24/7 Connection: Blessing or a Curse?

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Abstract
Technological innovation has fostered an increasingly interconnected society. This, as well as the explosion in popularity of mobile devices and the drastic fall in cost of connectivity, has led to people being literally tethered to various electronic devices and being "connected" 24/7, 365 days of the year. This could be a good thing or it could be a bad thing depending on one's point of view. Researchers have not been able to arrive at any universally acceptable conclusion though it is advisable that such connection and interconnectedness should be in moderation, as everything done in excess always tends to have a detrimental impact.This paper looks at the increasing interconnectedness between technology (ICT, Internet, etc.) and society as well as the inherent advantages and disadvantages.
Keywords: Internet, Technology, Mobile Technology, Mobile Devices, Internet Games, Video Games

1.   INTRODUCTION

Technology is improving in leaps and bounds with something new being invented virtually every day. Within living memory, telephone service has cut its link to overhead wires, computers have moved from the climate-controlled environments of the enterprise to devices in our pockets, video has moved to the same device from our living rooms while social media have trumped traditional media. Most recently, the cloud has appeared virtually overhead making massive amounts of data and applications available anywhere there is a broadband connection (Fredette et al, 2012). Technology is essentially changing how we interact with one another and the society at large. It seems there is always some new way of doing things, which can be either a blessing or a curse depending on one's point of view. Technology is a major factor in the transformation of how we interact with colleagues, multitask and handle work duties, configure relationships, address family responsibilities and approach recreation time (Piazza, 2007). Research on technological change teaches us that the relationship between technology and society is never unidirectional. Rather technologies typically develop in response to the agendas of powerful social actors. Initially, they shape themselves to the contours of custom; ultimately, they follow paths selected through struggles among groups seeking to turn technologies to their own interests. (McGuire and Granovetter, 1998).

The internet, which some see as the second revolution in IT (Sanchati and Kulkarni, 2011), is a classic example of the great technological development of our age. Manuel Castells (as cited in DiMaggio et al, 2001) is of the opinion that the internet's integration of print, oral and audiovisual modalities into a single system promises an impact on society comparable to that of the alphabet. Castells as cited in DiMaggio et al (2001 p.4) also sees the world entering an "information age" in which

> *'digital information technology "provide the material basis" for the "pervasive expansion" of what he calls "the network form of organization" in every realm of social structure'*

It is quite hard, if not virtually impossible, to disagree with Castells in light of the connectedness of everyone on the planet fostered by development of the internet. Information is simply a "click" away from any individual. What does it matter if the information is available in the same building or on the other side of the world?

What good has this brought to humans and society in general? It is here that the lines become a bit blurred. According to Nie (as cited in Leung, 2010), the impact of the internet on society as a whole has been debated continuously since its widespread adoption in the 1990s. Some schools of thought believe that the internet will boost efficiency, make people more productive and enable them to avoid unnecessary transportation by accomplishing online tasks like banking, shopping, etc., making individuals more fulfilled and build social capital for society. Another opinion is that the internet may induce anomie and erode social capital by enabling users to retreat into an artificial world (Kraut et al as cited in DiMaggio et al, 2001). In addition according to Anderson (as cited in DiMaggio et al, 2001), enthusiasts predicted that the internet would reduce inequality by lowering the cost of information and thus enhancing the ability of low income men and women to gain human capital, find and compete for good jobs, and otherwise enhance their life chances. Cyber-skeptics, on the other hand, suggest that the greatest benefits will accrue to high-income persons who may use their resources to employ the internet sooner and more productively than their less privileged peers may (DiMaggio et al, 2001). The different schools of thought therefore cannot seem to agree on whether the internet attenuates users' relationships or whether it reinforces them.

Mobile technology has now added a new dimension. According to Obichi (as cited in Fredette et al, 2012), in 2010 there were estimated to be about 7.8 billion global mobile connections. The number of cellular

mobile broadband subscriptions jumped almost 60% in 2010 to reach 558 million worldwide, a number that is expected to top 2 billion by 2015 (Fredette et al, 2012). The improvement and increasing popularity of mobile technology has further enmeshed human beings and technology bringing both closer and increasingly immersing our lives in technology. According to Howard-Jones (2011), much of our communication is now online, with much of our leisure and entertainment provided by the internet and video games and as a result, many of us find our mobile phones have become an essential part of our connectivity and everyday organization.

