Article

Epidemiology and Phenomenology of Compulsive Use of Technology: The Technological Saturation of South African Youth

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Abstract

Modern technological advancements are increasingly reconstituting virtually every facet of social interaction. While technology plays a significant role in many people's lives, it appears to pose interminable drawbacks, especially among the youth. This article seeks to go beyond emphasising the utopia wrought by these disruptive innovations, by looking at how technologically saturated South Africa's youth are. This study took a qualitative approach. Focus group interviews encapsulated the viewpoints of the target population selected from four multipurpose community centres in KwaZulu-Natal (KZN), South Africa. Grohol's model of pathological internet use was found relevant to determine the compulsive use of technology by the youth in South Africa. Data analysis was done using thematic categorisation. The findings show that the youth have adopted a variety of information and communication technologies (ICTs) for different purposes. Findings also reveal that technology advancements not only offer an easier and quicker way to share information, but also contribute to sociability by providing a way to communicate with distant friends and family. Notwithstanding the negative side of technology, ICTs have positive impacts on today's youth, namely bringing people together as well as enhancing their social and educational abilities. However, if used without discretion, technology can create a less interactive generation. The youth seem to be so fixated on technology that it affects their social life. It can be concluded that South Africa's youth are saturated by technology. However, this saturation comes with both negative and positive consequences; some have become technologically savvy while others seem to be negatively affected.

Keywords: internet addiction; telecentres; information and communication technology; information society; e-inclusion; social informatics

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Introduction and Background to the Study

The advanced competences of information and communication technologies (ICTs) are astounding, and offer many positive opportunities for the youth (Kafai, Peppler, and Chapman 2009). It is axiomatic that technology continues to evolve. This is evident in a number of concepts that have recently been coined to describe this evolution in technology. Some of these concepts include technology as "change agent"; the "Net generation"; "disruptive innovation"; "Web2.0"; and "digital natives." It is also correct to say that the youth of today are becoming more attached to technology; or perhaps one should say, more obsessed with technology. This was reported by Mbatha, Ocholla, and Le Roux (2011), who argue that there has been over reliance on technology among the youth in many countries—and South Africa is no exception. This claim is also supported by Oloffsson, Fransson, and Lindberg (2018) in their study of the impact of ICTs in Swedish upper secondary schools. There are many factors that have contributed to this intensive drive of technology adoption by the youth. For instance, the world is digitised to such an extent that many politico-socio interactions can be done online. Consequently, many diverse and varying relationships are being built online. Keyboards and keypads are becoming the keys to many people's hearts.

There is no denying the fact that modern technological advancements are constantly seen throughout every aspect of life. For instance, mobile phones, portable internet availability, laptop computers, iPods, MP3 players of every brand, and many other devices, are everywhere. It must be said that these technologies seem to also possess incessant limitations. Notwithstanding the negative side of technology, it is important to note that ICTs have a positive effect on today's youth. This dichotomy is clear, for instance, in some situations the internet and iPod prevent sociability, though in others they may be the cause of increased social activity. With that said, ICTs have a strong capability to bring people together as well as enhance the social abilities of today's youth (Hernandes 2017, 339). Nonetheless, it is equally important to note that if used without discretion, technology can create a less interactive generation, where people frequently depend on technology for contentment (Kafai et al. 2009; Masters 2015).

The problem that was investigated in this study relates to recent arguments about the adoption of technology by the youth. Noting the contribution of technology in different epochs, Chung (2021) notes that the adoption of technology is part of the larger industrial revolution. In addition, Chung (2021) states that although each industrial revolution is often considered a separate event, together they can be better understood as a series of events building upon innovations of the previous revolution, leading to more advanced forms of production—and shaping society both negatively and positively. The youth of today seem to be so fixated on technology that it affects their social life (Masters 2015). Many studies have confirmed that the internet can have a significant negative effect on teenagers, if overused (Mbatha and Lesame 2013). In his study, Masters (2015) argues that constant ICT use, and the internet in particular, is most likely to reduce the amount of time that could be spent with friends and family.

Also in support of the sentiments above, Bishop (2015) contends that time wasted away by typing useless messages, is detrimental to personal relationships with the ones who really matter. It is no use spending a lot of time talking to people over the internet, when one could just as easily walk down the stairs and spend time with family, or go to see friends instead. Interestingly, Winkler et al. (2013) join in this argument by noting that even though teenagers are simply using the internet for interpersonal communication, it is causing a reliance on brightly lit screens and keyboards, instead of sincere personal interactions with close friends and family members. Likewise, Dreier, Wölfling and Müller (2013) contend that investing too much in internet chats will inevitably produce a sense of deprivation, and a resulting sense of loneliness from a lack of real relationships and personal contact. It is, therefore, important to note that obsessive or constant use of the internet as a social tool deprives teens of necessary relationships that are crucial to life, especially throughout high school and college, which will ultimately result in a damaging sense of loneliness and depression.

Also in support of these views, Griffiths (2000) notes that an ICT tool such as an iPod, much like the internet, becomes a negative stimulus on teenagers when in constant use. Similarly, Bishop (2015) observes that the main appeal of the iPod is that it preoccupies its users such that they are no longer obligated to interact with the uncontrollable factors of everyday life. Although technology provides a way of communication, it is, however, becoming the only way to communicate with today's youth because it has made one-on-one interaction less frequent and has had a negative effect on the social abilities of the youth (Young 2011). Certainly, ICTs are catalysts for keeping the youth entertained (Mbatha 2015). However, it is important to note that the very same technology—if not used with caution—is capable of disconnecting people. As a result, there have been heated arguments regarding the negative consequences of using ICTs. For instance, some ICT enthusiasts have termed this a "double edged sword" (Bishop 2015; Mbatha 2015; Young 2011).

