THE IMPACT OF THE DIGITAL ORDER ON SENSEMAKING AND BEING

by

Aditi Bhatia

Honours Bachelor of Arts,

University of Toronto, 2014

A Major Research Paper

presented to Ryerson University

in partial fulfillment of the

requirements for the degree of

Master of Digital Media

in the

Yeates School of Graduate Studies

Toronto, Ontario, Canada, 2015

AUTHOR'S DECLARATION FOR ELECTRONIC SUBMISSION OF A MRP

I hereby declare that I am the sole author of this MRP. This is a true copy of the MRP, including any required final revisions.

I authorize Ryerson University to lend this MRP to other institutions or individuals for the purpose of scholarly research.

I further authorize Ryerson University to reproduce this MRP by photocopying or by other means, in total or in part, at the request of other institutions or individuals for the purpose of scholarly research.

I understand that my MRP may be made electronically available to the public.

ADITI BHATIA

Abstract

The digital order refers to a culture that is profoundly shaped by digital technologies. The digital order is reshaping the way we comprehend and communicate as we adapt ourselves to the affordances of those tools. The role of the digital order in human development and it ultimate consequences remains unknowable; however, it is crucial that we have an awareness of its impact and are able to envision its possible effects on human behaviour and culture. To survive in such a moment of evolution, it is essential to be able to navigate in an informed manner one's own position in the digital space. This paper examines the nature of individual empowerment within this space, asserts the significance of human will and discusses the methods to utilize this technology in a beneficial way.

Keywords: digital order, affordances, users, perception, sensemaking

Table of Contents

1. Introduction

The “digital order” refers to a society that has been significantly impacted and shaped by digital technology. The tools and technologies in this context encompass interactive tools in the form of electronic digital communication devices or applications. The digital order has surpassed linear one-way traditional media, significantly impacting human perception and understanding. The digital order provides for an ever-evolving space as the new becomes familiar and then banal each altering the perception of the public in some way. The first chapter of this paper addresses fundamental concepts about how humans behave and function within a digital order. The foundational elements of human perception and cognition are examined, shedding light onto the ways humans perceive and cognitively interact with the objects. The elements discussed include the ways in which perception accumulates within the digital order and how the affordances of digital technologies impact those perceptions. This paper also examines the key concepts concerning human-technology interaction and its impact on perception and meaning production.

Chapter 2 surveys the socio-cultural effects of human-technology interaction and meaning production in the digital order. This leads to a discussion of the ways varied affordances of digital technology enable variant behaviours that prompt transformations in the role of the citizen. This discussion is informed by an examination of the analyses of scholars. Comparisons of the viewpoints of these scholars contribute to the debate about the behaviors enabled by digital technologies and their affordances and their socio-cultural implications. Furthermore, the methods that the citizens of the digital order - makers, users, hackers - utilize to appropriate those affordances will also be examined.

These affordances lead to both shifting and newly formed roles for citizens within a participatory culture. The scrutiny of these roles laid the groundwork for an argument about the ways users can move forward within the possibilities allowed to them by the affordances.

The latter part of this paper presents an argument on the potential implications of the digital order, and provides informed suggestions about the ways citizens can deal with the challenges and opportunities it offers. The scrutiny of these implications is vital to determine an individual's intrinsic position within it. This paper concludes with a note on the possible future for citizens and their individual responsibilities, in order for them to explore and re-establish their positions.

2. Perception and sensemaking in the digital order

2.1 Gleaning perception

"Perception" is a complex concept as a result of combining various factors. The most comprehensible of these factors are environmental awareness, filtered through emotions and past experiences. According to Don Norman (2013), in *The Design of Everyday Things*, a person's cognitional and emotional state is tightly intertwined, since cognitive thought provides understanding that leads to emotions, which further provides value judgments that drive cognitive thoughts (p. 47). This is crucial in understanding that one's perception of a digital interface is largely dependent upon the kind of emotions it engenders and the kind of bond and dependency one develops with it, which is subjective. In an attempt to explain the brain processing applicable to both the emotional and cognitive mechanism in oversimplified terms, Norman identifies three different levels of processing that work in concert: visceral, behavioral, and reflective (p. 49-55). The visceral level is the subconscious quick response, the immediate perception. The behavioral level is informed by learned skills with expectation-based emotions although it is still largely subconscious; in other words, one is aware of one's actions, but not consciously aware of the process through which one has developed the ability to act in a certain way. An example of this would be the level of dexterity while typing a text message on a smartphone that comes 'naturally' for a frequent user, but which is a learned skill. The reflective level is the center for conscious cognition and reasoning where one utilizes decision-making skills; for instance, writing an email, posting a status update, commenting on a social networking site. All three levels of brain processing work in conjunction to determine the cognitive and emotional state of a person (p. 55). It is

important to note that either of these three can take the lead in any given circumstance. The majority of human behavior is sub-conscious, involving the visceral level and the behavioral level, therefore informed by involuntary responses built upon by perception over time through past encounters. Human behaviour fosters a skeuomorphic approach, which signifies that by the use of cues, users comprehend what they already understand through their past encounters, or experiences (Wikipedia: Skeuomorph). This coincides with the idea of *Intertextuality* by Fitzpatrick (2011) of shaping of a concept upon comprehension of another concept; scholarship building on top of previous scholarship. The term intertextuality reclaims: meaning building on top of the preconceived meanings, "we map new things in terms of or by extension or analogy from, things we already know" (p. 77). This is essential to understand that each meaning leads us back to another meaning in an infinite loop. This idea connects with the reflective cognition that enables reasoning and decision-making skills, which piles up to inform the learned behaviors that serve our subconscious.

An analysis of reflective level is important to determine the pathways for conscious decision-making. The ways we perceive our tools and technologies is the way we tend to employ them, and the way we tend to employ them, shape the possibilities of our future perception. Rushkoff claims "we are in the midst of a mediascape where every creation is fodder for every other one" (p. 123). Hence it is crucial to be conscious of the phenomenal forms - the forms cognizable by senses - being generated through the previous experiences that serve to the formation of the mental models. With the generation of new forms and the transcription of old ones into the elements of the digital order, it is essential to understand the process of the accumulation of mental models and

perception through phenomenal forms. In *Apoha: Buddhist Nominalism and Human Cognition*, Dunne (2011) states: "The act of perception consists of phenomenal form being generated in consciousness by the interaction of the senses with an object" (Dunne 2011, p. 92). This sheds light onto the ways cognition derives phenomenal forms to contribute to perception on a reflective level.

According to *Apoha Theory*, in the Buddhist logic two major factors give rise to concepts in the mind: the imprint of the previous experience and a self-expectations bias about what one wishes to know, obtain or avoid, since "our concepts are constructed in relation to those expectations" (p. 93). To more fully explain the second factor, one recognizes an object by constructing "a sameness for a class of objects on the basis of their difference from other objects" (p. 91), accepting the casual capabilities of the object that are relevant to inform one's knowledge, while ignoring the distinctions. These objects might not be the same, but to achieve particular perception goals those similar but variant objects prompts one to ignore their distinctions and place them in the same category. Again, the clustering of these categories would depend on any past encounters, which could be cultural or individual, informing the behavioral level. The sameness that applies to this category is thus "a negation: exclusion of all other things that do not accomplish the desired casual capabilities.....it successfully guides an individual to objects that will accomplish one's goals" (p. 92). Thereafter, when the process of recognition is to occur, a perceptual phenomenal form activates an imprint, given the context of our expectations. Thus, conceptualizing the phenomenal form in an act of recognition with minimal structure being "that is that" (Dunne 2011, p. 92). To simplify, the trigger of phenomenal forms is to be influenced from previous encounters and the

biased clustering through accordance and negating distinctions. This explains the influence of perception on consciousness.

The interaction enabled by the digital interface shapes the perception of an individual, forming distinct mental models based on their experiences as in the book *The Glass Cage: Automation and Us*, Nicholas Carr (2014) asserts, "perception, like cognition, is embodied" (p. 216). Thus, according to each distinct user of the digital order, the perception models are also subjective. These distinct perspective models are explained by Cooper (2007) in the *About Face 3: The Essentials of Interaction Design* that include: an implementation model comprehensible for a maker or a hacker such as software code, and a user mental model, which a user notices on the periphery, a layman model (p. 27-28). He notes that users "tend to form mental models that are simpler than reality," (p. 30) such as audience having a mental model of the screen on which the images are projected but not of the mechanism of the projector. The represented or designer model is the one that a maker "chooses to represent the program's functionality to its user," (p. 29) it is the way a maker chooses to design an app interface on the periphery that has a deep intrinsic code not visible to the user. Each participant within the digital order forms subjective mental models for the affordances one employs based on which each user's level of transparency varies. Though the ways these models are achieved through cognition is the same based on the worldview within their respective environment and exposure.

