking was the second most popular, with 80% of participants confirming they had used this service. Digital Natives made up most of the mobile banking population with 59% compared to 40% of Digital Immigrants. The new payment services from technology companies such as Google, Apple and Samsung consisted of 32% of the sample population with the majority again being Digital Natives which made up 61% of users, compared to 38% of Digital Immigrants. There was only 2% of the sample population that confirmed they had used more than 3 financial technology solutions. This group had an almost even split between digital natives and digital immigrants, with immigrants using Online Pension applications and trading apps, while Digital Natives had used money transfer apps such as TransferWise. The preference of these services between the two groups could be due to the stage of life that each of these individuals are at.

To measure experience participants were given a score based on how many financial technology solutions they had used, one was for only using one solution, 5 which was the highest score was given to individuals who had used 5 different financial technology solutions. Table 6 shows that only one individual had used at least 5 financial technology applications and they were a Digital Immigrant. The below table also shows that 98% of participants have some experience with a financial technology solution.

Digital Generation	0	1	2	3	4	5	Grand Total
Digital Immigrants	4	24	43	20	2	1	94
Digital Natives	1	20	55	38	1		115
Grand Total	**5**	**44**	**98**	**58**	**3**	**1**	**209**

Table 6 Experience

Participants were asked if they used the Internet every day to make payments and check their financial account details. The below graphs, Figure 3 and Figure 4, show that Digital Natives in 31-39 age category are the main users who state that they use the Internet every day for checking their financial accounts and to make payments.
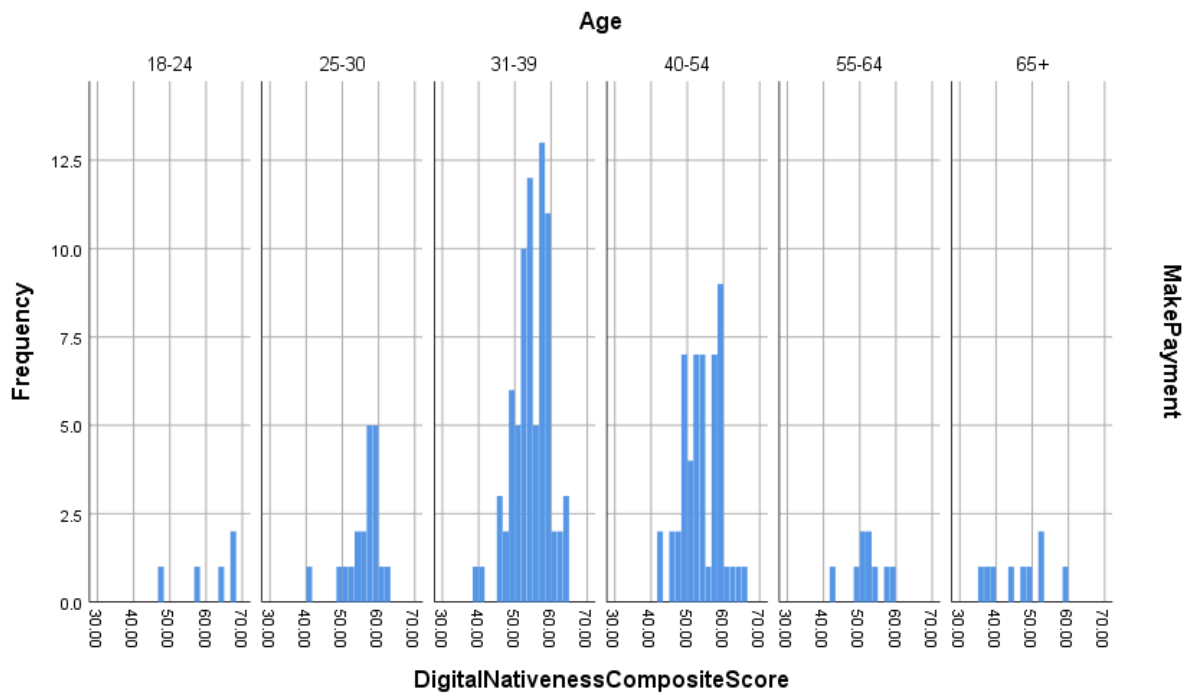
Figure 3 Digital Native Composite Score and Making Payments
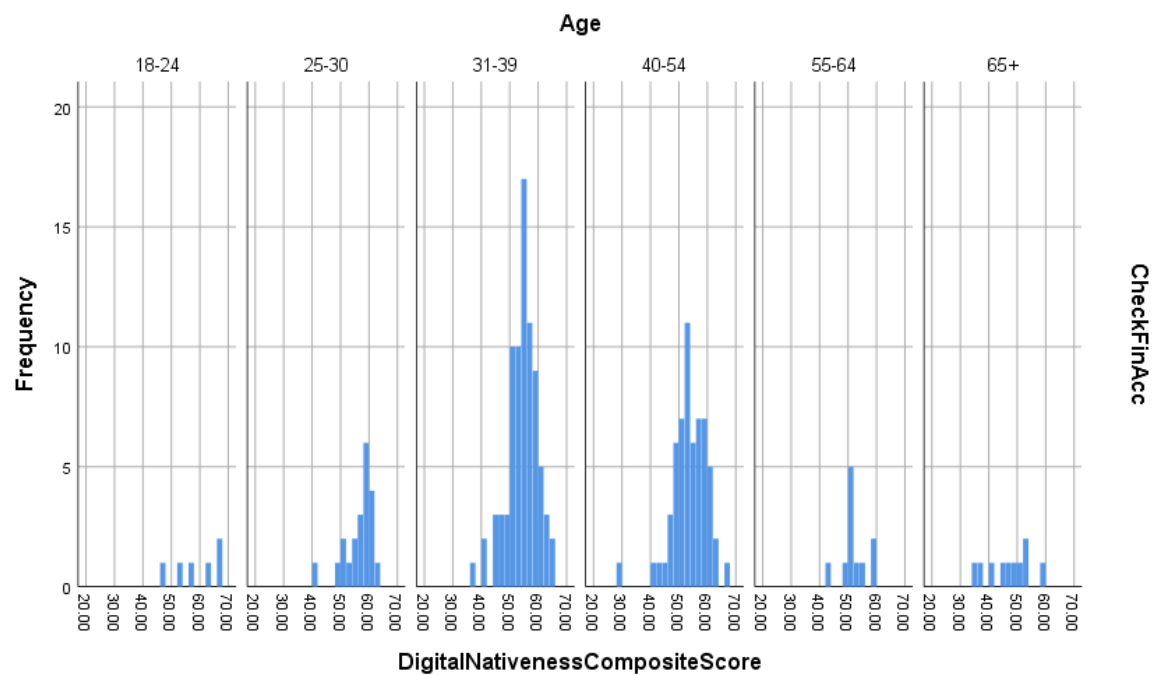
Figure 4 Digital Native Composite Score and Checking Accounts

4.2.1 Grown Up with Technology

Prensky (2001) states that Digital Natives have spent their entire lives surrounded by use of computers, cell phones, and the Internet. To explore this, participants were asked to select

the activities they used the Internet for daily, such as studying, work, leisure, keeping in contact with friends and family, and listening to music. These specific activities are drawn from Teo (2013) Digital Native Assessment survey.

Among Digital Natives and Digital Immigrants, the use of the Internet for activities like Leisure and keeping in contact with family where the most common. For Digital Natives it was 56.52% and for Digital Immigrants it was 63.82%. Table 7 shows that Internet usage among individuals born before 1980 is similar to the usage for individuals born after 1980. Oblinger and Oblinger (2005) posit that regardless of age, individuals who would use technology excessively would share similar characteristics to digital native.

Q. I use the Internet on a daily basis for	Digital Native	Digital Immigrant
Population	115	94
Leisure	56.52	63.82
Keeping in contact with Friends and Family	53	57.44
Listening to music	43.47	34.04
Studying	16.52	11.7
Work	45.21	53.19

Table 7 Internet Activities

4.3 Scale Reliability test for Digital Native and Digital Immigrant

The Cronbach's alpha test which was developed by Cronbach in 1951 and is the most commonly used method in acquiring reliability in terms of internal consistency (Katsayisi, 2017). According to Vaske *et al.* (2017) Cronbach Alpha is used to examine the internal consistency or reliability of summed rating scale. To do this the scale must contain multiple items that are combined by either summing or averaging techniques. They state that each item in the scale must reflect the concept that is being measured. Also, there are no right or wrong answers to the questions in the scale. They state that a 7-point scale ranging from strongly agree to strongly disagree is more precise than a 2-point scale. This allows for individuals who feel strongly about an item to be differentiated from those who have moderate feelings about the same item (Vaske *et al.* 2017). A Likert 7-point scale was used to explore the Digital Nativeness of participants within this study. The Cronbach Alpha for these questions was .751, according to Santos (1999) .70 is the cut-off value for the Cronbach

Alpha's reliability to be considered acceptable. The Cronbach Alpha for the Digital Native questions is presented in Table 8.

4.3.1 Digital Native Cronbach Alpha

Case Processing Summary

		N	%	**Reliability Statistics**	
Cases	Valid	209	76.0		
	Excluded[a]	66	24.0	Cronbach's Alpha	N of Items
	Total	275	100.0	.751	11

Table 8 Cronbach Alpha Digital Native

4.3.2 Trust Questionnaire Cronbach Alpha

For questions on Trust the Cronbach's Alpha rating was strong. The below table provides the case summary and reliability statistics respectively. The value for the Trust construct is .920 which is presented in Table 9.

Case Processing Summary

		N	%	**Reliability Statistics**	
Cases	Valid	208	75.6		
	Excluded[a]	67	24.4	Cronbach's Alpha	N of Items
	Total	275	100.0	.920	4

Table 9 Cronbach Alpha Trust

4.3.3 Anxiety Questionnaire Cronbach Alpha

Four questions explored Anxiety among participants. The Cronbach's Alpha rating for the Anxiety questions was .874. as presented in Table 10.

Case Processing Summary

		N	%	Reliability Statistics	
Cases	Valid	209	76.0		
	Excluded[a]	66	24.0	Cronbach's Alpha	N of Items
	Total	275	100.0	.874	4

Table 10 Cronbach Alpha Anxiety

4.4 Digital Native and Digital Immigrant

Questions relating to how comfortable a participant is with multitasking, how much they relied on graphics for communication, and if they thrive on instant gratification and rewards were all captured using a Likert-7-point scale. In the scale, if a participant selected one in relation to a statement, they were confirming they strongly disagree with the statement, while if they selected seven, they were confirming they strongly agreed. SPSS was used for the quantitative analysis; through SPSS a composite score was given for the Digital Nativeness of individuals based on the set of questions. A score of 70 meant the participant showed strong alignment to the characteristics of being a Digital Native, while a score of 10 showed limited association to these characteristics. To measure the digital nativeness of the participants in both groups, an Independent T-Test and Mann-Whitney U tests were conducted. For these tests the dependent variable was the composite score variable that was created in SPSS, the Independent variable was the Generation variable that broke the participants into two groups (individuals born before 1980 and individuals born after 1980). These tests were conducted to test the null hypothesis that there would be no difference between both sample groups since each group had experience with financial technology and using the internet.

For the null hypothesis to be true or accepted, the p value must be greater than the chosen alpha value of 0.05. If the p value is less than 0.05, then the null hypothesis must be rejected and the alternative hypothesis must be accepted, that a difference between both sample groups exists.

As part of the Independent T-Test in SPSS, a Levene's Test for equality of variance was also conducted. The Levene's Test variance provided an F value of 1.295 and significance value of .256 which is greater than 0.05 alpha level meaning the group variance can be treated as equal.

As can be seen from the Independent T Test in Table 12 there was a significant difference in the scores for participants born after 1980 (M= 53.3, SD=7.0) and participants born before 1980 (M=49.7, SD=8.5), t(3.385), p=.001.

Group Statistics

	GenerationCategoryVariable	N	Mean	Std. Deviation	Std. Error Mean
DigitalNativeCompositeScore	Age over 1980	115	53.3913	7.08420	.66061
	Before 1980	94	49.7292	8.55490	.88237

Table 11 Group Statistics for Digital Native and Digital Immigrant

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
DigitalNativeCompositeScore	Equal variances assumed	1.295	.256	3.385	207	.001	3.66210	1.08170	1.52953	5.79466
	Equal variances not assumed			3.322	180.270	.001	3.66210	1.10226	1.48711	5.83709

Table 12 Independent T Test for Digital Native

Figure 5 is a graphical representation of Digital Native Composite score distribution for both groups. Both categories look to be of a normal distribution but as can be seen in the QQ plot in Figure 6 there are some deviations from the line. To confirm the data is normally distributed a Shapiro-Wilk test was conducted.
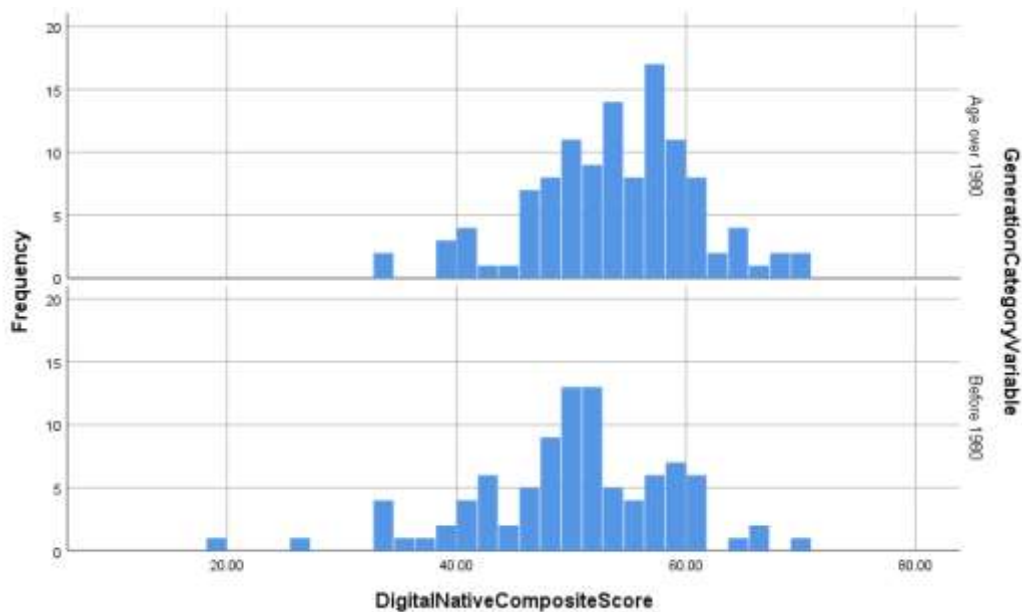
Figure 5 Digital Native Composite Score Histogram
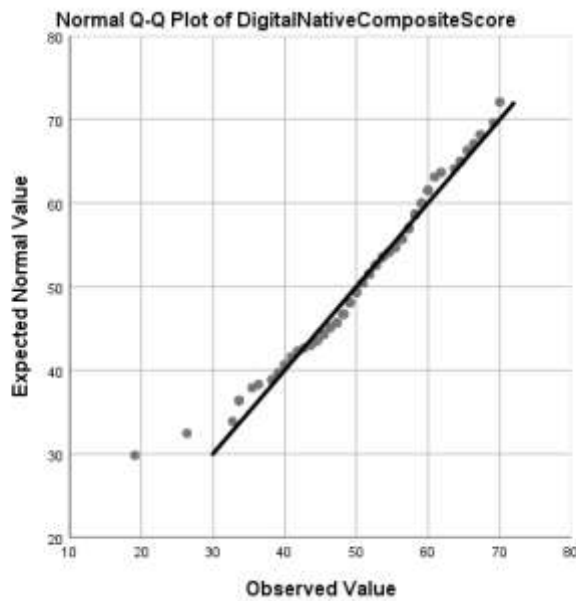
Figure 6 QQ Plot for Digital Native

The Shapiro-Wilk's test of normality informs if normality is present in the sample data's distribution by using a null hypothesis. The null hypothesis H0 assumes the data is normally distributed. If the P value is greater than 0.05, the null hypothesis is accepted, and the data is deemed as being normally distributed. Normalised distribution of data allows for parametric tests like the Independent T test to be run. However, if the p value is less than 0.05, the alternative hypothesis H1 is accepted, that data is not normally distributed and a non-parametric test like the Mann-Whitney U test is required.