Therefore, the aim of this article is to explore the effect of ICTs on South Africa's youth by cutting through the hype and getting straight to the facts of how technologically-saturated South Africa's youth are. To realise the aforementioned aim, the study answered the following research questions: What types of ICTs have been adopted by the youth? What is the purpose of using the adopted ICTs? What are the benefits of using adopted ICTs? How many hours do the youth spend per day using ICTs? After reviewing different studies on the use of technology by the youth, the authors discuss a research methodology that was adopted to conduct the study. Thereafter the paper presents the findings and discussions of the study, and ends with concluding remarks and recommendations resulting from the study.

Literature Review

It is important to note that as the diffusion and adoption of ICTs have proliferated globally, there has been heated debate regarding whether some users develop disturbed patterns of technology use. In their study, Cash et al. (2012) vehemently argue that

problematic computer use is a growing social issue that is being debated worldwide. They further caution that parents are increasingly seeking advice in clinical practices about how to deal with the excessive internet use of their children (Cash et al. 2012; Moreno, Jelenchick, and Christakis 2013; Weinstein and Lejoyeux 2010). This media saturation among the youth has seen the emergence of internet addiction disorder (Grohol 2016; Mak 2014; Masters 2015; Moreno et al. 2013). Internet addiction disorder—which is popularly known as problematic internet use (Moreno et al. 2013; Young 2011); compulsive internet use (Meerkerk 2009); internet overuse; problematic computer use; or pathological computer use—refers to excessive computer use that interferes with daily life (Byun 2009; Guzzo, Ferri, and Grifoni 2013; Young 1999). In line with the views above, Byun (2009) cautions that other habits such as reading, playing computer games, or watching large numbers of internet videos (such as those on YouTube) are troubling only to the extent that these activities interfere with normal life. Cheng and Yee-lam (2014) join in this argument, noting that the prevalence of internet addiction varies considerably between countries and is inversely related to quality of life. Young (1999) argues that the internet itself is a neutral device, originally designed to facilitate research among academic and military agencies. However, the internet has created a stir among the mental health community, which discusses internet addiction at great length. On the other hand, Young (2009)—supported by Weinstein and Lejoyeux (2010)—observes that the hallmark consequence of substance dependence is the medical implication involved, such as cirrhosis of the liver due to alcoholism, or increased risk of stroke due to cocaine use.

Many researchers have written extensively about the power of technology on the youth. For instance, Bronwyn (2010), supported by a recent observation by DeGennaro (2014), espouses that the evolution of technology and its persistent growth enable the youth to approach learning differently to any other previous generation. In support of the views above, Mbatha (2015) argues that the youth in the 21st century is taking the lead in the adoption of technology in their scheme of things, be it in education or in their social life. Similarly, DeGennaro (2014) contends that ICTs have transformed the way the youth engage with the world around them. Interpreted in the light of the Diffusion of Innovations theory, Rogers (1995) argues that the major reason people adopt technology is because that particular form of technology provides a relative advantage to its adopters. Also, he adds that if the technology is not complex to use, people tend to adopt it more often. Therefore, it is safe to say the reasons the youth adopted technology in their scheme of things are on account of the fact that these ICT tools are beneficial to them and easy to use (Ndwiki and Thinguri 2017).

Also in line with the views above, a number of ICT enthusiasts observe that there are ICT tools and services that affect the youth in positive ways (Bishop 2015; Cheng and Yee-lam 2014; Santo 2010; Thackeray and Hunter 2010). However, many authors such as Masters (2015); Young (2011); Guzzo et al. (2013); Dreier et al. (2013); Grohol (2016); and DeGennaro (2014) caution that when these ICT tools and services are not used in moderation, they can negatively influence the youth. Likewise, Mbatha (2015)

is of the view that a variety of emerging ICT tools are very effective in providing quick and easy communication, unifying diversities, and can deepen the experiences of the world through music that is easily accessible online. Conversely, Grohol (2016) and Young (2011) caution that those same technological advancements can become highly addictive, hence the negative consequences. It is worth noting that teens who persistently use various technologies, are most likely to become technologically saturated—such that they spend less time with their loved ones, and consequently feel lonely and dejected (DeGennaro 2014; Dreier et al. 2013; Grohol 2016; Guzzo et al. 2013; Masters 2015; Young 2011).

Model of Pathological Internet Use

An analysis of the research questions suggested a theoretical framework that has components of technological innovation, adoption and diffusion. The researchers carefully examined several theories in an attempt to find one that encompassed all the above-mentioned components. Grohol's model of pathological internet use was found relevant, as this study sought to determine the cause of the compulsive use of technology by the youth in South Africa.

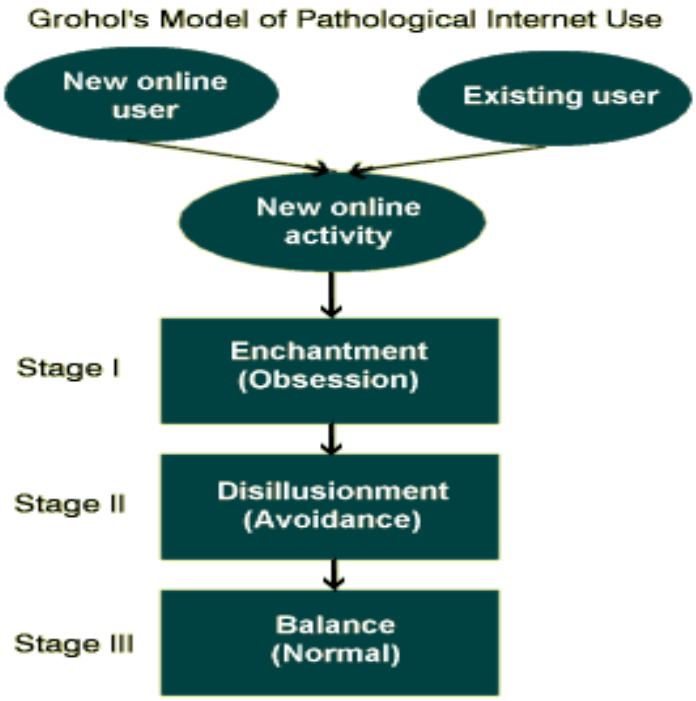

Figure 1: Grohol's Model of Pathological Internet Use

Source: Adapted from Grohol (1999)