The ubiquity of digital technology has made critical understanding of the forms of its influence difficult. Rushkoff (2010) notes, "Digital technologies are fast becoming the boundaries of our perceptual and conceptual apparatus; the edge between our nervous

systems and everyone else's, our understanding of the world and the world itself" (p. 132-133). This statement is critical to understand that the environment fostered by the digital order is determining perception and conception through technologies that provide the lens for comprehending and perceiving the world. For instance, a technological platform can foster certain behavior through its affordances that can trigger a particular response in a user, which informs one's perception. The repeated deployment of these technologies and their affordance seems to affect the behaviors and these employed tools also impact perceptions. In "Imperceptible Perceptions in our Technological Modernity," Rajagopal (2006) states that each medium has an impact on the sense ratio in different ways, with different implications for historically located sensory formations (p. 278). This points towards the fact that different mediums leverage distinct senses. The print medium privileges sight over the other senses. On the other hand, the audio-visual medium of television privileges both sight and audibility. The digital medium serves to enhance TV's audio-visual sensory trigger quality by adding an interactive quotient. Depending on what sense(s) each technology deploys, perception and its effects are not necessarily equal. In a broader context, this is crucial for understanding that if mediums have the power to impact the perception of a user, one's previous perception and self-expectations bias can convolute the relationship between a newly adopted medium and what its affordances enables one to do. According to Weel (2011), "We involuntarily look at the new developments with topographically biased eyes" (p. 22). This is important in understanding that, based on the self-expectation bias and imprint of previous experience, users fabricate mental models to make sense of the new encountered information. Thus, it is crucial to ponder: how does a novice digital artifact imprint upon users if one's

perception is biased by cognition, emotions, and previous encounters? Is the imprinting through the meaning generated by users or through the meaning packaged by the makers? How does the meaning of an artifact gets constructed?

2.2 Construction and derivation of meaning

While perception affects the meaning an individual makes of an object or product, question remains whether, as a new piece of technology emerges, the makers have the power to restrict its capacity for meaning-making or whether meaning is ultimately only constrained by the capabilities of the user? On the question of whether originators or users ultimately control the meanings of works, it is instructive to consider the ideas of literary theorists such as Michel Foucault (1977) in "What is an Author?" and Roland Barthes (1967) in "The Death of the Author." Barthes argues that the meaning of a text lies in the ways the reader decodes and perceives the content, not in the ways author envelops and encodes the message (p. 148). On the other hand, Foucault claims that the role of the author acts as "a regulator of meaning, an ideological figure by which one marks the manner in which we fear the proliferation of meaning." He concludes by envisaging that, "the author him or herself would disappear in a proliferating discourse" (p. 137). These concepts are integral in understanding that the production and reception of discourse are mediated processes, and that the message being transmitted can be comprehended in various ways depending on the medium of transmission, in addition to the worldview of a producer and a receiver. The commonality between the debate of Barthes and Foucault is that both authors deny authorship to be a process undertaken in the void. Hence, both the receptor and producer have a certain degree of input into the conceived meaning. According to Marshall McLuhan, "Societies have always been shaped more by the nature of the media by which men communicate than by the content of the communication" (McLuhan 1995, p. 239). It is important to note that the quality of affordances offered by the linear order – print, television, radio - and the digital order

shapes societies in certain ways. The role of the producer as being top of the hierarchy has been subverted by the digital order by providing interactive features to the individual participants. Hence, messages endorsed by those producers carry lesser significance. This is due to the digital order providing certain degree of involvement in production to all its participants, thus the users do not have a hermeneutic relationship with producers, as they had in the pre-interactive era (Weel 2011). A maker impersonates the idea of an author in the digital order and the receptor signifies a user, an active participant. Thus the messages being deployed are affected by the co-existence of consumerism and digital interfaces and their affordances, which themselves are being packaged as a message, an artifact to be processed. The leap in the discussion from the literary context to the current digital order skims over the debate about the significant period of the twentieth century with major shifts in the consumer industry, which also contributes to shape the digital order.

With regards to twentieth century consumerism, in *The Consumer Society Reader*, Schor and Holt (2000) state: "the employer's needs for objectified and submissive workers created a parallel need for dominated passive consumers" (p. ix), which reasserts the limitations of the consumer in the landscape. Furthermore, the authors claim that "rather than wants and needs the conceptual building blocks are meaning and identity" that allures consumers into purchasing (p. xii). This statement is important in understanding the power of meaning packaged within the objects. It is important to note that a new technology launches with a peculiar value. In *Doing Cultural Studies - Story of the Sony Walkman*, Paul Du Gay (1997) uses the term "register of meaning" in connection to the symbolic value and implied lifestyle associated with a product by its

producers with which consumers identify (p. 69). This is vital in understanding that a novel piece of technology eventually accommodates habits and perceptions for the users, shaping itself as a cultural object with a peculiar meaning. Present day users have come a long way from being the targets of passive consumption of content through one way channels of communication - print, radio, television - and now these users are empowered by the participatory qualities manifested through the digital order. This is not to claim that the digital order eradicated or engulfed consumerism. Consumerism is still a gigantic force in the digital revolution, notably in the new features launched with updated versions of gadgets every year. However, it is significant to note that consumers are not passive anymore. Upon the deployment of any product, if the users find un-envisaged discrepancies with the claims of the makers, the affordances of the digital order empowers them to create and share ways of using products unanticipated by their creators, as is seen by the rise of the free and open-source movement.

Appropriating the ideas presented by Barthes and Foucault to the digital order, it would be safe to claim that their concepts do not overlap each other, but follow one another. The idea by Foucault that the author is the regulator of meaning precedes Barthes' idea that a user decodes and perceives a message influenced by one's subjective worldview. Furthermore, in the digital order the meaning making of a product is a sequential process that does not end at its reception but the users create the majority of times after the deployment of these digital technologies into the public realm. This idea is supported by Gay (1997), who states that in order to understand the basis for meaning making, it is essential to acknowledge "the role of practices of consumption in the production of meaning" (Gay 1997, p. 86). Meanings are not simply constructed by

makers and received by users, but evolve and are established through usage. In the digital order, the meaning of a product gets an opportunity to establish itself, which I refer to as "window of opportunity": a period of time between the launch of an artifact with its register of meaning and the nailing down of its fixed meaning. With regards to the digital order, the window of opportunity is the duration between a new object or interface being launched into the market and the time when the users gain an opinion on it based on their experience with the product. This window of opportunity is not devoid from the biases of the user's worldview. The product has an opportunity to influence the users within the implied parameters with its utility and features. A user evaluates the given meaning to derive one's own meaning of a product within this window of opportunity. It is essential to note, "we do not know all the properties before they actually manifest themselves and so cannot predict the developments through which they will carry us" (Weel 2011, p. 167). Hence, until the users get to use the product, the meaning is not established and its outcomes cannot be predetermined. For instance, in the *Forbes* article "Why Apple Watch and Fitbit Will Not Meet Expectations," Chander Chawla (2015) states that the Apple Watch has been a disappointment. Unlike Chawla's prediction in an article before its launch as a "triumph of function over form", in the later article he claims, "now it is in the market, we know that even the function is dysfunctional." Even the well-researched products can fall prey to this kind of scrutiny. In *What Technology Wants*, Kevin Kelly (2010) claims:

> When a technology is tested soon after its birth, only its primary effects will be visible. But in most cases it is technology's unintended second-order effects that are the root of

> subsequent problems. Second-order effects - the one's that usually overtake society - are rarely captured by forecasts, lab experiments, or white paper" (p. 251).

Hence, it is interesting to note that the post-launch potency of a product - regardless of what makers claim to offer - leads to the establishment of its meaning in the landscape. To supplement this point, Gay (1997) in *The Story of the Sony Walkman*, quotes Foucault's (1982) claim that "power can only be exercised where there is freedom and hence a degree of uncertainty in any relationship" (p. 85). Accordingly, this window of opportunity for meaning making provides for that space with freedom and a sense of uncertainty of the reactions of the users, providing fertile grounds for meaning to proliferate. After the emergence of a technology with a presumed meaning and before its meaning is determined by the users, this window of opportunity provides a playground for the technology to go through a product lifecycle in relation to its affordances by the users. Hence, the end product of the chain is not the meaning packaged by the makers, but the outcome of the usage.

Meaning is constructed and given through cultural practices. Eventually, anything that becomes a part of our cultural universe becomes inscribed in our informal social knowledge, the taken-for-granted knowledge (Gay 1997, p. 4). This idea connects with Norman's theory about informal social knowledge being based in the visceral level and behavioral level of brain information processing, thus penetrating into the subconscious. Hence, each new piece of technology has distinct idiosyncrasies, nurturing a tiny culture of its own that both preserves and produces it. With the constantly evolving world, the process of meaning making is dynamic and ephemeral. The establishment of meaning is based upon commonly derived beliefs of the users that get entrenched into a communal

belief system, a concept that eventually aligns with usage and practices. The users perceive the established meaning through one's phenomenal form accumulated to form the mental models.

