The process of adapting to mobile tablet devices by switching between productive and distractive multitasking

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Abstract

This study explores how new users of mobile tablet devices experience and learn to adapt to the distraction they encounter due to the ubiquitous nature of the devices. After giving young adults mobile tablet devices, their uses of tablet devices were tracked for one year. A mixed method of online surveys and netnography was conducted on 35 participants in Australia. Participants were faced with continuous connectivity where they had to deal with multiple tasks. The tablet was perceived to be both an efficient tool that maximizes the use of time and a playful device that is distracting. This apparent dichotomy of productivity and distraction was well received by the participants, who did not think of the two as mutually exclusive. Participants negotiated their time and attention they gave to their devices switching from productive and distractive multitasking. Self-regulation strategies were adopted when they encountered distraction. Preventive and pre-emptive uses of the distractive activities were the main methods of dealing with the situation.

Keywords

iPads; mobile tablet devices; multitasking; young people; self-regulation;

Introduction

Users of new digital devices acquire skills and knowledge about the device over time, mostly by trial and error or self-learning. However, acquiring technical skills to use the technology efficiently does not always coincide with the social uses. Mobile tablet devices are personal digital devices that are used in both private and public spaces. Users are presented with continuous choices about how and where they should use the device. When situated in a particular context, users must make the choices about whether to apply existing norms or to apply new rules of usage. This paper discusses how such portability and ubiquity of mobile tablet devices can lead to both distractive and productive multitasking. The focus is on how the tension is resolved and negotiated during the process of adapting to a new digital device.

Is multitasking a positive or negative experience?

Mulitasking, in the context of digital media, usually describes the phenomena of divided attention between simultaneous activities or rapid switching between two more tasks. There are two distinct areas in the literature – media multitasking and multitasking in the context of learning – where it is regarded as a negative experience. Scholars in the advertising field have identified the negative impact of multitasking; interference with the main commercial message (Jeong & Fishbein, 2007; Petty & Cacioppo, 1986; Voorveld, 2011), quality of the information processed (Robertson, 2000), less favorable responses to messages (Bolls & Muehling, 2007) and reduced recall rates and retaining of messages (Petty & Cacioppo, 1986; Voorveld, 2011). Similarly in education, studies conclude that unless there are some activities built into the technology use, it is usually more of a distraction than a learning tool (Fried, 2008; Junco & Cotton, 2011; Kraushaar & Novak, 2010;Wainer et al., 2008; Wood, et al, 2012; Wurst, Smarkola, & Gaffney, 2008). Distraction during learning is a pedagogical challenge. Studies reveal how distracting digital devices can be in the classroom (Bowmen, et al, 2010; Fried, 2008; Junco & Cotton, 2011, 2012; Wainer, et al, 2008; Wood, Zivcakova, Gentile, Archer, De Pasquale & Nosko, 2012) and at home (Beentjes, et al, 1996). It can also reduce the students' satisfaction of the learning experience (Wurst, et al, 2008). Theoretical reasoning is that a person's cognitive capacity is limited, resulting in a cognitive bottleneck (Borst, Taatgen & van Rijn,

2010; Meyer et al, 1995; Smith & Kosslyn, 2007). People may engage in 'continuous partial attention' where they process multiple streams of information without fully committing to one activity (Jones, 2005). Or if one alternates quickly from one task to another, the quality of attention might not be compromised but it is inefficient because the switching delays the whole process (Butler, Arrington & Weywadt, 2011; Posner, 1990; Rubinstein, Meyer & Evans, 2001).

On the other hand, there is empirical evidence of the potential benefits of multitasking (Meyer et al, 1995). Multitasking affects the type of learning that involves a different area of the brain in contrast to the information acquisition process (Meyer, Knowlton, & Poldrack, 2006). Lauber et al. (1994) found that training can improve multi-tasking skills. Information processing is 'massively parallel' and distributed throughout components of interconnected neural networks (Anderson and Hinton, 1981; Rumelhart and McClelland, 1986). Some suggest multitasking can be trained or learned in conducting certain tasks resulting in a long term positive impact (Carrier, et al, 2000; Saunders et al 2003).

Methodology

The data analyzed in this study is drawn from a larger longitudinal study of young adults in Australia conducted between August 2011 and August 2012. A mixed method approach, combining netnography and online surveys, was used to assess how new users learn to use and adapt to mobile tablet devices. This study reports particularly from the findings of the netnography, which is an online observation technique that combines discussion forums, postings and asking questions (Kozinets, 2010). Based on the population's gender, age composition and only those who did not already own a tablet device, 35 students first and second year undergraduate students were selected at an Australian university. 43% were male and the average age was 19.9. The model they were given was iPad II with WiFi and 3G access. All names used in this study are pseudonyms. Prior to the study, appropriate ethics clearance was sought and approved by the National Health and Research Council through their National Ethics Application Form (NEAF).