The Shapiro-Wilk's test of normality indicates there is a significant deviation from the normality for both groups. BornAfter1980CompScore=.972, df=209, p = .000. Since p <0.05 the null hypothesis is rejected.

Due to the absence of normality, a descriptive statistical analysis was conducted. Table 13 shows the mean and median for both groups, for participants born after 1980 they have a mean of (53.39), median of (53.63), and a skewness of (-.335), while participants born before 1980 have a mean of (49.72), a median of (50.00), and a skewness of (-.688).

Statistics

DigitalNativeCompositeScore

	N	Valid	0
		Missing	66
Age over 1980	N	Valid	115
		Missing	0
	Mean		53.3913
	Median		53.6364
	Mode		56.36
	Skewness		-.335
	Std. Error of Skewness		.226
	Kurtosis		.421
	Std. Error of Kurtosis		.447
Before 1980	N	Valid	94
		Missing	0
	Mean		49.7292
	Median		50.0000
	Mode		48.18[a]
	Skewness		-.688
	Std. Error of Skewness		.249
	Kurtosis		1.342
	Std. Error of Kurtosis		.493

Table 13 Digital Native Descriptive Statistics

To confirm if there is a statistically significant difference between both sets of participants with regards to their alignment to Digital Native, a non-parametric Mann-Whitney U test was conducted.

4.4.1 Digital Native Test

The mean rank for people born after 1980 is 117.12, while for people born before 1980 is 90.18. Tables 14 and 15 present the results of the Mann-Whitney U test and show that the p value is less than the alpha value of 0.05. This implies that statistically there is a significant difference between both sets of groups with regards to the digital nativeness of individuals born after 1980 compared to individuals born before 1980. Based on these results the null hypothesis H0 is to be rejected and the alternative hypothesis H1 is to be accepted.

P > H0: There are no differences between the individuals born before 1980 and individuals born after 1980 with regard to digital nativeness within the sample population.

P < H1: Individuals born after 1980 have more Digital Native characterises than individuals born before 1980.

Ranks

	GenerationCategoryVariable	N	Mean Rank	Sum of Ranks
DigitalNativeCompositeScore	Age over 1980	115	117.12	13468.50
	Before 1980	94	90.18	8476.50
	Total	209		

Table 14 Mean Rank for Digital Native

Test Statistics[a]

	DigitalNativeCompositeScore
Mann-Whitney U	4011.500
Wilcoxon W	8476.500
Z	-3.207
Asymp. Sig. (2-tailed)	.001

a. Grouping Variable: GenerationCategoryVariable

Table 15 Mann-Whitney U test results for Digital Native

The Digital Native composite score encompasses the characteristics were statistically higher for participants who were born after 1980, than they were for participants born before 1980. This finding correlates to the concept of Digital Natives and Digital Immigrants as proposed by Prensky (2001).

4.5 Gender

Gender has been determined as a moderating variable to the adoption of technology. The following test explored if there was any correlation between gender and digital nativeness of participants. The distribution of the 3 genders is presented in the below histograms, Figure 7. Descriptive statistics for these groups are presented in Appendix 1.
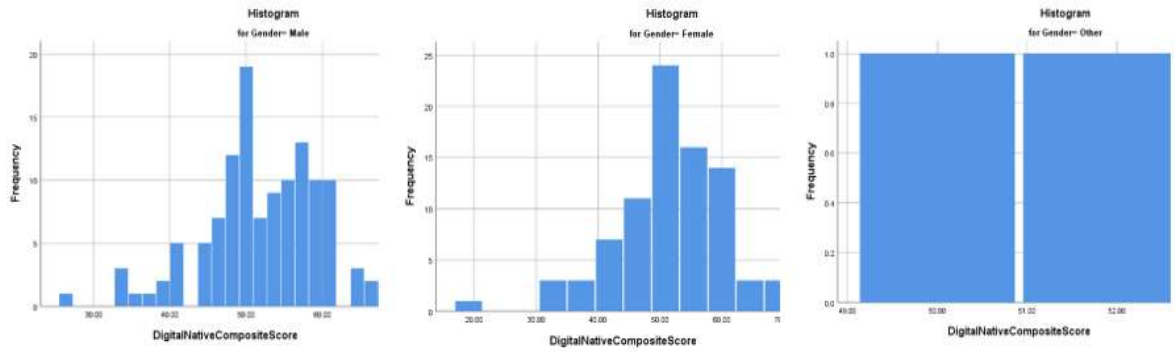
Figure 7 Digital Native Gender

To test for normality a Shapiro-Wilk's test was conducted. Table 16 presents the results which indicate there is a significant deviation from normality with regards to gender.

Male =.973, df=122, p<0.05, Female =.963, df=85, p<0.05.

Tests of Normality

	Gender	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
DigitalNativeCompositeScore	Male	.094	122	.010	.973	122	.014
	Female	.101	85	.032	.963	85	.017
	Other	.260	2	.			

Table 16 Normality test Gender

As deviations in normality were identified a Kruskal Wallis H test was conducted to see if there was a significant statistical difference in digital nativeness among the gender groups. The null hypothesis is that there is not, for the null hypothesis to be accepted the p value must be less than the alpha value of 0.05. The results in Figure 8 show that there is no correlation between gender and digital nativeness and that the null hypothesis is to be accepted. Gender = .109, df=2, p > 0.05
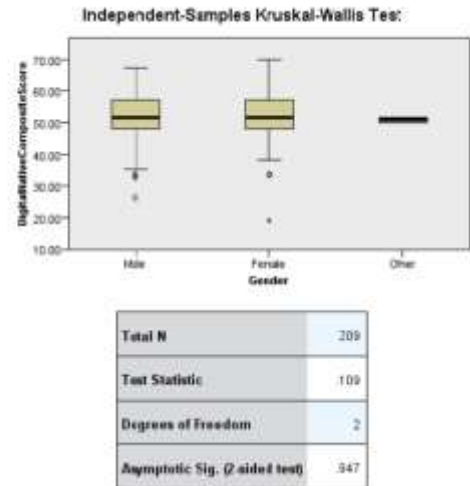
Figure 8 Kruskal Wallis H Test for Gender

4.6 Education

Kruskal-Wallis Test was also conducted on Education to see if the level of education a participant had any correlation to their level of digital nativeness. Results from the Kruskal-Wallis test are Education = 5.828, df=7, p> 0.05, since the p value is greater than the alpha value of 0.05 the null hypothesis is accepted. There is no correlation between education and the association a participant has with the characterises of a Digital Native. The results from the Kruskal-Wallis test are presented in Figure 9.
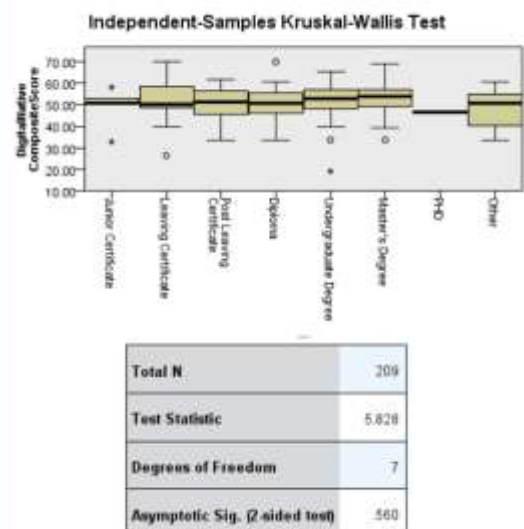
Figure 9 Kruskal-Wallis Test for Education

4.7 Behavioural Intention

The below scatter plot shows that people who score high on the Digital Native Composite Score also score high in their intention to use financial technology. Behavioural Intention to use financial technology is on the X axis and goes from 1 strongly disagree to 7 strongly agree. The Digital native score is on the Y axis goes from 10 which is the lowest score to 70 being the highest score.
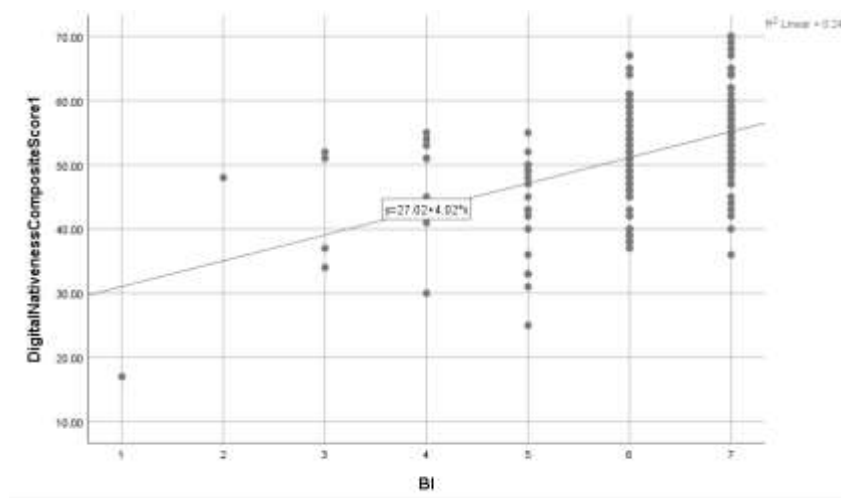
Figure 10 Scatter Plot for Behavioural Intention

A Spearman Correlation was conducted to show the monotonic relationship between the two variables. Results in Table 17 show there is a moderate correlation between Behavioural Intention and Digital Native (correlation = .474, p <0.05). Figure 11 and Figure 12 show the distribution of responses from both set of participants.

Correlations

			BI	DigitalNativeCompositeScore
Spearman's rho	BI	Correlation Coefficient	1.000	.474[**]
		Sig. (2-tailed)	.	.000
		N	209	209
	DigitalNativeCompositeScore	Correlation Coefficient	.474[**]	1.000
		Sig. (2-tailed)	.000	.
		N	209	209

**. Correlation is significant at the 0.01 level (2-tailed).

Table 17 Spearman Correlation Test for Behavioural Intention
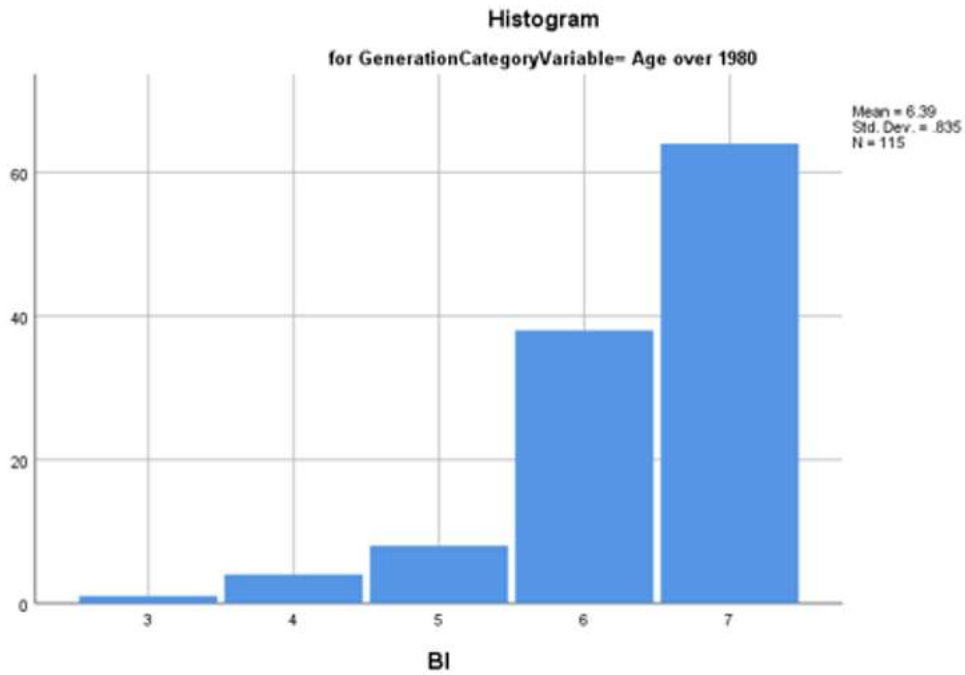
Figure 11 Digital Native Behavioural Intention Histogram
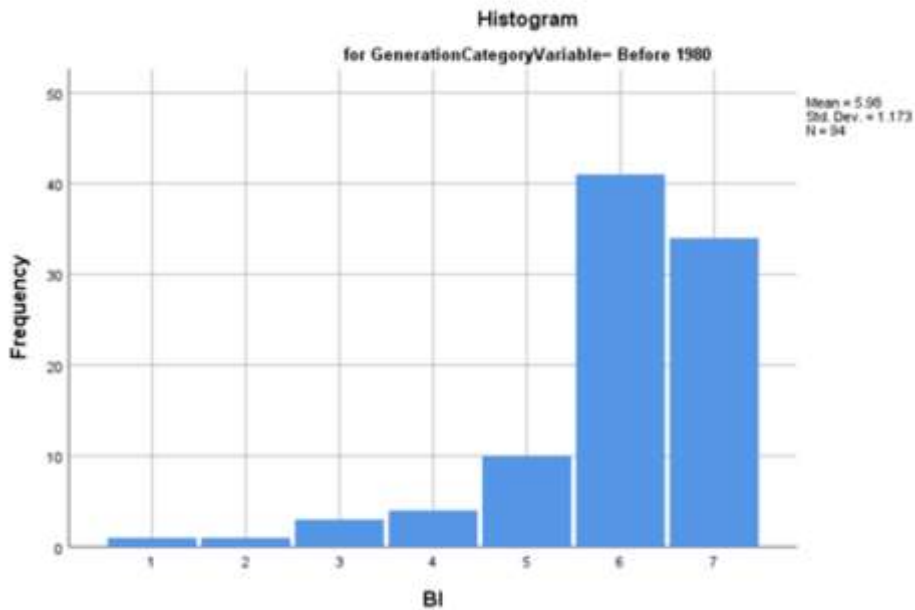
Figure 12 Digital Immigrant Behavioural Intention Histogram

To further explore this relationship a descriptive statistical analysis was done on both groups and is presented in Appendix 3. The mean for individuals born after 1980 is 6.39, while the mean for individuals born before 1980 is 5.98. To check if this difference is statistically significant an Independent T-Test was conducted.