While observing how our technologies might impact our perception and direct the course of our meaning making, it is interesting to observe that the technologies that we perceive to be so established have the potential to either fail or be appropriated. With regards to the digital era, appropriation is adapting an artifact for a purpose not originally intended by its makers. The window of opportunity provides for meaning or the best fit of the product to be established for its niche users. This window of opportunity can also lead to re-iteration of the intrinsic meaning through the influence of hackers or users. In the current cultural moment, we are in a situation of flux where the new order has been dominating and engulfing older methodologies. Some of the older models have not been transcribed or re-appropriated into the digitized mode, and some are in the process of being iterated. Hence, re-appropriation also includes the transcription of old media models into new ones such as online radio streaming, or podcasts. Subversion and remediation of the artifacts could take place anytime during the product lifecycle, or even during the initial window of opportunity phase due to hackers finding certain features and/or rules more useful than the others. While re-appropriation is not bound to the window of opportunity, it can take place anytime during the product's life cycle depending on other novel inventions or usages that might impact its existence. The window of opportunity is only a supposed duration that might transcribe the meaning, since an object is un-established at the point of arrival for the users. Weel (2011) in *Changing Our Textual Minds* emphasizes, "Technologies are usually created without a

clear view of their full ultimate deployment" (p. 11). This statement is very crucial in noting that once a technology is exposed to users, they have the power to repurpose it into something not intended by its creator. In the history of humankind tool-ogy, the subversion of a tool's prescribed usage has been enormous. On occasions, users find and establish new ways to use a product that was not originally intended by its creator. For instance, online video search engine *YouTube* was initially introduced as a video version of *HotOrNot.com*, a dating site that had a video-sharing tool as its unique selling point. However, users were keen on–adopting the affordance of video sharing rather than the concept that its makers viewed as their product (an enhanced dating site). Thus, it was re-appropriated as a video-sharing platform as a result of public usage. Similarly, *Twitter* originally served as an online SMS service for communication within small groups, but the makers, in response to actual usage, repurposed it as a public micro-blogging platform. The full deployment of these applications was perhaps only realized as a result of their actual usage rather than their original design. The users did not embrace their intended functions but the re-appropriated ones, which were tinkered with during the window of opportunity, were established instead. Michel De Certeau (1984) in *The Practice of Everyday Life*, investigated the ways people individualize mass culture through re-appropriation. On an individual level, re-appropriation is a part of a hacker's approach and the digital age allows users to do this with ease. For instance, *YouTube* users hacked and used the video sharing feature on the website to post random videos that they wanted to share with friends, and bypassing the prescribed dating purpose. The users appropriate technology into their lives and the window of opportunity allows them to test its capabilities through experimentation.

During the window of opportunity, any re-appropriation or re-purposing of a product reasserts that the producers of digital devices are after all human beings with limitations. Carr (2014) states, “Machines share the fallibility of their makers (p. 154)”. Even if the technology were flawless, it would still operate in an imperfect world. Therefore, evolving, abandoning and even re-purposing tools is prevalent. The provided window of opportunity for an object is used to expand its cultural meaning. Furthermore, it provides an opportunity to situate technologies in different practices than first prescribed and be re-appropriated for its users. The elaboration of the basis for perceiving a product through self-expectation bias and imprint of previous experience leads to its most relevant purpose through the window of opportunity. This sheds light onto the ways users envision and appropriate the affordance of a product based on their perception. It is essential to be mindful of the ways perception operates in order to examine the notion of affordances.

3. Affordances in the digital order

3.1 The concept of affordance

An affordance designates the capacity of an object to support an action. J.J. Gibson (1979), an American psychologist, initially coined this term in his book *The Ecological Approach to Visual Perception*. Gibson explains the process of affordances in an ecological context to examine what a specific environment accords an animal in that space. Gibson states, "The affordances of the environment are what it offers the animal, what it provides or furnishes.....implying the complementarity of the animal and the environment (127)." In other words, animals leverage the capabilities of the environment to perform certain actions. In the digital order, the term affordance expands its parameters to include the design of digital interfaces. In the context of the digital order, the environment is a virtual space created by digital technology and the animal is the human user.

The concept of affordance is highly potent within the context of digital technology since it refers to specific features and capabilities for any user within that space. There is interconnectivity between how a user adapts to an object, and how an animal adapts to its environment, with the user having an impact on the object it utilizes and vice-versa. Gibson (1979) states, "An affordance points both ways, to the environment and to the observer" (p. 129), in this case to the device and the user. It is crucial to understand that the cues that point towards the use of an object accompany the cues that point towards the user. The environment in this context is the virtual space generated by a technology that creates dependability and connectedness for the user while

allowing for peculiar actions (Gibson 1979, p. 127). The affordances of our technologies are thus crucial in determining both the way it is perceived and our perception of the world. Affordance could also be perceived as a phenomenon that caps or seals the utilities enabled by an object or interface, making it a limitation rather than an opportunity to expand horizons. While explaining the implications for affordances, Gibson claims, "The affordance of something does *not change* as the need of the observer changes. The observer may or may not perceive or attend to the affordance, according to his needs, but the affordance, being invariant, is always there to be perceived" (1979, p. 140-41). This is significant in understanding that an object's invariant affordance is not necessarily a limitation, given that the scope of affordances is dependent on the limitations of the intuition of the user about the possible uses of an object. In any case, the affordances of an object exist whether the user recognizes it or not. For instance, there could be a variety of users using the same type of smartphone interface, yet utilize different features and capabilities of it depending on their needs. It is critical to understand that an affordance is not dependent on the design or construction of an object, but on the potentiality of uses that it makes possible. Thus, the introduction of affordance as a noun by Gibson (1979) has evolved in the digitalized era to designate "A situation where an object's sensory characteristics intuitively imply its functionality and use" (Borowska, 2015). Discoverability or intuitiveness is an interesting concept that in essence adjectivizes affordance.

Initially, affordance as a term was leveraged to express "the functions that the physical properties of an object make possible" (Murray 2012, p. 4), though it ought to have an indirect link to the emotional response triggered through physical tinkering that

the mind registers. Thus, the environmental and emotional qualities triggered by digital interactions can enable "meaningful engagement, motivated by the informational needs of users" (Lupton 2014, p. 133). For instance, the use of a certain application can trigger peculiar emotions. This leads us to delve deeper into elements of interconnectedness between the object and the user that sheds light on the idea of perception. It is important to note that perception of animals or users impact the way they utilize the environment or the object. In the digital age, perception works as another key factor: a skill or tool for the arena of digital affordances, because affordance tends to exist regardless of its recognition. Hence, the core to the theory of digital affordance is the object, the user, and one's perception. A key factor in how perception can be built up is a user's everyday behavior, which turns into a routine ritual.

3.2 Behaviors enabled by digital technologies and their affordances

The social behaviours that proliferate and penetrate into a culture because of the affordances of digital technologies eventually affect one's perception. As a step towards understanding how affordances enable such behaviour, it would be pertinent to "scrutinize the interrelationship among various communication technologies, the cultural communities that grow up around them and the activities they support" (Jenkins 2011, p. 7). This paper will take into consideration the two mediation models of information acquisition: the linear model and the complex model. The affordances of traditional media technologies - print, audio, and video in the form of books, newspapers, radio, and television, comprise structures that only allow for the linear flow of data. In contrast, the digital order evades of the sense of one-way hierarchical order facilitated through print culture (Weel 2011, p. 2). Digital technologies provide for complex models with various affordances as print, audio, video all meshed and embedded into one domain and allow for user participation. The current cultural movement is passing through a fluid phase where both the one-way and two-way media coexist, while the digital order is eventually engulfing and surpassing the linear models. The flux of evolving digital technologies into the realm of traditional media spheres has a huge impact on the perception of the users, as we tend to "think and behave differently while operating different technologies" (Rushkoff 2010, p. 27). The design of an interface and its affordances builds upon a skeuomorphic approach to facilitate the initial the sensemaking of the design features. As McLuhan's remarkable dictum states, "old media appear as the content of new media" (Rajagopal 2006, p. 284). For instance, on a computer "desktop," a file folder icon refers to a pre-digital structure for storing information, a trash bucket icon refers to a pre-digital

transitory space for discarded documents and other materials, and an online shopping cart refers to a pre-digital device used in physical shopping spaces. This approach morphs as users become savvier. A user's knowledge of digital cues evolves to accommodate novel habits and idiosyncrasies fostered by the affordances of those particular devices. Harry Heft, a psychology professor who focuses on the ecological approach to perception and actions claims, "Some affordances are learned rather than innate" (Lupton 2014, p. 29). For instance, the pinch and zoom functionality on a touch screen does not take its reference from the physical world, neither is it intuitive, but it is a learned behavior which becomes "natural" upon frequent use. It is important to note that these digital spaces provide their users a new outlook because the affordances of the interfaces inform their worldview. The ability to generate new behaviours provides the digital order with a capacity to experiment and expand its horizons.

To determine the deeper impacts of digital tools, it is important to examine the ways both linear and complex models enable certain behaviors. In *The Bias of Communication*, Harold Innis (1951) states, "A medium of communication has an important influence on the dissemination of knowledge over space and over time and it becomes necessary to study its characteristics in order to appraise its influence in its cultural setting" (p. 33). Thus, it is crucial to scrutinize the impacts of a technology's affordances on the thought-process. What are the cognitive impacts of the digital order? For the digital order participants, do we foresee perils in their knowledge accumulation habits? In an attempt to answer these questions, it is important to take into account the implications of the order of books to analyze the compensations of the digital order. Weel (2011) employs the phrase "order of books" to refer to the reading habits enabled by the

print medium. It is significant to note that the affordances of each medium enables us to ingest information in certain ways "that predispose us to particular types of knowing and knowledge and so ultimately affect the way we see the world and our place in it" (Weel 2011, p. 17). This process impacts our cognition, perspective, and behavior. While the order of books was the dominant realm of information acquisition, it had an indirect, sanctified and hermeneutic relationship with its users. Each medium has to close the transcriptional gap between the transmitted and acquired knowledge through its affordances by triggering certain human sense(s). While reading the single dominant human sense at play is sight upon which the transcriptional process relies. An essential values offered by the order of the book that other mediums do not foster include "the linearity that facilitates argument and narrativity, the concentration and patience that reading requires, the solitary contemplation it promotes, and the purely linguistic nature of texts" (Weel 2011, p. 100). It is important to note that the affordance provided by the order of books fosters linearity in thought production and develops concentration. On the other hand, the common habits of the users that adapt to the digital order are accustomed to multitasking and interactivity as a way to absorb information. In the book, *The Digital Divide*, the article "Is Google Making Us Stupid?" by Carr (2011) refers to Maryanne Wolf on the reading habits over the web:

> Wolf worries that the style of reading promoted by the Net, a style that puts "efficiency" and "immediacy" above all else, may be weakening our capacity for the kind of deep reading that emerged when an earlier technology, the printing press, made long and complex works of prose commonplace. When we read online, she says, we tend to become 'mere decoders of information." Our ability to interpret text, to make the rich

> mental connections that form when we read deeply and without distraction, remains largely disengaged (p. 66-67).