All these changes in lifestyle raise the question of the effect this technology could have on the society and us.

2. TECHNOLOGY AND HUMAN EXISTENCE

Globally millions of people are finding their lives changing by using the internet (Kamsu, Siekpe and Ellzy, 2004). The term "internet" refers to the electronic network of networks that links people and information through computers and other digital devices allowing person-to-person communication and information retrieval (DiMaggio et al, 2001). Initially the internet was strictly for military and scientific use until the early 1980s when it was made available to the public. From the early 1990s, it saw increasingly widespread adoption as graphical user interfaces became increasingly popular and made available to more people. Access and use increased rapidly and the number of people online grew rapidly from 25 million in 1995 to 83 million in 1999 in America alone (Intelli-Quest, 1999). Today more than 50% of the world's population has access to some combination of cellphones and the internet (Schmidt and Cohen, 2010).

The exchange of information is the first objective in the process of connecting to the internet, which is an open environment, a window through which users are in touch with the rest of the world (Oliver, 1997). Technology is the portal through which humans interact with information and there are certain skills that are required to do this maximally because the information landscape has changed in recent times. These skills, known as IT literacy, can be considered a 21st century form of literacy in which researching and communicating information in a digital environment are as important as reading and writing were in earlier decades (Partnership for 21st Century Skills, 2003 as cited in Louis, 2010). The millennial generation, people born between 1977 and 1997 (Fredette et al, 2012), have grown up with this technology, are more connected and reliant on it. Their connectedness to the internet has become second nature and allows them achieve a whole range of daily activities and goals (shopping, banking, learning, social networking etc.). This connectedness has become second nature, and increasing reliance on the internet has led to life being increasingly lived online. This makes human existence and technology so seamlessly intertwined that it is difficult to determine the beginning and the end of each one of them.

For a number of years the use of computers has been extended to practically anything and everything (Gounder, 2011). Portable computing initially came in the form of laptops and netbooks, allowing us take our computing power with us anywhere we go. However, these could only provide a maximum of 3 – 4 hours before requiring connection to a power source. Enter the new and improved mobile devices which when fully charged, could provide the same functions as the laptops and netbooks for 3 – 4 days without needing connection to a power source. Accessing the internet with laptops or netbooks requires a connection to a network, which is available at fixed and confined locations in buildings or at wireless access points. In contrast, mobile devices have network connections available almost 99.9% of the time in almost every part of developed countries. The availability and penetration of mobile device networks is happening at a dramatic pace in developing countries where there is currently more than 68% penetration and an exponential growth of 10% per annum (International Telecommunications Union, 2010).

Gounder (2011) is of the opinion that mobile devices are ICT devices with greater flexibility and ubiquitous connectivity, combined with the power of desktop computing. The addition of more multimedia capabilities to mobile devices allows them perform many functions of desktop computers and laptops. According to Prensky (as quoted in Gounder, 2011), this makes them not just communication devices for interaction between people, but computers that fit in one's pocket, are always on one's person, and are constantly switched on. Mobile digital devices rocketed to popularity with the release of the iPod. Mobile computing went conventional with the release of the iPhone in 2007. The release of the iPad began a significant shift in the dynamics of computer purchase and practice – moving away from desktops and laptops to iPads and other mobile devices (Pinola, 2011). According to the late Steve Jobs, Apple Inc. sold its one-millionth iPhone 3G just 3 days after its launch, and they sell 10 mobile devices for every one laptop or desktop computer sold (Contucto, 2011). Mobile digital devices rocketed to popularity with the release of the iPod.

Mobile technology is not the only driver of continuous connectivity. According to Lynda Gratton, Professor of Management Practice at London Business School and author of The Shift: The Future of Work is Already Here, the international dimension also needs to be considered. Globalization means that many people are now working in situations where colleagues, suppliers and clients are in another time zone. The consequence of this pattern being that even if individuals do not want to work outside the normal working hours, somebody

they work with will be doing so (Economic Intelligence Unit, 2013).

