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MULTITASKING OR CONTINUOUS PARTIAL ATTENTION: A CRITICAL BOTTLENECK FOR DIGITAL NATIVES

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Abstract

With the beginning of the second half of the past century, advances in Information and Communication Technologies had unprecedented influence deeply felt in all social structures. The effects were so much widespread that the differences in technology use have created a huge gap between generations in terms of everyday life and lifestyle. As a result, two groups occurred; those growing with technology digital natives and digital immigrants who try to keep pace with technology. Today, the computer, internet and mobile technologies like e-book readers, mobile phones, android devices, smart phones and tablet computers have become all-day business and communication tools used by digital natives. However, these high-tech tools, with their speed and ease of use, revealed some important issues that deeply affect digital natives' way of life. Among these most important effects are Continuous Partial Attention and Multitasking. In this study, these two conditions faced by digital natives were compared, and some suggestions have been put forward for the digital native learners.

Keywords: **Media revolution, continuous partial attention, multitasking, digital natives, immigrants.**

INTRODUCTION

In the second half of the last century, the Information and Communication Technologies progressed unprecedentedly and influenced all social structures so much deeply that the impact has created a gap in between the life styles of generations and their view of life. Thus, two groups occurred: the digital natives growing with technology and the digital immigrants struggling to keep up with this technology (Prensky, 2001a). Digital natives, who live in the high-tech circles and are constantly connected, online, and willing to access information fast and easily, are referred to by different authors as "Net Generation" (Zheng, 2012); "Digital Generation" (Sanchez, Salinas, Contreras and Meyer, 2010) and "Millennials" (Taylor and Keeter, 2010).

Today, learners can access information from anywhere at any time from any source and share this information with others from any part of the world. More students than ever before are part of the latest generation of which the Internet, simulation and games are an essential part (Gottliebsen, 2007). These learners demand more from their educational experiences than flat pages of content, un-interactive videos and text based communication software (Byl and Taylor, 2007).

In this period, called information age for the digital native learners, there are a lot more opportunities than ever before. According to the results of ICT Usage Survey in Households and Individuals carried out in April, 2012, 47,2 per cent of households have access to the Internet at home and the highest proportion of computer and Internet usage was at 16-24 age groups. (TurkStat, 2012).

Digital natives prefer sprite graphics to texts while reading a text, and they also
prefer to progress by randomly jumping from one place to another in modules rather than linear progression (Prensky, 2001b; Tapscott, 2009). Moreover, as the digital natives are so engaged with technology, their learning approach has suffered some radical changes. As highlighted by Bayn and Ross (2007), the most prominent differences are related to access speed, instant pleasure, impatience in linear thinking and

multitasking or continuous partial attention. Some critical features of digital natives and digital immigrants given in Figure 1 below.

