ESSAY

What Would McLuhan Say about the Smartphone? Applying McLuhan's Tetrad to the Smartphone

Isabelle Adam*

In this essay, the smartphone as a new technology and medium is analysed with regards to its effects on individuals and society. McLuhan's tetrad serves as a framework for analysis, consisting of a set of four effects to examine media in their historical context and present environment as well as the characteristics and attributes of the medium itself. These effects include: enhancement, obsolescence, retrieval, and reversal.

The smartphone enhances the accessibility and convenience of the medium internet, which also accelerates the speed of real-time communication. Concerning obsolescence, the smartphone pushes feature mobile phones aside as well as decreasing the use of personal computers and home printers. The smartphone retrieves the use of cameras and (e-)books, reviving the linear focus on the medium. When pushed to its extremes, the smartphone transforms into a new form reversing its original characteristics, with imaginable evolvements being devices of Augmented Reality, (e.g. GoogleGlass), that might render its users oblivious to their surrounding environment and thus actually restricting human interaction instead of facilitating communication.

To sum up, the smartphone facilitates many aspects of daily life and can be a very useful and entertaining tool. Nevertheless, possible negative implications and social effects should be considered, like the extreme cases of "smartphone addiction" or less human interaction.

1. Introduction & Background

"The medium is the message. This is merely to say that the personal and social consequences of any medium – that is, of any extension of ourselves – result from the new scale that is introduced into our affairs by each extension of ourselves, or by any new technology."

*– Marshall McLuhan (The medium is the message, 1964)*

McLuhan believed that the introduction of new technologies into a society has a determining effect on the organisation of that society, the perceptions of its members, and the way in which knowledge and information are stored and shared. This paper is an effort to explore the personal and social consequences of the smartphone, a new technology that emerged in the last decade, following the framework of McLuhan's way to analyse media. how we shape our tools and the way they shape us

Who was McLuhan? Key terms and ideas

Marshall McLuhan (1911 – 1980) was a Canadian philosopher and a revolutionary thinker, who fundamentally changed perceptions of media, communications, and technology. He recognised the technological and medial developments of the twentieth century as revolutions, comparable to the invention of the print press in the fifteenth century. Advancing his ideas, he published various works – among the most famous are *The Gutenberg Galaxy* (1962), *Understanding Media* (1964), and *The Medium is the Massage* (1967) – which established him as an important and often controversial figure in the field of communication (Library and Archives Canada, 2007).

McLuhan is famous for aphorisms like "the medium is the message" or "the medium is the massage", as well as for coining the term "the global village", and advancing the ideas of "hot and cold media" and "media as extensions of man". The expression "the medium is the message" is based on McLuhan's idea that not the content of a medium, but its characteristics have an effect on the society in which it is active. Media exert these effects by reshaping the ways in which individuals, societies and cultures perceive and understand their environments. McLuhan paid particular attention to the effects of media on our senses, since he believed that media affect us by manipulating the ratio