Some individuals view the 20th century as a period with the most social upheavals and technological innovations but just fourteen years into the 21st century and it seems that the 21st century is gearing up to be even more striking. The advent and power of connection technology – tools that connect people to vast amounts of information and to one another – has made the 21st century all about surprises (Schmidt and Cohen, 2010). These changes probably have a lot to do with the theory of "Accelerating Change" in the broad fields of science and technology. While mainframe computers of the 70s were the size of a room, could ADD 2 + 2 and give an answer of 4 in two minutes; mobile devices fit into the palm of our hands and do virtually everything while costing almost nothing (Gounder, 2011). Combine these capabilities with the advent of cloud computing and we find that data and information no longer need to be stored on devices. All required data and information is stored with cloud service providers and accessed anytime the need arises as long as the device is within network connectivity range. This implies that access to data and information does not remain confined to any location, which is the essence of cloud computing (Gounder, 2011). This further fosters the "always connected" mentality making it difficult for people to ignore their devices for too long. This 21st century phenomenon, with the drive behind it – to share information and create a community with likeminded people – is as old as humankind. However, the tools to fulfill that drive have never been so broad in scope or so widely available to so many people. Therein lays both the promise, and the challenge (Fredette et al, 2012).

3.   24/7 CONNECTION – BLESSING OR CURSE?

Of recent, some of the questions revolving around potential detrimental effects of technology on society have been the focus of alarming press articles (Howard-Jones, 2011). Some commentators suggest that we are facing an "unprecedented crises" in which the human brain is under threat from the modern world (Greenfield, 2009). Highlighted concerns are that our love of the latest technology could be turning into the 21st century addiction (Roberts, 2010); that Facebook is "infantilizing" us (Winter, 2009) and Google is degrading our intelligence (Carr, 2008).

It is a well-known fact that the internet is changing society. What researchers cannot agree on is what the changes are and whether they are beneficial or detrimental. As far back as 1977, Daniel Bell predicted that major social consequences would derive from two related developments: the invention of miniature electronic and optical circuits capable of speeding the flow of information through networks; and the impending integration of computer processing and telecoms. Anticipating the democratization of e-mail and telefaxing as well as digital transmission of newspapers and magazines, Bell explored the policy dilemmas these changes would raise, calling the social organization of this new technology the most central issue "for the post-industrial society". A survey of 4000 internet users carried out by Nie and Erbing (2000) reported no change but that heavier users reported declines in socializing, media use, shopping and other activities. In contrast, more recent survey results suggest that internet use serves to complement rather than substitute from print media and offline socialization. Indeed a detailed time diary study also found internet users to be no less active media users or offline socializers than non-users though they did do less homework, devote less time to family care and sleep less (Robinson et al, 2000).

Online communication that supports existing friendships can benefit self-esteem, social connectedness and general well-being. In addition, online communication with family and existing friends is not likely to lead to problematic usage. In actuality, internet use is problematic when it regularly interferes with normal daily living and is difficult to control (Kim and Davies, 2009). Risk factors for problematic internet usage include low self-esteem, withdrawal (anger, tension or depression when access is unavailable), adverse consequences (arguments, poor achievement, isolation and fatigue), anxiety and the use of the internet for sensation-seeking activities that the user considers to be important (Weinstein and Lejoyeux, 2010).

While the excessive use of the internet can become associated with depression and anxiety, the internet is also being developed as an effective tool to treat such mental health issues. This is exemplified by a review of 22 studies of computerized Cognitive Behavioural Therapy (CBT) aimed at ameliorating anxiety and depressive disorders which concluded that this approach, especially via the internet, can provide effective, acceptable and practical healthcare for those who might otherwise remain untreated (Andrews et al, 2010). Although it remains debatable whether such approaches are likely to replace face-to-face treatment with a professional, the internet clearly provides a durable, workable environment for services to remote or disabled populations as well as to people who prefer not to be visible and exposed (Barak, Klein and Proudfoot, 2009).

Some researchers see the internet as a valuable learning resource. The multimodality of the internet, the ability to provide information in multiple formats such as audio, video, images, text, etc. singly or in combination, is of considerable educational benefit as such mental stimulation enhances memory and helps slow down rates of cognitive decline. Taken separately the different formats of information are quite impressive, but when combined, they have an even greater impact, for example, adding pictures to text make it even easier to recollect the text in question. However, multimodality alone does not guarantee improvement in long term

memory or even the ability to engage those wishing to learn from it (Howard-Jones, 2011). Howard-Jones goes further to say that internet-based learning resources require judicious design with multimodality enhancing learning when it encourages in-depth processing that relates to the learning.