In his model above, Grohol (1999) states that people's behaviours online are phasic. That is, most people with "internet addiction" are very likely to be newcomers to the internet. Newcomers are going through the first stage of acclimatising themselves to a new environment by fully immersing themselves in it. Since this environment is so much larger than anything they have ever seen before, most of these newcomers get "stuck" in the acclimatisation (or enchantment) stage for a longer period of time than is typical for acclimatising to new technologies, products or services. This is the phase that is highly "addictive." Many of the addicts need to seek other people's help in order to progress faster to the second stage. Grohol states that stage two is disillusionment. Basically, in this stage the individual has to become uninterested in the activity he or she has been engaging in so often. Once that is accomplished the individual can reach the third stage with ease, which is balance. The balance stage symbolises normalised usage of the internet. However, in the context of this study, the balance stage refers to any ICT tools and services, including the internet. This stage is reached at a different period by everyone and the phases can still be recycled if the individual finds another interesting new activity. It is believed that an existing user would have a much easier time successfully navigating through these stages when they discover new activities and hence, reach balance (stage three) more quickly than a new internet user.

Research Methodology

This study took a qualitative approach. Focus group interviews were conducted in order to encapsulate the viewpoints of the target population, which comprised 30 youths. The interviews provided the youth with an opportunity to share and reflect on their perceptions and experiences of the use of technology in their scheme of things. These audio-taped interviews lasted from 30 minutes to one hour, and were held at the telecentres. These telecentres were selected using purposive sampling after the researchers had established that not all telecentres were fully operational. The interest lay in understanding the use and types of ICTs available in these telecentres. Notably, because of the diversity and enormous size of telecentres in South Africa, the researchers limited the study to KZN, covering only four out of 14 telecentres located in different local municipalities in the province. The major criteria for the selection of these telecentres were that they had to be fully operational and service intensive. To reiterate, it emerged that some of the telecentres were not fully operational for a variety of reasons. For example, some of the telecentres had been converted to "one-stop, integrated community development centres" and are mandated by the government to make a crucial contribution to the expansion of infrastructure for access to information and services that citizens can use.

Typical services found in these centres include those from the departments of: Home Affairs; Labour; South African Social Security Agency; Social Development; Health; post office; libraries, agricultural extension offices; municipal services; community development workers; South African Police Service; and community-based organisations (Government Communication Information Systems 2014). Although it

would have been useful to cover all telecentres in the country, this would have required more time, resources and expertise, which the researchers simply did not have. Funding towards the study was negligible. The researchers had to take into account the extensive distances between the participants in the province and their availability. Convenience sampling was applied to select the participants. The researchers, together with their research assistants, requested community members who visited the centres during the research days to participate in the study. Data collection was conducted between September and December of 2014. Researchers asked centre managers to organise the research participants. The four telecentres selected were: Nhlazuka, Mbazwana, Dududu and Malangeni, which are located in different local municipalities in the province.

Data were analysed using axial and open coding, where dominant themes from the discussions were identified and discussed in detail. Data analysis was divided into two phases. In the first phase, the researchers engaged in "open coding" in order to generate thematic categories, thereby reducing large passages of text to principal concepts. In the second phase, the researchers engaged in "axial coding" in which concrete codes were formed for analysis. The study sought to generate a rich body of findings from a smaller number of participants, rather than less detailed information from a larger group. While the study's findings may not be representative or generalisable, they indicate areas for further exploration and contribute to the development of strategies that can be implemented to improve the use of technology by the youth. The validity of the interview guide was enhanced by the fact that the questions were based on the objectives of this research study. Each question was checked to determine whether it contributed to the research objectives. As far as internal validity was concerned, the researchers scrutinised the work critically to ensure that the research assistants adhered to the topic and thus that the study measured what it was intended to measure. Internal validity was also ensured by reviewing studies by other researchers in the same field. With regard to reliability, the interview guide was pre-tested in a pilot study for clarity, completeness, relevance and shortcomings. The pilot study aimed to test the subject matter of the current research, the population it was to cover, its spatial variability, and respondents' possible reactions to questions.

The study was ethically approved by the University of South Africa's Ethics Committee. Also, informed consent was obtained from each participant in the study in order to ensure that they understood the research process and to verify their willingness to participate. Participants were informed of their rights, including the right of informed consent, protection from disclosure of information, and respect for their privacy. All the research participants participated in the study voluntarily. With regard to protection from harm, the researchers ensured that the participants were not at any risk by answering questions and would not be exposed to embarrassment, unusual stress, or any demeaning treatment. Anonymity and confidentiality were promised and maintained. The information they provided was not made available to anyone else who was not directly involved in the study and cannot be traced back to the participants. In terms of

professional standards, the researchers ensured that the findings were gathered in a professional manner without misrepresenting anyone and/or intentionally misleading the participants about the nature of the study. The researchers ensured that all the findings were presented honestly without fabricating any data to support any particular finding.