* Windesheim University of Applied Sciences, Windesheim Honours College, Global Project and Change Management, Zwolle, the Netherlands
isabelle@duplexmedien.de
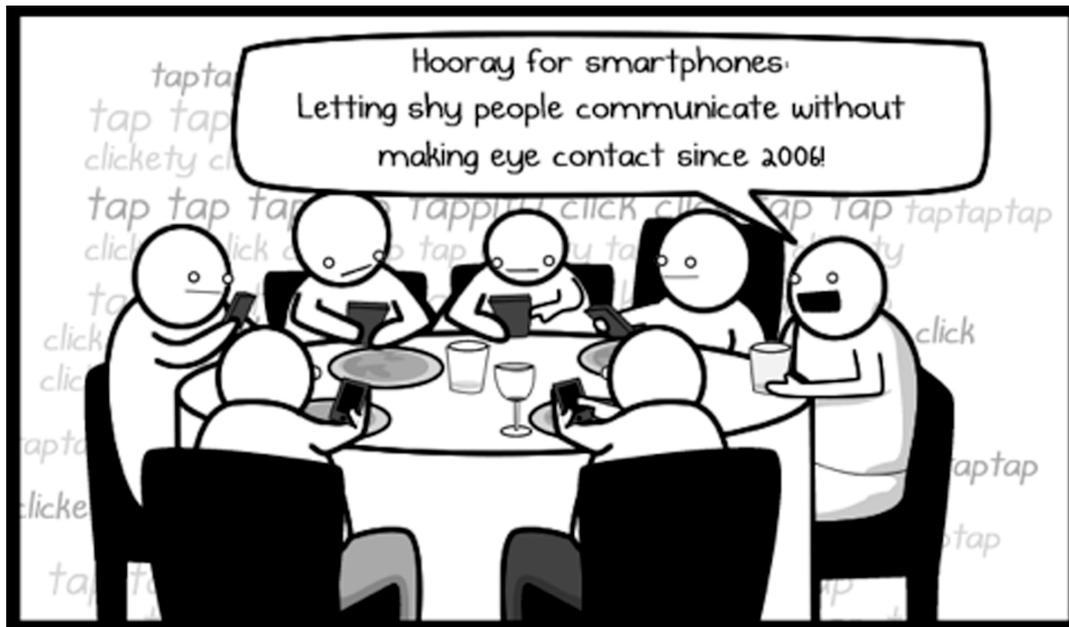
Cover page picture: Mvaliab Social Media Marketing (2012). *Marshall McLuhan.* Retrieved from http://mvaliab.wordpress.com/2012/02/04/marshall-mcluhan/.

of our senses. Based on this, he also formulated the ideas of "hot media" which are media that are high in definition and do not ask high participation of the audience, e.g. film, and "cool" media which ask more participation due to lower definition, like newspapers, for example (Library and Archives Canada, 2007; McLuhan, 1964; World's Fair Design, 2009).

Furthermore, McLuhan was a visionary; many say that he predicted the internet thirty years before it was actually introduced. He used the term "global village" to describe his observation that an electronic nervous system was rapidly integrating the world, and this metaphor can be seen as an appropriate description of our present media age. Calling it an "electronic nervous system" derives from McLuhan treating technologies and artefacts as extensions of our bodies and minds. (Agethen, n.d.; Andrews, 1995; Living Internet, 2000; McLuhan, 1964)

It is remarkable that he advocated these ideas in the early 1960s, when television was still in the early stages of its development and the commercial use of personal computers and internet was some decades in the future. At a later stage of his life, McLuhan developed a scientific model summing up his ideas, the tetrad. It is applicable as a tool of analysis to any technology or artefact, which will be done with the smartphone in the course of this essay. Creating tetrads of our everyday technologies and studying the tools we use to organise our daily lives can increase awareness of our environment and give a better understanding of how we shape our tools and the way they shape us (another important idea of McLuhan) (Kappelmann, 2001; Kornberger, 2011).

What is a smartphone? Definition and usage

An official definition of the term smartphone does not exist, but in the context of this essay, a smartphone is understood as a mobile phone that next to normal teleph-

ony services (calling and texting) is able to perform similar functions as a computer, capable of running all kinds of applications ("apps") as well as providing internet access. A smartphone typically has a relatively large screen (if larger than five inches it is often called a "phablet"), one or two (video-)cameras, and is either operated by tipping with the fingers on a high-resolution touchscreen or by using a miniature keyboard.

Around two billion people in the world use a smartphone (Statista, 2016) and the number is growing steadily as it is the fastest growing segment in the mobile device market (Gigaom, 2013). Especially in Western countries, the penetration of smartphones among mobile phone users is high, between 40% (e.g. France, USA) to 50% (e.g. UK, Spain) (MobiThinking, 2013), but other countries are catching up. Smartphone owners use it for various purposes; the most common usages are browsing the internet or using an application, messaging and e-mailing, seeking entertainment and social networking, as well as accessing news and information (data apply to the USA, Europe, and Japan) (MobiThinking, 2013).

In line with the spread of the smartphone, other mobile and wearable computing devices have become popular. Tablet computers have similar functions as smartphones but usually have a screen larger than nine inch and are normally not intended for telephony services. Among the most popular wearable devices are accessories (e.g. watches, glasses) incorporating technology such as activity trackers, touchscreens, and applications. The increasing spread of such devices is shaping a "culture of wearables" which add to the use of smartphones and create augmented reality (as discussed later).