An urge to accumulate more information in a limited timeframe through skimming and decoding are adopted as usual reading habits. In favour of the digital order, Don Tapscott (2009) in his *Grown Up Digital* asserts, "It is not what you know that really counts, it is how you navigate the digital world and what you do with the information you discover" (p. 121). It is important to note that the digital order involves more than one human sense to assist with interpretation, producing a more direct, intimate and customized experience. The affordances provided by the digital order guarantee a deeper understanding with customized mediation tools such as search tools, various dictionaries and translation tools at hand. These tools and affordances of the digital order allow a user to search the web for relevant information in a shorter timeframe, even with split attention. As a counter to Tapscott's statement, Maryanne Wolf criticizes the non-linear, random style of knowledge consumption through net reading: "We are not only what we read, we are how we read" (Carr, 2008, Is Google Making Us Stupid, The Atlantic). It is important to note that the atmosphere provided by the Internet results in scattered attention and diffused concentration because its affordance allows one to conduct various tasks at once. While the order of books provided linearity of thought, the digital order - with its varied affordances - helps customize the absorption of information, but causes the user's attention to wander. Weel (2011) states, "Internet has given new impetus to an old instinct: the gathering of knowledge" (p. 173) and the Internet provides a vast information network for individuals to delve into, but reading on the Internet becomes a process of elimination rather than deep engagement (Rushkoff 2010). The flaws of the

digital order lie not only in its disorderly, non-linear and anarchic landscape, but how tedious searching for relevant information can distract the linear thought-process of a user and foster skimming habits. Thus, browsing through the web becomes a process of seeping through the humongous informatics rather than engrossed absorption. There are no limits to the materials that individual readers could find, the only scarcity is their time and attention: the so-called attention economy (Weel 2011, p.184). The digital order exponentially facilitates information accessibility and accumulation but compromises attention span. In *The Dumbest Generation*, Bauerlein (2011) quotes "Usability of Websites By Teenagers," where Nielson (2008) provides examples of the habits formed by teenagers within the digital order. Nielson claims in dismay that, "Teens' poor performance is caused by three factors: insufficient reading skills, less sophisticated research strategies, and a dramatically lower patience level" (p. 48). It is significant to note that knowledge in the realm of digital order is disseminated through association of the fragments, hence that is the way cognition will absorb and process it, in snippets. Furthermore, in the digital realm information is readily available at one's fingertips, forming a user's expectation of the usual navigation time. This affordance is extremely valuable but it subconsciously sets expectations that lead to low patience threshold. Moreover, the affordances of the digital order empower us to undertake more than one task at a time and encourage us to adopt multitasking habits that sacrifice attention span and concentration. All of these habits eventually adapt into behaviours.

In addition, the digital order breaks the temporal and material boundaries of the physical, disorienting time and space. As Gay (1997) states, "Electronic media destroys the specialness of place and time through their ability to 'lift out' particular signs, images,

and sounds from their local contexts and to recombine them across time and space" (p. 105). Time and space in the context of the digital order bends, folds, dilates and does not dismantle in linear form, which changes the perception of communication processes amongst its users. The digital space allows for users to manipulate their communication and writing process because the affordances allow for tools such as auto-correct or various group editing functionalities. With the interrupted sanctity of time and space, "We can perhaps assume that the medium of communication over a long period will to some extent determine the character of knowledge to be communicated" (Innis 1951, p. 34). For instance, Google Docs allows multiple users to access the same document at different locations at any time. This triggers a different kind of thought process with a different consciousness than writing on a piece of paper. In *The Digital Divide*, sociologist Daniel Bell states, we inevitably begin to take on the qualities of tools and technologies we use (Carr, 2011, p. 64), thus the values fostered by particular technologies have a direct correlation to the cognition of the user. Furthermore, as the order of the book provides a sense of authority, integrity and certainty, the "digital medium provides a sense of instability, the fact that a URL may or may not exist on our next visit" (Weel 2011, p. 181). Unlike the digital realm, print assures the quality of content through rationalization process of publishing houses, whereas the democratization of the Internet gives anybody the power to publish online, which challenges the authenticity of the published content. Hence, it is crucial to note that the digital order lacks a level of trust, which is imperative in a source of knowledge. Moreover, while considering the behaviors enabled by digital affordance, it would be essential to ponder whether the digital order proliferates socialistic behaviours or

individualistic behaviours. The digital order appears to be individualistic on the surface with the users divided into individual interfaces, though the interconnectedness that it fosters through mediation is a socialistic element. In addition, the majority of the traditional communication mediums - newsprint, radio-television broadcasting - served the masses, as author Innis (1951) claims: "The printing press and the radio address the world instead of the individual" (p. 191). It is crucial to note that the traditional mediation era seemed geared toward social involvement on the surface with broadcast media addressing to the masses, but the received information remained limited to an individual, unable to connect individuals with one another. As digital technology made interaction feasible by providing the transmission power to the common man, it now brings about changes in the means of absorption of the information, and the value of the media for its participants. For instance, before the digital order was a dominant system, various forms of media had their transmittal times coordinated with the routine of the local consumers. According to the local clock, the television and radio broadcast had specified times for their programming and newspapers were printed and distributed. Transmission from the media sources was timed according to the needs of the locals, and consumed in a linear fashion. On the other hand, the interconnectedness made possible by the triumph of digital order brings information to the user in a complex fashion. According to Murray (2012), "When we introduce new media formats or disrupt established inscriptions/ transmission technologies, we are also disrupting rituals that have transformed around these artifacts (p. 37). This is vital to note that the information inflow from various channels throughout the world is aggregated on web platforms. Now users have to search through the presented information and filter the information that is relevant to them.

Users that were once passive consumers are now entitled to information that is updated 24/7 from all over the world. On these web platforms, the information gets updated not according to the clocks of each user's respective geographic location but constantly pushed worldwide to a single channel that collaborates it all. The digital order not only provides a new way of information transmission, but it also changes the behaviors and rituals for the users working around its affordances. Now users do not wake up to the flow of TV, radio and the newspaper, but catch up immense amount of updates through social media platforms such as Twitter. Furthermore, the digital order allows a user to fabricate and assemble one's own persona by maintaining their own social presence through blogs and social media. Users are able to manipulate space and time with the advent of remote instant communication technologies, such as smartphones, at their disposal along with the freedom to correspond at their own will. The digital order provides a ludic landscape for participants, providing them with ability to hide, display and manipulate the representation of the self and the facts as they please. The comparison between the digital order and the order of books, as well as mass communication and one-to-one communication models, signal the vast distinction in the ways users function within different models of communication. Thus, an elaborate insight into these distinct behaviours enabled by everyday actions prompt an examination of the citizens of the digital order: makers, users and hackers, as well as the ways they appropriate the provided affordances to manifest a participatory culture.

4. Citizens of the Digital Order

4.1 Makers, Hackers, Users

In an attempt to survey the implications of the digital order, it is important to shed light on the citizens within this space - makers, hackers, users - to determine their respective roles and how these roles blur traditional boundaries between creation and consumption. In addition, this section will examine the ways the citizens of the digital order have morphed and penetrated into the pre-existing production-consumption landscape, with producers and consumers as citizens. The era before the advent of the digitized landscape had the producers maintain a key position in the media hierarchy, and the consumers were passive receivers because the affordances of those technologies enabled them to only receive information. The unidirectional, traditional means of mediation - radio, television and print – involved two primary actors – producers and consumers – with segregated roles. Producers were the active creators of the content and responsible for its programming. Conversely, consumers were the passive receptors of the content served to them with very limited input into the content being produced. With regards to these limits upon consumers in the realm of unidirectional production and consumption of content, in *A Hacker Manifesto,* McKenzie Wark (2004) describes the passive role of a consumer as objectification – a consumer being the subject. Wark further states: "Production meshes objects and subjects, breaking their envelopes, blurring their identities," (Wark 2004, p. 157) which is significant in understanding that the traditional production model reduces a consumer - the subject - to a mere passive receptor in the system of unidirectional production-reception.

Besides producers and consumers, media and Internet activists and cultural jammers are another category in the unidirectional system of production and consumption. These activists are keen on subverting and protesting against the content fed to consumers through civil disobedience, boycotts, lobbying and more. The passivity of the role of the consumers has led to the proliferation of these forms of activism. In a system that is controlled by a proactive producer and religiously followed by the passive consumer, these activists mark their presence as disruptors in the system against the quality of content being delivered. They "aim to undermine the marketing rhetoric of multinational corporations" (Harold 2004, p. 348). In the digital order, a cultural jammer manifests as a hacker performing tasks such as launching ad blocking app plugins to disrupt the goal of online advertisers. In the digital order, hackers encapsulate tech enthusiasts, crafters, tinkerers, hobbyists, engineers, authors, artists and others. A hacker "uses existing products for unintended functions, take things apart or add new components, often seeking to subvert consumerism" (Lupton 2014, p. 134). Hackers, through their technology-enhanced skill-set, audaciously subvert or tinker with products and inventions.

