



Juggling with Media. The Consequences of Media Multitasking for Adolescent Development.

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English Summary

JUGGLING WITH MEDIA: THE CONSEQUENCES OF MEDIA MULTITASKING FOR ADOLESCENT DEVELOPMENT

Presently, adolescents have the opportunity to use media and communication devices 24/7. The ubiquitousness of these devices has led to a dramatic rise in media multitasking among adolescents (e.g., Rideout, Foehr, & Roberts, 2010; Wallis, 2010). Specifically, adolescents frequently use multiple media simultaneously, such as sending text messages to their friends while watching a movie, and use media during non-media activities, such as listening to music while doing homework. Although this rise in media multitasking among adolescents is almost inevitable, it could be problematic for their development (Wallis, 2010). Researchers have expressed concerns that media multitasking may be harmful for several aspects of adolescent development, such as attention, academic achievement, socioemotional functioning, and sleep (e.g., Carrier, Rosen, Cheever, & Lim, 2015; Ophir, Nass, Wagner, 2009; Pea et al., 2012).

Despite these concerns, empirical evidence regarding potential negative consequences of media multitasking on adolescent development was limited and largely fragmented. Therefore, this dissertation had two main aims. The first main aim of this dissertation was to provide a comprehensive overview of our current knowledge of the possible consequences of media multitasking on developmental domains. To reach this aim, we carefully reviewed and integrated the scientific literature (Chapter 1). Largely based on this review, the second main aim of this dissertation was to investigate the longitudinal relationships between media multitasking and adolescent development. To examine these longitudinal relationships a three-wave study was conducted among approximately 1,440 adolescents from seven schools across the Netherlands. Based on analyses of these data, chapters 2 to 4 focused on improving our understanding of the actual impact of media multitasking on several aspects of adolescent development, namely academic achievement, emotional functioning, and sleep.

The State of the Art: Cross-sectional Relationships between Media Multitasking and Adolescent Development

A review of the media multitasking literature (Chapter 1) demonstrated that media multitasking had been studied in relation to three main developmental domains, namely cognitive control, academic performance, and socioemotional functioning. Although some of the results were mixed within each of the three domains, the majority of studies provided support for small to moderate relationships between media multitasking and the respective developmental domain. Higher levels of media multitasking were typically related to lower cognitive control, academic performance, and socioemotional functioning.

Besides integrating the results of existing scientific literature on media multitasking

and important aspects of adolescent development, Chapter 1 also identified important directions for future research. Most importantly, the reviewed studies primarily relied on convenience and college student samples (e.g., Becker et al., 2013; Junco & Cotten, 2012; Ophir et al., 2009), whereas only a few studies specifically focused on adolescents (e.g., Baumgartner et al., 2014; Calamaro, Mason, & Ratcliffe, 2009; Pool, van der Voort, Beentjes, & Koolstra, 2000). This is surprising, as scholars particularly focus on adolescents when expressing concerns about potentially detrimental effects of media multitasking on development (e.g., Carrier, Cheever, Rosen, Benitez, & Chang, 2009; Voorveld & van der Goot, 2013).

As a consequence of this research gap, evidence regarding the cross-sectional relationships between media multitasking and the three developmental domains among adolescents was limited. Therefore, it was important to examine whether the cross-sectional relationships reported in the literature would also hold among adolescents. In line with the cross-sectional findings of the review, the following chapters (chapters 2 to 4) showed that media multitasking was, indeed, associated with lower academic performance (i.e., more academic attention problems and lower academic achievement scores), more emotional problems, and more sleep-related problems among adolescents.

Uncharted Territories: Longitudinal Relationships between Media Multitasking and Adolescent Development

Chapter 1 further revealed that it is yet unknown whether media multitasking actually causes problems in adolescent development. Accordingly, in order to enhance our knowledge of the causal relationship between media multitasking on adolescent development, the following chapters in this dissertation examined the longitudinal relationship between media multitasking and adolescent development. This longitudinal approach has resulted in three main findings.

1 **Media multitasking and adolescent development were negatively related across the school year.** The findings of this dissertation indicate the media multitasking was related to more problems in several developmental domains among adolescents. In line with previous cross-sectional studies, adolescents who reported more frequent media multitasking reported to have lower academic achievement, more academic attention problems, more sleep problems, and more emotional problems across the school year.

2 **Media multitasking sometimes, but not always, negatively predicted adolescent development.** Although media multitasking was negatively related with the specific domains of adolescent development, we found limited evidence for a long-term effect of media multitasking on adolescent development. More specifically, academic-media multitasking did not predict academic achievement scores over

time (Chapter 2), and media use during offline conversations did not predict emotional problems over time (Chapter 3). However, we did find support for a small longitudinal relationship between media multitasking and adolescent development over time in two other domains. Specifically, Chapter 2 showed that academic-media multitasking positively predicted adolescents' academic attention problems over time, and Chapter 4 demonstrated that media-media multitasking positively predicted sleep-related problems over time among early adolescents and girls.

3 **There was no evidence for the reversed relationship, difficulties in adolescent development did not predict adolescents' media multitasking frequency.** Although the common assumption is that media multitasking hinders adolescent development, Chapter 1 indicated that some researchers have argued that the relationship could also be reversed. Therefore, in chapters 2 to 3 it was examined if difficulties in adolescent development positively predicted media multitasking. However, the findings showed no support for the reversed relationships. Academic achievement (Chapter 2), academic attention problems (Chapter 2), emotional problems (Chapter 3), and sleep-related problems (Chapter 4), did not predict more frequent engagement in media multitasking over time.

Conclusions and Societal Implications

All chapters of this dissertation clearly show that media multitasking and adolescent development are cross-sectionally related. However, findings that media multitasking actually hinders adolescent development are more nuanced. Given the fact that this dissertation has solely yielded small relationships between media multitasking on some aspects of adolescent development, the conclusion might be that media multitasking is less problematic for adolescent development than it often assumed. Together, the findings of this dissertation do indeed suggest that there is no reason for panic regarding the impact of media multitasking on adolescent development. However, at the same time, findings do emphasize that there is still reason for caution regarding specific developmental aspects. Specifically, our findings suggest that media multitasking may interfere with attention problems and sleep-related problems. Both attention and sleep are highly important in the healthy development of adolescents (e.g., Eisenberg, Hofer, & Vaughan, 2007; Shochat, Cohen-Zion, & Tzischinsky, 2014). Considering that media and communication devices will become increasingly integrated into adolescents' lives, it is expected that media multitasking will continue to rise among adolescents. Therefore, the question on how adolescents should deal with the omnipresence of media and communication devices becomes even more important in the upcoming years.

As simply restricting the use of media and communication devices is likely not the best answer (Cheever, Rosen, Carrier, & Chavez, 2014; Clayton, Leshner, & Almond, 2015), future programs are advised to teach adolescents to cope with the omnipresence of

these devices. Such programs could, for example, focus on both individual skills as well as the direct environment of the adolescents. With respect to individual skills, programs may focus on enhancing adolescents' awareness and self-control of their media use. By increasing awareness and self-control adolescents may be more able to control their use of media and communication devices. As for the direct environment of the adolescents, it may be beneficial when their environment supports them to cope with the ubiquitousness of media. Specifically, parents and teachers play an important role in guiding adolescents to cope with the saturated media environment. For example, parents are advised to set clear and consistent rules about media use, whereby they take into account their child's perspective and needs (Valkenburg, Piotrowski, Hermanns, & Leeuw, 2013).