Around 90% of smartphone owners use their smartphone throughout the day (Go-Gulf, 2012) and for many users, it has become such an inherent part of their daily routines that they cannot imagine life without a

smartphone anymore. This is demonstrated in the current trend of creating a "quantified self" through self-tracking by applications on the smartphone: people incorporate the smartphone's technology in their daily life to acquire data about themselves. There is a wide variety of applications that gather data on aspects of a person's life, such as health or fitness status (e.g. number of steps taken, monitoring sleep patterns) or daily activities (e.g. nutrition tracking). Users of such self-monitoring technology often seek to enhance some desired behaviour or improve personal performance in areas of fitness, productivity, or caloric intake, for example. In some application, an extra motivational factor is the possibility to share their data on social media (e.g. the route and number of kilometres one has been running) or to be able to gain virtual points and compete with friends (gamification) (Singer, 2011).

The previous facts presented demonstrate the significance that the smartphone has gained for many of us in daily live. Therefore, analysing and exploring the effects of the smartphone as a medium by using McLuhan's tetrad can give an important insight and better understanding of this everyday tool, the surrounding environment, and how it shapes ("massages") us.

Outline of the essay
Following this introduction into the topic, the reader will be introduced to McLuhan's tetrad, provided with explanations of the tetrad's background as well as the four different aspects it includes. Subsequently, the tetrad model will be applied to the smartphone and finally, the conclu-

sion will sum up the results as well as providing a personal statement about the tetrad as a tool of analysis.

2. The Tetrad Model
"The tetrad – a hermeneutic tool he [McLuhan] believed could be used to perform exegeses on all human artefacts."
  – Gordon A. Gow (Spatial Metaphor in the Work of Marshall McLuhan, 2011)

In his work *Laws of media*, published posthumously by his son Eric in 1988, McLuhan summed up his theses about media and their effects and designed a tetrad as a model to display them, which is a dynamic tool for exploring the "grammar" of media (McLuhan & McLuhan, 1988; Zöllner, 2011). The array of a tetrad allowed him to display the effects of media on a society by splitting them into four simultaneously presented categories. McLuhan believed that it was necessary to examine figure (the medium) and ground (the context) together at the same time, since they were interdependent and –related. According to him, media should be examined in their historical context and present environment (especially in relation to technologies that precedented them) as well as in the characteristics and attributes of the medium itself. By examining these figure-ground-relations, a critical view on culture and society could unfold (Gow, 2011; Horton High School, n.d.; McLuhan & McLuhan, 1988).

As can be seen in **Figure 1**, the tetrad is thus divided into two areas (ground and figure) with two parts each.
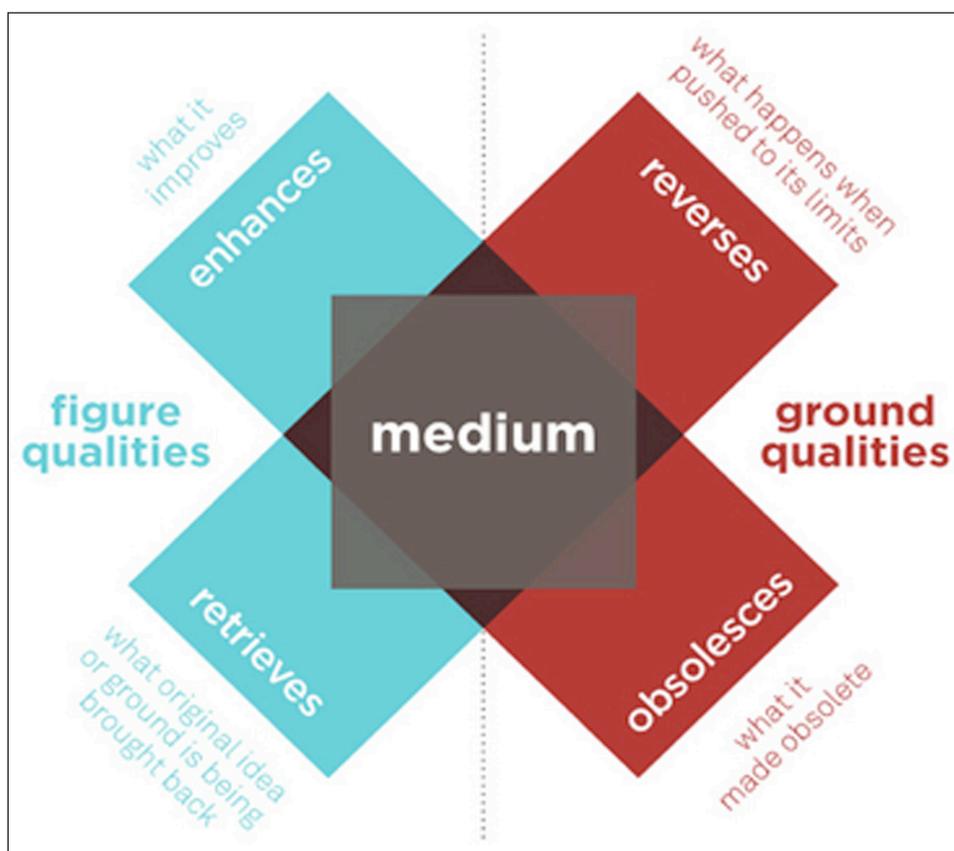

