Digital Well-Being Across the Ages - Generational Perceptions of Well-Being in Reference to the Use of the Internet and Digital Technology

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Abstract. Digital well-being is an extension of the concept of well-being centered around the use of the online and digital world. It is popular to assume the older generations are unsafe and lacking in engagement when discussing the use of the online world and digital skillsets; thus, a potential threat to the development of technology and concepts such as the Internet of Things, Smart Cities and Smart Communities. This paper explores the differences in attitudes towards digital well-being between older and younger generations.

Keywords. Digital Well-Being, Internet of Things, Smart Cities, Generational.

1. Introduction

This research is an initial exploration into internet use, digital technology and digital well-being as part of a broader exploration into the value of human perception in the development of the Internet of Things, Smart Cities and Smart Communities concepts. It aims to place a direct focus on the perceptions of the younger generations, who can be referred to as digital natives or millennials, and the older generations who can be considered baby boomers or digital immigrants. The groups' views are compared and contrasted in order to deduce which group, if any, benefits most from the digital world. The research itself consists of a state-of-the-art review, analysis of previous survey research relevant to digital well-being, and primary research conducted through an online survey.

The concept of well-being is currently a popular topic among health professionals, employers, and other agencies of welfare; those who aim to ensure an individual is of a positive personal condition. The concept of digital well-being is an extension of well-being as a whole, applied directly to online activity. In terms of definition, digital well-being refers to 'the capacity to look after personal health, safety, relationships and work-life balance in digital settings' (Ball, 2015).

Digital technology is now saturated within modern day life and plays a prominent role in areas including work, leisure, learning, home, school and the workplace (Ball, 2015). For some, this can cause stress and lead to health issues, can reduce social skills and open individuals up to cyberbullying, can distract from learning or working, and can negatively affect attention span (Ball, 2015). However, digital technology can also support the development and growth of friendships through social connectedness, positively affect self-identity, provide a valuable learning resource, and enhance brain plasticity (Ball, 2015).

Accordingly, if we wish to continue with digital integration and further develop concepts such as the Internet of Things and Smart Cities, it is important to understand whether we as a society and species are benefiting positively from the digital world that *already* surrounds us. Thus, the term *digital well-being* is increasingly being considered by developers.

In 1943 Maslow put forward the psychological theory that people are motivated by certain needs, and developed a hierarchal model of five needs. Once the more basic needs are met, individuals can progress to a higher level of the hierarchy. Well-being is determined by the relative achievement of meeting these needs. The Youth State Report (2016) explored the digital well-being of 16-24 year olds in the UK. The report took a mixed methodology

approach, combining both qualitative and quantitative methods, and uncovered a number of key points around digital well-being within the target group. The report adapted Maslow's (1943) hierarchy and created a digital version to explore the extent to which young people in the UK were having their digital needs met.

Ofcom (2014) reported that 7 in 10 children aged 5-15 have access to a tablet computer at home, a rise from 51% to 71% in a 12-month period. In contrast, Age UK (2013) reported that in the UK only around 36% of individuals living alone at age 65 and up had access to the internet. This suggests differing perceptions among the two generations in terms of the use of digital tools and access to the internet; equally, the growing need to understand the effects of instantaneous access to the digital world.

Theories of *digital technology adoption* have concluded that an individual's attitude surrounding internet usage is key in terms of adopting it. Whilst some may believe that over 50s are deemed 'technophobes', many articles suggest otherwise. Ofcom (2015) reported that 52% of over 65s use a device to access the internet, with 84% of over 55s able to access the internet anywhere at any time; a 35% rise from 2005. This demonstrates that whilst the amount of over 55s engaging with the internet is still less than within younger generational categories, it is nonetheless increasing. Therefore, this research seeks to explore the use of the internet, digital technology and the theory of digital well-being through the perceptions of the digital natives and the digital immigrants.

2. Methods

The aim of this research is to explore and critically analyse perceptions associated with the use of digital technology, access to online content and digital well-being. Specifically, to explore the generational differences between the younger and older groups' perceptions.

There is an abundance of literature dedicated to the examination of the psychological effects of the digital world on one's well-being. Such literature considers and centers on the exploration of the *young* and the *old* as separate entities. Therefore, access to literature is limited when concerning the comparisons or contrasts of generational differences. Similarly, research examining digital well-being and the young is plentiful; whereas, there is a deficit in research examining digital well-being and the old.