Findings and Discussions

The findings of the study are reported under the following headings in this article: demographic profile of participants; types of ICTs used by the youth; benefits of using ICTs; and hours spent per day using ICTs.

Demographic Profile of Participants

Background information sought from the participants included age, gender and highest educational attainment. This was to determine the relationships between demographic characteristics and the adoption and use of ICTs by the youth in the sampled telecentres. It was vital to assess gender proportionality in the study, as it is a widely held view that males dominate the use of and access to ICTs. The study was dominated by females. This did not come as a surprise, given the fact that there are more females than males in South Africa (Statistics South Africa 2013). This was to ascertain whether there was gender equality in the use of ICTs among the youth. Many studies have identified women and girls as disadvantaged in their uptake of ICTs (Cullen 2001; Odame and Hafkin 2002; Mbatha et al. 2011).

Regarding the age of participants, most were below the age of 20. These findings are also confirmed by Mbatha et al. (2011), who observe that most people above the age of 40 years in developing countries are conservative and slow in keeping up with ICT advancements. With regard to educational background, most of the youth had matric as their highest educational qualification. Most of the participants were from the Nhlazuka telecentre, followed by those from the Mbazwana telecentre, and most of them were unemployed. Youth in South Africa constituted 37% of the population in 2010, numbering 19.1 million individuals (Makiwane and Kwizera 2009; Statistics South Africa 2011). South Africa's National Youth Commission Act (1996) defines youth as those from ages 14 to 35 years (Statistics South Africa 2013). Cramm et al. (2013) observe that, like many other developing countries, South Africa's population as a whole is quite young (Statistics South Africa 2013). In their study, Makiwane and Kwizera (2009) note that the elevated level of the youth population is expected to exist for the next 20–30 years. The large proportion of the working-age population presents South Africa with a time period of opportunity for human capital and economic development (World Bank 2007). Although South Africa transitioned from an apartheid government to a democracy in the early 1990s, the policies have a continued legacy of significant inequalities. The burden of many of these inequalities falls on South African youth in terms of education, employment, poverty, and health outcomes (Kriel, Whitehead, and Richter 2005). South African youth in the 21st century are more highly

educated than in previous decades due to the expansion of youth educational opportunities since the end of apartheid (Makiwane and Kwizera 2009).

According to Statistics South Africa (2012), older generations have lower levels of average education achievement than younger ones, which is attributable to the apartheid government policies regarding education. According to the South African National Census of 2011, 40.6% of those aged 20–24 years had completed grade 12; only 9.9% of those aged 80 years or more had completed grade 12 (Statistics South Africa 2012). According to Chetty (2014), in 2014 only 11% of Black South African youth and 7% of Coloured youth in the 18–24 year age bracket were enrolled at a university, compared to 60% of White South African youth. It is worth mentioning that poor quality primary and secondary schooling is a key reason for the low rates of Black and Coloured South Africans attending tertiary education (Makiwane and Kwizera 2009). Young people are disproportionately affected by unemployment in South Africa, meaning their unemployment rate is higher compared with other age groups (Makiwane and Kwizera 2009). The latter authors are of the view that since 1995, unemployment rates have increased the fastest for those who have completed secondary school or university. Of the entire South African population, Black Africans have the highest unemployment rates; Whites have the lowest unemployment rates (Statistics South Africa 2012).

Types of ICTs Used by the Youth

One of the objectives of the study was to explore different types of ICTs the youth were using. It emerged during the focus group discussions that the youth were using a variety of ICT tools either for educational or recreational purposes. To this end, most of the participants shared the following: "*To be honest, I have access to a number of ICT applications and I am able to access most of them on my mobile phone and they include social media such as social networks, WhatsApp, Facebook, Twitter, and YouTube*." Based on the findings above, it is clear that the youth had access to the relevant ICT applications that are highly addictive if not used with caution. One of the major factors that have contributed to these applications being addictive is the fact that they are accessible on mobile gadgets; hence they can be used anytime and anywhere. In line with the findings above, Thackeray and Hunter (2010) argue that today's internet users have a number of different ways to engage on the Web.

In line with the views above, one of the participants shared the following: "*I have a smartphone that I always use to access information and communicate with my friends and family.*" The evolution in technology is dominated by ICT tools and applications that are capable of processing, sharing and distributing information quickly, easily and efficiently. Mobile phones such as smartphones have emerged as catalysts when it comes to accessing and distributing information. In his study, Santo (2010) notes that the youth in the 21st century have access to all kinds of technologies that afford them the ability to communicate. This fact also emerged during the interviews, where one participant mentioned the following: "*I needed a laptop for my studies, so my parents bought me one, but I also use it for recreational purposes, such as watching TV and*

video clips on YouTube." The online world is inundated with a variety of both educational and recreational information. Consequently, many students are no longer using traditional information centres such as libraries for information access.

This has also seen an increase in online learning, which has revolutionised and transformed teaching and learning. Many online tertiary institutions have emerged as a result of this technological evolution. Lecturers are communicating with their students using technology. This has forced many students to adopt technology in their learning experiences. Bronwyn (2010), supported by Mbatha (2015), observes that technology enables people to access digital space to do things in improved ways. Some of these activities include watching online TV and video clips through YouTube, and playing entertaining games (Mbatha 2014). Consequently, the youth have become fixated on the online environment, which results in some families becoming dysfunctional (Young 2009).

