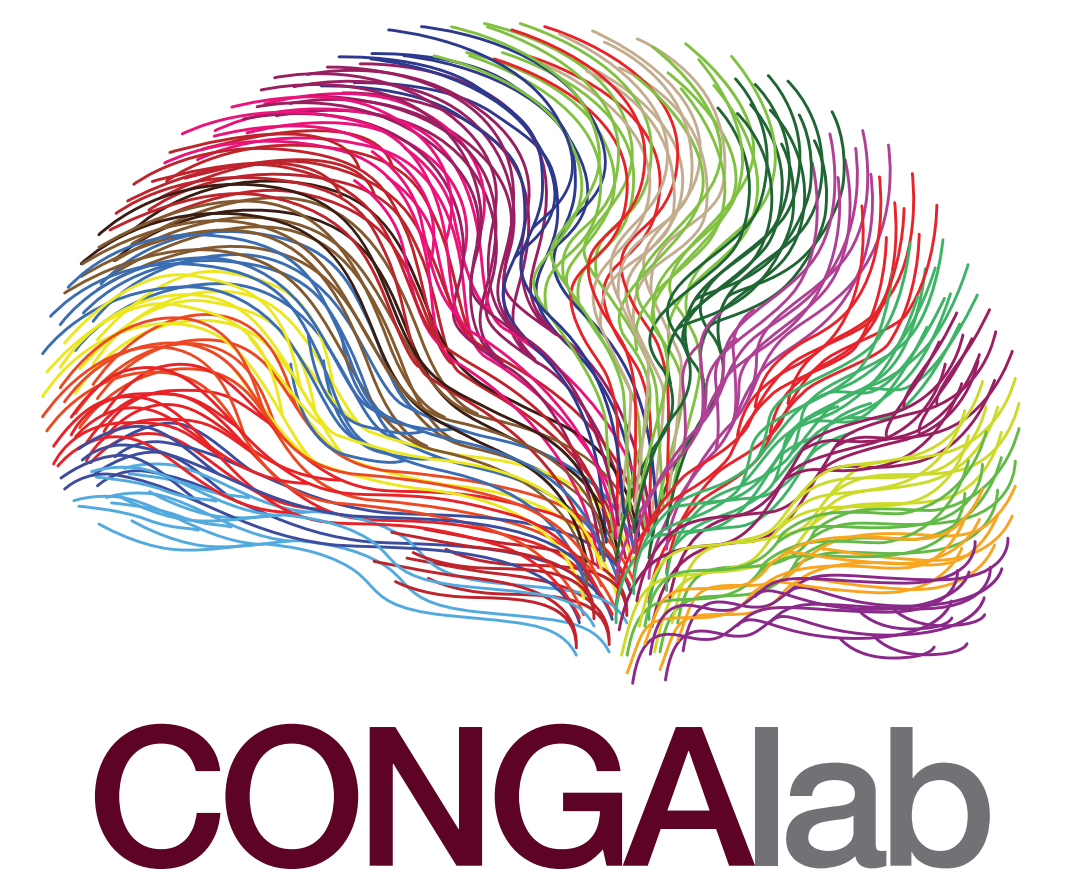




Real-World Media Multitasking Exposure Interferes with Lab-Based Volitional Multitasking

Jesus J. Lopez¹, Michael J. Imburgio¹, Gabrielle Glorioso¹, & Joseph M. Orr^{1,2}

¹Department of Psychological and Brain Sciences, Texas A&M University; ²Texas A&M Institute of Neuroscience