Figure 1: The McLuhan Tetrad. *Source:* Mvaliab Social Media Marketing (2012).

This results into a set of four effects which according to McLuhan are inevitable and apply universally, namely enhancement, obsolescence, retrieval, and reversal (Hempell, 1966; McLuhan & McLuhan, 1988). These four elements are in a complementary relationship and can be translated into four questions:

1. What does the medium improve or enhance, make possible or accelerate?
   Every medium enlarges, amplifies or intensifies an existing one and/or a capability of the user, since it is an extension of the person.
2. What is pushed aside or obsolesced by the medium?
   Every medium renders an existing, formerly significant medium to a less relevant status. Thus, that medium performs a transition from figure to ground.
3. What does the medium retrieve that has become obsolescent earlier?
   Every medium recovers a medium which had lost prominence or was once lost and is now brought back in a new form. Thus, that medium performs a transition from ground to figure.
4. When pushed to its extremes, what does the medium flip into?
   When pushed to the limits of its potential, every medium transforms into a new form that reverses its original characteristics (Eriksen, 1996; Hempell, 1996; Horton High School, n.d.; Library and Archives Canada, 2007; Ohler, 2010).

3. Applying McLuhan's Tetrad to the Smartphone

Having introduced McLuhan's ideas, defined the key terms and explained the tetrad model, this section will provide an application of McLuhan's tetrad to the medium smartphone. Following the division of the tetrad into the four components enhancement, obsolescence, retrieval, and reversal, each aspect will be examined in a separate subsection.

What does the smartphone enhance?

Firstly, the smartphone enhances the accessibility and convenience of the medium internet, since it is a lightweight portable device that is constantly in reach of its owner, who often carries it in his pocket every day. This is supported by the fact that the speed of wireless internet transmission (smartphone) has become nearly as fast as broadband transmission (computer) (Harrell, 2013). The users' appreciation of the increased accessibility of internet is reflected in the usage preferences of a smartphone, as using the internet is among the most popular purposes (MobiThinking, 2013).

The reason why the access to and usage of internet has become so important can also be argued based on McLuhan's concepts of media as extensions of our body, since the internet (and thus also the smartphone) can be seen as an extension of our memory. The findings of a study presented by Bohannon (2011) suggest that people use the internet as a "personal memory bank" (Bohannon, 2011), which is called the Google-effect. People delegate their memory demands to devices like the smartphone, since an answer to nearly any question can usually be found on the internet (thanks to Google, Wikipedia etc.), which is always at hand with a smartphone. In addition, memories are shared on the internet due to social media (Facebook, twitter, youtube etc.), creating a collective memory.