It also emerged during the interviews that there were a number of ICT tools that were being used by the youth. For instance, one shared the following: "*My parents bought me an iPad and iPod to listen to music*." It was noted during the interviews that a number of participants concurred that they owned ICT gadgets such as iPads and iPods. Interestingly, these are some of the ICT tools that have been reported as being highly addictive if not used with caution (Guzzo et al. 2013; Lenhart, Maddenn, and Hitlin 2005; Mbatha 2010). In addition, the latter authors note that mobile phones, portable internet availability, laptop computers, iPods, MP3 players, and many other devices are widely accessible and possess unending possible drawbacks. Also in line with the views above, Mbatha (2010) cautions that if used without discretion, technology can create a less interactive generation, where they frequently depend on technology for contentment.

Benefits of using ICTs

One of the themes that emerged during the interviews was the benefits of using ICTs. The youth indicated that they were reaping many benefits from using ICTs. For example, one of the participants indicated the following: "*As a matter of fact, there are plenty benefits of using ICTs. But the ones that stand out for me include access to a lot of educational and recreational information.*" It was good to know that some of the youth were using ICTs for educational purposes. It must be said that ICTs are playing a pivotal role in enhancing teaching and learning (Mbatha 2015). ICTs are capable of doing away with the transactional distance between students and lecturers (Mbatha 2014). Also of note is that ICTs enable students to access an abundance of educational information (Mbatha and Manana 2012).

The findings show that the youth were not only using ICTs for educational purposes, as some indicated that it was effective in keeping their social life on track. For example, one of the participants shared the following: "*Well for me ICTs such as social media have improved the way I communicate with my friends and family*." In concurrence with

the findings above, Mbatha (2015) is of the view that a variety of emerging ICT tools are very effective in providing quick and easy communication, unifying diversities, and deepening the experiences of the world through music that is easily accessible online. Conversely, Grohol (2016) and Young (2011) caution that those same technological advancements can become highly addictive with negative consequences. It is, therefore, important to note that obsessive or constant use of the internet as a social tool deprives teens of necessary relationships that are crucial to life, especially throughout high school and college, which may ultimately result in a damaging sense of loneliness and depression (DeGennaro 2014).

It also emerged during the interviews that technology was playing a major role in improving the learning experiences of the youth. For instance, one of the participants said the following: "*For me, ICTs such as the Internet has made it easier for me to access information resources, such as educational resources for my studies.*" In line with the findings above, Bronwyn (2010), supported by a recent observation by DeGennaro (2014), espouses that the evolution of technology and its persistent growth enable the youth to approach learning differently than any other previous generation. In support of the views above, Mbatha (2015) argues that the youth in the 21st century are taking the lead in the adoption of technology in their scheme of things, be it in education or their social life. Similarly, DeGennaro (2014) contends that ICTs have transformed the way the youth engage with the world around them.

Interpreted in the light of the Diffusion of Innovations theory, Rogers (1995) argues that the major reason people adopt technology is because that particular technology provides a relative advantage to its users. He adds that if the technology is not complex to use, people tend to adopt it more often. Therefore, it is safe to say the reason the youth adopted technology is on account of the fact that these ICT tools are beneficial to them. "*To be honest, there are many benefits for using ICTs and the one that stands out for me is communication and information access.*" "*Well I am able to do my school work using my computer and the internet.*"

In concurrence with the findings above, Kafai et al. (2009) observe that so much of the social life of young people has moved online and participation in the digital public has become an essential part of youth identities. In his study on the use of ICTs in selected communities in South Africa, Mbatha (2014) is of the opinion that ICTs have emerged as tools that inspire young people in the 21st century to consider themselves as creative, competent, and critical learners. There is no denying the fact that ICTs are playing a critical role in education. To this end, Mbatha (2015) contends that tertiary institutions are forced to develop policies on how technology should be incorporated into their operations.

Hours Spent per Day using ICTs

Participants were asked to indicate the hours they were spending using ICTs on a daily basis. It is important to note that the time spent per day using technology is a good

indicator of determining whether such people are suffering from pathological technology use or whether such individuals are media saturated (Grohol 2016; Young 2011). It emerged during the interviews that the youth were spending many hours per day using ICTs. For example, some indicated the following: "*You see, we live in the information society, and therefore it makes sense if we spend most our time using technology and I would say I spend 5–6 hours on a daily basis using technology and sometimes more than.*"

It is worth noting that teens who are persistently using technologies are most likely to become technologically saturated to the point where they spend less time with their loved ones, and consequently feel lonely and dejected (DeGennaro 2014; Dreier et al. 2013; Grohol 2016; Guzzo et al. 2013; Masters 2015; Young 2011). The findings showed that participants were spending most of their time using technology. For example, the list below provides feedback from participants:

- "*For me I would say not more than 5 hours because I have other pressing commitments that I have to do on a daily base.*"
- "*I am the only girl at home, therefore I have a lot of house chores that I need to dismiss every day, this, therefore restricts my online life.*"
- "*As a student whether I like it or not I have to use technology for my studies. For instance, I am studying in an ODL institution and therefore the only way to interact with my lecturers and classmates is to use technology.*"
- "*I am always online and it is difficult for me to be offline because I feel like I am missing out a lot, and sometimes I lose out a lot.*"

Clearly the findings above show that the amount of time spent by the youth using ICTs on a daily basis is extensive. Although some were using technology for educational purposes, most of the youth were using it for recreational purposes, and for many hours. This is evident in the findings below: "*To be honest I would say I am always online, the only time I am not online is when I am sleeping, I always communicate and share information using WhatsApp application.*" In support of these findings, Mbatha (2010), Moreno et al. (2013), Mak (2014), and Masters (2015) observe that internet users spend approximately 244.8 minutes per day with friends and family, while non-internet users spend an average of 381.6 minutes per day with friends and family. Interpreted in light of the model of pathological internet use, it is worth noting that the reason some of the youth were spending most of their time using technology is because they were going through the first stage of acclimatising themselves to a new environment by fully immersing themselves in it. The findings suggest that some of the youth remain in the acclimatisation stage for a long period of time. According to Grohol (1999), this is the stage that is highly addictive and the findings show that most of the youth find themselves trapped in this first stage.