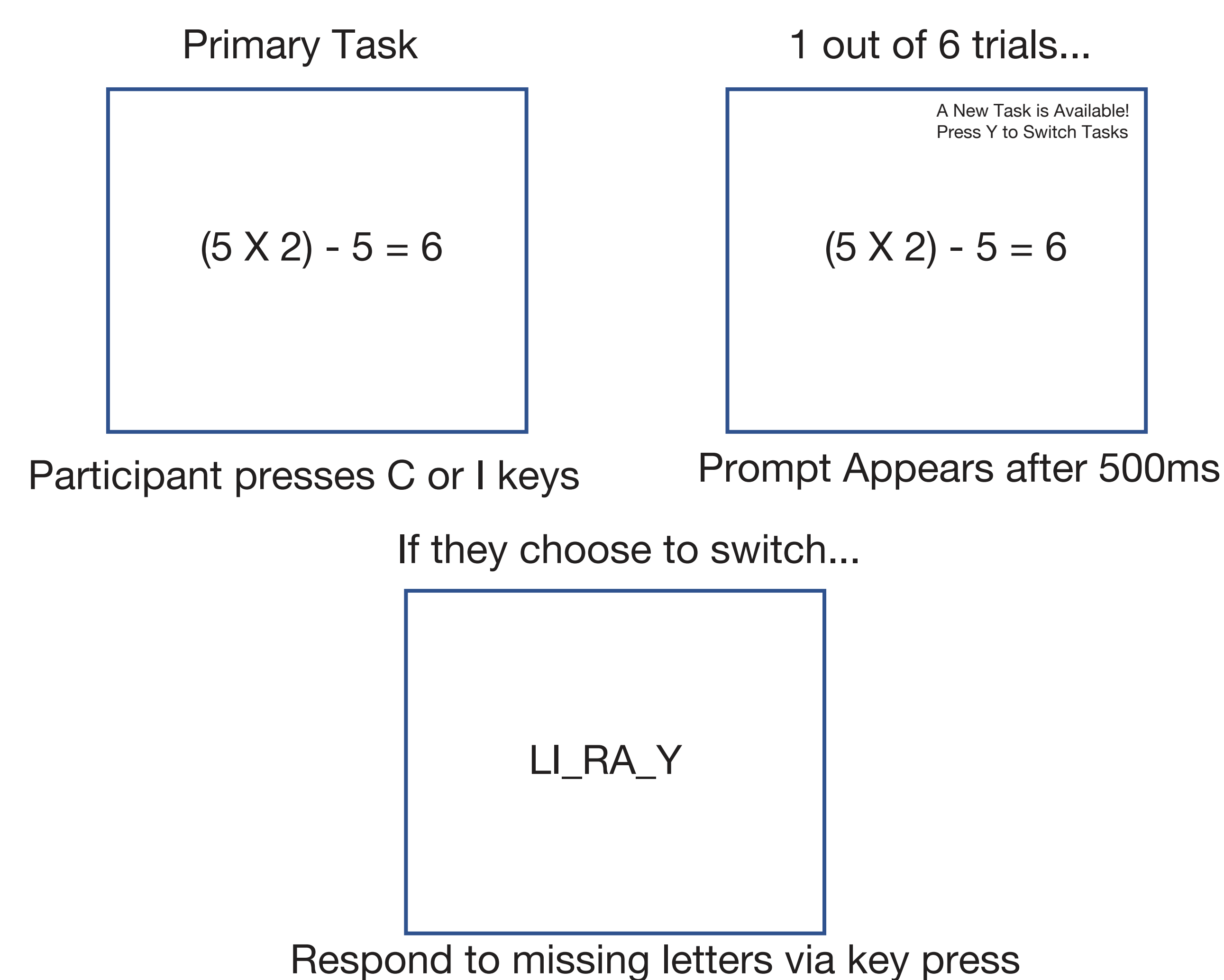


Introduction

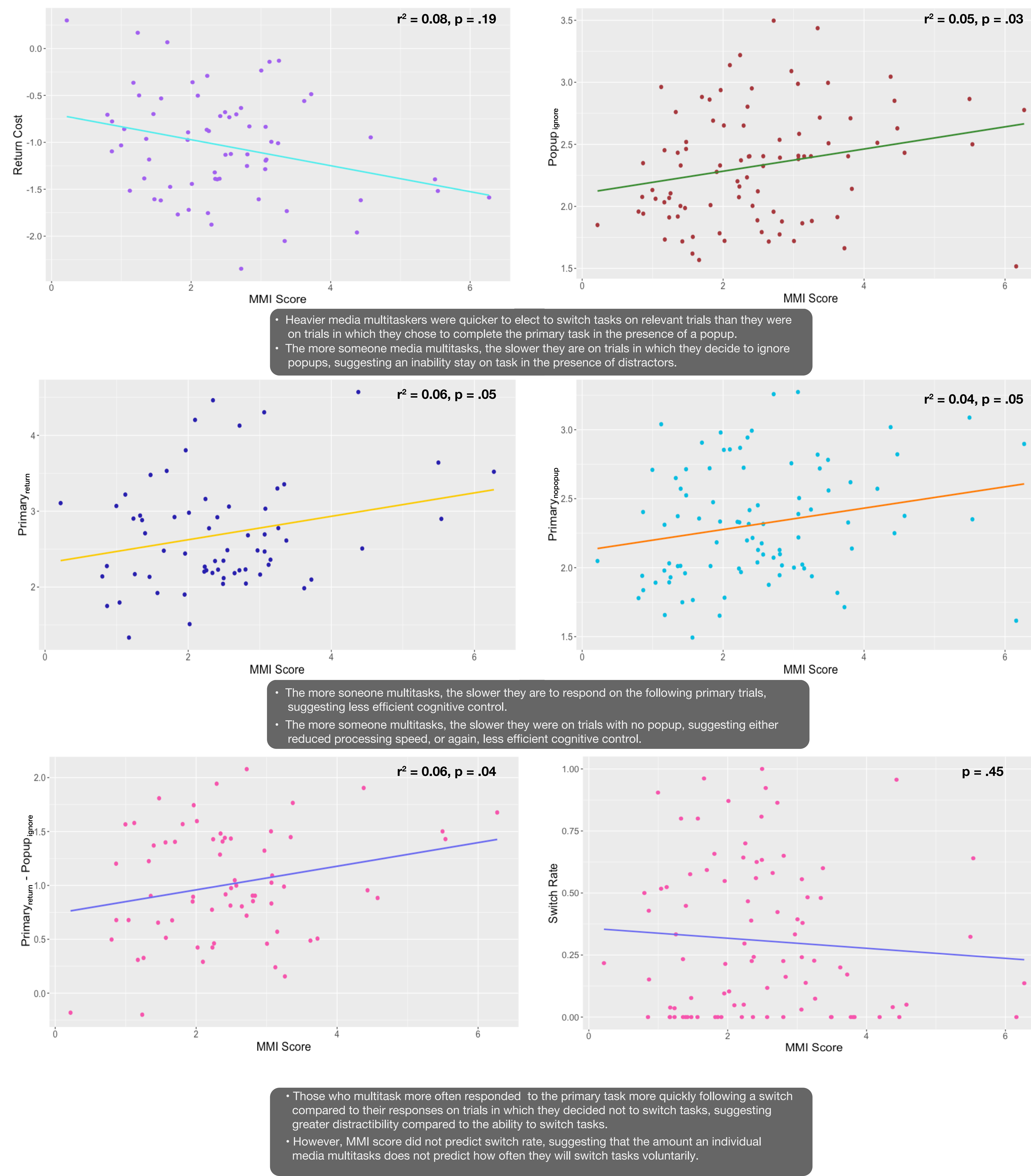
- Research on multitasking has aimed to establish differences in information processing between individuals who spend more or less time media multitasking.
- Media multitasking (e.g., listening to podcasts while studying) has been linked to decreased executive functioning.
- The proportion of time an individual spends using more than one type of media in relation to total media use increased 10% between 1999 and 2009.
- The methodologies used to evaluate multitasking performance oftentimes do not represent or emulate the conditions or environments that media multitasking occurs in during day-to-day life.
- These methodologies are often comprised of tasks more commonly used to evaluate other psychological constructs such as working memory and sustained and divided attention.
- We aim to develop a novel multitasking paradigm that more closely emulates an individual's multitasking environment in daily life.
- This paradigm involves a volitional aspect to multitasking, in which the participant is able to choose whether to switch tasks on certain trials, another crucial element that is missing in much of the media multitasking literature.
- Using this paradigm, we aim to replicate some of the already established differences between individuals who media multitask more often throughout the day, as well as a few others that are not identifiable by other, classic tasks.

Methods

- All 93 participants were between ages 18 and 22 ($M = 19.15$).
- Participants completed the Media Use Questionnaire (MUQ). This index was used to determine degree of media multitasking for each participant.
- During the questionnaire, participants are asked to estimate how many hours per day they use different forms of media, as well as how often they concurrently use different combinations of media (phone and laptop, etc.). The index is then calculated by assigning numeric values to each of the matrix answers and weighing the sum of these values across each primary medium by the percentage of time spent with the corresponding primary medium.
- They then completed a multitasking paradigm that consisted of a primary and a secondary task.