The concept of the hacker emerged out of a desire for participants of the digital space to be constrain-free, and because "computers naturally encouraged a hacker's approach to media and technology" (Rushkoff, p. 140). In *A Hacker Manifesto,* Wark (2004) proclaims the rise of the vectorial capitalist society - a society where the workforce makes money through 'ideation' as their property - marks an era of hackers who are instead keen on unfettered idea sharing. Wark asserts, "hacker knowledge implies free information, learning and the gift of the result in a peer-to-peer network....

when knowledge is freed from scarcity, the free production of knowledge becomes the knowledge of free producers" (p. 10). This is crucial in understanding that the state encourages individuals to lock-down their ideas as assets in the form of trademarks, copyrights and patents, which leads to the idea of the author as the sole proprietor. The concept of intellectual property leads to the lock-down of information that furthermore limits opportunities to fully leverage and build upon existing knowledge. This process restricts the remixing of ideas. It is crucial to understand that ideation does not take place in vacuum, it builds on previous ideations affecting the perspective of an individual, and thus this contradicts with the idea of remixing refrainment. In *Planned Obsolescence: Publishing, Technology, and the Future of the Academy*, Kathleen Fitzpatrick (2011), while renouncing the idea of locking down information, states, "the notion of intertextuality suggests that even the most ostensibly original of texts is in fact rife with references to other texts, and that it is impossible for a reader to approach any given text without reference to everything she has previously read or seen" (p. 77). It is important to note that in any era it is not possible to produce a 'unique-piece of work' because craftsmanship does not take place in vacuum; rather creation is informed by previous creations. This intense lock-up of intellectual property proves its redundancy and leads participants of the contemporary digital order to initiate platforms that allow them to share their ideas, with little emphasis on assigning credit. With perhaps the biggest of such accomplishments being the onset of open-source code, UNIX and Linux operating systems, it is important to note, "the hacking of new vectors of information has indeed been the turning point in the emergence of a broader awareness of the creative production of abstraction" (Wark 2004, p. 71). Here, 'creative production of abstraction' signifies the

innovative proliferation of ideas. For a general user, his or her actions are limited by the affordances that digital technology provides, whereas a hacker subverts the system by having the ability to enter its core. As Rushkoff (2010) states, "For the person who understands code, the whole world reveals itself as a series of decisions made by planners and designers for how the rest of us should live " (p. 140). Thus, a hacker steps into the shoe of the makers – planners and designers – by going beyond the prescribed implications of a product and questions the utility of its existence. Moreover, the role of subversion is not limited to tech savvy hackers but even users use products in unintended ways and challenge its prescribed utility.

In the digital order, the roles of producers and consumers have been evolving with the onset of functionalities and affordances that empower the common user. "We are moving away from a world in which some produce and many consume media toward one in which everyone has a more active stake in the culture that is produced" (Jenkins 2009, p. 12). The affordances of digital technology have led to the blurring boundaries between the roles of the producers and consumers in the marketplace. Initially, in *Take Today: The Executives as Dropout*, McLuhan and Nevitt (1972) suggested the concept of blurring lines between producer and consumer through electric technology would "changeover, from acquisition to involvement" (p. 135). Eventually, Alvin Toffler (1980) in *The Third Wave* was first to coin the term *prosumer* that he defined as professional consumer, pointing towards the growing consumerism that was leading to customization of goods. According to Toffler, the next high-level leap would be mass individual-customization that would require major input from these proactive consumers. These dynamic roles enabled by digital affordances call for re-defining the titles and subsequent roles of the

citizens in the digital order with producers as makers, and consumers as users. Tapscott re-introduced this concept of *prosumer* in the context of the digital order referring to the users, stating that, "after gaining some experience with this new world of prosumption (production + consumption) you will realize that your real business is not creating finished products but innovation ecosystems" (Wikinomics 2006, p. 148). It is crucial to note that the role of the producer has been evolved to the point where they create content due to user input, rather than being the sole proprietor of the content and its ideation. Examples of makers in the digital order include programmers, designers, content creators, editors and more. In many cases, these roles collaborate to deliver a product, such as a social networking platform. "At the heart of the maker culture is the idea of returning the methods of production to users by sharing design knowledge and promoting access to methods of manufacturing" (Lupton 2014, p. 135). This transformed category of the consumer to the user expands the value for platforms by their presence and their interactions on those platforms. In *Beautiful Users: Designing for People*, Lupton (2014), states that the phrase "designing for people" is being replaced to "designing with people" as creative teams seek more egalitarian relationships with an increasingly well-informed public (p. 21), by breaking down the divide between the designer and user - subject and object - thus empowering the users. In the digital order, users have been transforming from passive recipients to proactive contributors. In his book *Keywords: A Vocabulary of Culture and Society*, Raymond Williams (1976) states, "In almost all its early English usage, consumer had an unfavorable sense; it meant to destroy, to use up, to waste to exhaust" (p. 68-70). Thus, the term "consumer" solely represented an end node in the network that does not contribute back. "In part to combat consumer's ennui of passive

consumption, the final decades of the twentieth century saw a sharp rise in user participation. User input becomes standard practice…which brought together researchers, psychologist, anthropologists, designers and user participants" (Lupton 2014, p. 132). This is significant in noting that the advent of digital technologies has led to a drastic metamorphosis of the role of a consumer to a user, empowering the user by shift from mass media towards interactive media with its ubiquity. With the shift from a linear order of communication to a two-way communication, the digital order is marked by the democratization of production, distribution and consumption, merging these three processes into a fast paced, simultaneous process. Thus, the key contributors in the digital landscape comprise makers, hackers and users. This shift has empowered the user by providing tools to participate in the system at their disposal. Within the digital order, the constant power dynamics and blurring lines between the roles of the participants has provided them with a playground to foster participatory culture.

4.2 Participatory culture

An in-depth analysis of the roles of the citizens of the digital order - makers, hackers, users - enable a scrutiny of the affordances these citizens can leverage to foster a participatory culture. The rise of the open-source movement - a culture that allows individuals to freely access, use and share content - established the preconditions for a participatory culture, with the digital order being conducive to its development. The participatory culture contributed to make the digital order more democratized. As proliferating technology provides novel affordances for communication, collaboration and dissemination of ideas, it has given rise to new opportunities for web participants such as makers, users and hackers to provide input into the digital space through the creation and sharing of content and ideas.

Participatory culture is a term coined by theorist Henry Jenkins (2009) in *Confronting the Challenges of Participatory Culture: Media Education for the 21st Century*, based on the concept that the affordances of the digital order allow users to "work collaboratively, generate and share ideas and creative works" (p. 10). According to Jenkins, the essence of intellectual growth is a collaborative effort, as compared to segregation of knowledge by individuals and drawing borders between producers and consumers. Jenkins (2009) refers to the theorist James Gee and his idea of affinity spaces that "connects with people who share similar goals and interest" (p. 10). Gee defines affinity spaces as "locations where groups of people are drawn together because of a shared, strong interest or engagement in a common activity; are sustained by common endeavours according to the interest and skill set of an individual" (p. 10), claiming that the goal is to contribute and share knowledge with informal learning as an outcome.

According to Jenkins: “The new participatory cultures aka affinity spaces, represent ideal learning environments because they depend on peer-to-peer teaching with each participant constantly motivated to acquire new knowledge or refine their existing skills, and because they allow each participant to feel like an expert while tapping the expertise of others” (p. 10). This is critical in understanding that commonalities between co-learners and co-creators lead them to participate more actively. Participatory culture provides an ability to generate affinity spaces, engulfing interests groups around the globe. The leap forward from the passive one-way broadcast method to the digital order allows for back and forth communication that traditional one-way media could not facilitate. The participatory culture fostered by the digital order leverages a substantial number of users from across the globe to communicate in ways that were not possible decades ago. The ability to reach such a vast audience has the power to accelerate human collaboration.

Participatory culture is not only about the content, but the collaborative opportunity: everything is experimental, provisional and passing with the process being more important than the product. This ephemerality of the participatory culture makes it a conceptual phenomenon. The participatory culture through its affordances enables global interaction that serves to exponentially expand the worldview of its participants. The digital order provides a platform that brought about a cultural shift towards freedom of expression, creating “affinity spaces” in the form of various online communities, forums, and blogs. Jenkins asserts, “the participatory culture emancipated by the contemporary digital space shifts focus onto community involvement rather than lock-down of intellect, supporting creating and sharing with others” (p. 6). This signals the rise of open source

culture with the advent of UNIX and Linux as platforms, where the code is created, shared and used collaboratively as a non-profit effort, without consumerist motives. In the digital space, the concept of participatory culture can be observed in a variety of socially collaborative platforms such as Wikipedia, Reddit, Github and Pinterest, with each example serving a distinct purpose that caters to its niche users and is feasible through communal effort. Moreover, the harbingers of participatory culture call for a two-way active model of communication adopted into everyday usage. The old HR model - recruit, train, supervise, retain - is transformed into initiate, engage, collaborate and evolve (Tapscott 2009, p. 149) since the demarcations of success in the digital order are not solely based on individual efforts, but team play, with an ability to collaborate and co-create. An analysis of participatory culture provides an insight into the strengths of the digital order. It is also important to note that the digital order is evolving, being in the experimental stages after its inception, which makes it an empirical phenomenon. This participatory culture provides grounds for the participants to collaborate, but it is crucial to note that this landscape is not yet capable of rationalizing the quality of the content by its participants. Furthermore, each user in the digital order is constantly oscillating to find one's best fit, with the users being guinea pigs in this process accompanied by a sense of uncertainty. In *The Bias of Communication*, Innis (1951) states: "Shifts to new media of communication have been characterized by profound disturbances" (p. 188) pointing towards the turmoil caused by the constant morphing within the digital order and users being a part of its momentariness. Participatory culture provides a collaborative space that has both positive and negative implications, depending on the ways the users appropriate the given affordances. In *You Are Not a Gadget*, Silicon Valley pioneer Jaron