It is important to note that new media technology opportunities are decreasing physical interaction and essential quality time (Mbatha 2015). An ICT tool such as an iPod

provides an easy escape from having to interact with strangers in a public situation; because, in just about any situation, pressing play can zone everything out (Bishop 2015; Bronwyn 2010; Cheng and Yee-lam 2014). One of the major negatives of an iPod is that it simply deprives its users of opportunities to meet new people. The latter author further argues that such deprivation is likely to drive people into isolation. Another interesting point worth mentioning is that headphones that are persistently blasting music often inhibit dialogues that could prove to be much more worthwhile.

Also in line with the views above, a number of authors (Dreier et al. 2013; Grohol 2016; Guzzo et al. 2013) have noted that some ICT tools and services affect the youth in positive ways. However, when not used in moderation, these can become negative influences. Modern technologies may have positive consequences by providing simple communication, unifying diversities, and deepening the experiences of the world through music (Dreier et al. 2013; Grohol 2016; Guzzo et al. 2013). However, those same technological advancements can become highly addictive, and like all addictions, may have negative consequences. Teens who are constantly engaged in using various technologies become so addicted that they spend less time with loved ones, and feel lonely and depressed (Bishop 2015; Bronwyn 2010; Cheng and Yee-lam 2014). Technological addiction is leading to a more isolated generation that is overly dependent on technology (Mbatha 2010). Modern technological advances, particularly the internet and iPod, have many positive effects on today's youth, yet if overused can lead to addiction, which consequently produces negative influences and obsession (Mbatha 2010). Although technology can be profitable, it must be used in moderation so as not to damage the social ability of today's youth.

In support of the views above, Bennett, Maton, and Kervin (2008) argue that the idea that a new generation of students is entering the education system has excited recent attention among educators and education commentators. A number of concepts have been coined to describe the technology evolution, such as "digital natives" or the "Net generation." Santo (2010) argues that young people are said to have been immersed in technology all their lives, imbuing them with sophisticated technical skills and learning preferences for which traditional education is unprepared. Furthermore, Santo (2010) suggests that processes designed to capture youth perspectives and engage young people in community development decisions can improve planning outcomes, support the development of sustainable and family-friendly urban areas, and foster civic-minded future leaders.

Conclusion and Recommendations

The focal point of this article was to shed some light on how technologically saturated South Africa's youth are. To realise the aforementioned aim, the study had to answer the following research questions: What types of ICTs have been adopted by the youth? What is the purpose of using the adopted ICTs? What are the benefits of using adopted ICTs? How many hours do the youth spend per day using ICTs? The findings show that the youth were using a variety of ICT tools and services, namely, social networks such

as WhatsApp, Facebook, Twitter and YouTube. Most participants had smartphones and some had laptop computers, iPods and/or tablets. The study found that the youth were using ICTs for different purposes, but all the usage centred on both recreational and educational contexts. Easy and quick communication seems to be one of the major reasons for the youth adopting technology. The immense capabilities of ICTs are astonishing, and offer many positive opportunities for the youth. Benefits to be reaped from using ICT tools and services are endless, which are also revealed in this article as the youth indicated that they used ICTs to access a lot of educational and recreational information.

The time one spends on a daily basis using technology such as the internet, which is accessible through mobile technologies, is a good indicator or determiner of whether that particular individual is saturated by that particular form of technology. Interestingly, a significant number of participants indicated that given the fact that we live in an information society, it makes sense for the youth to spend most of their time using technology. Some of the youth indicated that they spend 5–6 hours or more, on a daily basis, using technology. Some revealed that they are constantly online and it is difficult for them to be offline due to a fear that they might lose out on what is happening around them and globally. Clearly the findings show that a great amount of time is spent by the youth using ICTs on a daily basis. Although some were using technology for educational purposes, most of the youth were using it for recreational purposes; and for many hours. In the same vein, some went on to say that the only time they are not online is when they are sleeping.

Modern technological advancements are constantly seen throughout every aspect of life. These technologies seem to possess unending possible drawbacks. The findings show that the youth had adopted a variety of ICTs and were using these tools for different purposes, such as educational and recreational purposes. The findings demonstrate that technology advancements not only offer an easier and quicker way to share information, but also contribute to sociability by providing a way to communicate with distant friends and family, as well as giving the youth the opportunity for interaction and enhancing their educational experience. Constant use of technology by the youth takes away from time that could be spent with friends and family. Suffice to say, notwithstanding the negative side of technology, ICTs have positive impacts on today's youth. ICTs have a strong capability to bring people together as well as enhance the social abilities of today's youth. Nonetheless, it is equally important to note that if used without discretion, technology can also create a less interactive generation, where they frequently depend on technology for contentment. The youth seem to be so fixated on technology that it affects their social life. Clearly, technology poses a significant negative influence on youth if overused.

Therefore, it can be concluded that South Africa's youth are saturated by technology. However, it is important to note that technology saturation comes with both negative and positive consequences; some youth have become technologically savvy while

others seem to be negatively affected as it adversely affects their social lives and school work. It is also correct to say that the youth of today are becoming more attached to technology; or perhaps one should say, more obsessed with it. This article has confirmed that indeed South Africa's youth are fixated on technology to the point that it adversely affects their social life. This fact is supported by different studies that were discussed at the beginning of this article. In a similar vein, even though teenagers are simply using the internet for interpersonal communication, it is causing an over reliance on technology, instead of sincere personal interactions with close friends and family members. It is worth noting that investing too much in internet chats will inevitably produce a sense of deprivation, and a resulting sense of loneliness from a lack of real relationships and personal contact.

