



Literature Review

The consequences of media multitasking for youth: A review



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ABSTRACT

The increasing prevalence of media multitasking among youth has raised concerns regarding its negative effects on youths' functioning. Although the number of empirical studies on the consequences of media multitasking for youth has grown rapidly, there has been no attempt to integrate theory with the results of these studies. This review integrates available findings on the relationship between media multitasking and three domains of youths' functioning: cognitive control, academic performance, and socioemotional functioning. Three databases (PsycINFO, ERIC, and CMMC) were searched to identify relevant studies, resulting in 8448 citations. Fifty-six studies met the inclusion criteria: nine studies on cognitive control, 43 on academic performance, and four on socioemotional functioning. Overall, the findings indicate a small to moderate negative relationship between media multitasking and the three domains of youths' functioning. However, evidence regarding the causal direction of this relationship is lacking. Based on the included studies, we identify several research gaps and present five main directions for future research: examining causality, establishing more targeted theories, improving media multitasking measurements, focusing on individual and contextual differences, and including representative samples.

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1. Introduction

With the rise of mobile media technologies, the availability of media for youth has increased dramatically. The constant availability of media has led to an increase in media multitasking (e.g., Carrier, Cheever, Rosen, Benitez, & Chang, 2009; Rideout, Foehr, & Roberts, 2010). Media multitasking is typically defined as either simultaneously engaging in two or more types of media or using media while engaging in non-media activities, such as text messaging while studying (e.g., Jeong & Hwang, 2012; Wallis, 2010).

The increase in media multitasking has raised concerns regarding its potential negative consequences for youth (Wallis, 2010). To date, research on media multitasking among youth has focused on three domains of youths' functioning: (1) youths' cognitive control abilities (e.g., the ability to sustain attention and efficiently switch between tasks); (2) their academic performance (e.g., perceived academic learning and course grades); and, more recently, (3) their socioemotional functioning (e.g., depression and social anxiety). Researchers often implicitly or explicitly state that media multitasking has negative effects on these three domains of youths' functioning.

The main assumption of the existing studies is that when youth frequently engage in media multitasking, they become accustomed to constant switching between activities and eventually lose their ability to focus on a single activity (Wallis, 2006, 2010). Media multitasking may therefore result in deficits in the control processes that regulate thoughts and actions (Ophir, Nass, & Wagner, 2009), also referred to as cognitive control abilities (Miller & Cohen, 2001). Deficits in cognitive control may in turn explain why media multitasking interferes with academic performance (e.g., Ophir et al., 2009) and socioemotional functioning (e.g., Becker, Alzahabi, & Hopwood, 2013).

Despite an increasing amount of studies on the relationship between media multitasking and the three domains of youths' functioning, our understanding of the potential effects of media multitasking on youths' functioning remains limited for two reasons. First, there is no consensus on the strength or direction of the effects of media multitasking on youths' functioning. Some studies have found a negative relationship between media multitasking and youths' functioning, but others have been unable to replicate these effects. These differences in findings across studies may result from the wide diversity in the conceptualization and measurement of outcome variables. Second, studies have rarely provided a clear theoretical background for the effects of media multitasking. The mixed findings and the lack of a theoretical framework make it difficult to interpret and integrate the findings.

To advance the field, it is necessary to integrate the findings within the three domains based on existing theory.

Although a quantitative meta-analysis would be the optimal integrative method to take stock of this new strand of research, the available studies in each of the three domains are still too scarce and heterogeneous to justify a quantitative meta-analysis (Petticrew & Roberts, 2008). Therefore, we opted for a qualitative review which has three aims: (1) to provide an overview of existing theories regarding the possible consequences of media multitasking within the three domains, (2) to integrate the existing findings to understand the potential influence of media multitasking on the three domains of youths' functioning, and (3) to identify the most important research gaps to provide guidelines for future research.

The focus of this review is on adolescents and emerging adults. Adolescence covers the age span between 12 and 18 years, and emerging adulthood is defined as the phase from the late teens through the late twenties (Arnett, 2000). Media multitasking is especially prevalent among these age groups (Carrier et al., 2009; Rideout et al., 2010; Voorveld & Van der Groot, 2013). Moreover, these age groups may be particularly vulnerable to the effects of media multitasking because important aspects of cognitive, academic and socioemotional skills continue to develop during this period (Arnett, 2000; Crone & Dahl, 2012; Steinberg, 2005).

1.1. Media multitasking definition and prevalence

At least two types of media multitasking can be distinguished: (1) using multiple media simultaneously and (2) using media while engaging in a non-media activity (Baumgartner, Weeda, Van der Heijden, & Huizinga, 2014; Jeong & Hwang, 2012; Wallis, 2010). The first type of media multitasking involves the simultaneous use of two different types of media (e.g., the simultaneous use of TV and mobile phone) or engaging in multiple activities on a single device (e.g., using a laptop for watching movies and online shopping simultaneously) (Yeykelis, Cummings, & Reeves, 2014). Recent research among 702 American adolescents between 12 and 18 years revealed that about 30% of their media use involves more than one medium concurrently (Rideout et al., 2010).

The second type of media multitasking involves the use of media while engaging in non-media activities, such as completing homework and engaging in face-to-face interactions. Particularly among adolescents and emerging adults, media are often used during academic activities (Wallis, 2010). On average, 31% of adolescents between eight and 18 years ($N = 2002$) reported using task-related and task-unrelated media "most of the time" while

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