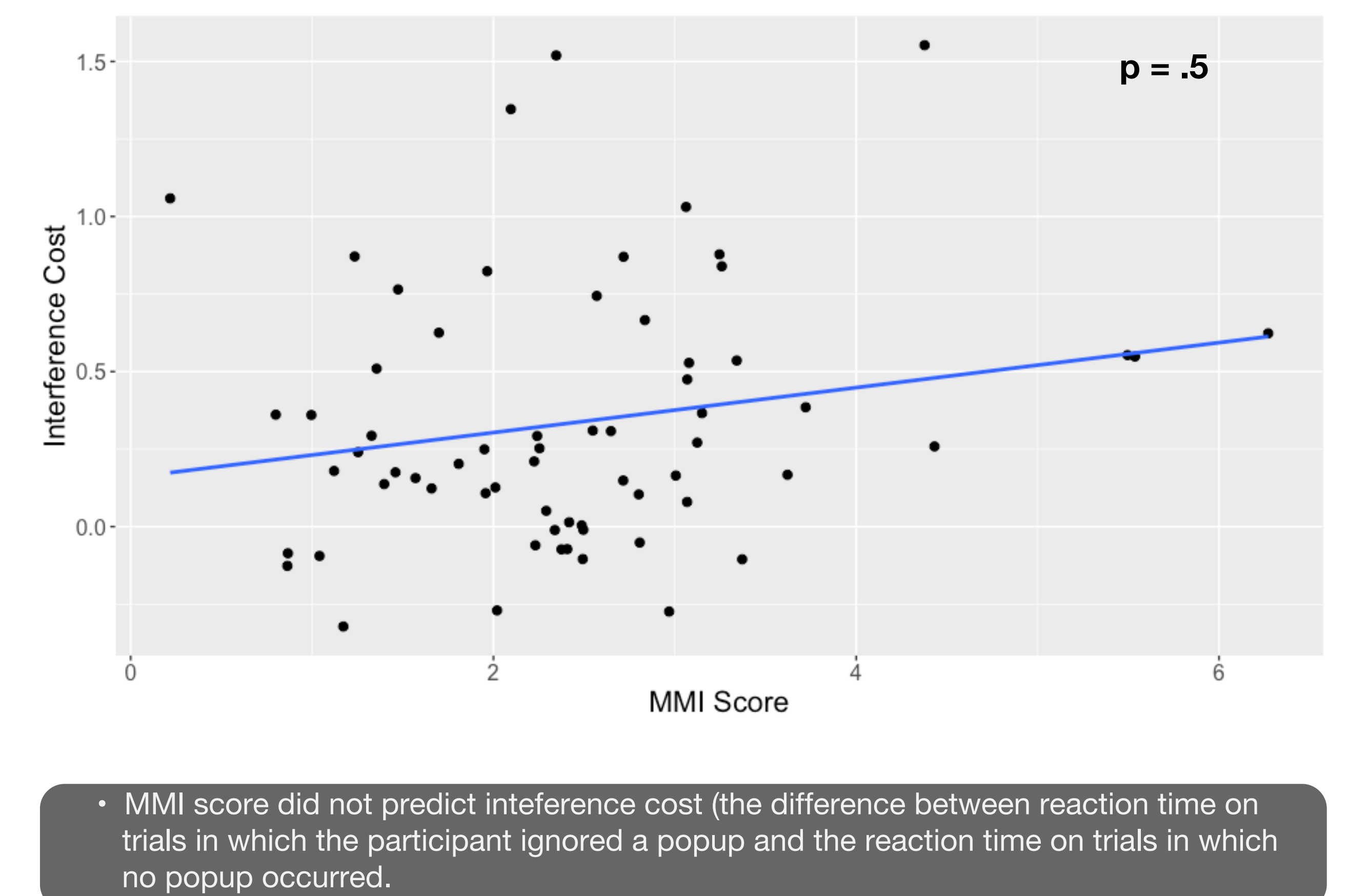


Results



Results

Media Type	Mean Total Hours	SD Total Hours	Mean MMI	SD MMI
Computer Based Applications	15.42	13.75	0.38	0.28
Web Surfing	13.33	13.74	0.32	0.28
Text-Based Print	8.66	9.22	0.13	0.15
Television Programs	13.13	12.9	0.25	0.25
Streaming Videos	10.74	13.2	0.15	0.18
Music	26.22	18.92	0.59	0.44
Non-music Audio	3	6.12	0.03	0.06
Video Games	6.04	11.82	0.08	0.15
Voice Calls	6.97	10.84	0.13	0.26
Emails	4.01	7.83	0.08	0.11
Social Media	18.33	16.19	0.34	0.32
Total Hours	142.17	93.59	2.47	1.2



Discussion

- Because heavier media multitaskers had a longer reaction time on trials in which popups were ignored, this suggests that these individuals are more prone to distraction. A similar effect is also seen in trials following a switch, as well as in all primary trials, suggesting a more prolonged return to a previous task.
- Media multitasking also predicted an individual's "return cost", which was indexed by the difference in average reaction time to elect a switch and RT on trials in which no switch occurred (but a popup was present).
- However, media multitasking did not predict interference cost (the difference in reaction time between trials in which a popup occurred but was ignored and trials in which there was no popup) or switch rate.
- A version of this task in which popups are more frequent is necessary to further tease apart these findings. Because this is a novel task, many changes and improvements can still be made.
- A follow up to this experiment involving EEG as well as a few modifications to the existing task (such as an increased chance of a popup occurring on each trial), is currently underway.