The increasing popularity of video games is another case in point. Video games can be played either online or offline and according to Johansson and Gatestam (2004) internet games are one of the most popular pastimes for young internet users. Video games have a great ability to engage their players, which could become problematic for some people. This problematic engagement is a real and prevalent phenomenon. Playing internet video games is a popular pastime of problematic internet users (Mahran-Martin and Schumacher, 2000). However, the profile of potential pathological gamers is not always negative as shown in a study of 127 children and adults who were self-reported gaming addicts (Shotton, 1989). The study showed these individuals were characterized as generally highly intelligent, motivated and achievement oriented (though often misunderstood). A follow up study 5 years later showed the younger group had performed well in higher education and worked in high-ranking jobs. Although often characterized in the popular press as mindless activities, video games can influence the development of basic visual perceptual and motor response skills. These skills could contribute to the efficiency of the performance of everyday tasks including tasks that are crucial to some professions and fields of learning. However the bulk of evidence suggests intense game playing can create further social anxiety, poorer social relationships and increased levels of depression (Lo, Wang and Fang, 2005; Lemmens, Valkenburg and Peter, 2011). The fact that it is so prevalent during adolescence is concerning since poor psychosocial well-being at this stage could lead to further psychiatric conditions later in life (Paradis et al, 2006).

Modern media may be improving children's abilities in a range of tasks involving basic visual attention and motor skills. This however raises the question of, their attention in class, which involves a different set of abilities and different types of motivation. Christakis et al (2004) suggest that television and computer games may interfere with the development of attentional capacities required in classrooms since they displace opportunities to practice paying attention to less exciting tasks that do not involve rapid changes in focus. Bioulac, Arfi and Bouvard (2008) have even suggested a link between the rise in Attention Deficit Hyperactivity Disorder (ADHD) and the boom in computer games. In terms of content, it seems that games might not teach the type of attentional capacities required for "paying attention" in the classroom and other contexts. Given the additional interactivity and the levels of physiological and cognitive engagement they can provide, one could suggest that such internet activities might pose a greater threat to attentional abilities than television.

With the ability of online entertainment to displace other pursuits including activities involving exercise, there are concerns that this could increase obesity especially among children. Researchers, however, have not been able to arrive at a universally acceptable conclusion. Some researchers, such as Straker et al (2006) have reported negative relationships. Others like Burke et al (2006) have reported no relationship while some have reported positive relationships (Ho and Lee, 2001). Attewell, Suazo-Garcia and Battle (2003) suggest negative associations only when the usage becomes excessive. Their study found that computer usage was modestly associated with better academic performance and time spent reading, which supports the notion that technology can be a useful educational resource. Technology is very much a part of human existence and can support and be a distraction at the same time which suggests that parental monitoring of younger students would be necessary for beneficial learning outcomes.

Technology could also affect sleep and sleep patterns. Good sleep is important for health and development. Sleep contributes to learning by consolidating the memory of our waking experiences. When we sleep, events in the hippocampus help coordinate the reactivation of memory traces left over from the day which helps to reproduce activities in the cortex that characterized these experiences. In addition, brain activity that was observable in our preceding hours of wakefulness is reproduced when we fall asleep (Macquet et al, 2000). Although there is still much to understand, these processes appear to consolidate our memories and improve our ability to recall what we have learnt, prepares us to learn more as well as use our knowledge to generate insights (Wagner et al, 2004). This implies that regular and sufficient sleep is essential for the brain to learn efficiently. Suganamu et al (2007) opine that late night use of electronic media is a common cause of poor sleep. If computer games contribute to poor sleep, we can assume that this leads to daytime sleepiness a factor that influences academic achievement. It appears self-evident that internet use and the playing of computer games can interfere with sleep if these activities displace bedtimes and lead to shorter periods in bed.