This overall lack in research is questionable considering that the rate of digital immigrants making use of the online world and digital technology is steadily increasing. In 2015, 87% of 55-64 year olds were using the internet (Ofcom, 2015). This research aims to bridge the gap in the data, and connect the generations by exploring the similarities and differences within their perceptions of the online world.

99 participants were recruited via social media (predominantly Facebook) with the survey being conducted online; a deliberate action in order to recruit an informed user base. The survey was shared online through various social media sites and using snowball sampling participants were asked to share the survey through their own social media platforms; as the survey questioned digital well-being it was important to ensure that participants were open to the digital experience, though it is recognised that this does exclude the attitudes of those not digitally engaged.

The method of data collection used was quantitative with an element of qualitative via a questionnaire in the form of an online survey; for which, the Youth Digital Well-being Survey (2016) was used as reference. A quantitative approach was deemed most appropriate for this research as it aims to provide data that is easily comparable (Patton, 2005). An element of qualitative was also incorporated as it allows participants to give additional detail of their

opinions that may have been otherwise overlooked (Patton, 2005). Issues with validity may be evident within the findings as some criteria may have been ambiguous and therefore been subject to researcher bias as perspectives change between contexts (Gray et al. 2007). For example, one question within the survey refers to 'downloading' and this refers to a whole host of options and may have been confused with streaming, or a differentiation between legal and illegal downloading may have affected responses and the reliability of the study.

The online survey created for this research was an adapted version of the Youth Digital Well-being Survey (2016); a survey developed by Adjust Your Set (2016) as part of a continuous exploration of 'youth culture in the UK.' The survey consisted of 32 questions that fit into four elements deemed significant by Adjust Your Set (2016) in making up an overall analysis of digital well-being, these were; internet access, online security, online relationships, and online identity. The British Psychology Society Code of Human Research Ethics (2010) was followed for the duration of this research to ensure ethical practice and that participant's best interests were put first as protecting participants from psychological or physical harm is a primary responsibility in research (Langdridge, 2004).

3. Results

The results of this research have been driven by the collection of primary data. All comparisons have been made between 'younger generational millennials' within two combined age categories; 16-19 and 20-29, and the 'older baby boomers and above' generation combining the categories 60-69 and 70+. One issue of the study was that a number of participants did not respond to all questions. This may cause issues with validity and reliability as the results may not be truly representative of these two groups. The following analysis describes the differences found within the analysis between the two age categories.

Initial results show that the 16-29s use the internet more frequently than over 60s. The 16-29 category reported using the internet multiple times a day, with 74.19% reporting that they use the internet hourly. The 60+ category differed somewhat, with the majority responding that they use the internet multiple time daily. These results fit within the descriptions of the digital natives and the digital immigrants. The millennials, who are classed as digital natives, have adopted a 'digital language' as their mother tongue and have learnt to receive and process data quickly (Prensky, 2001). In contrast, individuals born before the internet was established have had to adapt and embrace the digital shift (Prensky, 2001), and this may account for the marginal difference in the amount of time spent engaging with the internet between the two groups. This result is also consistent with previous research demonstrating that individuals over 50 are not 'technophobes' as sometimes insinuated, and are instead embracing the integration of technology into their daily lives. The survey's results indicated that over 70% of older participants (60+) who responded use a Smartphone or Tablet to access the internet.

The adoption of technology by the over 60s was reinforced by the agreement of 'communication' as the best thing about the digital world. In particular, the 60+ category expressed that communication with *friends and family* was what they found most beneficial about the internet. In 2011, Milligan and Passey (2011) indicated that 25%-35% of internet users were 'aged 65 and over.' Five years on, the proportion of individuals 'aged 75 and over' who use the internet has risen almost two-fold, from 19.9% in 2011 to 38.7% in 2016 (Office for National Statistics, 2016). This steady increase in internet usage could be linked to the number of older individuals living alone, as Sar et al. (2012) found that older individuals who use the internet present decreased levels of loneliness.

Conversely, the 16-29 year olds responded with 'accessibility' as the best thing about the digital world. In particular, accessibility to 'information'; as one participant added that 'you can find out anything.' Becker (2015) states that youth culture is dependent upon social media

and the ability to be able to instantly connect and communicate with others within the online world. Gottfried and Shearer (2016) claim that 67% of millennials use Facebook as a news source, and a study by Ofcom (2015) found that individuals aged 16-24 spend over 27 hours on the internet each week.

