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INTRODUCTION

Current theories of human development (e.g., relational developmental systems models; Overton & Lerner, 2014) purport that characteristics of the individual and his/her contexts influence one another to produce development. One context that is becoming increasingly salient in the lives of young people is the world of technology that surrounds them. Research suggests that youth now are engaged in technology for more than 7.5 hours a day (Rideout, Foehr, & Roberts, 2010). Spending more time online and using technology has warranted some concern. Some research has indicated that technology use is related to negative adjustment, such as physical inactivity, body fat, and sleep difficulties (Lemola, Perkinson-Gloor, Brand, Dewald-Kaufmann, & Grob, 2014; Marshall, Biddle, Gorely, Cameron, & Murdey, 2004). Although technology use has been shown to be associated with externalizing problems (Anderson et al., 2007), less is known about the relationship between technology use and substance use. Moreover, research conducted to date has focused on only one direction of influence - whether technology use predicts substance use. As such, the goal of this study was to examine whether substance use predicts technology use *and/or* whether technology use predicts substance use during late adolescence/emerging adulthood.

SAMPLE

- 1,031 15-20 year-olds (53% female) from DE, MD, and PA
- Fairly diverse: 58% Caucasian, 23% African American, 12% Hispanic, 2% Asian, 5% Other
- At Time 1, all adolescents were in 10th or 11th grade and were attending a public high school

PROCEDURE

During the spring of 2007 (Time 1) and 2008 (Time 2), graduate and undergraduate students (all of whom were certified with human subjects training) administered surveys to assenting adolescents who attended one of seven public high schools in Delaware, Maryland, and Pennsylvania. All participants had parental consent to participate. The survey took approximately 40 minutes to complete. Throughout the study, participants were assured that their responses would be kept confidential, and were made aware of their option to withdraw from the study at any time. Participants were given a movie pass as compensation for their time, and were invited to participate again the following spring.

MEASURES

Technology Use Questionnaire

- The Technology Use Questionnaire is a nine-item measure used to assess frequency of technology use on a typical day. The types of technology assessed include text messaging, e-mailing/instant messaging, playing video games, listening to music on an iPod/MP3 player, and working on the computer. Responses range from 1 = *none* to 6 = *4 or more hours*.

Substance Use

- Alcohol Use - Participants were asked how much on an average day they usually drank, with responses ranging from 0 = *never* to 9 = *more than 8 drinks*. They also were asked how often they usually had a drink in the last six months, with responses ranging from 0 = *never* to 7 = *every day*. These two questions were used to calculate a total alcohol quantity x frequency score.
- Binge Drinking - Youth were asked how many times they drank 6 or more drinks on one occasion in the last six months.
- Marijuana Use - Participants were asked how often they had used marijuana or hashish in the previous six months (non-medical use only).

RESULTS

- Path analysis (conducted by gender) was used to examine whether substance use predicted technology use one year later and/or whether technology use predicted substance use one year later. Adolescent age, and parent education at Time 1 were included as covariates.
- As shown in Figure 1, substance use did not predict technology use for males. For females, more alcohol use predicted more text messaging ($\beta=.16, p<.05$). In contrast, more marijuana use predicted less text messaging ($\beta=-.14, p<.05$) and less time working on the computer ($\beta=-.12, p<.05$).

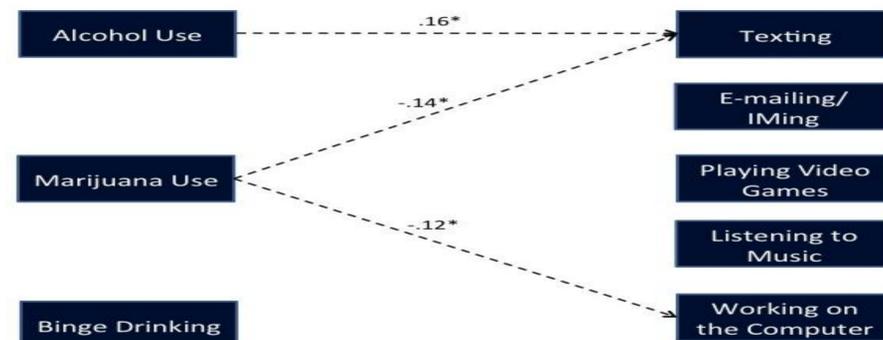


Figure 1. Model predicting technology use from substance use.

RESULTS

- As shown in Figure 2, for males, text messaging predicted more frequent marijuana use ($\beta=.18, p<.01$). In contrast, playing video games predicted less alcohol consumption ($\beta=-.14, p<.05$) and less binge drinking ($\beta=-.12, p<.05$). For females, e-mailing and instant messaging predicted more alcohol use ($\beta=.11, p<.05$) and marijuana use ($\beta=.11, p<.05$). In addition, listening to music predicted more marijuana use ($\beta=.11, p<.05$). However, working on the computer predicted less marijuana use ($\beta=-.12, p<.05$) and less binge drinking ($\beta=-.13, p<.05$).

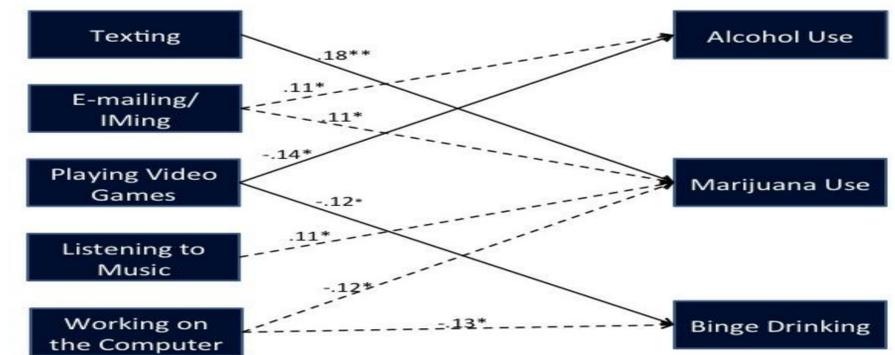


Figure 2. Model predicting substance use from technology use.

Note. For ease of interpretation, only significant paths are shown. Boys = solid lines, girls = dashed lines. Standardized regression coefficients are presented. Control variables, covariances, and disturbance terms are not displayed. * $p<.05$; ** $p<.01$.

DISCUSSION

- Technology use was found to have both negative and positive effects on youth.
- Substance use also predicted technology use for girls.
- Future research should consider the importance of gender when examining the relationship between technology use and substance use.
- Results from this study highlight the need to consider both directions of influence between technology use and youth adjustment.

REFERENCES

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