The results presented in Table 18 show that there is a significant difference between participants BornAfter1980 (M=6.39, SD=.835) and BornBefore1980 (M=5.98, SD=1.173) conditions; 2.965(207), p=.003

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
BI	Equal variances assumed	.678	.411	2.965	207	.003	.413	.139	.138	.687
	Equal variances not assumed			2.868	163.098	.005	.413	.144	.129	.697

Table 18 Independent T Test for BI

Shapiro-Wilk's test was produced to check the data was normally distributed. As before the null hypothesis assumes that normality is presented. For the null hypothesis to be accepted the p value must be greater than 0.05. The results from the Shapiro-Wilk's on normality are presented in Table 19. These results show there is a statistically significant deviation from normality for both groups.

Tests of Normality

	GenerationCategoryVariable	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
BI	Age over 1980	.324	115	.000	.716	115	.000
	Before 1980	.305	94	.000	.758	94	.000

Table 19 Normality Test for BI

Due to the findings from the Shapiro-Wilk's test a Mann-Whitney U test was done as part of the analysis to see if there is a significant difference between the behavioural intentions for the adoption of financial technology among the two sample groups.

The medians of individuals born after 1980 and individuals born before 1980 were 7 and 6, respectively (Appendix 3). The Mann-Whitney's U test was done to evaluate the difference in the responses of 7-Likert scale question on behavioural intention for the adoption of financial technology. The findings imply a significant effect of Group (The mean ranks of individuals born after 1980 and individuals born before 1980 were 115.15 and 92.58 respectively; $U = 4237.5$, $Z = -2.925$, $p < 0.05$). The Mann-Whitney U test suggests there is a significant difference between the behavioural intentions of both groups. From this test we concluded that the behavioural intention to adopt financial technology is statistically significantly higher among individuals born after 1980 than it is compared to individuals born before 1980. The results mean the null hypothesis is to be rejected and our alternative hypothesis H5 can be accepted. Results from the Mann-Whitney U test are presented in Table 20 and 21.

P <H5: Digital Nativeness is a moderating variable for behavioural Intentions to use and adoption financial technology.

Ranks

	GenerationCategoryVariable	N	Mean Rank	Sum of Ranks
BI	Age over 1980	115	115.15	13242.50
	Before 1980	94	92.58	8702.50
	Total	209		

Table 20 Rank Mean for BI

Test Statistics

	BI
Mann-Whitney U	4237.500
Wilcoxon W	8702.500
Z	-2.925
Asymp. Sig. (2-tailed)	.003

Table 21 Mann-Whitney U test for BI

4.8 Effort Expectancy

Figure 13 is a scatterplot that shows the higher an individual achieves in the Digital Native composite score, the more likely they are to perceive that using financial technology is easy for them to do. Davis (1989) TAM model, Venkatesh and Bala, 2008; Venkatesh and Davis, 2000; Venkatesh *et al.* (2012) all have perceived Ease of Use or Effort Expectancy as a key determinant for the adoption of technology. Figure 14 and 15 show that individuals born after 1980 agree and strongly agree with this statement more than individuals born before 1980.
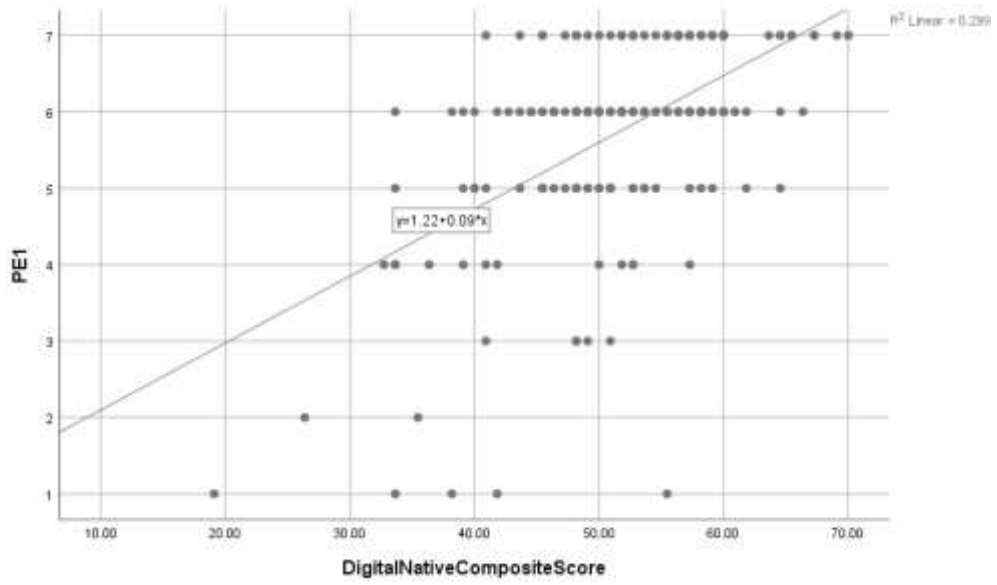
Figure 13 Scatter plot for Effort Expectancy
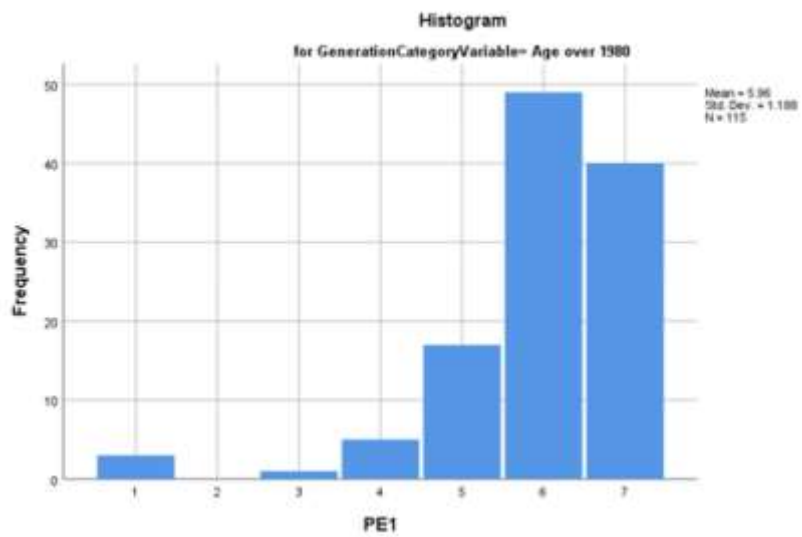
Figure 14 Effort Expectancy for Digital Native
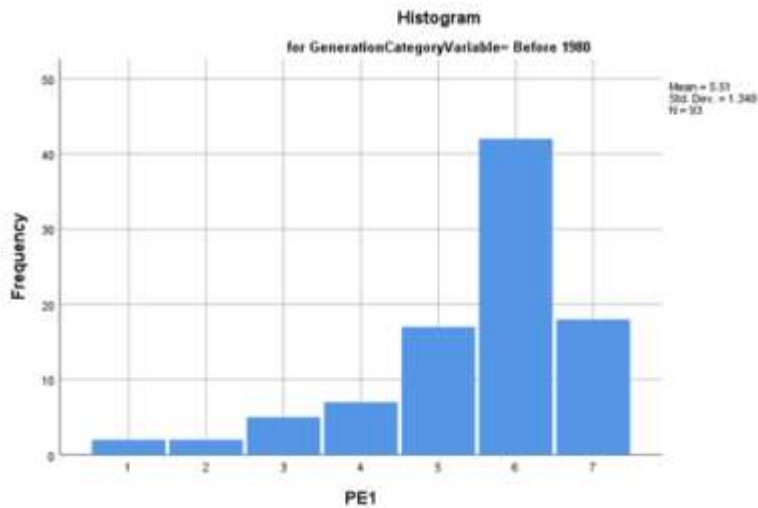
Figure 15 Effort Expectancy for Digital Immigrant

The Shapiro-Wilk test shows that responses for the effort expectancy questions was not normalised, as the p value was less than the alpha value of 0.05. BornAfter1980= .289, df=115, p < 0.05, BornBefore1980 = .288 Df=93, p<0.05. Results from the Shaprio-Wilk test can be seen in Table 22.

Tests of Normality

	GenerationCategoryVariable	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
PE1	Age over 1980	.289	115	.000	.738	115	.000
	Before 1980	.288	93	.000	.823	93	.000

Table 22 Normality Test for Effort Expectancy

The mean for individuals born after 1980 and before 1980 were 5.96 and 5.51 respectively. The medians for both groups were 6. Descriptive for Perceived Effort Expectancy are displayed in Table 23 and the full list is presented in Appendix 3.

Born After 1980	Descriptive	
	Mean	5.96
	Median	6
Born Before 1980		
	Mean	5.51
	Median	6

Table 23 Descriptive for Effort Expectancy

The Mann-Whitney's U test was produced to evaluate the difference in the responses of our 7-Likert scale question on effort expectancy with regards to financial technology. The results

(mean ranks of individuals born after 1980 was 114.47, and the mean ranks for individuals born before 1980 were 92.17; U =4200.500, Z = -2.817, p < 0.05). From this data we can conclude and validate our second hypothesis H2, that there is a significant difference between the Effort Expectancy between both groups. That is, individuals born after 1980 feel that using financial technology is easy to do compared to individuals born before 1980. This finding would suggest that Prensky's (2001) suggestion that individuals born after 1980 are more tech-savvy due to the fact they have grown up and immersed themselves with interacting with digital technology could be valid.

> H2: Individuals born after 1980 will perceive financial technologies easier to use than individuals born before 1980

Ranks

	GenerationCategoryVariable	N	Mean Rank	Sum of Ranks
PE1	Age over 1980	115	114.47	13164.50
	Before 1980	93	92.17	8571.50
	Total	208		

Table 24 Ranked Means for Effort Expectancy

Test Statistics[a]

	PE1
Mann-Whitney U	4200.500
Wilcoxon W	8571.500
Z	-2.817
Asymp. Sig. (2-tailed)	.005

Table 25 Mann-Whitney U test for Effort Expectancy

4.9 Fun

According to Prensky (2001) Digital Immigrants think that learning cannot be fun. Venkatesh, *et al.* 2012) UTAUT2 model identified Hedonic motivation as a moderating variable for the adoption of technology. Hedonic motivation is the fun or enjoyment derived from using a technology (Venkatesh, *et al,* 2012). The breakdown between individuals born before 1980 and after 1980 can been seen Figure 16. The scatter plot in Figure 17 shows a positive trend, where the higher on the Digital Native score the more likely the participant is to perceive the use of financial technology as something fun to do.
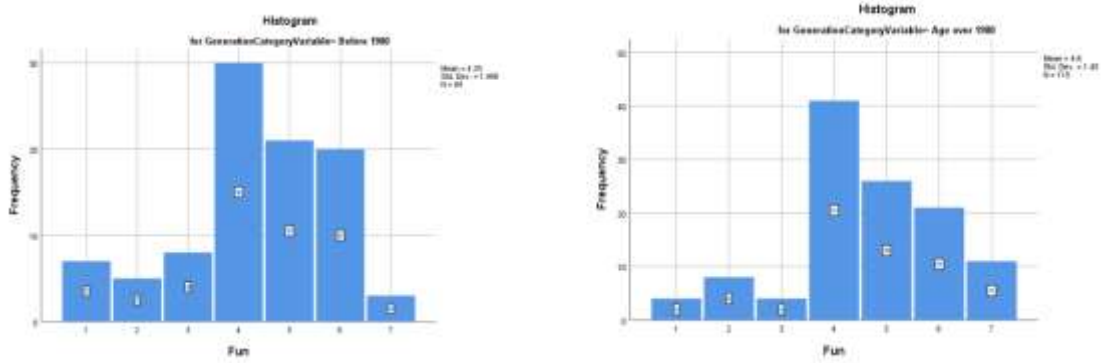
Figure 16 Fun Histogram
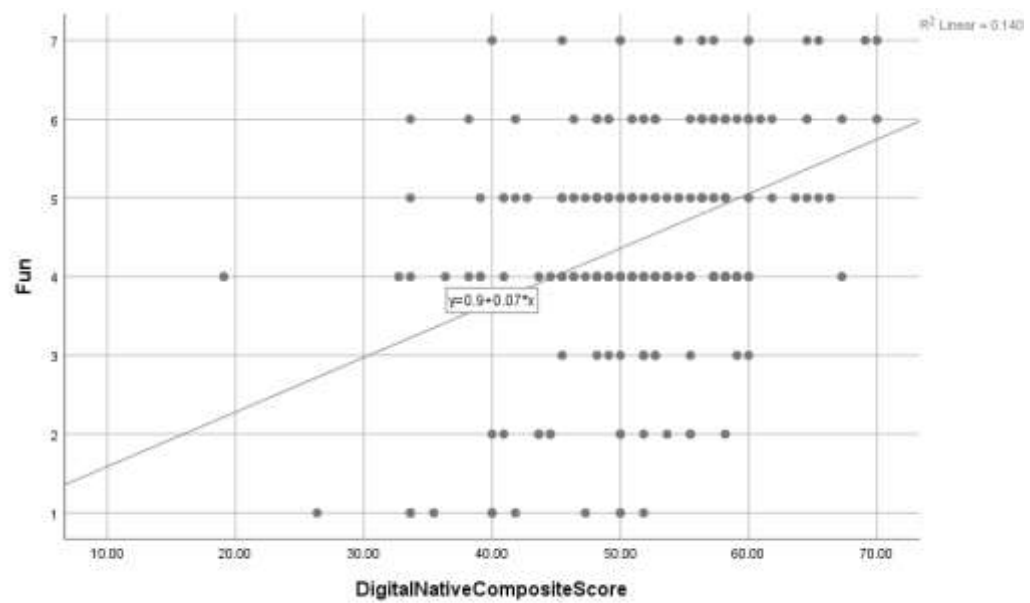
Figure 17 Scatter plot for Fun

A Shapiro-Wilk test shows that the data is not normally distributed as can been seen in Table 26. Fun (BornAfter 1980 = .919, df=115, p < 0.05,), (BornBefore1980 = .913, df=94, p< 0.05).