Lanier (2010) claims, “anonymous blog comments, vapid video pranks and lightweight mash-ups may seem trivial and harmless, but as a whole, this widespread practice of fragmentary, impersonal communication has demeaned intrapersonal interaction” (p. 4). It is significant in understanding that these negative behaviors are indicative of the shortcomings of the digital order being evolving in nature. While bolstering the participatory space and collaborative opportunity fostered by the digital order, Tapscott (2009) and Jenkins (2009) describe the participatory culture as a utopia, whereas Lanier (2010) points towards the real-world activities of trolling, bullying and mob behaviors that are also fostered by the same space. Furthermore, Bauerlein (2008), in *The Dumbest Generation*, claims, “the abundant material progress in adolescents if hasn't merely bypassed or disengaged them from intellectual progress but has perhaps hindered it” (p. 36). This is important in understanding that unguided or directionless users are prone to the distractions fostered by social networks within the participatory realm. Those anxious about participatory culture envisage its affordances as leading to hive mentality, and hold it responsible for creating fragmentation in thought-process and perceptions through digital distractions, which result in nonlinearity of thought. Thus, the question worth pondering is: in what ways the ephemerality fostered through the evolving digitized products accommodates human instincts of seeking for trust and dependency? How do participants find their balance in such a situation? Does it affect the comprehension process of the citizens of the digital order? Should users be cautious in the appropriation of these affordances? In order for the citizens of the digital order to make sense of this evolutionary landscape, it is crucial to navigate one’s essential position.

5. The meaning of being in the digital order

5.1 Tools and being human

The current cultural moment marks the early stages of the digital order causing an eventual turmoil with its evolutionary quotient. In this scenario, turmoil stands for the uncertainty this era carries because of its evolving nature and disembodied futuristic goals. It is critical to note that being in the early stages places it into the window of opportunity and there have been various theorists and futurists predicting the implications of the digital order as it emerges. *Playboy* magazine featured a special interview with Marshall McLuhan in 1969, where McLuhan mentions how "we drive into the future using only our rearview mirror." The quote reasserts the idea of having a skeuomorphic approach and having an imprint of previous experiences to envisage the future. Manifesting within the digital order makes it too close to have an unbiased perception of it. It is important to understand that viewing the past retrospectively, citizens can consciously understand its ins and outs; hence, a cultural movement only becomes apparent when a new one has superseded it. Therefore, we are always a step behind in our worldview (McLuhan, 1969). This apparent early stage of the digital order is determined by the novelty of its affordances as well as a lack of the established meanings for this era. According to Rushkoff (2010), with regards to the digital technologies "we are still just finding novel ways of talking to one another" (p. 105), this points towards the ephemerality and evolution that adjectivizes the digital order, with users finding their own place within it.

In *The Language of New Media*, Manovich (2001) states, "forms influence the content and vice-versa and certainly allow or disallow the articulation of certain ideas" (p. 318). It is significant to note that certain technologies provide linearity of thought, whereas others provide for clearer interpretation by having various senses at play. Various mediums have varied impacts on human cognition and episteme, with varied effects in different situations. In this manner, the tools that we introduce into our daily lives strongly influence - and even determine - our way of conceptualizing, our performance in the world and have an impact on the ways we conceive information and knowledge. Marshall McLuhan describes technology as "an extension of the human body," which connotes an enhancement to the embodied mind and bodily functions beyond our innate defined possibilities. The tools and technologies that extend and foster our talents and skills "also alters our perception of the world and what the world signifies to us" (Carr 2014, p. 217) by manifesting themselves in our mental models. Hence, it is crucial to be mindful of the technology that we choose to adopt. According to Lanier (2010), our digital interfaces become the embodiment of our connection to the world, and can alter one's conception of oneself and the world, hence "the digital technologies tinker with users' philosophy by direct manipulation of their cognitive experience" (p. 6). The constant wired-ness ties a user in a loop, which nurtures behavioral traits that seek to enhance control over digitization through prolific usage, thus leading to dependency. The scrutiny of the digital order points towards the possibility that the prolonged use of adopted tools impact the cognition and thus forms idiosyncrasies. Moreover, Carr (2014) refers to the idea of *Generation Effect*, stating that when one is forced to generate information or act independently, it leads to a stronger retention of information (p. 73).

The digital order provides us ample opportunities for automation, whereas we tend to absorb the information we consume independently. Hence, the digital automation is a phenomenon opposite to generation effect and requires "the kind of struggle that automation seeks to alleviate" (p. 75). Thus, it is imperative that automation takes a toll on our cognitive abilities and skills. Extensive use of technology and automation deprive us of being self-reliant, the innate mainstay of human character (Carr 2014, p. 199). It is significant to explore and be mindful of the affordances of our everyday tools, their level of intervention into our lives and their consequent effects because they inevitably re-wires our cognition and the ways we would break down and assimilate future knowledge. In the article, "Learning to think in a Digital World," Maryanne Wolf points towards a statement by technical visionary Edward Tenner, who cautions, "it would be a shame if the very intellect that produced the digital revolution could be destroyed by it" (*Boston Globe*, Sep 5, 2007). It is critical to notice the elements of 'destruction' in the state of dependency, and automation that can arguably have diminishing effects.

While trying to visualize the true perils and potentialities of the digital order, it is important to note that the so-called freedom or extension it provides to human capabilities is limited and programmed with intrinsic peripheries. "We remain unaware of the biases of the programs in which we are participating, as well as the way they circumscribe our newfound authorship within their predetermined agendas" (Rushkoff 2010, p. 146). Here Rushkoff explain that though today's digital order provides us with some active participation, the parameters for that "participation" have been programmed for us in advance, which puts limits to the allowance of our interactivity. Thus, it is significant to be mindful of the distinctions between the digitized capabilities and the

amount of freedom one is able to leverage. This matters because the current and future workforce will need to heavily rely on the skills and intellect of the citizens that are being wired in the current cultural moment. With regards to automation in the digital order, Carr (2014) asserts, "if individuals rely on the automation of mental labor, by changing the nature and focus of intellectual endeavour, it may end up eroding one of the foundation of culture itself: our desire to understand the world" (p. 123). It is crucial in understanding that as humans, we have a tendency to decode the symbols and tangible things in our environments to develop our intellect and senses for better performance. If we were devoid of the burden to operate with our naked senses, if we were provided aids to decode and perform for us, perhaps we would lose the inclination to comprehend our environment. As a basic example, schools deployed the calculator as a tool reducing one's mental mathematics capabilities. Thus, it is critical to debate whether "the simplifying bias of digital technology has reduced us once again to passive spectators of technology" (Rushkoff 2010, p. 68) consuming within the predetermined limitations. The convention of the current day digital order to provide us with seamless and intuitive technologies, deciphering interaction of the user with hardware or software, is yet again limiting the functionality of the users as merely consumers of the parameterized applications with defined and finite control. The hallucination of empowerment with limitations to the perquisite and numbing effects of automation are imperative to examine, in an attempt to delve deeper into the relationship between tools and humans. This understanding leads to a matter of debate: what does it mean to be a human in an era of the digital order?

Various scholars, including N. Katherine Hayles and Ray Kurzweil, support the notion of a human transforming into a transhuman or posthuman being. This transhuman being is perceived to have empowered their existence with the boost of affordances in technology. In *How We Became Posthuman* Hayles (1999) claims, "In the posthuman, there are no essential differences or absolute demarcations between bodily existence and computer simulation, cybernetic mechanism and biological organism, robot technology, and human goals" (p. 17). This is significant in understanding that the values put forth by certain technologies blends into the individual entity in a way that seems inseparable and seamless, such as wearable and medical aids. Furthermore, futurist Ray Kurzweil emphasizes, "It will be possible with our technologies to improve human beings and achieve transhumanism" (Weel 2011, p. 167). Transhumanism in this context is outlined as a stage that extends the potential of human beings beyond their innate capabilities through the adoption of the digital affordances.

Although the idea of posthumanism and transhumanism seems possible with the aid of the digital technologies, it is essential to note that from time immemorial the affordances of tools have assisted animals and humans in their existence. The advent of digital technologies is only to be perceived as an evolution in that tool-olgy. Carr (2014) supports this idea in *The Glass Cage: Automation and Us*, emphasizing the natural connections between the human and the tools. He asserts, "Technology isn't what makes us post-human or transhuman, it is what makes us human" (p. 215), since the tools are a means to satisfy human yearnings. Adopting tools is a part of human nature, an inner urge to adapt, to build things in the environment that would serve as aids. Hence, they are innate to the human existence and do not bestow us with superpowers. Carr (2014) re-

states that the value of a tool lies not only in "what it produces for us but what it produces in us" (p. 217). Thus, it is essential to note the capability of our tools for pulling our ingrained skills and talents to the surface through the ways it augments or dwindles us, shaping our experience of the world. The so-called transhumanism is the ability to experience deep-seated human tendencies through tools as instruments, extending more opportunities to experience the world by capabilities of those tools.