In addition, smartphones can also operate applications that support the memory, for example, the "Shazam" application recognises songs, the calendar application reminds one of appointments, and the navigator helps one find a way. This has also given rise to the so-called "cloud", which describes the synchronisation of information between devices, thus, information are delocalised and are accessible from anywhere, which increases the users' flexibility (Media Studies Portal, 2011). Therefore, the smartphone enhances the access to information as an extension of our memory through its portability and different services (applications and internet).

Secondly, the smartphone enhances the multi-sensory usage of this medium, as it adds a haptic dimension to the given audio-visual sensorium of internet, movies etc., since one operates it with the fingers; and on the touch of one fingertip, a whole world of possibilities opens up. Additionally, the smartphone fosters innovation and creativity in regards to services and products (e.g. applications) that address all kinds of consumer needs. Moreover, it accelerates the speed of real-time communication by its omnipresence and connectivity (which also increases the pressure on users to be available).

What does the smartphone obsolesce?

Since the rise of smartphones, the "normal" feature mobile phones[1] become increasingly obsolete. The number of sales has decreased and the market does not show a need to develop or invest in this branch. There are still many owners of feature phones in the world, especially in developing countries, but researchers predict that the smartphone will also reach them in the future as its price decreases (MobiThinking, 2013). Alongside that, the smartphone makes the personal computer (PC) take a backseat, also caused by the increasing use of laptops and tablets. The smartphone imitates many of a PC's functionalities and is often more convenient to use due to its portability and accessibility. Nevertheless, the smartphone alone will not render the PC obsolete, while the laptop might be able to significantly reduce its usage.

Another technology that becomes less relevant due to the smartphone is the home printer, as one's papers are accessible on the device, the need to print work material, directions, or schedules diminishes (Twiford, 2011). Furthermore, as already mentioned in the previous subsection, the smartphone reduces the necessity to work from one location, because it removes one's ties to a PC or network, as well as the eliminates the need to memorise

things, for example, phone numbers, facts, or addresses (Bohannon, 2011).

What does the smartphone retrieve?

The smartphone retrieves various media that had lost prominence and brings them back in a new form. One example is the camera, which nowadays is part of every smartphone and taken for granted by the users. In contrast to the cameras that were already used in earlier feature phones, these are usually of high resolution and provide high quality pictures. In the past, many people owned a camera, but usually did not take it with them everywhere. Since the rise of the smartphone, cameras are omnipresent and smartphone owners use the possibility to take pictures (and eventually share them via social media) a lot.

Furthermore, next to watching movies on a smartphone, reading books has also become increasingly popular for those who do not use an electronic book (e-book) or tablet. The kindle[2] application for smartphones is among the top downloads from the smartphone app stores and e-books sales are seriously competing with print book sales (Milliot, 2013). Reading on the smartphone also retrieves the same posture of interaction as books do, namely the private consumption with a linear focus on the smartphone, rendering the reader in an isolating position. This can also be seen in the decline of actual phone calls and thus voice usage, going along with a rise in text and picture messaging (MobiThinking, 2013). According to McLuhan, the invention of the book followed by the visual dominant era of the print age had a similar effect (McLuhan, 1964).

What does the smartphone flip into?

When pushed to the limits of its potential, the smartphone will transform into a new form that reverses its original characteristics. One imaginable "evolvement" of the smartphone would be a device, like the already existing GoogleGlass, that creates Augmented Reality. Augmented Reality describes the supplementation of a real-world environment with computer-generated input, like sound, graphics, or GPS data (Bonsor, n.d.). The GoogleGlass, for example, provides similar functionalities and services as a smartphone, but without the user having to use his hands, as one operates it through voice commands instead of a touchscreen (Google, 2013).

From a socio-psychological perspective, the smartphone could flip from a medium that was meant to facilitate communication and human interaction to something that actually restricts it. Since it is a medium that is very consuming and engaging to its user, it might render one oblivious to one's surrounding environment, endangering real-life relationships and face-to-face interaction (Media Studies Portal, 2011). It is a very common picture nowadays to see a group of people being together, with every member staring at the screen of his smartphone instead of interacting with each other. This might also be rooted in the compulsion many smartphone users feel, because, as the ease and speed of connectivity accelerated through the smartphone, people started to fear losing touch with current events or missing out on something when not checking the smartphone constantly.