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	GenerationCategoryVariable	Statistic	df	Sig.	Statistic	df	Sig.
Fun	Age over 1980	.200	115	.000	.919	115	.000
	Before 1980	.200	94	.000	.913	94	.000

Table 26 Normality Test for Fun

48

Since the data is not normally distributed a Mann-Whitney U test was run instead of an Independent T test. The medians of individuals born after 1980 and individuals born before 1980 were 5 and 4 respectively. Mann-Whitney U test evaluates the difference in the responses of our 7-Likert scale question on Fun as part of the UTAUT2 construct for the adoption of financial technology. The results imply that there is not a significant effect. The mean ranks of individuals born after 1980 and individuals born before 1980 were 109.13 and 99.94; U = 4929.5, Z = -1.127, p = .260. As the p value is greater than the alpha value of 0.05, the null hypotheses must be accepted.   The Mann-Whitney U test suggests there is no significant difference between the fun construct between both groups.   From this test we concluded that the perception of fun when using financial technology is not statistically significant among individuals born after 1980. Results from the Mann-Whitney U test are shown in Table 27 and Table 28.

Ranks

	GenerationCategoryVariable	N	Mean Rank	Sum of Ranks
Fun	Age over 1980	115	109.13	12550.50
	Before 1980	94	99.94	9394.50
	Total	209		

Table 27 Rank Mean for Fun

Test Statistics[a]

	Fun
Mann-Whitney U	4929.500
Wilcoxon W	9394.500
Z	-1.127
Asymp. Sig. (2-tailed)	.260

Table 28 Mann-Whitney U test for Fun

4.10 Habit

Figure 18 and 19 display the distribution of responses between the two groups. Venkatesh *et al.* (2013) identified habit in their UTAUT2 model as a moderating variable for behavioural intention for the adoption and use of technology.
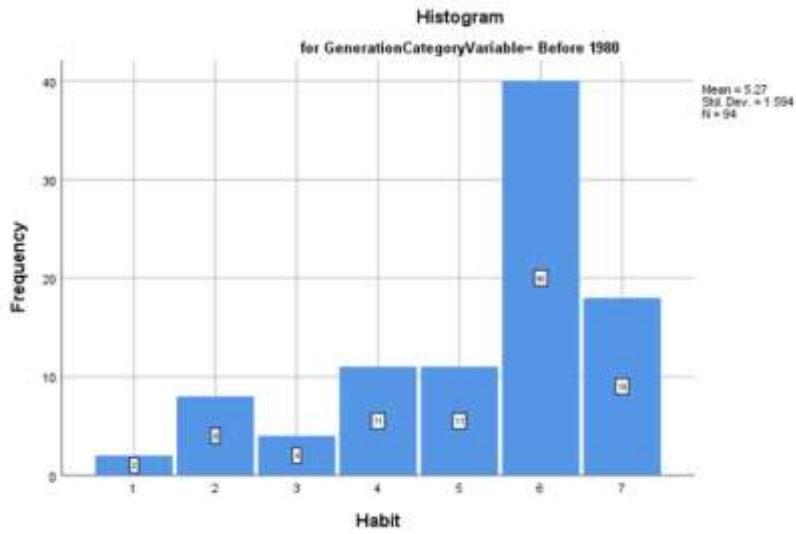
Figure 18 Digital Immigrant Habit
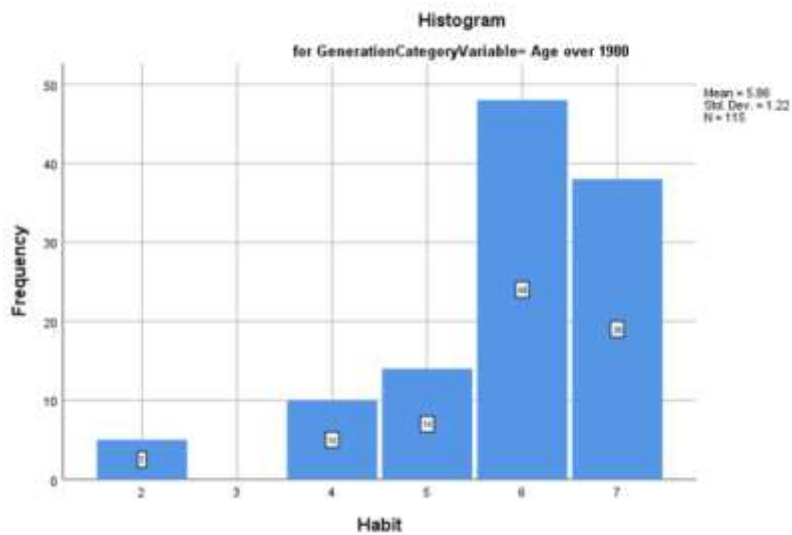
Figure 19 Digital Native Habit

Results from the Shapiro-Wilk test shows the data is not normally distributed, as the p value is less than 0.05 as can be seen in Table 29. BornAfter1980= .788, df=115, p < 0.05, BornBefore1980 = .836 Df=94, p<0.05

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	GenerationCategoryVariable	Statistic	df	Sig.	Statistic	df	Sig.
Habit	Age over 1980	.293	115	.000	.788	115	.000
	Before 1980	.294	94	.000	.836	94	.000

Table 29 Normality Test for Habit

The Mann-Whitney U Test results show there is a statistically significant difference as shown in Table 30 and Table 31. The mean ranks of individuals born after 1980 and individuals born before 1980 were 115.13 and 92.61; U =4240.00, Z = -2.818, p = .005. These results conclude that Habit construct for the use and adoption of financial technology is greater among individuals born after 1980.

Ranks

	GenerationCategoryVariable	N	Mean Rank	Sum of Ranks
Habit	Age over 1980	115	115.13	13240.00
	Before 1980	94	92.61	8705.00
	Total	209		

Table 30 Rank Mean for Habit

Mann-Whitney U	4240.000
Wilcoxon W	8705.000
Z	-2.818
Asymp. Sig. (2-tailed)	.005

Table 31 Mann-Whitney U test for Habit

Venkatesh *et al.* (2012) acknowledge that habit can strengthen or weaken the relationship between behavioural intention and technology use. Kesharwani (2019) states that a Habit demonstrates behavioural persistence over time. He posits that while individuals will perform behaviours for which they have a strong behavioural intention for, they eventually fail on these intentions and fall back to past behaviour patterns which he defines as habit. With Digital Native's staying connected all the time and using the Internet for daily activities such as work and looking up financial information and making payments, it is no surprise that using financial technology has become habitual for them.

4.11 Performance Expectancy (Perceived Usefulness)

For the perceived usefulness of financial technology 40% strongly agreed that using financial technology allowed them to accomplish things more quickly, while 38% agreed, 11% somewhat agreed ,7% did not agree nor disagree and less than 1% disagreed. Figure 20 and 21 present the distribution of responses from both groups. Results from the Shapiro-Wilk test are; BornAfter1980=.780, df=115, p < 0.05; BornbBfore1980 =.817, df=94, p < 0.05. The data was not normally distributed based on the Shapiro-Wilk test as can been seen in Table 32.

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	GenerationCategoryVariable	Statistic	df	Sig.	Statistic	df	Sig.
PU1	Age over 1980	.263	115	.000	.780	115	.000
	Before 1980	.277	94	.000	.817	94	.000

Table 32 Normality Test for Performance Expectancy
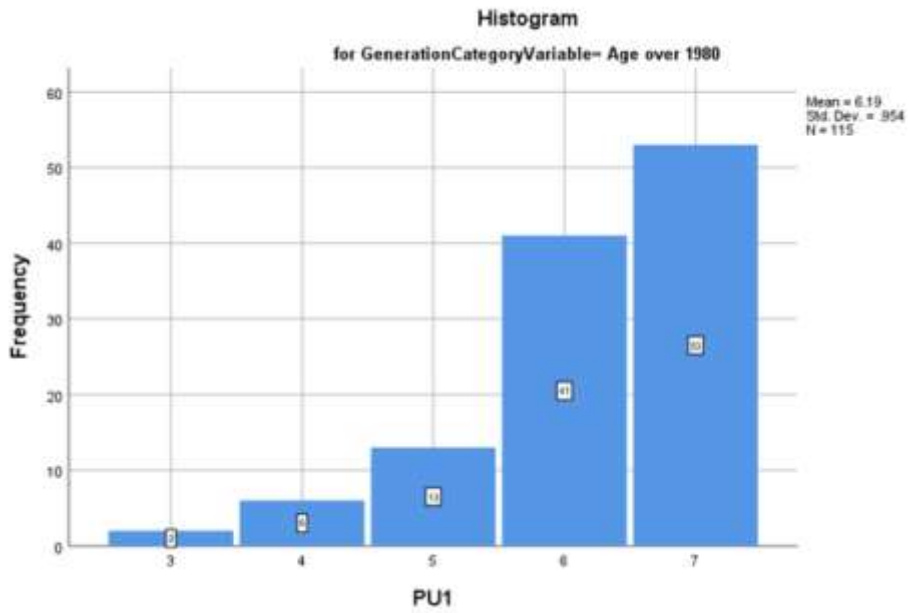
Figure 20 Digital Native Performance Expectancy
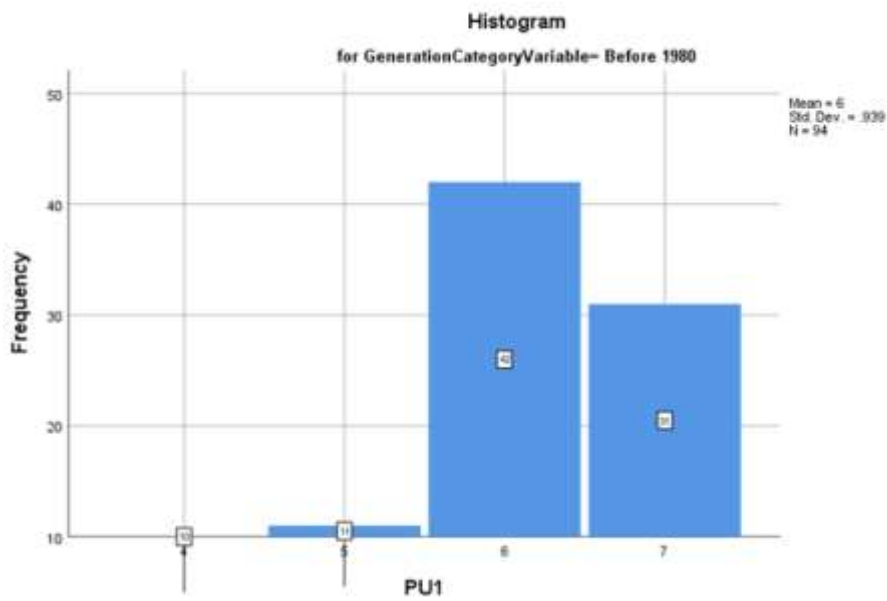
Figure 21 Digital Immigrant Performance Expectancy

Based on the Mann-Whitney U Test results there is not a statistically significant difference between both groups with regards to the perceived usefulness of financial technology. The mean ranks of individuals born after 1980 and individuals born before 1980 were 111.17 and 97.46; U =4696.00, Z = -1.747, p = .081. These results are presented in Table 33 and 34. Based on this result we reject our alternative hypothesis H3.

P > H3: Individuals born after 1980 will perceive financial technologies more useful than individuals born before 1980.

Ranks

	GenerationCategoryVariable	N	Mean Rank	Sum of Ranks
PU1	Age over 1980	115	111.17	12784.00
	Before 1980	94	97.46	9161.00
	Total	209		

Table 33 Mean Ranks for Performance Expectancy

Test Statistics[a]

	PU1
Mann-Whitney U	4696.000
Wilcoxon W	9161.000
Z	-1.747
Asymp. Sig. (2-tailed)	.081

Table 34 Mann-Whitney U test for Performance Expectancy

4.12 Social Influence

Social Influence is defined as the extent to which an individual perceives the importance of others such as family and friend's belief that they should use a particular technology (Venkatesh *et al.* 2012). The social Influence construct of the UTAUT model resulted in 34.93% neither agreeing nor disagreeing. This was the highest out of all the response rates. The distribution between the two groups can be seen in Figure 22. Data was not normally distributed based on the results from the Shapiro-Wilk test shown in Table 35. Results from the Mann-Whitney U test indicate that there is no significant difference between both groups due to the p value being greater than 0.05. The results are; mean ranks for people born after 1980 were 108.87, the mean rank for people born before 1980 was 100.26, U =4959.500, Z = -1.055, p = .292. This means the null hypothesis that there is no difference between the two groups must be accepted.