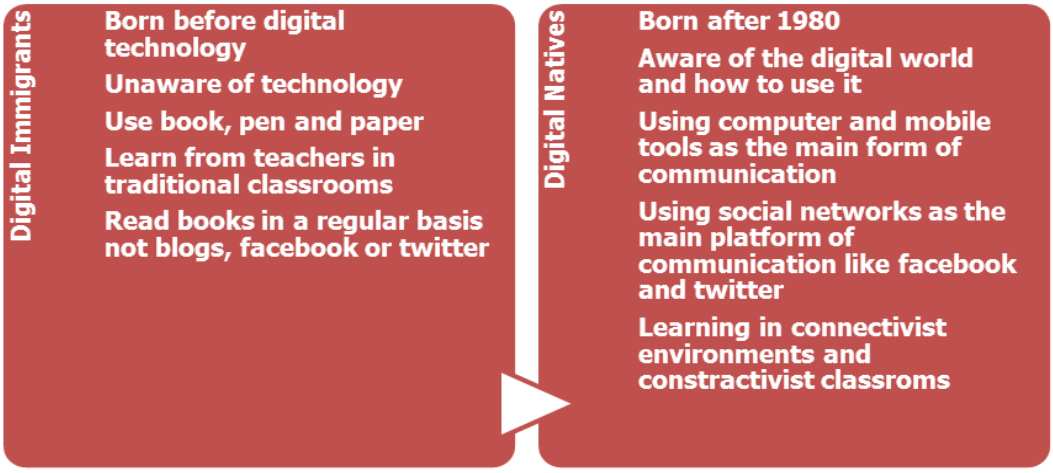

Figure 1. Some critical features of digital natives and digital immigrants

As shown in Figure 1, the digital natives include children and youths that started their life in high-tech facilities and in an environment where online media, mobile phones, video games, digital cameras and music players are in the center of the everyday life (Prensky, 2001b). In this Interruption Age, there is plenty of information that digital natives faced every day, but in the same time the attention itself has become a correspondingly scarce resource. To Carr (2008) "What the Net seems to be doing is chipping away my capacity for concentration and contemplation" (p. 57). A number of other recent studies like books and articles highlight a similar concern: the technology that was once associated with intelligence, and a widespread optimism about its power to liberate the human mind, is increasingly portrayed as diminishing our capacity to pay attention, to stop and think (Rose, 2011).

New Spaces, New Problems

As a consequence of intensive usage of technology in everyday life, the techno-culture emerged. In this culture, the presence of the physical and digital world can overlap each other and creates a new space called "hybrid space". Hybrid space occurs when one no longer needs to go out of the physical space to get in touch with digital environments (De Souza, 2006). To Darmawan (2009), hybrid space is where the boundaries are blurred and where it is hard for people to determine the distinction between physical and virtual spaces. An example of hybrid space example from a 3D virtual word given in Figure 2 below.

Figure 2. A hybrid Space example from 3D Virtual word

Nowadays kids born in surrounding technology and grow with interacting these technologies. In fact, the use of the most advanced information and communication technologies has decreased to the level of primary education. This situation is summarized in Figure 3 below.

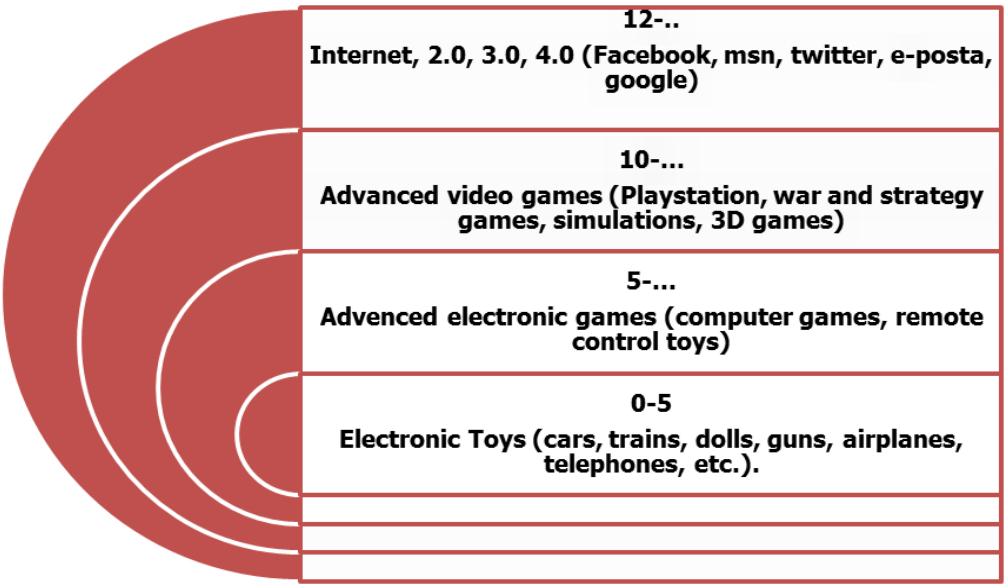

Figure 3. Early interaction with technology

Now, the computer, internet and mobile telephone have become tools that digital natives use in daily communications. The speed and use of provided by these advanced technologies resulted in a new way of life style for the digital natives. People are hyper alert with the pace 24/7, anywhere, anytime, anyplace struggling with their workload asking their brains to attend to conversations, a partially completed paper, a news website, a text message coming in on the cell phone and a conversation with the person sitting next to them using CPA as their primary attention strategy (Stone, 2007). At this point, two cases that were on the agenda of the last period and often confused with each other come into prominence. These are multitasking and continuous partial attention.