Taking into account previous findings, it is no surprise that when asked about access to online content, 36% of the 16-29s strongly agreed that they felt frustrated when asked to create an online profile or to log in with personal details. Whereas only 16.67% of those within the 60+ category strongly agreed; a statistic of less than half. This result links to the description of a digital native. As Becker (2015) discusses, the need for instant gratification within the millennial generation is due to no longer having to wait until '*the 6pm news*'; millennials have grown up to become accustomed to instant access. Not surprisingly, when asked if they felt frustrated when expected to pay for content online, 32% of the 16-29s strongly agreed. While 0% of the 60+ category felt this way, half neither agreed or disagreed. This result once again fits within previous research; as digital immigrants have seen the internet and digital devices go from a unique innovation to a mandatory modernisation, they are happy to comply to a payment in return for a service (Gronstedt, 2007 in Chandler, 2008). On the other hand, research asserts that paid online services repel the millennial generation (Gordon, 2013).

When asked on a scale from 1-100 how 'safe' participants felt online, older participants (60+) reported that on average they felt 19% safer than the 16-29s. In 2015, Ofcom (2015) reported that over 90% of millennials have a social media profile. These profiles are updated frequently throughout the day; millennials are lost in the 'abyss' that is social media, and forget that a receipt is booked for every online endeavor (Fineman, 2014). Fineman (2014) reminds us that 'online is forever.' This may explain why our results indicate that the 16-29s don't feel as safe when online, and why new laws and regulations have been created to combat instances such as revenge porn and cyber bullying. The Institute for Responsible Online and Cell Phone Communication (in Cumbrow, 2011) reminds us that everything posted online is 'public and permanent', 'there forever, even if it's been deleted.' Although millennials are considered *digital natives,* older millennials may have been naïve when considering the permanency of the online world; and are likely to fit into the category of those who are now being turned down by employers for a picture posted over 10 years ago.

When using the internet both age categories expressed that they felt least secure when downloading, followed by online banking. The survey found that 48% of 16-29s and 45.45% of older participants (60+) felt least secure when it came to downloading, and 28% of 16-29s and 27.27% of older participants felt least secure when it came to banking. Moreover, the 16-29s felt insecure in three additional categories, of which the older participants did not recognise as insecurities. These categories were dating, streaming content, and gaming.

The usage 'of dating sites by 55 to 65 year olds' has doubled from 2013-2015, as the digital immigrants are increasingly tech-savvy (Smith, 2016). EHarmony (2016) comments that the over 60s 'appreciate the convenience' of online dating, and accept that 'things have changed.' This may explain why older participants didn't respond to the option of dating as an insecurity, as they may not see the risks associated, such as the phenomena of Catfishing. Catfishing is a growing problem for the millennials; when you are lured in to a relationship by someone who has adopted a fake online persona (Urban Dictionary, 2013). Additionally, research indicates that there are more over 50s than under 18s who play online games; with the average age of online game players at 31 (Big Fish, 2016). Although research claims that a large percentage of digital immigrants enjoy online gaming, the results of this survey indicate that it is the digital natives who feel more at risk.

When questioned about streaming content, results show that 16% of 16-29s felt least secure in terms of online safety. This could be explained by the 57% of 14-25 year olds who prefer to

watch television programmers on their 'computers, tablets and smartphones', with 72% also commenting that being able to stream video was 'one of the most valuable services' (Spangler, 2015). Meanwhile, 81% of digital immigrants prefer to watch programs on a traditional television set (Spangler, 2015). Therefore, the 16-29s perception of insecurity could come from the amount of time spent streaming content, and the specific content that is being streamed. This is particularly evident when it comes to popular television shows such as Game of Thrones; Game of Thrones became the most pirated program of 2015, with over 14 million illegal streams (BBC, 2015).

Participants were also questioned on their perception and consideration of *private information* and what information they would not mind sharing publically; the survey generated results that contradicted each other greatly. 100% of all participants (16-29 and 60+) who responded to the question considered every aspect of their lives to be private. Yet, those who responded also claimed that they would not mind sharing certain aspects of their lives; for example, over 70% of 16-29s and over 60s wouldn't mind sharing pictures of important life events. Furthermore, 30.43% of younger participants claimed that they felt better about themselves in the online world as opposed to the real world. This result differed significantly to the over 60s of which 100% claimed that they felt better about themselves in the real world. Previous research has highlighted that those who invest large amounts of time and energy into their virtual surroundings see 'it as their real or true place of residence' (Castronova 2001, in Castronova and Wagner, 2011). Additionally, the 'emotional and social significance' millennials attach to a virtual life is level to that of one's real life, which may explain why so much time is spent online by 16-24 year olds (Boellstorff 2010, in Castronova and Wagner, 2011).