Tests of Normality

	GenerationCategoryVariable	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
SI	Age over 1980	.172	115	.000	.904	115	.000
	Before 1980	.200	94	.000	.923	94	.000

Table 35 Normality test for Social Influence
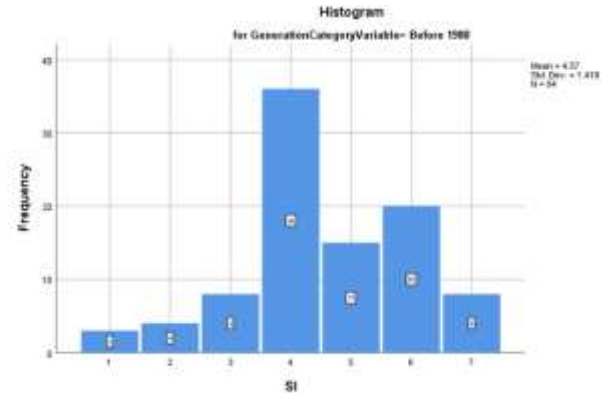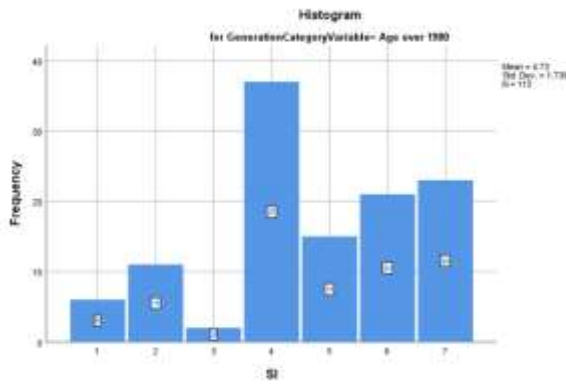
Figure 22 Social Influence

Ranks

	GenerationCategoryVariable	N	Mean Rank	Sum of Ranks
SI	Age over 1980	115	108.87	12520.50
	Before 1980	94	100.26	9424.50
	Total	209		

Table 36 Rank Mean for Social Influence

Test Statistics[a]

	SI
Mann-Whitney U	4959.500
Wilcoxon W	9424.500
Z	-1.055
Asymp. Sig. (2-tailed)	.292

Table 37 Mann-Whitney U Test for Social Influence

4.13 Facilitating Condition

Facilitating Condition is when an organisation provides resources such as manuals, documents or trainers within the environment that makes the use of the service more amenable. Facilitating Condition is a construct of the Venkatesh *et al.* (2013) UTAUT2 model. To test this construct participants were asked if they believe they were provided with enough online assistance and if they had the resources such as Internet access, laptop, smartphone etc. to use financial technologies. Palfery and Gasser (2008) state that one of the biggest concerns is the digital divide that can happen when individuals do not have the opportunities to interact with technology.

4.13.1 Online Assistance

Due to the variance in age groups, participants were asked if they felt they had enough online assistance when using financial technology. 18% strongly agreed, 43.54% agreed, 20.57% somewhat agreed, 8.61% neither agreed nor disagreed, 7.18% somewhat disagreed, 1.44 disagreed and 0.48% strongly disagreed. Table 38 shows the results from the Shapiro-Wilk test for normality which resulted in a p value greater than 0.05 (BornAfter1980 = .846, df=115, p < 0.05; BornBefore1980 = .869, df =94, p > 0.05.

Results from the Mann-Whitney U test are: BornAfter1980 mean rank = 107.55, BornBefore1980 mean rank = 101.88, U= 5111.500, Z = -.711, p = .477. These results are presented in Table 40 and conclude that there is no difference and the null Hypothesis must be accepted.

Tests of Normality

	GenerationCategoryVariable	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
FC1	Age over 1980	.276	115	.000	.846	115	.000
	Before 1980	.270	94	.000	.869	94	.000

Table 38 Normality Test for Online Assistance

Mann-Whitney U

Ranks

	GenerationCategoryVariable	N	Mean Rank	Sum of Ranks
FC1	Age over 1980	115	107.55	12368.50
	Before 1980	94	101.88	9576.50
	Total	209		

Table 39 Rank Mean for Online Assistance

	FC1
Mann-Whitney U	5111.500
Wilcoxon W	9576.500
Z	-.711
Asymp. Sig. (2-tailed)	.477

Table 40 Mann-Whitney U Test for Online Assistance

4.13.2 Resources

To ensure that all participants had the opportunity to use financial technology they were asked to confirm they had the necessary resources such as access to the Internet, Laptop, tablet, or smartphone. 96.65% fell into the agreement categories. The distribution of data under this construct was not normally distributed. Results from the Shapiro-Wilk test had a p value less than 0.05 as can been seen in Table 41.

Tests of Normality

	GenerationCategoryVariable	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
FC2	Age over 1980	.329	115	.000	.622	115	.000
	Before 1980	.320	94	.000	.652	94	.000

Table 41 Normality Test for Resources

Results from the Mann-Whitney U test indicate there is no significant difference between both set of groups with regards to access to resources. Results from this test are BornAfter1980 mean rank = 106.45, BornBefore1980 = 103.22, U=5238.000, Z = -440, p = .660. The p value is greater than the alpha value of 0.05 so the null hypothesis must be accepted.

Ranks

	GenerationCategoryVariable	N	Mean Rank	Sum of Ranks
FC2	Age over 1980	115	106.45	12242.00
	Before 1980	94	103.22	9703.00
	Total	209		

Table 42 Rank Mean for Resources

Test Statistics[a]

	FC2
Mann-Whitney U	5238.000
Wilcoxon W	9703.000
Z	-.440
Asymp. Sig. (2-tailed)	.660

Table 43 Mann-Whitney U Test for Resources

4.14 Correlations on Behaviour Intentions

Spearman Correlation test was run to exam the correlation between the various constructs of the UTAUT2 model and behavioural intention. As can be seen in Table 44, Perceived Usefulness (PU), Perceived Effort Expectancy (PE) and Facilitating Condition (FC2) all had a moderate correlation of .533, .546. and .566. Habit had a high correlation of .641. Social Influence and Facilitating Condition (FC1 – Online Assistance) had a low correlation.

			BI	PU	PE	SI	FC1	FC2	Fun	Habit
Spearman's rho	BI	Correlation Coefficient	1.000	.553[**]	.546[**]	.300[**]	.432[**]	.566[**]	.209[**]	.641[**]
		Sig. (2-tailed)	.	.000	.000	.000	.000	.000	.002	.000
		N	209	209	208	209	209	209	209	209

Table 44 Spearman Correlation test for UTAUT2

4.15 Anxiety

Anxiety has been identified in a number of studies (Wilson *et al.* 2016; Wang *et al.* 2017; Cimperman *et al.* 2016; Gelbrich and Sattler, 2014; Rosen and Maguire, 1990) as being an inhibitor for the adoption of technology. Due to the findings in these journals Anxiety as a moderating variable for the use of financial technology was explored.

The median for individuals born before 1980 was 25.000, while the median for individuals born after 1980 was 22.5000. The mode was 20 which indicates the majority of respondents did not feel anxious when using financial technology. Descriptive statistics for the questions on Anxiety are presented in Appendix 8. The below graphs in Figure 23 shows the distribution of responses for both groups with regards to the Anxiety construct.
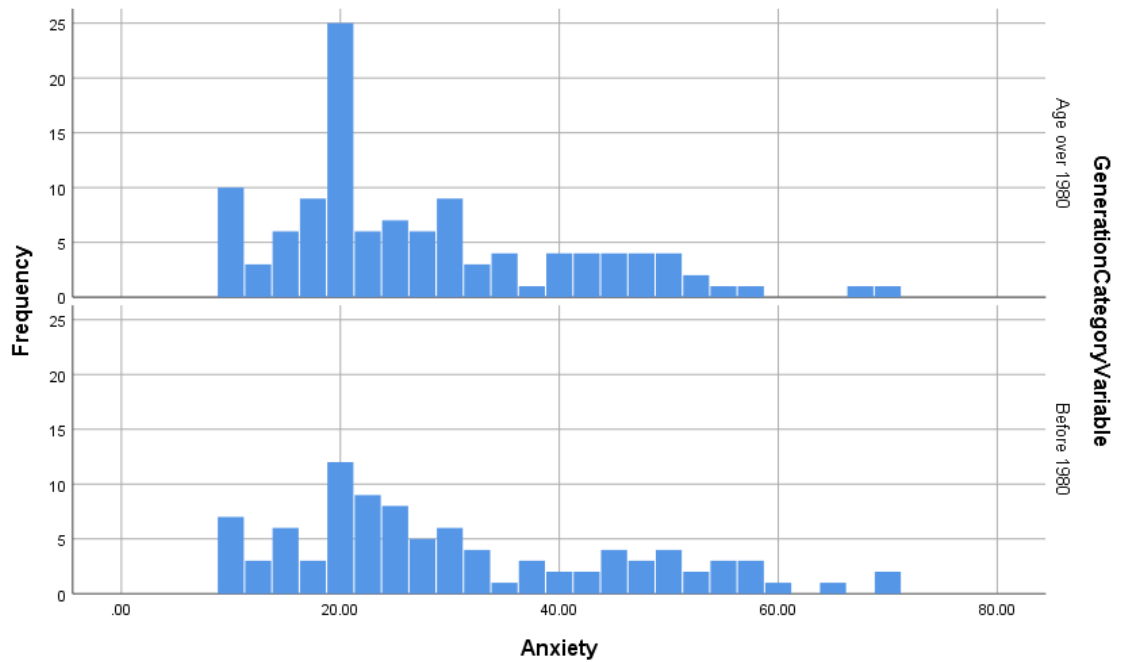
Figure 23 Anxiety

Results from the Shapiro Wilk normality test are; BornAfter1980 = .912, df = 115, p < 0.05, BornBefore1980 = .925, df = 94, p < 0.05. These results are also presented in Table 45.

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	GenerationCategoryVariable	Statistic	df	Sig.	Statistic	df	Sig.
Anxiety	Age over 1980	.173	115	.000	.912	115	.000
	Before 1980	.154	94	.000	.925	94	.000

Table 45 Normality Test for Anxiety

Based on the results from the normality test a Mann-Whitney U test was produced to see if there was any significant difference between both groups. The results are presented in Table 46 and 47.

Mean rank for individuals born after 1980 was 99.27, mean rank for individuals born before 1980 was 112.01, U = 4746.500, Z = -1.520, p = .128

Results from the Mann-Whitney U test imply that the null hypothesis must be accepted, i.e. there is no difference found between the two groups under the Anxiety construct. Our fourth hypothesis H4 must be rejected. This finding would concur with Venkatesh *et al.* (2003) that anxiety does not have a direct determinant for behaviour intention to use and adopt technology.

P > H4: Individuals born before 1980 experience more anxiety when using financial technology than Individuals born after 1980.

Ranks

	GenerationCategoryVariable	N	Mean Rank	Sum of Ranks
Anxiety	Age over 1980	115	99.27	11416.50
	Before 1980	94	112.01	10528.50
	Total	209		

Table 46 Rank Mean for Anxiety

Test Statistics

	Anxiety
Mann-Whitney U	4746.500
Wilcoxon W	11416.500
Z	-1.520
Asymp. Sig. (2-tailed)	.128

Table 47 Mann-Whitney U Test for Anxiety

A Spearman's correlation test was conducted to check if there was a correlation between Anxiety and Behavioural Intentions. Results from the test imply that there is no correlation. Table 48 shows the results from Spearman's correlation test.

Correlations

			BI
Spearman's rho	BI	Correlation Coefficient	1.000
		Sig. (2-tailed)	.
		N	209
	AX1	Correlation Coefficient	-.414**
		Sig. (2-tailed)	.000
		N	209
	AX2	Correlation Coefficient	-.409**
		Sig. (2-tailed)	.000
		N	209
	AX3	Correlation Coefficient	-.465**
		Sig. (2-tailed)	.000
		N	209
	AX4	Correlation Coefficient	-.521**
		Sig. (2-tailed)	.000
		N	209

**. Correlation is significant at the 0.01 level (2-tailed).

Table 48 Spearman correlation test for UTAUT2

Based on these results are sixth hypothesis H6 must be rejected.

P > H6: Anxiety is a moderating variable on the behavioural intentions to use and adopt financial technology.

As previously mentioned, it was believed that Anxiety would be a significant moderate on the adoption of financial technology. To get a deeper understanding of this construct open questions were provided. While statistically it has been proven that the Anxiety construct has no correlation to behavioural intention, some interesting themes such as Cybersecurity, Social Awareness, Perceived Usefulness and Perceived Effort Expectance all emerged. These themes will be briefly discussed as they might provide some insight into why individuals choose not to use financial technology solutions. Perceived Usefulness, Effort Expectancy, and Price Value have all been identified by Venkatesh *et al.* (2012) as determinants for the adoption of technology. Perceived Effort Expectancy has been proven to be statistically significant between both sets of participants. Cybersecurity will be discussed under the Trust construct as it was more prominent under this construct.

4.15.1 Anxiety - Social Awareness

Social responsibility which has been grouped under the Social Awareness construct was another sub-theme to emerge. Some participants were concerned with the push to use

technology and the impacts this can have on society from a health perspective and from excluding members of society.

"Wary of this deliberate push for a cashless society. Such a push for everything to be done online creates more of a demand for faster internet access which will have a detrimental effect on health (research: dangerous effects of 4g&5g/ wifi)"

"They are also leading to consumers to be dependent on the technology if you are unable to afford certain technology, they have no platform for you to use. Which would then see a whole demographic forgotten about".

Black *et al.* (2002) suggests that the closure of branches due to the introduction of technological services can be perceived as having a negative effect on society. Customers may see the introduction of such services as only benefiting the organisation due a reduction in headcount and closure of branches. Traditional Banks and FinTech firms should ensure they communicate the benefits of these solutions to the customer. The communication of these benefits should also include benefits to society. An example of this, is the green agenda through paperless offices. As one participant commented with regards to financial technology firms,

"Most seem newer/greener than established financial organisation"

The social awareness around the green agenda is probably reflective of the current awareness of global warming and the rise of the Green Party in Ireland (Fitzgerald, 2019).

4.15.2 Effort Expectancy and Complexity

Spearman test proved that Perceived Effort Expectancy had a moderate correlation on behavioural intentions. This construct emerged under the Anxiety open questions. According to Prensky (2001) Digital Natives speak a digital language of computers, and the Internet, and older generations have to learn this new language. One of themes to emerge was that some respondents did not understand the language, and this was one of the reasons they were apprehensive about using financial technology.