Recommendations for further Research

This social informatics study explored the impact of ICTs among South Africa's youth in four selected community centres in KZN Province. However, such an inventory does not by any stretch of imagination reveal the entire extent to which ICTs have impacted South Africa's youth to determine whether they are technologically saturated or not. This study targeted only youth in the selected centres. It would be interesting and useful to establish the views of older people such as parents and teachers. This could reveal much more about the impact of ICT usage among the youth. Therefore, this article recommends that future studies should focus on the perceptions, experiences and views of community leaders, parents and teachers in order to complete the picture of the impact of ICT use among the youth in South Africa. In addition, with regard to the area of study, because of the diversity of the telecentres in South Africa, this study narrowed its scope to selected telecentres in KZN. Financial and time limitations also made it impossible to include all telecentres in South Africa. Further research should focus on these logistically excluded areas or ensure that they are included in any major studies.

References

Bennett, S., K. Maton, and L. Kervin. 2008. "The 'Digital Natives' Debate: A Critical Review of the Evidence." *British Journal of Educational Technology* 39 (5): 775–786. https://doi.org/10.1111/j.1467-8535.2007.00793.x.

Bishop, J. 2015. *Psychological and Social Implications Surrounding Internet and Gaming Addiction.* Hershey, PA: IGI Global. https://doi.org/10.4018/978-1-4666-8595-6.

Bronwyn, T. W. 2010. "Seeking New Worlds: The Study of Writing beyond Our Classrooms." *College Composition and Communication* 62 (1): 127–146.

Byun, S. 2009. "Internet Addiction: Metasynthesis of 1996–2006 Quantitative Research." *Cyberpsychology and Behavior* 12 (2): 203–207. https://doi.org/10.1089/cpb.2008.0102.

Cash, H., C. D. Rae., A. H. Steel, and A, Winkler. 2012. “Internet Addiction: A Brief Summary of Research and Practice.” *Current Psychiatry Reviews* 8 (4): 292–298. https://doi.org/10.2174/157340012803520513.

Cheng, C., and L. A. Yee-lam. 2014. “Internet Addiction Prevalence and Quality of (Real) Life: A Meta-Analysis of 31 Nations across Seven World Regions.” *Cyber Psychology, Behavior, and Social Networking* 17 (12): 755–760. https://doi.org/10.1089/cyber.2014.0317.

Chetty, R. 2014. “Class dismissed? Youth Resistance and the Politics of Race and Class in South African Education.” *Critical Arts: A South-North Journal of Cultural and Media Studies* 28 (1): 88–102. https://doi.org/10.1080/02560046.2014.883692.

Chung, H. 2021. “Adoption and Development of the Fourth Industrial Revolution Technology: Features and Determinants.” *Sustainability* 13 (2): 871.

Cullen, R. 2001. “Addressing the Digital Divide.” *Online Information Review* 12 (1): 33–49.

Government Communication Information Systems. 2014. Accessed March 22, 2019. https://www.gcis.gov.za/content/newsroom/media-releases.

Cramm, J. M., A. P. Nieboer, H. Finkenflügel, and T. Lorenzo. 2013. “Comparison of Barriers to Employment among Youth with and without Disabilities in South Africa.” *Work* (Reading, Mass.) 46 (1): 19–24. https://doi.org/10.3233/WOR-121521.

DeGennaro, D. 2014. “Learning Designs: An Analysis of Youth-Initiated Technology.” *Journal of Research on Technology in Education* 41 (1): 1–20. https://doi.org/10.1080/15391523.2008.10782520.

Dreier, M., K, Wölfling, and K. W. Müller. 2013. Psychological Research and a Sociological Perspective on Problematic and Addictive Computer Game Use in Adolescents. Internet Addiction: A Public Health Concern in Adolescence. New York: Nova Science Publishers.

Griffiths, M. D. 2000. “Does Internet and Computer ‘Addiction’ Exist? Some Case Study Evidence.” *Cyber-Psychology and Behaviour* 3 (1): 211–218. https://doi.org/10.1089/109493100316067.

Grohol, J. M. 1999. “Too Much Time Online: Internet Addiction or Healthy Social Interactions.” *Cyber-Psychology and Behavior* 2 (1): 395–402. https://doi.org/10.1089/cpb.1999.2.395.

Grohol, J. M. 2016. *Internet Addiction Guide*. Psych Central: Psych Print.

Guzzo, T., F. Ferri, and P. Grifoni. 2013. “Social Network’s Effects on Italian Teenager’s Life.” *Journal of Next Generation Information Technology* 4 (3): 54–62. https://doi.org/10.4156/jnit.vol4.issue3.7.

Odame, H. H., N. Hafkin, G. Wesseler, and I. Boto. 2002. *Gender and Agriculture in the Information Society*, 2126-2021-1352.

Hernandez, R. M. 2017. "Impact of ICT on Education: Challenges and Perspectives." *Propósitos y Representaciones* 5 (1): 325–347. https://doi.org/10.20511/pyr2017.v5n1.149.

Kafai, Y.B., K. A. Peppler, and R. N. Chapman. 2009. The Computer Clubhouse: Constructionism and Creativity in Youth Communities. Technology, Education-Connections. New York: Teachers College Press.

Kriel, A. J., K. A. Whitehead, and L. M. Richter. 2005. "Barriers to Conducting a Community Mobilization Intervention among Youth in a Rural South African Community." *Journal of Community Psychology* 33 (3): 253–259. https://doi.org/10.1002/jcop.20048.