This is becoming an increasingly common habit that can be harmful to a person's social live, as a study by Oulasvirta, Rattenbury, Ma, and Raita showed (2011). Several other studies, such as done study by Cheever et al. (2014), proved that heavy and moderate smartphone users felt significantly more anxious over time when being separated from their device due to a dependency linked to constant smartphone use. This phenomenon has been dubbed "nomophobia", an abbreviation of "no-mobile-phone phobia", and is predominantly evident in young people as they are the most heavy smartphone users (Walsh, White & Young, 2010; Roberts, Yaya & Manolis, 2014).

4. Conclusion

Of course, one cannot say with certainty what McLuhan would say about the smartphone and all the other new technologies of the last decades. However, following his key concepts and the tetrad model as a framework offers an understanding and interpretation of the smartphone as a new medium in the context of our cultural and technological evolution. Additionally, the tetrad allows one to reflect the past and to try to predict – or at least speculate – about future developments.

Therefore, it has become clear that the smartphone facilitates many aspects of daily life and can be a very useful and entertaining tool, especially due to its portability, access to internet and recover of media like the camera, book and film. In the technological evolution, the smartphone can be seen as a mating (or combination) of the feature phone and the PC. One does not know where the next step of that evolution will lead us, but inventions and technologies like the GoogleGlass and Augmented Reality are realistic future developments. However, the exploration of the smartphone based on McLuhan's tetrad has also revealed its possible negative implications and social effects, in extreme leading to a "smartphone addiction" or high pressure to be permanently available, which can negatively affect one's real social life. Future research in this field could reveal the magnitude of those problems and help develop interventions and solutions, maybe even in cooperation with smartphone developers.

Although McLuhan developed the tetrad three decades ago, it is universal in nature and therefore still applicable to present and future technological developments. Its value is also constituted in the concept of bringing four laws together, and thus, looking simultaneously at the past, present, and future, as well as the characteristics of the medium itself and its context. Naturally, multiple interpretations are possible when applying the tetrad, since one's interpretation is always based on own thoughts and perceptions. To sum up, it is a unique tool for "exploring the grammar of media", as McLuhan put it (McLuhan & McLuhan, 1988), that serves to reveal a better understanding of the smartphone's influence and role in our society.

Competing Interests
The author declares that they have no competing interests.

Notes
[1] Feature phones: those mobile phones, which do not offer similar functions to a computer, but only telephony services and possibly some additional features, usually low-priced.

[2] Kindle (amazon): the most popular electronic reading software (and e-reader producer) at the moment.

References

Agethen, M n.d. *Gutenberg Galaxis oder 'posthistorische Menschen' im 'elektrischen Zeitalter'?: Über die Thesen Herbert Marshall McLuhans.* Retrieved from http://www.texturen-online.net/campus/campus-texte/mcluhan

Andrews, J 1995. *McLuhan Reconsidered.* Retrieved from http://vispo.com/writings/essays/mcluhana.htm#McLZ

Bohannon, J 2011 (July 15) Searching for the Google Effect on People's Memory. *Science Journal AAAS, 333*, p. 277. DOI: http://dx.doi.org/10.1126/science.333.6040.277

Bonsor, K n.d. *How Augmented Reality Works.* Retrieved from http://www.howstuffworks.com/augmented-reality.htm

Cheever, N A, Rosen, L D, Carrier, L M and **Chavez, A** 2014 Out of Sight is not out of Mind: The Impact of Restricting Wireless Mobile Device Use on Anxiety Levels among Low, Moderate and High Users. *Computers in Human Behavior*, 37, 290–297. DOI: http://dx.doi.org/10.1016/j.chb.2014.05.002

Eriksen, T H 1996 *The internet, the 'laws of media' and identity politics.* Retrieved from http://folk.uio.no/geirthe/Tetrads.html

Go-Gulf 2012 (January 2) *Smartphone Users around the World: Statistics and Facts* [Web log entry]. Retrieved from http://www.go-gulf.com/blog/smartphone/

Google 2013 The GoogleGlass. Retrieved from www.google.com/glass/start/

Gow, G A 2011 Spatial Metaphor in the Work of Marshall McLuhan. *Canadian Journal of Communication, 26*, 63–80.