Furthermore, in order to best analyze the elemental position of a human being in the digital order, it is vital to visualize the individual devoid of one's dependence on the instruments. Hayles (1999) states, "The best possible time to contest for what the posthuman means is now, before the trains of thought it embodies have been laid down so firmly that it would take dynamite to change them" (p. 288). This is a remarkable claim and relevant today as a call for users, makers and hackers to debate the implications for transhumanism and analyze their relationship to their tools. In the digital order, implications of being human are essential to explore in order to analyze and assess the position and power of an individual entity to attain clear focus for leveraging the affordances to its best use. This points towards an exemplary statement by Gibson: "The awareness of the world and of one's complementary relations to the world are not separable" (p. 141). It determines that the true potential of an individual in the digital order would help identify the legitimate ways to exploit the available resources. Furthermore, the convoluted and uncertain futuristic vision of the digital order accompanies with it a crucial personal accountability for its citizens, to be independent, receptive, and adaptive to his period of evolution. This calls for citizens to urgently

address the uncertainty packaged with this ever-evolving era and the significance of thinking about future moves.

5.2 Individual accountability

Since the techno-culture fostered by a particular product could either limit or extend one's worldview, an individual should empower oneself to be receptive to an informed perspective. While aiming to find an intrinsic position for oneself, it is crucial to address this question: am I optimizing myself for the technology, or is technology optimizing me? While adopting a piece of technology, it is essential to scrutinize the basis and culture constructed around it and to be mindful of its positive and negative aspects. According to Weel (2011), "all mediums define our perspectives, frame our observations, and so create our world even as they limit our understanding of it" (p. 33). Since a particular piece of technology might go on to become a habit or be embedded into the perceptual construct affecting the future mindset of an individual, it is important that the utility and value of the product is analyzed before its adoption. With regards to the adoption of new technologies, in *What Technology Wants*, Kelly (2010) refers to the Amish community that adopts a technology long after its launch, by the time it stabilizes and its positives and negatives are apparent. Kelly quotes an Amish man who claims, "We don't want to stop progress, we just want to slow it down" (p. 225). Hence, in such an ephemeral, evolutionary and chaotic landscape, the steady adoption of a technology provides the Amish community with sane decision-making abilities, which can be challenging otherwise with limited knowledge of the rules of the digital order.

Furthermore, the constant wired-ness creates an emotional dependency on the interface leading to physiological responses, such as constantly checking one's phone or having extended screen-time without any significant purpose. The crucial point here is that most of the times users are unaware of the implications of excessive usage, since the

digital order is still in the developing and evolving stages. Thus, empowerment of decision-making through mindfulness ought to be the tool for survival. In a remarkable TED Talk titled *The Art of Stillness*, (Aug 2014) acclaimed travel writer Pico Iyer states, "What technology hasn't given us yet is how to make the wisest use of technology." This statement summarizes the urgency of the latest quest within the digital order: to sensibly leverage the affordances of our digital interfaces. As an answer to his question, Iyer further claims the significance of conscious measures to rest or pause within the everyday digital involvement, in an effort to step back and view the larger picture of where one stands.

With digitization taking over, almost every industry is in a process of interruption, with users experiencing more uncertainty than ever. As Lanier (2010) exclaims: "Spirituality is committing suicide and consciousness is attempting to will itself out of existence," (p. 20) stating the lack of the self-awareness amongst users as the ultimate hazard. Thus, mindfulness can be an inner technology that helps us to better deal with the challenge of constant connectivity, information overload and rapid change (Consciously Connected: how to stay mindful in the digital age, 2015). In this context, mindfulness is defined as a conscious connection and disconnection with a digital interface. Mindfulness is an ancient eastern philosophy, a technique to acquaint one with their inner-self, communicate with oneself and as a bi-product also known to provide more control over the senses and emotions. Furthermore, it is known to foster the element of emotional intelligence: an ability to recognize, understand and manage emotions as a step toward self and social awareness. Mindfulness as a tool can allow a user to be resilient and embrace oneself in this chaotic engulfment of the digital order. One can

propose practicing mindfulness amidst being immersed with digital distractions, but there is a scientific reason for the brain to not be able to multitask while reflecting upon oneself. In other words, self-awareness and digital distractions cannot co-exist. The functioning of the brain within such a situation has been elaborated in a *New York Times* article called "Smartphones Don't Make Us Dumb" (Daniel Willingham, Jan. 20, 2015):

> Over the last decade, neuroscientists distinguished two systems of attention and associated thought. One is *directed outward*, as when you scroll through your email or play Candy Crush. The other is *directed inward*, as when you daydream, plan what you'll do tomorrow, or reflect on the past. Clearly, most digital activities call for *outwardly directed* attention. These two modes of attention work like a toggle switch; when one is on, the other is off. In fact, when attention is *outwardly directed*, the *inwardly directed* attention system is somewhat suppressed.

This is an integral distinction to comprehend the mental models associated with the various activities one leads. Maintaining a balance between the *inward* and *outward directed* attention is significant for a balanced mental health. In this scenario, the *inward directed* attention refers to the attention focused toward the self, thus pointing towards the practice of mindfulness. Throughout the day, given the amount of time users are wired with the digital interfaces is depictive of these imbalances that call for constant *outward directed* attention. The *Washington Post* article "A noted philosopher's argument for signing off social media … and enjoying 'the brief time' you have left" (Caitlin Dewey, June 4, 2014) outlines a famous tweet by popular culture philosopher and TED Talks speaker Alain de Botton: "Not to be disloyal to the medium but deleting Twitter from at least your phone really improves mental health and inner conversation" (@alaindebotton,

June 2, 2014). It is significant to shed light onto "inner conversations," and the need for disconnection with digital interfaces as a need for connection with the inner-self. Botton explains that the digital interfaces conditions one to not be innately in touch with oneself, stating that "it crowds out contemplation and denies us that precious non-specific time in which one can daydream, unpack one's anxieties and have a conversation with one's deeper self." There have been numerous social groups that have taken measures to proliferate advocacy for the conception of mindfulness as a remedy for moving forward within the digital order. One such program is known as *Digital detox: Disconnect to Reconnect* that advocates mindfulness, claiming, "Our ability to stay balanced in this time of exponential technological growth, and create healthy relationships with our digital devices, will determine the future of humanity (2015)." This restates the adoption of mindfulness techniques as a boon to survive and endure the pervasive digital order.

Another measure that campaigns for mindfulness in the digital order is called the *Sabbath* manifesto, with the aim of slowing down the fast-paced culture through Ten Commandments such as avoiding technology, connecting with loved ones, nature health and more. One of the projects under this manifesto is the *National Day of Unplugging* that is held in the month of March each year for a period of 24 hours - a moratorium. The goal is to gain the awareness of the productive and unproductive time with digital technology that will help rejuvenate the connection with the inner self by consciously reducing unproductivity. Dis-connectivity might initiate temporary anxieties but overcoming those can be a stepping-stone towards mindfulness. Furthermore, it is important to note that the practice of mindfulness is a matter of choice. As Rushkoff (2010) states: "Technologies will be biased if we do not intervene consciously in their

implementation…we are always free to withhold choices," (p. 60), which means it is vital to acknowledge the ability of the users to consciously choose one action over another. According to Rajagopal, "technology is world transforming, but nevertheless transparent to human will" (p. 286). Rajagopal restates the significance of individual accountability, the human will in demarking the limitations of allowing technology to enter one's personal realm. Even though the tools and technologies are habit forming and influence the perspective, it is essential to note that individuals and instruments are independent, detachable entities. Tapscott (2009), the top advocate for the embracement of the digital technology, also believes that handling the digital chaos while practicing "meditation" is more feasible as he states, "when you are standing in a teeming marketplace of ideas, it is challenging to focus. But it can be done (try meditating), and I believe that the benefits of that huge inflow of information far outweigh the challenges." (p. 116). The idea of mindfulness is an integral savior for the digital order and a way to overcome digital distractions. With regards to individual accountability, Kelly (2010) states: "Finally, a true articulation of each particular technology's vices will allow us to see that our embrace of the technium is done willingly, and is neither an addiction nor a spell" (p. 216). This statement is crucial to note that the scrutiny of the digital affordances and its utility for each contingent user would reveal that adoption of technologies is a matter of choice. Thus, it is a matter of "will" to embrace mindfulness as an essential part of the digital order. "Mindfulness" as a critical choice that a user would have to uphold for one's own physical and mental well being. The same way the cultural constructs today considers brushing the teeth and bathing as essential parts of the everyday life - something necessary for a healthy survival - regardless of the views about hygiene

centuries ago. It confirms the claim put forth in *You Are Not a Gadget* that the digital layers being laid down now will affect future generations (Lanier 2010, p. 20). Thus, mindfulness as a habit can co-exist with the usage of the digital technologies and could be ingrained to the same extent as the technologies in our everyday lives.

To be resilient in the digital turmoil, one has to be mindful of choices one makes. If one loses the balance to the *outward directed attention,* it could become habit, and thus cloud and skew the perception. Perceptions are the building blocks of making sense in this chaotic, interconnected life, which eventually establishes to inform human episteme. A *New York Times Magazine* article called "Breathing In vs. Spacing Out" (Dan Hurley, Jan 14, 2014), reasserts this ideation by claiming, "The trick is knowing when mindfulness is called for and when it's not." This is critical in understanding that to survive the digital order chaos, one should segment the time for self-awareness, and for bracing the digitization. It is crucial to note that this stance is not in opposition of the digital order, but an advocacy for modernization in the true sense. In the digital order, finding the best fit requires an ability to differentiate between the times when it is a utility tool and the times when it does not cater to anything worthwhile, and to be able to unplug it on self-discretion.