Conceptualizations

Even though multitasking is not a concept that emerged with the digital natives, it is a phenomenon that is often encountered in real life with the features of this generation and has become widespread with the digital native learning. According to Lippincott (2006), it is now very common for students who are preparing their projects on the computer and who, at the same time, go on checking their e-mails and instant messages and chatting on facebook and concurrently join in conservation with friends next to them. For this reason, the concept of multitasking allows fulfilling two or more tasks simultaneously such as making a phone call or checking e-mails while doing homework at the same time (Appelbaum, Marchionni and Fernandez, 2008). When the situation of multitasking is examined in detail, it is seen that not only the ability to take the control and to focus one's attention and but also the need for what to pay attention to and how much attention to pay is important (Rosen, 2008).

Continuous Partial Attention (CPA), one of these concepts that is relatively new and open to research, has occupied the present-day agenda of cognitive psychology, communication and education. This concept, raised in 1998 by Linda Stone who was a former manager of Apple Microsoft, is regarded as one of the major influences that today's information technology has created on individuals. Stone refers to this concept as the situation in which the individual does not focus on one thing in reality while he or she is engaged in and follows everything. Linda Stone to describe minds always alert to the possibility of incoming email or instant messages:

"I'm wasting more time not reading than reading, you know, with e-mail and talking to other people. If it was a book I would read more than if it was online because there are more distractions, easier ways to, oh, I'm just going to check this, and totally forget that you're reading, and then an hour or two goes by and you're like, I guess I should go back."

According to Friedman (2001), continuous partial attention can be explained with the condition an individual is in: while the phone is ringing, the individual tries to talk to his or her children and chat at the same time. In this case, because the individual is under an interaction bombing, he/she can only focus on each of these interactions, partially. To Rose, (2010) the phenomenon of continuous partial attention rise on endless fascinating distractions that disrupt attention.

THE BOTTLENECK: MULTITASKING OR CONTINUOUS PARTIAL ATTENTION

Multitasking and continuous partial attention have been discussed in related literature since 2005. While frequently confusing and comparing these two concepts as discussed in studies, the differences between the concepts are emphasized. Stone (2005) describes continuous partial attention as a "post multi-tasking" behavior. To this description while multitasking can be defined as doing several things at once in order to increase one's productivity, continuous partial attention entails a constant fragmented attention to multiple online information and communications channels that is motivated not by productivity but by an insatiable desire for connectedness.

According to Stone (2007), continuous partial attention and multitasking are two different attention strategies in that the former refers to the desire to miss nothing and the latter to the desire to be more successful and effective. In other words, continuous partial attention refers to an individual's status of constant connection and readiness and willingness to hear the recent news, meet someone new or join a new activity. Similarly, according to Kirsner (2005), Continuous Partial Attention means being in front of the computer and giving an order on a mobile phone while following an ongoing conference. This is something similar to being aware of many things at the same time: drawing our attention to more urgent alerts like a new e-mail notification or the bell of a ringing phone.

Discussion in Literature

In order to emphasize the difference between continuous partial attention and multitasking, Small and Vorgan (2008b) stated that we are in an effort to capture a chance of connection at any time when our mind is stimulated - while we are making effort to improve productivity and effectiveness of multitasking and while our mind has a purpose for each task - and when this becomes constant. This means being constantly in a partial connection with everything at anytime and anywhere via continuous partial attention.

To Pence (2010) unlike multitasking, where an individual intentionally sets out to do several tasks more or less simultaneously, continuous partial attention represents the inability of an individual to give complete attention because he or she is continually shifting focus. According to Small and Vorgan (2008a), when Continuous Partial Attention is preserved, the perceived control and the eigenvalue feelings are doomed to collapse at some point because our brain, in the long term, is not shaped to follow such observation. However, multitasking behavior should be understood within the context of its own formation as a variable developed depending on at least partly new
information-rich environments.

Rose (2010a) in her study investigate the effects of Continuous Partial Attention on learners who were taking courses in which some or all of the instruction took place in online learning management systems like WebCT and Blackboard, Drupal, Joomla. A survey completed by 137 students from a range of disciplines and in-depth interviews

with ten students confirmed that maintaining attention is an issue in online learning. most interesting and unexpected finding from this research was that these students are in the process of redefining attention and focus, such that even those who admitted to breaking away often from online learning activities, sometimes for five minutes or more each time, described themselves as "very focused."