Dual standards of distractive and productive multitasking

Multitasking behavior is not new to the digital era. In modernity, time is the basic unit of measurement for value. Productivity is regarded as what reduces time of a certain process. According to Southerton and Tomlinson (2005), 'time squeeze' is a general characteristic of contemporary suburban households and that multiple experiences of time is one of the social practices. As anticipated, media multitasking was prevalent among the study participants. Over the course of one year, the volume of media multitasking did not increase significantly but the non-media multitasking activities while using their tablets did increase.

Participants perceived of their iPad as both an efficient tool that maximizes their use of time and also a playful device that distracts them from serious tasks. This apparent dichotomy of productive and distractive multitasking was both well accepted by the users and they did not think of the two aspects as mutually exclusive. Certain activities were regarded as complementary to the main tasks, some were perceived of as adding value and some were experienced as distraction. One of the sources of distraction was their perpetual existence in the online world (see Table 1).

Table 1: Examples of complementary, productive and distractive multitasking

Type	Examples/Excerpts
Complementary multitasking	· Using the iPad for translation while engaged in conversation (Heather) · Tweeting (Aiden), acquiring additional information (Mia, Elizabeth), voting (Rita) while watching TV
Productive multitasking	· browsing for non-TV related information (Jacob), co-view with a remote friend (Donald) while watching TV

	· parallel conversations on multiple devices (Patrick)
Distractive multitasking	· distraction from studies (Diana) · straying off to non-relevant information (Jacob) · push applications as source of distraction (Rene)
Constant online presence	· "tone out to apps" (Noah). · "constantly refreshes Facebook and Twitter" (Adrian) · "habit of keeping Facebook open on my iPad..to look at the flow of information coming in…while at the same time studying" (Aiden).

Negotiating the balance between distraction and productivity

After one year of use, 20.6% of the participants thought that even though the iPad had some features that help in studying the overall impact was distraction. 73.5% said that although it is a distraction at times it has helped them to study more efficiently. 5.9% thought it helped without any distraction. The overall experience was positive and the mobile devices gave users a sense of control.

Throughout the year they explored, experimented and negotiated with themselves to find an optimal solution. They came up with their own set of rules to increase productivity while trying to keep their distraction level to a minimum. Most of them adopted preventive strategies where they can avoid the temptation all together. Some of them exerted pre-emptive methods where they would pre-schedule distractive activities so that they wouldn't interfere with the main task. Time management and excursion of self control were both essential to implementing this strategy (see Table 2).

Self-regulation is a process that guides an individual through a goal-oriented task over time when circumstances are changeable. This usually occurs when a routine is disrupted (Karoly, 1993). The method of self-regulation, however, was not always effective. Bandura (2001) emphasizes intentionality and goal-directed behaviour as elements of successful self-regulation.

Table 4: Examples of self-regulation strategies

Type	Examples/Excerpts

Preventive self-regulation	· Ban physical access to the device;
	  · "leaving the iPad behind" (Diana)
	  · "not using it in lectures" (Kathryn)
	  · "banishing the iPad to the lounge room" (Jean)
	  · "simply not leaving it on the desk when studying" (Jean)
	· Customizing;
	  · Delete distracting apps during exams and re-install them afterwards (Anna).
	  · Closing apps that are not relevant to the main task (Andres, Elizabeth).
	  · Turning the volume down to ignore push notifications (Donald)
	  · Turning the volume up not to play games in public (Brian)

Pre-emptive self-regulation	· Pre-schedule the distraction;
	  · "set breaks for 10-15 minutes and will play on my iPad in those breaks only"(Evelyn).
	· Self modulation;
	  · "distracting activities first and then focus on studies" (Heather)

Ongoing negotiation	· The ongoing process of negotiation · "Requires a lot of self-control" (Rita) · "Must be strong" (Chloe). · "If it is going to happen it usually does" (Mason) · "No matter what I do, I always find myself on Facebook" (Noah) · "Deleting all of my distracting apps but finding myself pulling out my phone with the same apps" (Dylan)

Discussion

This study examined how young people learn to manage and engage with digital devices by observing their uses of tablet devices over a period of one year. The concept of self-regulation emerged from the process of dealing with different types of multitasking. Even though they had experienced multitasking to some extent prior to the study, they encountered a new situation where they were habitually engaged in multitasking when they needed to focus on one task. Most of them devised a coping strategy, the main methods being preventive and pre-emptive self regulation.

Due to the portability, participants were able to carry the devices everywhere. However, the visibility compared to mobile phones compelled them to learn and negotiate the uses in public spaces. Thus participants experimented, negotiated and learned to use the device in different contexts, accordingly.

> *The iPad, over the last six months, has first and foremost bridged a divide I didn't really know existed. I've found myself writing, editing, watching and social networking at times and in places which I never would've considered before. It's mostly positive, but it does raise the question: Are we too reliant upon or too attached to technology?(Henry).*

The strength of this study lies in the fact that participants were observed from the beginning and until they were sufficiently exposed to a new device. After a certain novelty period, they were able to reflect upon their uses and stabilize what they thought be to optimal.

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