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Effects of media multi-tasking with *Facebook* on the enjoyment and encoding of TV episodes

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ABSTRACT

The study examined the consequences of media multi-tasking involving *Facebook* and TV sitcoms. Experiment 1 had participants watch TV episodes of their choosing while interacting with *Facebook*, or on their own, and assessed their enjoyment of the episodes, their overall mood, as well as memory for the episodes. It also examined how these variables were affected by the participants' prior media multi-tasking experience. Experiment 2 manipulated the degree to which participants had to interact with *Facebook* while watching TV episodes. We found that participants enjoyed the episodes more under single task conditions than under dual task conditions, and they recalled more details of the episodes under single task conditions. Moreover, the participants who had to engage in more interactions with *Facebook* had less enjoyment and worse memory than those with less *Facebook* interactions. Finally, those participants that reported frequently engaging in media multi-tasking outside of the experiment benefitted the most from watching the TV episodes under single task conditions.

1. Introduction

People primarily consume media such as movies and television because they expect enjoyment from doing so (Bryant & Miron, 2002; Sherry, 2004). These allow people to escape into a fantasy world of interesting characters and situations where they can temporarily forget day to day concerns. As with much of modern life, people are introducing distractions into these experiences by media multi-tasking – engaging more than one medium at a time. This has become ubiquitous as more people have smart phones and laptop computers that can readily access sites such as *Facebook*, *Twitter* and *Instagram* while doing other tasks (Junco, 2015; Ralph, Thomson, Cheyne, & Smilek, 2014; Rideout, Foehr, & Roberts, 2010). Indeed, Rideout et al. (2010) reported that youth aged 8–18 years spend on average 29% of the time media multi-tasking, a figure that increased considerably from 16% ten years before. It is therefore not surprising that media multi-tasking has become a burgeoning area of investigation (Carrier, Rosen, Cheever, & Lim, 2015). Many studies have focused on its effects on academic achievement (e.g., Kirschner & Karpinski, 2010; Wood et al., 2012). Little research, however, has examined its effects on processing of entertainment media. Although some work has been done on the reception and evaluation of information in advertisements (e.g., Chinchanachokchai, Duff, & Sar, 2015), it has not examined consequences of media multi-tasking on the evaluation of shows themselves. As a result, the present study examines the effects of multi-tasking with social media for the enjoyment and encoding of TV episodes.

1.1. Theoretical background

1.1.1. Media multi-tasking and academic performance

Due to the ubiquity of media multi-tasking and its potentially negative effects, researchers have begun to develop metrics for assessing it, as well as conducting studies examining its consequences for cognition and behavior (Ophir, Nass, & Wagner, 2009; Ralph et al., 2014). Much of this has been done to dispel the myth that children and adolescents growing up with an abundance of media technology have superior abilities to fluidly switch from one task to another, with no negative effects on performance (Beastall, 2008; Veen & Vrakking, 2006). For example, although *Facebook* can be used to enrich and support educational activities (e.g., Manca & Ranieri, 2013), research shows that interacting with *Facebook* is often detrimental to academic performance, especially among students who are learning to balance their social and academic responsibilities (Junco, 2015; Wood et al., 2012).

Wood et al. (2012), for example, assigned students to conditions where they had to use *Facebook*, text message, Instant Message

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(IM), use email or partake in a control condition where they took notes using paper and pencil while watching a lecture. They found that only those using *Facebook* performed worse than the control group in a test of the material included in the lecture. In an effort to assess college students' actual media multi-tasking while engaged in school work, Junco (2012) asked participants to state whether, and how frequently, they engaged in various activities during class, ones that included *Facebook*, email, IM, texting, answering calls, and searching the internet for information unrelated to school work. Junco (2012) found that 29% reported using *Facebook* in class at least some of the time. He also found that after controlling for demographic variables and high school GPA, using *Facebook* during class was negatively correlated with college GPA. More recently, Junco (2015) found that likelihood of using *Facebook* while doing schoolwork decreased with academic standing, freshmen being more likely to do so than seniors. Multi-tasking with *Facebook* was also only negatively related to school performance for sophomores and juniors, not seniors.

1.1.2. Media multi-tasking in entertainment

People often engage in media multi-tasking, however, not just when they are working or studying, but also when they are seeking entertainment. When attending a movie theater, for instance, it is common to see people on *Facebook* or texting, despite announcements telling them to turn off their phones so that the movie can be enjoyed fully. This is also the case with TV viewing. A Nielsen report from 2009, for example, found that 57% report using TV and internet simultaneously, with 28% of the time spent on the internet also being spent with the TV on. What effects does media multi-tasking have in this context? Does media multi-tasking increase or decrease people's enjoyment of what they are watching? Does it negatively affect how much they encode and retain of the content? According to Transportation Theory, TV shows and other media portraying narratives are enjoyable and persuasive when people allow themselves to be immersed (Green & Brock, 2000). By doing so viewers are "transported" into the world of the characters, actions and events described in the story. This mental transportation is "a convergent process, where all mental systems and capacities become focused on events occurring in the narrative" (Green & Brock, 2000, p. 701). In this view, enjoyment of TV programs therefore requires concentration and focused attention, as distractions pull viewers away from the fictional world.