As can be understood from limited research in related literature, continuous partial attention is considered a focusing problem which has been caused by today's information and communication technologies and which could influence almost every phase of daily lives of individuals. On the other hand, there is no research merely conducted on continuous partial attention in related literature. This situation was supported by Appelbaum, Marchionni and Fernandez (2008) who reported that "there is no study on continuous partial attention published in a refereed journal (p. 1318). In this respect, the present study is thought to contribute to the related literature as the first step to fill the gap.

Determination of Differences

Continuous partial attention and multitasking, also known as dual tasking in related literature, have emerged as one concept. The concept of multitasking implies the fulfillment of two or more tasks simultaneously. However, continuous partial attention is a concept that expresses the state of being in communication and interaction with everything but truly staying focus on nothing. In this matter, Table 1 clearly demonstrates the differences between continuous partial attention and multitasking features.

Table 1. Differences between continuous partial attention and multitasking

	Continuous Partial Attention	Multitasking
Definition	Monitoring and being engaged with everything but staying focus on nothing.	Fulfillment of two or more tasks simultaneously.
Purpose	Being constantly in a partial connection with everything at anytime and anywhere.	The effort to improve the effectiveness and productivity.
Source	A variable developing in an environment rich in information	A variable developing in an environment rich in information
Result	High stress level, constantly living in crisis, artificial sincerity.	Rapid and more efficient production, occurrence of interaction.

As can be seen in Table 1, continuous partial attention differs from multitasking in four ways. These differences are related to definition, purpose, source and result of these two situations. Based on the information given in Table 1, the factors that put an individual in multitasking are listed below. While carrying out more than one task, the factors that show how close the individual is to multitasking could be said to be as follows;

1. Having the tasks checked,
2. Facilitating focusing,
3. Achieving productivity,
4. Achieving effectiveness and
5. Aiming at developing creativity.

CONCLUSIONS AND SUGGESTIONS

The radical transformation which occurred towards the audio, video, and animation-based digital media from the text–based pen-and-paper used as communication tools, that is the media revolution, has created a profound impact on the life styles of individuals. This impact has caused an invisible gap between generations. This generation, which adheres strictly to the digital world, has such facilities and advantages as multitasking; however, they face certain negative situations such as

continuous partial attention. Multitasking and continuous partial attention have developed as parallel to each other, but essentially, it is possible to describe them as two opposite situations as given in Figure 4 below.

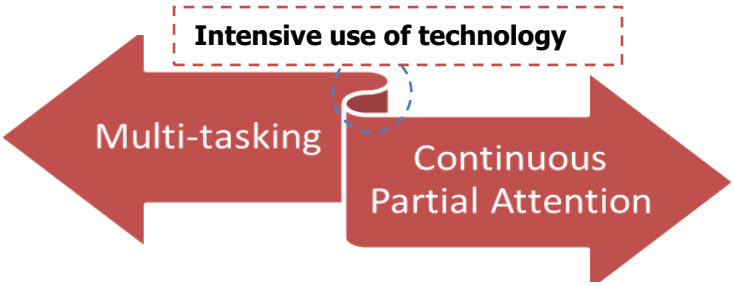

Figure 4. Multitasking or Continuous partial attention

Continuous partial attention forms a high level of stress in the human brain (Small & Vorgan 2008a). Therefore, individuals, addicted to the internet, have no time to react, focus on anything or decide thoughtfully; rather, they live in a permanent crisis and in anticipation of a new friend or of a new yet insincere message. This situation may become irresistible after a while. Therefore, digital natives should enhance their multitasking experiences instead of continuous partial attention regarding technology use by developing their self-control and self-regulation skills under the influence of cognitive overload. In this respect, some suggestions to be put forward for digital native learners could be listed as follows:

- ✓ **With effective management of time, deciding on when to use technological tools; in the other words, improving the abilities to turn off the computer or put down the telephone with their own selection and control (time management and control provide multitasking),**
- ✓ **Regarding the technology as a tool to be used for a purpose (using technology for effectiveness and productivity) and,**
- ✓ **For the assessment of leisure time, performing such activities as sports for action.**

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