"Do not understand their language"

"Ambiguous language. Until something goes wrong, we can't know for sure if our information is safe or not".

Veal and Maj (2010) state that social and economic inclusion is dependent on an individual's ability to interpret visual communication such as signs, text and images. It is important that traditional banks who implement technology solutions and FinTech firms use language that is unambiguous and easy for the customer to understand.

Venkatesh *et al.* (2012) define Effort Expectancy as the degree of ease associated with using technology. Davis (1989) TAM model defines it as the perceived difficulty or complexity in using a technology or system. Davis (1989) posits that if a consumer believes that the effort required to use the system is too great, they may choose not to use it regardless of how beneficial they may feel that interacting with it could be. This is demonstrated in the results where both Digital Natives and Digital Immigrants felt that the use of financial technologies was beneficial, but the perception of the effort required to use these systems was different.

"I am just afraid if I make a mistake and I won't see it for a few days, so I usually ask around me to double check".

"Sometimes you need to communicate face to face. Unless one is engaged in a chat session with an operator, and even then, it can be problematic, it is difficult to engage on any kind of complex matter. Simple tasks are fine, but what if I need to meet a tax deadline for Revenue or have to take up a share subscription rights, etc.? "

"I am afraid if the computer crashes, I lose my data and I am at a financial loss"

"Not everything can be completed online, and financial technology does not replace the security that a face to face meeting provides. Understanding through conversation is easier than been led by a computer".

"The dismantling of bank branches is frustrating. They presume you have all your needs met online, but often you end up trawling through web pages just to get a phone number so you can just speak to someone. Again, simple tasks are fine online, but for anything even slightly out of the ordinary it is often a nightmare".

People born after 1980 felt the use of financial technology services was easy to do compare to individuals born before 1980. The use of ambiguous language, the fear of making a mistake, and trawling through websites were all raised as reasons why individuals felt apprehensive about using financial technology. Venkatesh and Davis (2000) posits that the perceived difficulty or complexity in using technology is nonsignificant with increased experience. According to Prensky (2001) and Kesharwani (2019) digital natives are immersed in digital technology and are always interacting and connected to it. With the amount of interaction digital natives have with technology, this could explain why their perception of effort

or the complexity in using financial technology would be minimal compared to Digital Immigrants who have had to learn technology in their adulthood.

4.16 Financial Technology Firms (FinTechs)

The next set of questions explore the adoption of services from FinTech firms. According to Gulamhuseinwala *et al.* (2017) one of the issues which has hampered the adoption of the services from FinTech firms among individuals over 40 years of age was a lack of trust they had in these firms (Gulamhuseinwala *et al.* 2015). This was the reason why the adoption of services from FinTech firms was higher among millennials. One of the supposed advantages of using FinTechs over traditional banking institutions is that they can provide customers with cheaper options. Trust and Price Value were explored to see how significant they were for the adoption of services from FinTech firms.

4.16.1 Price Value

Price Value has been deemed as one of the benefits for the use of FinTech firms. The Shapiro-Wilk test indicates the data was not normally distributed as the p value was less than 0.05 ($p < 0.05$).

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	GenerationCategoryVariable	Statistic	df	Sig.	Statistic	df	Sig.
Price	Age over 1980	.203	112	.000	.890	112	.000
	Before 1980	.228	90	.000	.883	90	.000

Table 49 Normality Test for Price Value
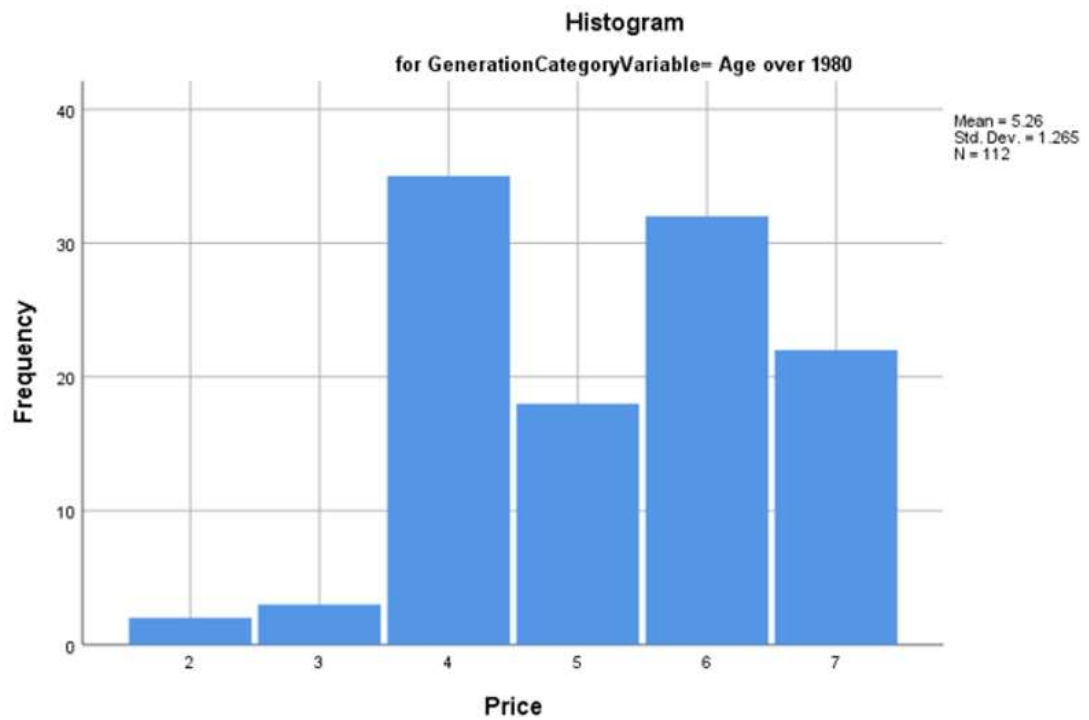
Figure 24 Digital Native Price
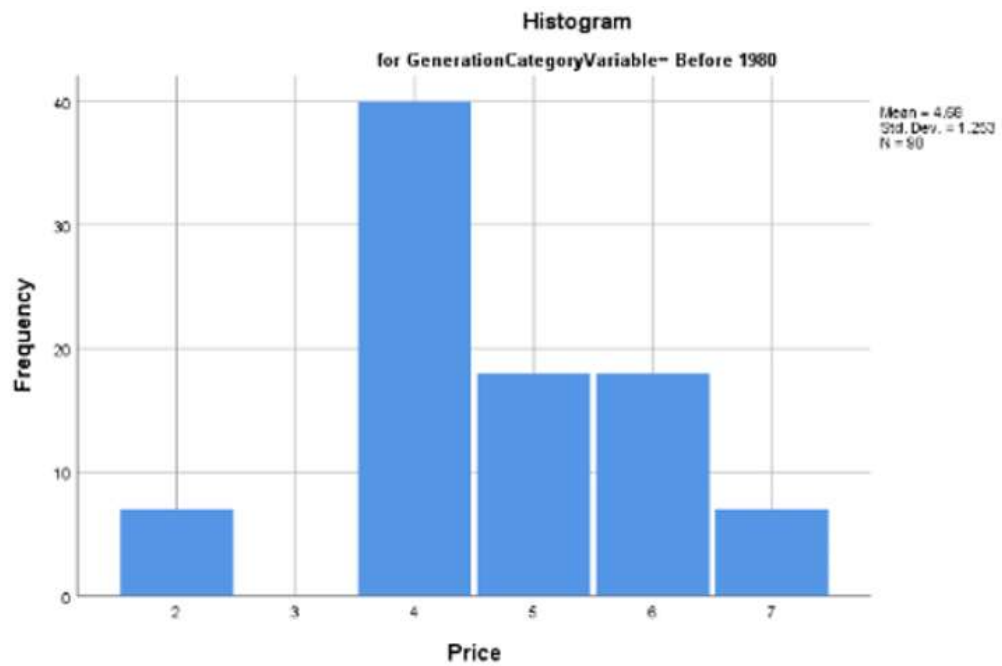
Figure 25 Digital Immigrant Price

A Mann-Whitney U test indicates that there is a significant difference between the two groups as shown in Table 50 and 51. The mean ranks of individuals born after 1980 and individuals born before 1980 were 112.32 and 88.03; U =3828.000 Z = -3.052, p = .002. These results

conclude that Price Value construct for the use of FinTech is greater among individuals born after 1980.

Ranks

	GenerationCategoryVariable	N	Mean Rank	Sum of Ranks
Price	Age over 1980	112	112.32	12580.00
	Before 1980	90	88.03	7923.00
	Total	202		

Table 50 Rank Mean of Price Value

Test Statistics

	Price
Mann-Whitney U	3828.000
Wilcoxon W	7923.000
Z	-3.052
Asymp. Sig. (2-tailed)	.002

Table 51 Mann-Whitney U Test of Price Value

Price Value construct also appeared as a minor theme in the open questions around the adoption of FinTech firms. The lack of transparency around the cost of all services and products provided by FinTech's was perceived in a very negative light.

"Fintech firms in my opinion are misleading as you can have minimum services for free, but you are charged, for example, platinum customer with Revolut for circa €9.99 per month to have a black card and the benefits. The public see this as a privilege yet if a traditional bank offered the same it would be a rip off! Fintech firms are cheap till you need to use them. They are making profits on the pretence of quicker easier ways to pay with no cash costs. But to have the service costs the consumer well more than a traditional bank"

According to Venkatesh *et al.* (2012) the price value is positive when a consumer perceives that the benefits of using a technology are greater than the monetary costs associated with the technology. This can have a positive impact on the consumer's intention to use that technology. Price Value is the cognitive trade-off between perceived benefits and price (Venkatesh *et al.* 2012). The price value was deemed statistically significant between both groups for the benefits they perceived they would obtain from using the services of FinTech firms. However, an emerging theme from the open-end questions was the misleading of FinTech firms when it comes to price, and how they charge excessive rates for any service that is beyond the standard one that is provided such as the use of Revolut's Black credit card.

4.17 Trust

The Trust questions explored if trust was an inhibitor for the adoption of services from FinTech firms among this sample population. The mode for these set of questions was 40, which falls into the "Neither agree nor disagree" category. The median for individuals born after 1980 and before 1980 was 40 and 42 respectively. Descriptive statistics for the Trust construct are in Appendix 9.

Results from the Shapiro-Wilk indicate that the data was not normally distributed. BornAfter1980 = .244, df = 115, $p < 0.05$; BornBefore1980 = .238, df =94, $p < 0.05$ as presented in Table 52.

	GenerationCategoryVariable	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Trust	Age over 1980	.514	115	.000	.244	115	.000
	Before 1980	.528	94	.000	.238	94	.000

Table 52 Normality test for Trust

The Mann-Whitney was produced to see if there was any significant difference between the two sets of groups under the Trust construct. Results are presented in Table 54. The results of the mean ranks for individuals born after 1980 and before 1980 are 100.90 and 110.01, U = 4934.000, Z = -1.086, p = .277. Since there is no significant difference statistically, the null hypothesis must be accepted and our seventh hypothesis H7 must be rejected.

P > H7: Individuals born after 1980 are more trusting of FinTech firms that individuals born before 1980

In Trust	Age over 1980	115	100.90	11604.00
	Before 1980	94	110.01	10341.00
	Total	209		

Table 53 Rank Mean for Trust

Test Statistics[a]

	Trust
Mann-Whitney U	4934.000
Wilcoxon W	11604.000
Z	-1.086
Asymp. Sig. (2-tailed)	.277

Table 54 Mann-Whitney U Test for Trust

Since the p value is greater than the alpha value of 0.05, the null hypothesis that there is no difference between both groups under the Trust construct has to be accepted.

While Trust has been proven not to be statistically significant some interesting themes did emerge. The main overarching themes to emerge under the Trust constructs were Cybersecurity and Banking Regulation which consisted of bank Guarantees/Solvency requirements.

4.17.1 Banking Regulation

Banking Regulation emerged as a prominent theme among participants under the Trust construct. Zavolokina et.al, (2016) state changes in regulations with regards to FinTech is having a positive influence in encouraging innovation, helping new FinTech companies to adopt to the global markets and challenge the established market players. According to Ng and Kwok (2017) financial regulators around the world are trying to develop regulatory measures to facilitate the development of Fintech as a global trend. However, some participants were still concerned with the segregation of duties and auditing of these FinTech firms, as they felt these institutions were not being audited as rigorously as traditional banks in Ireland. These concerns could be due to the novelty or rapid growth of this industry (Varga, 2017).

"Mainly adherence to banking regulations. 2008 wasn't that long ago

"It's still a bit fly by the seat of pants in the start-up fintech. I would find it very difficult to believe that a fintech has the scale of operations required for true role segregation and audit/change management"

"Things still seem to be in a state of flux. I am unfamiliar with the state of current regulation, but for that very reason I would be hesitant to trust Fintech start-ups. I don't doubt they might supply a far better service than traditional banks - I am pretty sure they would- but I need more info"

"Security of personal data, lack of clarity regarding ownership and regulation of the entity".

"Security and regulation of newer FinTech's"

According to Ng and Kwok (2017) Fintech's provide a variety of business opportunities, however one should not underestimate the frauds that can be derived from these emerging Fintech solutions. Business and consumers could be vulnerable to these risks as there has been no concerted international regulatory measures put in place for FinTech's (Ng and Kwok, 2017). With recent investigations into Revolut for allowing thousands of illegal transactions pass through its application and the CFO stepping down, one would have assumed these themes would have been more prevalent among participants (Weston and Donnelly, 2019).

The interesting thing about these themes is that the responses came from a mix of ages ranging from the 18-24 age category to the 65+ age category. The only assumption that can be made is that the impact the global financial crisis had on Ireland is still relevant and permeating through society regardless of age. Since trust was not statistically significant a more pertinent question might have been around risk rather than trust, as one respondent mentioned trust in traditional banks has also eroded. Zavolokina *et.al,* (2016, p.12) state that after the global financial crisis of 2007-2008 the level of trust and interest in financial institutions dramatically decreased.

"Trust with traditional banks has fallen anyway since the crash and it can sometimes feel they are not keeping pace with technology so could be at risk of data breach themselves".