1.1.2.1. Multi-tasking and the reception of ads. Although it is reasonable to assume multi-tasking undermines enjoyment and encoding of entertainment media, little research has examined the issue. Most work that has been done has been on advertisements. This is because viewers generally regard commercials as undesirable intrusions that motivate them to shift to other media, leading to concerns about what people actually get from the ads (Monahan, 2011; Nelson, Meyvis, & Galak, 2009). Shapiro and Krishnan (2001), for example, had people process visual ads while attentively listening to a story on the radio (dual task) or ignoring the story on the radio (single task). They found that participants were less able to explicitly recall the names of the products under dual task conditions, though their implicit memory was unaffected by the manipulation. More recently, Chinchanachokchai et al. (2015) examined the consequences of media multi-tasking on the evaluation of ads. They had participants watch commercials on their own, or while performing additional tasks that included typing which of two letters appeared on a screen, and pressing the "." key whenever a circle appeared on a screen. They found that multi-tasking actually yielded higher evaluations of the ads as well as greater overall enjoyment. Moreover, they discovered that the effects of multi-tasking were mediated by perceptions of how quickly time went by. Likewise, Voorfeld (2011), and Yoon, Choi, and Song (2011) found that multi-tasking led to higher evaluations of ads, and they aver that this is due to multi-tasking impeding the ability to critique the content of the ads.

1.1.2.2. Multi-tasking and the reception of TV episodes. Even if ads are more enjoyable under dual task conditions, it does not follow that TV programs are too, as they are not generally regarded as annoying distractions. Immersion and focused attention may thus be important for viewing TV shows. Consistent with this claim, people report preferring to watch programs without commercial interruptions, and such interruptions sometimes yield negative attitudes toward the ads, especially for highly transported viewers (Wang & Calder, 2006). Nelson et al. (2009), however, found that commercial interruptions can actually enhance the TV viewing experience. Specifically, they found that people rated a target program as more enjoyable when it had commercial interruptions than when it did not, regardless of the quality of the ad. This is because the ads serve to prevent hedonic adaptation, which is the tendency for people's enjoyment to decrease the more time is spent on an activity. Moreover, other studies have found that commercial interruptions do not affect viewers' memory for content of the program (e.g., Cavanaugh, 1984). Nonetheless, commercial interruptions are very different from media multi-tasking. This is because during a commercial break the TV program stops, so the viewer does not miss any content. Furthermore, TV programs often have editing features such as recaps that enable viewers to once more become immersed in the content. Media multi-tasking, however, is likely to cause viewers to miss important details of the narrative, and even if the viewer does process the content, it is likely that the quality of the processing will be lower than if they are just attending to the program (Jeong & Fishbein, 2007; Nightingale, 2004).

To our knowledge, no studies have examined how dividing attention affects the encoding of information in TV programs. Some, however, have found that watching TV programs as a secondary task negatively affects memory and comprehension for what is read in news stories (Armstrong, Boiarsky, & Mares, 1991; Zhang, Jeong, & Fishbein, 2010). The reason for this is that people have a limited cognitive capacity to process information, and demands can exceed available resources when people try to process additional information other than that demanded by the primary task (Junco, 2012; Mayer & Moreno, 2003). Working memory, the locus of active information processing, has limited resources that are apportioned to storage and processing (Baddeley, 1986). For encoding to take place, people need to represent information from the episode they are watching, and they need resources to process and elaborate on those representations, with memory and comprehension being a byproduct of that processing (Jeong & Fishbein, 2007). As Junco (2012) states, "If processes are overloaded through incidental processing, deeper cognitive processing and learning cannot occur" (p. 2237).

Another factor that may affect the encoding and enjoyment of TV episodes is the amount of media-multi-tasking a person normally engages in (Jeong & Fishbein, 2007). Habitual media multitasking individuals may have attentional processes that make it less likely that they will be transported into the world of the narrative, either because of a preference for breadth instead of focused attention or because of difficulties in switching across tasks. Regarding the former, Ralph et al. (2014) found positive correlations between levels of media multi-tasking and self-reported attentional failures, as well as positive correlations with spontaneous and deliberate mind wandering. This is consistent with the view that high media multi-taskers prefer to cast a wide net in terms of information that is processed, with a bias toward seeking novelty in the environment. In terms of task switching, using a stimulus classification task, Ophir et al. (2009) found that high