There are reasons to suspect that digital technologies can have a more direct effect on sleep beyond postponing bedtime, since it often involves staring at an artificial source of light. Exposure to relatively low intensity light can affect human circadian rhythm, which could interfere with the processes by which our bodies "know" when it is bedtime (Straker et al, 2006). Higuchi et al (2003) state that using a bright display terminal can suppress nocturnal melatonin secretion as measured in the saliva suggesting these displays have the potential to disrupt sleep though the task undertaken on the screen may be a stronger factor in determining subsequent sleep quality. In a second study Higuchi and his colleagues varied both the brightness of the screen and the task that adult participants undertook on the computer late at night, comparing a set of simple tasks with a low mental

load with playing a computer game. This study showed that the brightness of the display did not appear to influence quality of sleep but a combination of playing computer games and a bright screen did reduce self-reported sleep quality.

A study of 13 – 16 year olds showed that adolescents' needs to maintain peer relationships become stronger and could lead to other types of technology influencing sleep patterns (Van den Bulck, 2007). The study also found that mobile phone use after "lights out" was very prevalent and significantly related to increased tiredness as teenagers who used their phones between midnight and 3 am were almost 4 times more likely to be very tired. Another study by Punamaki et al (2007) showed clear gender differences in how technology may affect sleep and health. Boys used digital games and the internet more often than girls did and it was these activities that were linked to boys' sleep disruption. Mobile phone usage was more intensive for girls than for boys such that female sleep impairment was linked to this activity. The study also demonstrated that poor perceived health was most strongly associated with intensive ICT usage when it affected sleeping habits.

4. CONCLUSION

With improvements in technology, people are accessible anytime of the day or night anywhere in the world. With internet connection available virtually everywhere, emails are accessible with an amazing array of applications; users can create, send and receive any standard business document at any time, in any place for any purpose. Many things that could not be done online previously can now be done. Reading newspapers, for example, no longer need to be done with hardcopy, all that needs to be done is to simply access the necessary website and seek after whatever news item one is interested in. Some have even gone a step further by creating applications that deliver the news to one's device at periodic intervals throughout the day keeping one informed 24/7. According to Schmidt and Cohen (2010), the result of this increasingly accelerated communication evolution is a situation where people will have to sort through too much information rather than not having any at all.

To all intents and purposes, people are connected. At present the level of connection is impressive, some would even say it is overwhelming. However while there is a lot of value in being connected it also has its drawbacks. Connectivity is the lifeblood of business and professional life (Murphy, 2007). Today customers, audience, clients, vendors, professionals, peers, etc. are all linked to one another by various electronic means. So many functions would not be possible without this electronic mediation fostering a level of connection and communication previously unheard of. It should be borne in mind that too much of a good thing might not be advantageous. Too much communication distracts us from our own thoughts. Time that could be used to order and organize our perceptions of the world is often spent on unnecessary and unproductive communication both functionally and emotionally. Nowadays people have difficulty switching off their phones or shutting down their email. This purely psychological reflex is nearing pandemic proportions of late. Network computing was the great inventive moment of the information society but in order to be creative, there has to be an occasional disconnection from these connections. This gives one the opportunity and time to think. Connections bring benefits but so does disconnection such that the art of a successful knowledge economy means being able to connect and disconnect simultaneously (Murphy, 2007).

It is unwise to judge any type of technology as inherently good or bad (Barchier, Green and Dye, 2010). In determining the beneficial or detrimental effects of the internet on society, it is worthy of note that how one evaluates what it is used for is important. A view shared by Howard-Jones (2011) when advising that rather than label any technology as being good or bad, it is how specific applications are created and used (by who, when and what for) that determine their impact. For example, Nie and Erbing (2000) view moderate to heavy users' self-reported substitution of email for telephone contact as part of their loss of "contact with their social environment". By contrast, Lin (2001) regards online communication, including email as markedly expanding the stock of social capital. According to Howard-Jones (2011), the internet presents enormous opportunities for positive benefit, through improving our ability to communicate and to access information in many different forms. Howard-Jones goes on to say that what is communicated and what information is accessed are not determined by the internet itself but by its users. Discussing the general benefit or otherwise of different types of applications (social network sites, games, chat rooms, etc.) can be unhelpful since it is how these specific applications are created and used that determine their impact on individuals and society at large. Therefore, we cannot say "social network sites are good" or "online games are bad".

In general, technology, like everything else, is beneficial to human existence in moderation. Too much of a good thing turns the good thing into a bad thing. Excessive use of the internet can cause all sorts of problems and complications. To prevent this, monitoring and moderating usage, especially for younger users, is advisable.

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