This has led to many regulatory institutions and politicians entering the FinTech arena. According to Gulamhuseinwala *et. al* (2015) the lack of trust and the negative perception people have of financial institutions has resulted in many regulators actively seeking for new entrants to enter the financial services market.

Individuals were also fearful that another financial crisis would happen and FinTech's would not be able to secure their customer funds, unlike traditional banks in Ireland who were able to do this with Government guarantees.

"Security as I don't feel my money would be secure like with the Banks. If there was a crash, I feel I would lose everything".

"I would not have as much trust in a fintech as a traditional bank due to a fear of losing money"

"If they go out of business and deposits not covered by state guarantee".

4.17.2 Cybersecurity

Concerns around the ability of hackers to infiltrate these firms emerged as a strong theme among participants. The perception that FinTech's have less security protocols in place for their online services seemed to be one of the reasons that a small set of individuals did not trust FinTech firms. Similar comments were also expressed under the Anxiety construct for the use of financial technology solutions regardless of provider.

"Nervous of hacking"

"Can open a customer up to phishing, vishing and other scams"

"Scammers and Phishing"

Security and regulation of newer fintech's, vulnerability of personal devices to hacking.

"Cyber security is still a huge concern when using Fin Tech"

According to the Financial Stability Board (2017) report on the implications of FinTech they state that while cyber-security is not unique to FinTech's, the greater connectivity they provide through digital solutions expand the number of entry points for cyber hackers. They state this is particularly relevant for client-facing applications. Most FinTech applications and financial technology solutions would be client facing, such as Internet Banking, Mobile Banking, Transfer of payments, and Electronic Wallets. Ng and Kwok (2017) posit that authentication tools, such as digital certificates and biometrics identification can provide a much higher degree of security than traditional password logins. The use of analytics could also be used to identify any unusual behaviours. The utilization of these tools could provide assurance to consumers that their data is protected.

4.17.3 End-to-End Service Delivery

Ongowarsito *et al.* (2018) state that service quality is the ability to deliver what is promised to the customer's perception of value for a service. They posit that some of the components to e-service quality, are; Information quality, securities, i.e. how the website can be trusted, as

well as the ability to build trust with the customer and show empathy. Below are some of the reason's participants stated they are frustrated with FinTech firms.

"They are often rude when interacting with them via phone. I prefer traditional banks as they have superior customer service"

"The inability to talk to a real person/have someone accountable when there is a problem. Nobody can solve an issue, and nobody accepts responsibility, but you get some poor CS person blindly repeating sorry without understanding the meaning of the word".

"*Being able to ask advice on which option is best for me"*

The lack of human operators and poor customer service seem to be some of the reasons some participants perceive FinTech firms in a negative light. FinTech firms should also look to incorporate either Virtual Assistant to provide better service delivery and customer service. Virtual Assistance can help guide consumers through the online process via a two-way interaction which according to Payne et al. (2012) could alleviate some of the cognitive load on novice consumers as well as increasing the engagement of more experienced consumers. However, human operators should also be incorporated with the Virtual Assistant as some participants mentioned they did not like talking to "robots".

"Don't like talking to robots"

Having human operators would help to build up trusting relationships with clients. Human operators are used in many retail stores to assist customers with the self-service technologies and in doing so reducing the anxiety and cognitive effort required.

4.17.4 Perceived Usefulness

Perceived Usefulness has been identified in many technology acceptance models as being a determinant for the adoption of technology. The Spearman testing proved it had a moderate correlation for behavioural intention among the participants in this study. Both sets of participants agreed that using financial technology made them more productive. However, with regards to FinTech firms some participants felt that usefulness of services from these firms were limited and could not see any reason for using them over traditional banks.

"Solutions tend to be limited / single product"

"Often when trying to apply for a loan or credit card, etc. options for information are customised and limited"

As can be seen from the below comment, if the services that are provided by FinTech firms are perceived as being no more beneficial than the services provided by traditional banks, than customers will choose not to use them. This correlates to Davis (1989) Perceived Usefulness construct.

"I don't find any reason to use fintech over my traditional banking accounts. I'd rather have one or two providers for managing my personal finances than using Fintech products just because there supposedly cool"

4.18 Findings Conclusion

The results from this study showed that individuals who identified more with the characteristics of a digital native were more likely to have behavioural intentions to use and adopt financial technology services. Since there was a statistical difference between both sets of groups within this study with regards to digital nativeness, one could infer that individuals who are born after 1980 are more likely to use financial technology compared to individual born before 1980. This would concur with Gulamhuseinwala *et al.* (2017) findings that such financial technology solutions are more popular among millennials as they are tech savvy but are also at the age where they have greater needs for financial services. Other significant constructs and themes emerged that also demonstrated the difference between both groups, these were Effort Expectancy, Habit and Price Value. While Social awareness, Banking Regulation and End to End Service Delivery were unexpected themes to emerge.

Chapter 5 Conclusion and Recommendations

Prensky (2001) coined the phrase Digital Natives and Digital Immigrants in 2001, stating that since individuals born after 1980 have grown up with technology they are better at multitasking, are more tech savvy, prefer reading from computers than printed sources and look for instant gratification compared to individuals born before 1980. This paper explores this concept to see if such a dichotomy existed in Ireland, and if so, did it translate into the adoption of financial technology and use of FinTech firms being more prevised among digital natives. To initiate this exploratory study a review of the literature on Digital Natives and Digital Immigrants, as well as theories on the adoption of technology was conducted. This provided insight into the current thinking and already attained knowledge on the Digital Native dichotomy and the gaps that currently exists within this body of knowledge as well as the main determinants for the adoption of technology. Based on the Literature review Venkatesh *et al.* (2012) UTAUT2 model for the adoption of technology was deemed the best fix for this social inquiry. This is due to the fact the model included key moderating variables such as Age, Gender, Experience and Habit. New constructs were also explored, to see how pertinent they were among Digital Natives and Digital Immigrants for the adoption of Financial Technology and FinTech firms.

This chapter will discuss the conclusions that can be drawn from the findings of quantitative analysis, as well as the themes that emerged under the new constructs. While the new constructs such as Trust and Anxiety were deemed statically non-significant some of the themes that emerged can be mapped back to the statistically significant constructs that influence the behavioural intentions of consumers to adopt financial technology and services from FinTech firms.

5.1 Digital Native and Digital Immigrant

According to Kesharwani (2009) digital natives are characterised as being digitally fluent with a variety of technologies because they are immersed in digital technology during their childhood and adolescence. Through the quantitative methods and results presented in this study it shows a clear pattern of differences exists between individuals born before 1980 and after 1980 that took part in this study. Kesharwani (2009) states age cannot be used as a measure for distinguishing between Digital Natives and Digital Immigrants. However, the composite score encompasses the characteristics that define digital native, such as multitaking, preferring to read from computers than analogy sources, being more tech savvy and seeking instant gratification and rewards were statistically higher for participants that were

born after 1980, than they were for participants born before 1980. These differences correlate to the concept of Digital Natives and Digital Immigrants as proposed by Prensky (2201). Due to this fact, the next point of exploratory investigation was if the digital fluency translated into the use and adoption of financial technology and trust of FinTech firms.

5.2 Theoretical Perspective

Venkatesh *et al.* (2012) UTAUT2 model was adopted to explore the determinants for the adoption of technology among Digital Natives and Digital Immigrants. Based on the literature review Anxiety was applied to this model as a new moderating determinant. Anxiety was statistically proven to be nonsignificant which correlates to Venkatesh *et al.* (2003) findings, and hence, was not included as part of their UTAUT2 model. However, from a theoretical standpoint this study has added to the current knowledge of technology acceptance by demonstrating that the digital nativeness of individuals is a moderating variable that can influence the constructs of the UTAUT2 model, especially Perceived Effort and Habit. Venkatesh *et al.* (2012) defined Age as a moderating variable between facilitating condition and behavioural intention, however most participants in this study felt they had enough online assistance and resources to use financial technology. The dividing line of Age as a means to separate the generation gap between participants of this study, showed that age, i.e., those born after 1980 and those born before 1980 had a moderating effect on effort expectancy and habit due to the digital nativeness of this generation. In doing so, digital natives are more likely to use and adopt financial technology.
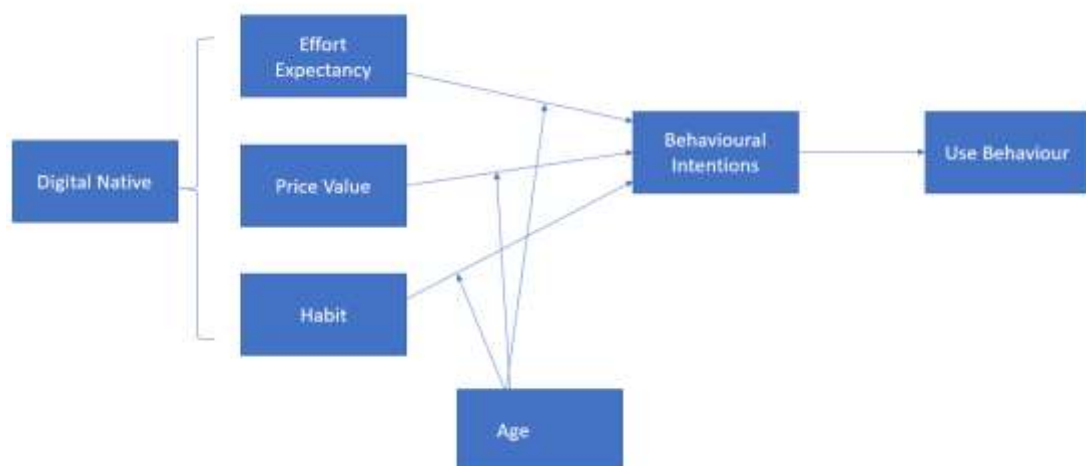
Figure 26 UTAUT2 and Digital Native

From the opened-end questions on Anxiety and Trust interesting themes emerged. Effort Expectancy and Performance Expectancy/perceived usefulness were reasons why individuals felt apprehensive in using financial technology. These constructs map to Davis (1989) TAM model for behavioural Intention for the usage and adoption of technology.
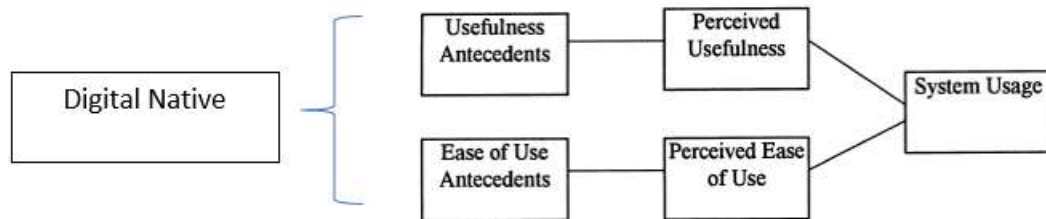
Figure 27 TAM Model for Digital native and FinTech Adoption

End-to-End Service Delivery, Banking Regulation, Cybersecurity and Social Awareness were new themes to emerge as part of this study. These themes demonstrate some of the reasons why individuals felt apprehensive in using financial technology and services from FinTech firms. By addressing these constructs FinTech firms could increase their customer base while incumbent banks could gain greater traction among their users for the digital solutions they provide.
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5.3 Limitations

This study deviated from the standard Digital Native Assessment survey, in that, it did not replicate the original survey. The findings contributed to the existing body of knowledge in this area by building a slightly different view of the subject matter. As a result, the data cannot be used to perform a direct comparison on the existing studies but can be used as a potential topic for future researchers to explore further. Another limitation was that most responses came from social media platforms such as Facebook and LinkedIn. This would cause some biases as anyone who is on Facebook or LinkedIn would have had some level of comfortability with technology.

5.4 Opportunities

As Teo (2013) pointed out the use of the Digital Native Assessment is limited in its application to larger populations and should be refined. Future research could look at amending this survey to include more up to date statements with regards to technology and see if constructs on the adoption of technology can be included to further its adaptability and usage. To do this, an extensive sample population would be required to ensure the reliability and validity of newly

constructed questions. This new survey could then be used for a similar study so that the findings can contribute to the current thinking and knowledge of digital natives.

The new themes that emerged under the Anxiety and Trust constructs that were uncovered by this study could be used to explore the adoption of services from FinTech firms. Constructs such as Security, Regulation, Effort Expectancy, Service Delivery and Social Awareness could be used to see if these themes are significant among Digital Natives and Digital Immigrants. Also Risk Acceptance maybe a more pertinent question to ask instead of Trust, as a lot of comments were around the protection of customer funds and only using FinTechs for less complex transactions.

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Appendices

Appendix 1 Coding
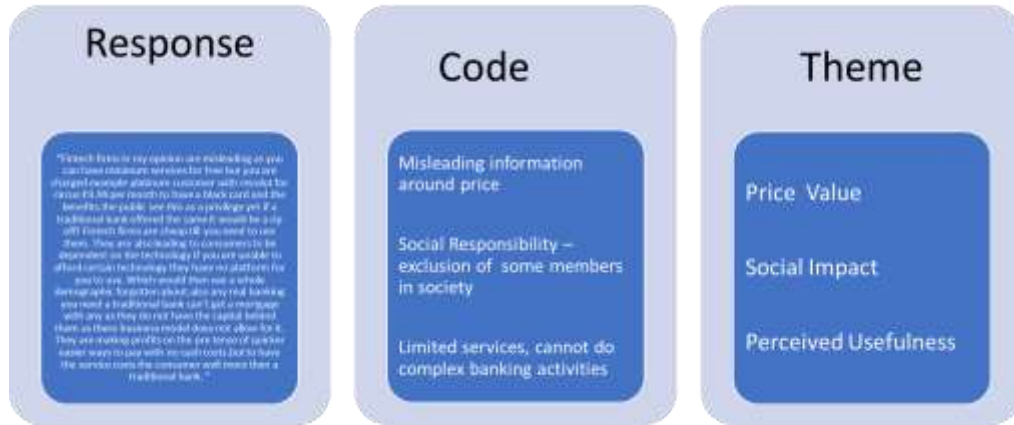
Appendix 2 Gender Descriptive

Descriptives

	Gender			Statistic	Std. Error
DigitalNativeCompositeScore	Male	Mean		51.8182	.68380
		95% Confidence Interval for Mean	Lower Bound	50.4644	
			Upper Bound	53.1719	
		5% Trimmed Mean		52.0757	
		Median		51.8182	
		Variance		57.045	
		Std. Deviation		7.55283	
		Minimum		26.36	
		Maximum		67.27	
		Range		40.91	
		Interquartile Range		9.09	
		Skewness		-.567	.219
		Kurtosis		.690	.435
	Female	Mean		51.6578	.94040
		95% Confidence Interval for Mean	Lower Bound	49.7877	
			Upper Bound	53.5279	
		5% Trimmed Mean		51.9043	
		Median		51.8182	
		Variance		75.171	
		Std. Deviation		8.67011	

90

			Statistic	Std. Error
		Minimum	19.09	
		Maximum	70.00	
		Range	50.91	
		Interquartile Range	9.55	
		Skewness	-.682	.261
		Kurtosis	1.645	.517
	Other	Mean	50.9091	.90909
		95% Confidence Interval for Mean	Lower Bound	39.3580	
			Upper Bound	62.4602	
		5% Trimmed Mean	.	
		Median	50.9091	
		Variance	1.653	
		Std. Deviation	1.28565	
		Minimum	50.00	
		Maximum	51.82	
		Range	1.82	
		Interquartile Range	.	
		Skewness	.	.
		Kurtosis	.	.