Lenhart, A., M. Maddenn, and P. Hitlin. 2005. "Teens and Technology: Youth are leading the Transition to a Fully Wired and Mobile Nation." *Citeulike*: 833263.

Mak, K. K. 2014. "Psychometric Properties of the Revised Chen Internet Addiction Scale (CIAS-R) in Chinese Adolescents." *Journal of Abnormal Child Psychology* 42 (7): 1237–1245. https://doi.org/10.1007/s10802-014-9851-3.

Makiwane, M., and S. Kwizera. 2009. "Youth and Well-Being: A South African Case Study." *Social Indicators Research* 91 (2): 223–242. https://doi.org/10.1007/s11205-008-9279-7.

Masters, K. 2015. "Social Networking Addiction among Health Sciences Students in Oman." *Sultan Qaboos University Medical Journal* 15 (3): 357–363. https://doi.org/10.18295/squmj.2015.15.03.009.

Mbatha, B. T. 2010. "Internet Addiction Disorder." In *New Media in the Information Society*, edited by N. C. Lesame, B. T. Mbatha, and S. Sindane. Pretoria: Van Schaik, 193–202.

Mbatha, B. T. 2014. "Global Transition in Higher Education: From the Traditional Model of Learning to a New Socially Mediated Model, the Case of the University of South Africa." *International Review of Research in Open and Distance Learning* 12 (2): 25–36.

Mbatha, B. T. 2015. "A Paradigm Shift: Adoption of Disruptive Learning Innovations in an ODL Environment: The Case of the University of South Africa." *International Review of Research in Open and Distance Learning* 16 (2): 40–54. https://doi.org/10.19173/irrodl.v16i3.2165.

Mbatha, B. T., D. N. Ocholla, and J. le Roux. 2011. "Some Implications of Information and Communication Technologies on Public Service Work Environments in South Africa." *Information Development* 27 (2): 47–62. https://doi.org/10.1177/0266666911424864.

Mbatha, B. T., and K. P. P. Manana. 2012. "Students' Perceptions on the Use of *Facebook* in an ODL Landscape," *Progressio* 34 (1): 13–26.

Mbatha, B. T., and N. C. Lesame. 2013. “Diffusion and Adoption of Information and Communication Technologies in the Public Sector: The Case of Selected Government Departments in KwaZulu-Natal.” *Journal for Communication Sciences in Southern Africa* 32 (2): 40–62.

Meerkerk, G. J. 2009. “The Compulsive Internet Use Scale (CIUS).” *Cyber Psychology and Behavior* 12 (1): 1–6. https://doi.org/10.1089/cpb.2008.0181.

Moreno, M. A., L. A. Jelenchick, and D. A. Christakis. 2013. “Problematic Internet Use among Older Adolescents: A Conceptual Framework.” *Computers and Human Behavior* 29 (1): 1879–1887. https://doi.org/10.1016/j.chb.2013.01.053.

Ndwiki, J. M., and R. W. Thinguri. 2017. “A critical Analysis of the Impact of Information and Communication Technology on Teaching and Learning in Kenyan Public Secondary Schools.” *European Journal of Education Studies* 3 (1): 313–324.

Olofsson, A. D., O. D. Lindberg, and B. Fransson. 2018. “Students’ Voices about Information and Communication Technology in Upper Secondary Schools.” *The International Journal of Information and Learning Technology* 35 (2): 82–92. https://doi.org/10.1108/IJILT-09-2017-0088.

Rogers, E. M. 1995. “Lessons for Guidelines from the Diffusion of Innovations.” *The Joint Commission Journal on Quality Improvement* 21 (7): 324–328.

Santo, C. A. 2010. “Engaging Urban Youth through Technology: The Youth Neighbourhood Mapping Initiative.” *Journal of Planning Education and Research* 30 (1): 52–65. https://doi.org/10.1177/0739456X10366427.

Statistics South Africa. 2011. *Mid-year Population Estimates, 2010*. Pretoria: Statistics South Africa.

Statistics South Africa. 2012. *Census 2011*. Pretoria: Statistics South Africa.

Statistics South Africa. 2013. *Social Profile of Vulnerable Groups 2002–2012*. Pretoria: Statistics South Africa.

Thackeray, R., and M. Hunter. 2010. “Empowering Youth: Use of Technology in Advocacy to Affect Social Change.” *Journal of Computer-Mediated Communication* 15 (4): 575–591. https://doi.org/10.1111/j.1083-6101.2009.01503.x.

Weinstein, A., and M. Lejoyeux. 2010. “Internet Addiction or excessive Internet Use.” *The American Journal of Drug and Alcohol Abuse* 36 (5): 277–283. https://doi.org/10.3109/00952990.2010.491880.

Winkler, A., B. Dörsing, W. Rief, Y. Shen, and J. A. Glombiewski. 2013. “Treatment of Internet Addiction: A Meta-analysis.” *Clinical Psychology Review* 33 (2): 317–329. https://doi.org/10.1016/j.cpr.2012.12.005.

World Bank. 2007. *Development and the Next Generation*. Washington DC: World Bank.

Young, K. S. 1999. Internet Addiction: Symptoms, Evaluation, and Treatment. Innovations in Clinical Practice (Vol. 17). Sarasota, FL: Professional Resource Press.

Young, K. S. 2009. "Understanding Online Gaming Addiction and Treatment Issues for Adolescents." *The American Journal of Family Therapy* 37 (5): 355–356. https://doi.org/10.1080/01926180902942191.

Young, K. S. 2011. "Clinical Assessment of Internet-Addicted Clients." In *Internet Addiction*, edited by K. Young and C. Nabuco do Abreu. Hoboken: John Wiley & Sons. https://doi.org/10.1002/9781118013991.ch2.