Harrell, S T 2013 *Wireless Internet vs. Broadband.* Retrieved from http://www.ehow.com/facts_5553949_wireless-internet-vs-broadband.html

Hempell, A 1996 *The Tetrad: Concept.* Retrieved from http://www.anthonyhempell.com/papers/tetrad/concept.html

Horton High School n.d. *McLuhan's Laws of Media.* Retrieved from http://www.horton.ednet.ns.ca/staff/scottbennett/media/index.html

Kappelmann, T 2001 *Marshall McLuhan: 'The medium is the message'.* Retrieved from http://www.leaderu.com/orgs/probe/docs/mcluhan.html

Kornberger, F 2011 (July 21) *Medien-Visionär McLuhan: Die Erschaffung des Touchscreen-Menschen.* Retrieved from http://www.spiegel.de/kultur/gesellschaft/medien-visionaer-mcluhan-die-erschaffung-des-touchscreen-menschen-a-775541.html

Library and Archives Canada 2007 *McLuhan.* Retrieved from http://www.collectionscanada.gc.ca/innis-mcluhan/030003-2000-e.html

Living Internet 2000 *Marshall McLuhan Foresees the Global Village.* Retrieved from http://www.livinginternet.com/i/ii_mcluhan.htm

McLuhan, M and **McLuhan, E** 1988 *Laws of media: The new science.* Toronto: University of Toronto Press.

Media Studies Portal 2011 *Smartphone tetrad in comic strip format.* Retrieved from http://www.web2pointsomething.org/2011/10/18/smartphone-tetrad-in-comic-strip-format/

Milliot, J 2013 (September 20). *E-book sales growth slows in 2013.* Retrieved from http://www.publishersweekly.com/pw/by-topic/digital/retailing/article/59194-signs-of-stability.html

MobiThinking 2013 *Global mobile statistics 2013.* Retrieved from http://mobithinking.com/mobile-marketing-tools/latest-mobile-stats/a#smartphonepenetration

Mvaliab Social Media Marketing 2012 *Marshall McLuhan.* Retrieved from http://mvaliab.wordpress.com/2012/02/04/marshall-mcluhan/

Ohler, J 2010 *Digital community, digital citizen.* Thousand Oaks, California: Corwin.

Oulasvirta, A, Rattenbury, T, Ma, L and **Raita, E** 2011 *Habits make smartphone use more pervasive* [PDF]. Retrieved from http://www.hiit.fi/u/oulasvir/scipubs/Oulasvirta_2011_PUC_HabitsMakeSmartphoneUseMorePervasive.pdf

Roberts, J, Yaya, L and **Manolis, C** 2014 The invisible addiction: Cell-phone activities and addiction among male and female college students. *Journal of Behavioural Addicitons.* Vol. 3 (4), pp. 254–265. DOI: http://dx.doi.org/10.1556/JBA.3.2014.015

Singer, E 2011 The Measured Life. *MIT Technology Review.* Retrieved from https://www.technologyreview.com/s/424390/the-measured-life/

Statista 2016 *Number of smartphone users worldwide from 2014 to 2019.* Retrieved from http://www.statista.com/statistics/330695/number-of-smartphone-users-worldwide/

Twiford, C 2011 *McLuhan's Laws of Media and the Tetrad.* Retrieved from https://sites.google.com/site/724exp/project-definition/

Walsh, S, White, K and **Young, R** 2010 The Effect of Self and Others on Young People's Involvement with Their Mobile Phones. *Australian Journal of Psychology, 62*(4): 194–203. DOI: http://dx.doi.org/10.1080/00049530903567229

World's Fair Design 2009 *McLuhan v. Mailer Presentation.* Retrieved from http://worldsfairdesign.com/2009/05/17/390

Zöllner, O 2011 *Marshall McLuhan (1911–1989): Medienorakel im 'global village'.* Retrieved from http://www.research-worldwide.de/mcluhan.html