Appendix 3 Behavioural Intention Descriptive

Descriptives

	GenerationCategoryVariable			Statistic	Std. Error
BI	Age over 1980	Mean		6.39	.078
		95% Confidence Interval for Mean	Lower Bound	6.24	
			Upper Bound	6.55	
		5% Trimmed Mean		6.49	
		Median		7.00	
		Variance		.696	
		Std. Deviation		.835	
		Minimum		3	
		Maximum		7	
		Range		4	
		Interquartile Range		1	
		Skewness		-1.584	.226
		Kurtosis		2.691	.447
	Before 1980	Mean		5.98	.121
		95% Confidence Interval for Mean	Lower Bound	5.74	
			Upper Bound	6.22	

		Statistic	Std. Error
5% Trimmed Mean		6.12	
Median		6.00	
Variance		1.376	
Std. Deviation		1.173	
Minimum		1	
Maximum		7	
Range		6	
Interquartile Range		1	
Skewness		-1.837	.249
Kurtosis		4.224	.493

Appendix 4 Effort Expectancy

Descriptives

	GenerationCategoryVariable		Statistic	Std. Error
PE1	Age over 1980	Mean	5.96	.111
		95% Confidence Interval for Mean — Lower Bound	5.74	
		95% Confidence Interval for Mean — Upper Bound	6.18	
		5% Trimmed Mean	6.10	
		Median	6.00	
		Variance	1.410	
		Std. Deviation	1.188	
		Minimum	1	
		Maximum	7	
		Range	6	
		Interquartile Range	1	
		Skewness	-2.121	.226
		Kurtosis	6.318	.447
	Before 1980	Mean	5.51	.140
		95% Confidence Interval for Mean — Lower Bound	5.23	
		95% Confidence Interval for Mean — Upper Bound	5.78	
		5% Trimmed Mean	5.63	
		Median	6.00	
		Variance	1.818	
		Std. Deviation	1.348	
		Minimum	1	
		Maximum	7	
		Range	6	
		Interquartile Range	1	
		Skewness	-1.398	.250

				Statistic	Std. Error
		Kurtosis		1.999	.495

Appendix 5 Habit

Descriptives

	GenerationCategoryVariable			Statistic	Std. Error
Habit	Age over 1980	Mean		5.86	.114
		95% Confidence Interval for Mean	Lower Bound	5.64	
			Upper Bound	6.09	
		5% Trimmed Mean		6.00	
		Median		6.00	
		Variance		1.489	
		Std. Deviation		1.220	
		Minimum		2	
		Maximum		7	
		Range		5	
		Interquartile Range		2	
		Skewness		-1.497	.226
		Kurtosis		2.350	.447
	Before 1980	Mean		5.27	.164
		95% Confidence Interval for Mean	Lower Bound	4.94	
			Upper Bound	5.59	
		5% Trimmed Mean		5.37	
		Median		6.00	
		Variance		2.541	
		Std. Deviation		1.594	
		Minimum		1	
		Maximum		7	
		Range		6	
		Interquartile Range		2	
		Skewness		-1.067	.249
		Kurtosis		.240	.493

Appendix 6 Performance Expectancy

Descriptives

	GenerationCategoryVariable			Statistic	Std. Error
PU1	Age over 1980	Mean		6.19	.089
		95% Confidence Interval for Mean	Lower Bound	6.02	
			Upper Bound	6.37	
		5% Trimmed Mean		6.29	
		Median		6.00	

				Statistic	Std. Error
		Variance		.910	
		Std. Deviation		.954	
		Minimum		3	
		Maximum		7	
		Range		4	
		Interquartile Range		1	
		Skewness		-1.258	.226
		Kurtosis		1.322	.447
	Before 1980	Mean		6.00	.097
		95% Confidence Interval for Mean	Lower Bound	5.81	
			Upper Bound	6.19	
		5% Trimmed Mean		6.06	
		Median		6.00	
		Variance		.882	
		Std. Deviation		.939	
		Minimum		4	
		Maximum		7	
		Range		3	
		Interquartile Range		1	
		Skewness		-.796	.249
		Kurtosis		-.119	.493

Appendix 7 Social Influence

Descriptives

	GenerationCategoryVariable			Statistic	Std. Error
FC1	Age over 1980	Mean		5.56	.114
		95% Confidence Interval for Mean	Lower Bound	5.33	
			Upper Bound	5.78	
		5% Trimmed Mean		5.66	
		Median		6.00	
		Variance		1.495	
		Std. Deviation		1.223	
		Minimum		1	
		Maximum		7	
		Range		6	
		Interquartile Range		1	
		Skewness		-1.233	.226
		Kurtosis		1.721	.447
	Before 1980	Mean		5.45	.126
			Lower Bound	5.20	

			Statistic	Std. Error
	95% Confidence Interval for Mean	Upper Bound	5.70	
	5% Trimmed Mean		5.51	
	Median		6.00	
	Variance		1.497	
	Std. Deviation		1.224	
	Minimum		2	
	Maximum		7	
	Range		5	
	Interquartile Range		1	
	Skewness		-.810	.249
	Kurtosis		-.025	.493

Appendix 8 Anxiety

Descriptives

GenerationCategoryVariable				Statistic	Std. Error
Anxiety	Age over 1980	Mean		27.4783	1.24493
		95% Confidence Interval for Mean	Lower Bound	25.0121	
			Upper Bound	29.9445	
		5% Trimmed Mean		26.6727	
		Median		22.5000	
		Variance		178.234	
		Std. Deviation		13.35044	
		Minimum		10.00	
		Maximum		70.00	
		Range		60.00	
		Interquartile Range		15.00	
		Skewness		.933	.226
		Kurtosis		.349	.447
	Before 1980	Mean		30.6649	1.58871
		95% Confidence Interval for Mean	Lower Bound	27.5100	
			Upper Bound	33.8197	
		5% Trimmed Mean		29.9084	
		Median		25.0000	
		Variance		237.255	
		Std. Deviation		15.40308	
		Minimum		10.00	
		Maximum		70.00	
		Range		60.00	
		Interquartile Range		23.13	

				Skewness	.721	.249
				Kurtosis	-.396	.493

Appendix 9 Trust

Descriptives

	GenerationCategoryVariable			Statistic	Std. Error
Trust	Age over 1980	Mean		3950.3696	1560.96088
		95% Confidence Interval for Mean	Lower Bound	858.1181	
			Upper Bound	7042.6210	
		5% Trimmed Mean		825.3019	
		Median		40.0000	
		Variance		280208870.202	
		Std. Deviation		16739.44056	
		Minimum		25.00	
		Maximum		99970.00	
		Range		99945.00	
		Interquartile Range		12.50	
		Skewness		5.149	.226
		Kurtosis		27.091	.447
	Before 1980	Mean		4825.7447	2113.22607
		95% Confidence Interval for Mean	Lower Bound	629.2965	
			Upper Bound	9022.1928	
		5% Trimmed Mean		426.7524	
		Median		42.5000	
		Variance		419778094.735	
		Std. Deviation		20488.48688	
		Minimum		25.00	
		Maximum		99970.00	
		Range		99945.00	
		Interquartile Range		13.13	
		Skewness		4.410	.249
		Kurtosis		18.260	.493

Adoption of Financial Technology among Digital Native

Information about the Survey

Dear Survey Participant,

As part of my Master's Degree in Business Administration (MBA) I am currently conducting a research survey to identify the following:

Due to the fact that individuals born after 1980 have grown up with technology, are they more accepting of financial technology than those born before?

Your participation in this study is voluntary. Your consent will be captured by accepting to proceed with this online survey. You are free to opt-out of this survey at any time for any reason without penalty. All information provided will be considered completely confidential. Any information that could potentially identify an individual such as their email address will be anonymised. However, any comments in the open box that relate to the specific question will be used.

There are 37 questions, the survey should take around 10 minutes to complete. In the event that illegal activity is reported, I will be obliged to report it to the appropriate authorities.
Please do not name third parties in any of the open text fields of the survey unless requested.
If you have any issues with this survey, please contact: leetraynor@gmail.com

Thank you for your participation

LEAD RESEARCHER: Lee Traynor

The survey will stay open for 3 weeks.
PUBLICATION: This research is for my dissertation which is to be submitted to the National College of Ireland in partial fulfilment of the requirements for the MBA.

fl

Question Title

*1. Please confirm that you are over 18 years of age and consent to partake in this survey

○ Yes

○ No

—

or Copy and paste questions

NEXT

Demographics

This part of the survey will capture some demographic information about participants

Question Title

*2. Which age group best describes you?

○ 18-24

○ 25-30

○ 31-39

○ 40-54

○ 55-64

○ 65+

Question Title

*3. Please indicate which gender you identify with?

◯ Male

◯ Female

◯ Other

Question Title

4. What is the highest level of completed education?

◯ Junior Certificate

◯ Leaving Certificate

◯ Post Leaving Certificate

◯ Diploma

◯ Undergraduate Degree

◯ Master's Degree

◯ PHD

◯ Other

fl

Question Title

5. Please confirm that you are an Irish resident

◯ Yes

◯ No

Please state your country of birth

[   ]

—

or Copy and paste questions

PREV NEXT

Digital Natives (born after 1980) and Digital Immigrants (born before 1980)

This section of the survey will explore how often you use the Internet and Financial technologies, as well as your level of experience.

Financial technology can refer to Internet Banking, Mobile Banking, Crypto-currencies like Bitcoin, Crowd Funding, Peer-to-Peer (marketplace) platforms for investments, Online stockbroking, Online Insurance or Online Payment channels (money transfer and payments)

Question Title

*6. I use the Internet and mobile technologies every day for

☐ Leisure activities

☐ Keeping in contact with friends and family

☐ Listening to Music

☐ Studying

☐ Work

☐ Checking my financial account details

☐ Making or transferring payments

☐ All the Above

Question Title

7. I am very experienced at using financial technologies like

☐ Internet Banking

☐ Mobile Banking

☐ Google Pay, Apple Pay, Samsung Pay

☐ Other

☐ If you selected "Other" please specify which financial technology you have used

Question Title

*8. When I want financial information I search the Internet first

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

Question Title

*9. I prefer reading from a computer than from printed source

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

Question Title

*10. I am able to use more than one financial technology service (online banking, mobile banking, loan request, online insurance, etc.) on the computer at the same time

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

Question Title

11. I can check email and chat online with a financial representative at the same time

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

Question Title

12. I use a lot of graphics and icons when I send messages

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

Question Title

*13. I use pictures/emoji's more than words when I wish to explain something or express my feelings

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

Question Title

*14. I prefer to receive messages with pictures/graphics or icons as I am able to understand them better than words

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

Question Title

*15. I expect to access and receive information from financial technology services instantly

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

Question Title

*16. When I send an email or an instant message to a financial technology company I expect a quick reply

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

Question Title

*17. I expect the financial technology Websites that I visit to be constantly updated

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

Question Title

*18. Using financial technology solutions helps me accomplish things more quickly

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

Question Title

19. I wish to be rewarded for using financial technology services

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

Question Title

20. Learning how to use financial technology products and services is easy for me

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

Question Title

*21. People who influence my behaviour or who are important to me think that I should use Financial Technology services rather than going to a branch

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

Question Title

*22. I am provided with enough online assistance to use financial technology services and products

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

Question Title

*23. I have the necessary resources (Laptop, Smartphone, Tablet, access to the Internet) to use financial technology services

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

Question Title

*24. Using Financial Technology services is fun and enjoyable

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

Question Title

*25. The use of Financial Technologies has become a habit for me

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

Question Title

26. I intend to continue to use Financial Technology services in the future

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

Question Title

*27. I have difficulty in understanding the technical aspects of Financial technology services

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

Question Title

*28. I feel insecure about my abilities to interpret the information being presented to me when using financial technology services

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

Question Title

29. I hesitate to use financial technology services for the fear of making mistakes that I cannot correct

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

Question Title

30. I have avoided using financial technology services because they are unfamiliar and somewhat intimidating to me

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

Question Title

31. If there are any other reasons as to why you feel apprehensive about using financial technology services please state what they are

[text box]

or Copy and paste questions

PREV NEXT

Trust

FinTech refers to technology firms that provide financial services through digital channels. These firms would not have any physical presence like a retail branch network. Examples of FinTech's would be Revolut, Paypal, Skrill, TransferWise and Linked Finance

Traditional Banks refer to Financial Service companies such as AIB, Bank of Ireland, Ulster Bank

Question Title

*32. The products and services provided by FinTech (Financial Technology) firms are good value for money compared to traditional banks

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

Question Title

*33. FinTech firms cannot be trusted as there are too many uncertainties compared to traditional banks

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

Question Title

34. I don't trust FinTech firms with my personal data

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

○ If you stated "Agree", "Somewhat Agree" or "Strongly Agree" please state why

Question Title

35. I only trust the online and mobile services provided by traditional banks

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

○ If you selected "Agree", "Somewhat Agree" or "Strongly Agree" please state why

Question Title

*36. I believe FinTech firms have established security norms and procedures for the use of their services to the same standards as traditional banks

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

Question Title

37. If there are any other reasons as to why you feel apprehensive about using services from FinTech (Financial Technology) firms please state what they are

—

or Copy and paste questions

PREV