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Abstract

Social media is distracting more people than ever before. As a result, this study will look to

confirm that the use of Instagram will significantly decrease reaction times while performing

other tasks. Using an independent groups design, with posttest only experiment, participants

were assigned to conditions through block randomization. The control group was only tested on

their reaction time using their dominant hand to catch a meter stick. The experimental group was

tested the same as the control group on their reaction time, but they were asked to scroll through

Instagram with their nondominant hand at the same time. There were 20 participants, 16 were

female, and 4 were male, each condition had 10 participants. Participants were a convenience

sample from a small midwestern liberal arts college. The mean reaction time for the control

group is 0.216 seconds (SD=0.022), while the mean reaction time for the experimental group is

0.244 seconds (SD=0.010). There was statistical significance between the two groups $t(18)$=-

3.68, p=0.002, d=1.64. The 95% confidence interval ranged from -0.044(LL) to -0.012(UL). My

hypothesis is supported by the results of my study. When using Instagram people had slower

reaction times than those not on social media.

Key words: Social Media, Multitasking, Reaction Times

The Effects of Social Media on Reaction Times

Social media is distracting more people than ever before. Not only are adolescence getting more distracted, but they also are now using multiple at once. In the past twenty years adolescence from 11 to 20 years of age have increased media multitasking from 16% to 29% (Van der Schuur, Baumartner, Sumter, & Valkenburg, 2017). The fight for people's attention is harder than ever before, which makes it even more concerning for how people's reaction times are affected.

It is more common than ever to see people multitasking with social media. This division of attention is forcing students to choose between school and their phones. Lau (2016) studied the relationship between social media usage and social media multitasking on academic performance. There were 348 undergrad students (109 males, 232 females, average age=20.252) from a university in Hong Kong. Participants were asked to answer an online survey about their social media use for nonacademic/academic purposes, social media multitasking, and their academic performance. As a result, they found that using social media for academic purposed did not have a significant effect on academic performance (r=-0.048). In contrast, social media multitasking significantly decreased academic performance (r=-0.126).

Multitasking while driving is also a major concern for teens and parents alike. With the popularity of smartphones making it easier for teens to make the wrong decision, social media use and driving needs to be addressed. In a study by Tian and Robinson (2017) six distracted driving behaviors were examined in relation to the Theory of Planned Behavior. The six observed behaviors included reading text messages, sending text messages, answering phone calls, making phone calls, viewing social media, and posting on social media while driving. To do so they posted a survey online and invited undergrad students from two universities to

participate. All of these were compared against participants attitudes towards those actions, social norms, moral norms, perceived behavioral control, and perceived safety of technology. As a result, they found that all six behaviors were predicted if the participants had past experiences with them (R^2=0.58). This suggests a significant correlation between past experiences with distracted driving and the likelihood they will again.

Not only does media multitasking affect driving and academic performance, but it also affects overall attention span. Ralph, Thomson, Seli, Carriere, and Smilek (2014) conducted on sustained attention while media multitasking. They conducted four studies in which they compared different components of media multitasking with attention. These were tested with the media multitasking index (MMI), the metronome response task (MRT), the sustained-attention-to-response task (SART), and a vigilance task (a variance of SART). In the first study they compared the media multitasking and response time with the MMI and MRT on 77 undergraduate students (43 male, 34 female) from the University of Waterloo. As a result, they found that people with high scores on MMI had more result variability on the MRT (r=0.27, p=0.02). This suggests that the more media multitasking done the slower reaction times were. The other three studies did not find any conclusive results and as a result the study as a whole failed to find any significant relationship between habitual engagement in media multitasking and sustained attention issues.

With the increase in of media multitasking adolescence today are forced to make the decision of focusing on the present or what's on their screen. Media multitasking is giving students the false belief they are able to do more than just academic work while studying, which has negatively impacted their academic performance overall (Lau, 2016). Likewise, teens are more likely to media multitask while driving if they have ever done it before in the past without

consequences, allowing them to feel invincible (Tian & Robinson, 2017). Although significant

results were not found in the study by Ralph, Thomson, Seli, Carriere, and Smilek (2014), there

is still room to look into how attention spans are affected by the use of media multitasking. As a

result, this study will look to confirm that the use of Instagram will significantly decrease

reaction times while performing other tasks.

Methods

Design

I conducted an independent groups design, with posttest only experiment.

Participants

There were 20 participants, 16 were female, and 4 were male, each condition had 10

participants. Participants were a convenience sample from a small midwestern liberal arts

college.

Materials and Procedure

Participants were assigned to conditions through block randomization. The control group

was only tested on their reaction time using their dominant hand to catch a meter stick. The

experimental group was tested the same as the control group on their reaction time, but they were

asked to scroll through Instagram with their nondominant hand at the same time.

Results

The mean reaction time for the control group is 0.216 seconds (SD=0.022), while the

mean reaction time for the experimental group is 0.244 seconds (SD=0.010). There was

statistical significance between the two groups $t(18)$=-3.68, p=0.002, d=1.64. The 95%

confidence interval ranged from -0.044(LL) to -0.012(UL).

Discussion

On average the experimental group had slower reaction times than the control group with a large effect size. This suggests that when using social media like Instagram, a person's reaction time will significantly decrease. Due to the not having a lot power of the results from my study could be due to a random result. My study has good statistical validity because there were no outliers that needed to be trimmed and no obvious restriction of range. There is no external validity because random sampling was not used. The construct validity is good because my study was reasonably designed, and my variables were accurately measured. I used the same measuring techniques between both groups and ensured consistency for all participants. I have good internal validity because there were two separate groups for the control and experimental group. This ensures that the control group was not affected by anything in the experimental condition.

My hypothesis is supported by the results of my study. When using Instagram people had slower reaction times than those not on social media. Like in previous research when using social media decreases peoples' reaction times and focus on other tasks such as driving and academic performance. In the future if I would like to repeat this study with a larger sample to improve the power of my results. Likewise, I would like to specifically focus on reaction times differences between college age students and high school age students to see if age effects reaction times when distracted.

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