6. Conclusion

In an attempt to explore emerging questions within humanist ontology, this paper attempts to parse the components that help to understand issues concerning individuals operating in the digital order through commentaries by: Innis (1951), Barthes (1967), McLuhan (1972), Foucault (1977), Gibson (1979), Gay (1997), Hayles (1999), Wark (2004), Rajagopal (2006), Manovich (2006), Shillingsburg (2006), Tapscott (2008), Nielson (2008), Rushkoff (2010), Jenkins (2009), Gee (2004), Kelly (2010), Lanier (2010), Bauerlein (2011), Fitzpatrick (2011), Weel (2011), Murray (2012), Carr (2014), and Lupton (2014).

We are at an obscure moment amidst the transformations within the current techno-cultural landscape from the traditional communication means into the digital order. The digital order is clearly challenging linear modes of comprehension, not only in the ways we communicate but the ways we leverage it for all other aspects of life around us, leading us to change our habits, behaviours, and perception. This obscurity extends to overshadow: our understanding of the impacts of the digital order on our cognition, the cognizance of our relationship to our tools, and to making sense of the digital order.

The perspective of an individual for a product is based on given, derived and re-appropriated meaning of its affordances that is rendered within the window of opportunity during its usage. The conception of the window of opportunity is a period between the developments of a product with its prescribed and established usage once it is deployed to the user. Though freedom and uncertainty are lurking key elements within this period for the derivation of meaning, the perception of users is also operative of this window. The digital order is continually re-routing the circuitry of our brains in ways we

do not yet understand. Thus, in this paper, after a scrutiny of the impacts of digital order on cognition it is imperative to note that the habits formed by the digital technologies certainly transfer their values into its users. Moreover, the adoption of these digital technologies accompanies idiosyncrasies that alter behaviours and thus perceptions. The deliberate constant wired-ness to these digital technologies prompts the difficult question of "what it means to be human" as well as the wavering debate to who is in power: the tools or the human? However, this quest for veracity is tentative, because "there will always be gaps and noises in what we know, and the relationship between the facts we know may change or may depend on where we stand to look at them" (Shillingsburg 2006, p. 198). The potentials and perils of the digital order could not be envisaged prior to its practical manifestation since all the elements cannot be interpreted until it unfolds in true manner. Furthermore, if the digital order is ever evolving and prone to fallacies, it is critical to pronounce that the technologies are biological extensions of human beings. Perhaps, the notion of transhuman is a farce. Being human is what allows technologies to foster, an innate urge to grow and to be a self-sufficient organism. Thus, in this precarious and evolving era it becomes critical to analyze one's subjective relationship to the tools, in order to navigate one's position in the digital era. What can enable a contingent entity to find one's best fit in these oscillating times? How do we leverage tools sensibly, going forward? The answer as suggested by various scholars is through mindfulness, one gets an opportunity to step back and self-reflect upon formed habits to find the best utility of the tools for oneself. Our functioning within the digital order must be mindful of our own actions within this space lest we become delusional for good.

References

Barthes, R. (1967). The Death of the Author.

Borowska, P. (2015, April 7). 6 TYPES OF DIGITAL AFFORDANCE THAT IMPACT YOUR UX. Retrieved July 2, 2015, from http://www.webdesignerdepot.com/2015/04/6-types-of-digital-affordance-that-impact-your-ux/

Bauerlein, M. (2008). *The dumbest generation: How the digital age stupefies young Americans and jeopardizes our future (or, don't trust anyone under 30)*. New York, NY: Jeremy P. Tarcher/Penguin.

Carr, N. (2008, July 1). Is Google Making Us Stupid? *The Atlantic*.

Carr, N. (2011). Is google making us stupid. In M. Bauerlein (Ed.), *The digital divide*. Penguin books.

Carr, N. (2014). *The glass cage automation and us*. New York, N.Y. W.W. Norton & Company.

Consciously Connected: How to stay mindful in the digital age. (n.d.). Retrieved August 20, 2015, from https://generalassemb.ly/education/consciously-connected-how-to-stay-mindful-in-the-digital-age

Certeau, M. (1984). *The practice of everyday life*. Berkeley: University of California Press.

Chawla, C. (2015, July 5). Why Apple Watch And Fitbit Will Not Meet Expectations. *Forbes*.

Cooper, A., Reimann, R., & Cronin, D. (2007). Implementation models and mental models. In *About face 3: The essentials of interaction design* (3rd ed.). Indianapolis, IN: Wiley Pub.

Dewey, C. (2014, June 4). A noted philosopher's argument for signing off social media … and enjoying 'the brief time' you have left. *Washington Post*. Retrieved June 15, 2015, from https://www.washingtonpost.com/news/the-intersect/wp/2014/06/04/a-noted-philosophers-argument-for-signing-off-social-media-and-enjoying-the-brief-time-you-have-left/

Digital detox: Disconnect to Reconnect. (2014). Retrieved June 15, 2015, from http://digitaldetox.org/

Dunne, J. (2011). Key features of Dharmakirti's Apoha Theory. In M. Siderits, T. Tillemans, & A. Chakrabarti (Eds.), *Apoha: Buddhist Nominalism and Human Cognition*. New York: Columbia University Press.

Fitzpatrick, K. (2011). Authorship. In *Planned obsolescence publishing, technology, and the future of the academy*. New York: New York University Press.

Foucault, M. (1977). What is an Author?

Gay, P. (1997). *Doing cultural studies: The story of the Sony Walkman*. London: Sage, in association with The Open University.

Gee, J. (2004). *Situated language and learning: A critique of traditional schooling*. New York: Routledge.

Gibson, J. (1979). *The ecological approach to visual perception*. Boston: Houghton Mifflin.

Harold, C. (2009). Pranking rhetoric. In J. Turow & M. McAllister (Eds.), *The advertising and consumer culture reader*. Routledge.

Hayles, K. (1999). *How we became posthuman: Virtual bodies in cybernetics, literature, and informatics*. Chicago, Ill.: University of Chicago Press.

Hurley, D. (2014, January 14). Breathing In vs. Spacing Out. *The New York Times Magazine*.

Innis, H., & Watson, A. (2008). *The bias of communication* (2nd. ed.). Toronto: University of Toronto Press.

Iyer, P. (2014, August 1). The art of stillness. Retrieved June 1, 2015, from https://www.ted.com/talks/pico_iyer_the_art_of_stillness?language=en

Jenkins, H. (2009). Enabling Participation. In *Confronting the challenges of participatory culture: Media education for the 21st century*. Cambridge, MA: The MIT Press.

Kelly, K. (2010). *What technology wants*. New York: Viking.

Lanier, J. (2010). *You are not a gadget: A manifesto*. New York: Alfred A. Knopf.

Lupton, E. (2014). *Beautiful users: Designing for people* (p. 142). Princeton Architectural Press.

Manovich, L. (2001). *The Language of new media*. Cambridge: MIT Press.

McLuhan, E. and Zingrone, F. (eds) (1995). *Essential McLuhan.* New York: BasicBooks.

McLuhan, M., & Nevitt, B. (1972). *Take today; the executive as dropout*. New York: Harcourt Brace Jovanovich.

Murray, J. (2012). *Inventing the medium: Principles of interaction design as a cultural practice*. Cambridge, Mass.: MIT Press.

Norman, D. (2013). *The design of everyday things* (Revised and expanded ed.). London: MIT Press.

Rajagopal, A. (2006). Imperceptible Perceptions in our Technological Modernity. In W. Chun & T. Keenan (Eds.), *New media, old media: A history and theory reader* (pp. 277-286). New York: Routledge.

Rogaway, P. (Ed.). (2007, March 1). Marshall McLuhan Intervew from Playboy, 1969. Retrieved July 1, 2015, from http://web.cs.ucdavis.edu/~rogaway/classes/188/spring07/mcluhan.pdf

Rushkoff, D. (2011). *Program or be programmed: Ten commands for a digital age*. Berkeley, Calif.: Soft Skull Press.

Schor, J., & Holt, D. (Eds.). (2000). *The consumer society reader*. New York, NY: New Press.

Shillingsburg, P. (2006). *From Gutenberg to Google: Electronic representations of literary texts*. Cambridge, UK: Cambridge University Press.

Skeuomorph. (n.d.). Retrieved June 15, 2015, from https://en.wikipedia.org/wiki/Skeuomorph

Tapscott, D. (2009). *Grown up digital: How the net generation is changing your world*. New York: McGraw-Hill.

Tapscott, D., & Williams, A. (2006). *Wikinomics: How mass collaboration changes everything*. New York: Portfolio.

Toffler, A. (1980). *The third wave*. New York: Morrow.

Wark, M. (2004). *A hacker manifesto*. Cambridge, MA: Harvard University Press.

Weel, A. (2011). *Changing our textual minds: Towards a digital order of knowledge*. Manchester: Manchester Univ. Press.

Williams, R. (1976). *Keywords: A vocabulary of culture and society*. London: Fontana.

Willingham, D. (2015). Smartphones Don't Make Us Dumb. *The New York Times*.

Wolf, M. (2007, September 5). Learning to think in a digital world. *The Boston Globe*. Retrieved June 15, 2015, from http://www.highbeam.com/doc/1P2-8722623.html?