What's more, when asked whether they had made new friends online, over 60% of 16-29s and the over 60s agreed either somewhat or strongly. The Future Laboratory (in Burrell, 2014) found that a higher rate of online friendships impacts positively on the self-esteem of individuals aged between 49 and 68; this is therefore arguably an integral part of a positive self-image for older generations. However, this finding contradicts earlier results; overlooking the friendship and communication elements that the online world creates for the over 60s. A number of articles suggest that the online world acts as a 'relationship tool', allowing users to start new relationships and maintain old ones (Brown, 2014), this links back to Age UK 's research on how the digital world can be a great tool for elderly individuals who are isolated and lonely.

4. Discussion and Conclusion
There was a distinct difference in attitudes between the 16-29s and the over 60s. The analysis indicated that the over 60s utilise the digital world at its face value; a way to stay connected and interact with likeminded others. Whereas the 16-29s are often dissatisfied with their connectedness; repeatedly feeling frustrated by the service.

The overall analysis for the over 60s was complementary; pinpointing the over 60s confidence in online dating. Online dating revealed itself to be an online scenario in which the over 60s felt most secure; underpinning the argument that the digital world is used as a relationship tool for the digital immigrants. Additionally, it is understood that relationships formed online become a static feature in the lives of the over 60s. Results such as these demonstrate the positive effects of the digital world; as the over 60s experience a positive enhancement to their self-worth and well-being.

Moreover, despite some concerns regarding the digital immigrant's willingness to accept new technologies, the findings from this paper demonstrate on multiple levels that they are already embracing the digital world. Furthermore, the over 60s endorsed the instant connection to

friends and family. It is evident from the analysis that those of the older generation who have access to the digital world receive a greater benefit from it; regardless of that fact that they access the digital world less frequently.

The analysis identified that the older generations do not find a burden in having to sign up, or pay for online content. It could be inferred that they do not mind putting in a little extra, in return for the benefits of the digital world. This could also explain why results specified that the older generation feel safer online, as they are willing to take responsibility for their own security. This again is important with advancing technology within the Internet of Things and the development of Smart Cities. Furthermore, advances within the prior will aid the development of Smart Communities; thus, creating communities where one is safe and healthy due to the extraction of digital information. Our results open up the over 60s as an older target market for new developments rather than being perceived as a risk.

The overall analysis for the 16-29s was contradictory. The analysis found this group to be one who frequents the online world, yet feels insecure, unsafe and frustrated at the use of it. The analysis uncovered an obvious but distinct connection between the frequency of internet use by the 16-29s and what they considered to be the best thing about the digital world; 'accessibility', for those *digital natives* who are almost constantly online. Yet, the 16-29s felt greatly irritated when asked sign up, or pay for online content. This could explain why our research indicated that the millennial generation feel insecure about a number of online services; as if they refuse to 'sign up' or pay a fee they are decreasing the likelihood of breaches in their online security.

However, analysis unearthed a dependence on online services; as 40% of 16-29s claimed that they felt better in the online world. It is unknown whether this reliance on the digital world is positive or negative to one's well-being. Yet, as with the over 60s, analysis indicated that friends *are* made online by the 16-29s. It is questionable whether these *friends* are merely 'online' or whether they overlap into real life.

The implications for technical development, the Internet of Things and Smart Cities rest largely on the analysis of that which the public consider private and that which the public do not mind sharing publicly; in essence, the willingness to share information. The overall conclusion from the data that has been collected in this survey, is that although the public do consider almost every aspect of their lives to be private, they do not mind or hesitate to share their personal information.

However, it could be questioned *in what capacity and with whom* the public believe they are sharing their information. It is evident from this research that what is considered *public* and *private* is individualistic; thus, in terms of generalisation, the general public may not be so willing to share their personal information if they know that it is being sold, and used by third parties. If the general public *were* in receipt of this information it is questionable if they would still decide to share their personal information, and to what extent. However, evidence from this research suggests that if the general public is more willing to share personal information if it is understood that it is being gathered, and harvested for the development of society. So far, this is good news for the development of technology, the Internet of Things and Smart Cities.

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