Multiple Dimensions of Multitasking Phenomenon

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ABSTRACT

Multitasking is defined as conducting two or more tasks simultaneously or switching quickly between two or more tasks. While multitasking is not a new concept, it has caught more attention in recent years. Whether one sees it as an illusion, a fad, a new phenomenon, or an evolving human capacity, it is important to establish a baseline of what activities are involved in multitasking for scholarly inquiries and discoveries. This paper examines the multitasking phenomenon through personal stories of 43 undergraduate students (age 21-29) and 30 children (age 6-11). The stories revealed a wide range of perceptions and experiences of multitasking, from walking while breathing, to doing homework while watching TV and surfing online, to texting while driving, and to performing complex professional skills. This vast range of experiences may have contributed to the varied views and debates on human beings’ capabilities of multitasking to date. The purpose of this paper, therefore, is to bring to light the multiple dimensions of multitasking as it relates to attention, ability, expertise, technology, and environment. This endeavor serves as a foundation for further studies on human’s capacity for multitasking.

Keywords: Dual Task, Environment, Expertise, Human-Computer Interaction, Media Multitasking, Qualitative, Switching

INTRODUCTION

Human multitasking, or multitasking, is a human behavior that allows people to handle dual tasks simultaneously or alternate multiple task switches (Baddeley, 1996; Gopher, Armony, & Greenspan, 2000; Lee & Taatgen, 2002; Meyer & Kieras, 1997; Roger & Monsell, 1995). Multitasking has been around for as long as humans have had competing needs, for instance, doing housework while watching a baby.

Hall (1959) introduced the concept of polychronicity based on how cultures perceived time. According to Hall, people who live in monochronic cultures view time as a linear concept and prefer to complete one task at a time. In contrast, people who live in polychronic cultures view time as cyclical and prefer to engage in more than one task simultaneously. Bluedorn (2001) defines polychronicity as the “extent to which people prefer to engage in two or more tasks or events simultaneously and believe that their preference is the correct way to do things” (p. 119). Much has changed since Hall’s work on cultural perception of time and task. The Internet, with its non-linear hyperlinks and sophisticated graphic features, has changed our habits of reading, searching, and obtaining information. Often, we are tempted to follow the hyperlinks and surf information from one
page to another, rather than completing the information on a single webpage (Zumback, 2006). Switching between various web pages and program screens on the computer is just one example of a multitasking behavior.

Younger generations who have grown up with the convenience and trappings of technologies are surrounded by portable media (Oblinger & Oblinger, 2005; Foehr, 2006; Roberts & Foehr, 2008). Such media provide constant connectivity to friends, schools, and families. As a result of the hyper-connectivity, younger users are layering media in between activities or on top of other activities (Gardner, 2008). Several studies completed by the Kaiser Family Foundation (Foehr, 2006; Roberts & Foehr, 2008; Rideout, Foehr, & Roberts, 2010) reported that children and teens spend an increasing amount of time multitasking and they manage to pack increasing amounts of media content into the same amount of time each day, for instance, surfing online while watching TV. Nearly one-third of the 8 to 18-year-old respondents indicated that they either talk on the phone, instant message, watch TV, listen to music, or surf the Web for fun most of the time that they are doing their homework (Foehr, 2006; Roberts & Foehr, 2008). The most recent report showed that 8-18 year olds in the U.S. spend 7.38 hours on media daily and that these young people packed a total of 10.45 hours’ worth of content media into 7.38 hours of media use (Rideout, Foehr, and Roberts, 2010).

Research, however, has been ambiguous about people’s capabilities towards multitasking, especially as they relate to the effectiveness of multitasking on memory and learning. Numerous research from cognition, psychology, information science and neuroscience indicated that our ability to engage in simultaneous tasks is rather limited (Broadbent, 1958; Fisch, 2000; Lang, 2001). Research shows that multitasking over different types of tasks reduces productivity (Just et al, 2001; Rubenstein, Meyer & Evans, 2001), and that our ability to perform concurrent mental operations is limited by the capacity of the brain’s central mechanism (Schweickert & Boggs, 1984). Wickens’ Multiple Resource Theory Model (1984) proposed that humans have limited capability in processing information, although several different pools of resources rather than one single source can be tapped. This is because cognitive resources are limited and a supply and demand problem may occur when an individual performs two or more tasks that require the same resource. Scholars believe that switching between tasks wastes precious time because the brain is compelled to restart and refocus (Meyer & Kieras, 1997). According to Meyer and Kieras (1997), each time one has this alternation, there is a period in which one will make no progress on either task. The result is that it takes longer to finish any one chore, and that one doesn’t do it nearly as well as one would, if one had given it one’s full attention. Johnson (2006) describes one kind of multitasking, “It usually involves skimming the surface of the incoming data, picking out the relevant details, and moving on to the next stream. You’re paying attention, but only partially. That lets you cast a wider net, but it also runs the risk of keeping you from really studying the fish” (p. 61). Jackson (2008) warned that attention, the key to recapturing our ability to connect, reflect, and relax, is missing in our new world.

MULTITASKING AND TECHNOLOGY IN DAILY LIVES

Many new media researchers, however, hold that the skills promoted by the convergence of new media, including creativity, peer-to-peer learning and multitasking are becoming necessary for success in today’s world. Prensky (2001) claims that the younger generations or digital natives, growing up with new media and technologies, are operating at faster-than-normal speeds, are comfortable and capable of parallel rather than sequential or linear access to information, are operating at faster-than-normal speeds, are comfortable and capable of parallel rather than sequential or linear access to information, are capable of accessing information randomly, and are capable of multitasking. Zimmerman (2007) presents the concept of “metatasking,” a focused multitasking behavior. According to Zimmerman, metatasking involves simultaneo-
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