

Abstract

Media distractions constantly break our attention. In previous research, students attempted to multitask during a five min PowerPoint presentation. The results revealed that participants who did not multitask completed the tasks better than those who did multitask. From these findings, further research designed to study the effects of multitasking on learning is warranted. Therefore, the proposed study examined the effects of multitasking on memory among college students while simulating texting during a video lecture. The study's results will provide insight into college students' ability to divide their attention between content on their devices and class lectures.

Introduction

- *Multitasking* can be defined as executing more than one task simultaneously, actively shifting from one task to another, and completing tasks over a short period of time (Redick, 2016).
- *Divided attention* is the cognitive ability to split attention and hold multiple concepts in memory.
- Working memory operates differently for *peripheral details* vs *central details*. Central working memory refers to processing multiple modalities at once, while peripheral working memory information is limited to just one modality (Greene et. al, 2020; Schacter & Szpunar, 2015).
- We hypothesize that: (1) participants in the experimental group will differ in memory scores when compared to the control group, and (2) participants will remember information from the beginning and end of the video better than information from the middle.

Methods

Participants

- Participant were undergraduate psychology students from a northwestern university. ($n = 19$)

Apparatus

- Participants were recruited through Sona Systems.
- Participants were instructed to bring headphones/earphones, a laptop/electronic device, and their smartphone.
- Survey administered through Qualtrics.

Experimental Session

- Participants first completed the Informed Consent,
- Next, participants were assigned to groups using random assignment in Qualtrics, control group (Group 1) & experimental group (Group 2).

Methods Cont.

Experimental Session Cont.

- Following group assignment, all participants began watching a YouTube video on statistics.
- Experimental group participants were instructed to scan the QR code on the screen with their smartphone and were told to wait to answer the questionnaire until they began the video. Control group participants did not answer questions via their smartphone.
- Once all participants had their headphones/earphones connected to their laptop/electronic device, they were instructed to play the video and were informed that there would be a short post-video questionnaire. Experimental group participants were reminded to do their best to pay equal attention to both tasks simultaneously.
- Following the video, all participants completed surveys that measure the dependent variables.

Results

- An *independent sample t-test* was used to determine if students in the control group performed differently on recall measures than students in the experimental group.
- There was no significant difference found in the number of correct answers between the control and experimental group, $t(17) = 1.15, p < .27, d = 0.53$.
- No significant difference was found between the number of correct answers on peripheral details, $t(17) = 0.95, p < .36, d = 0.44$ or central details, $t(17) = 0.55, p < .59, d = 0.25$
- A Pearson's correlation showed that there is a negative correlation between the condition students were in and their number of correct answers $r(19) = -0.13, p < .59$, as well as between condition and correct answers on peripheral details, $r(19) = -0.22, p < .36$, and central details $r(19) = -0.27, p < .27$

	Condition	Correct Answers	Peripheral Details	Central Details
N	0	10	10	10
	1	9	9	9
Missing	0	0	0	0
	1	0	0	0
Mean	0	6.60	2.80	3.60
	1	5.56	2.33	3.22
Median	0	7.00	2.50	4.00
	1	5	2	3
Standard deviation	0	2.12	0.919	1.43
	1	1.81	1.22	1.56
Minimum	0	3	2	1
	1	3	1	1
Maximum	0	10	4	5
	1	8	4	5

Table 1. Descriptive Statistics for Students in In the Control and Experimental Groups
 *Conditions are coded numerically, such that 0 is the control and 1 is the experimental group

Results cont.

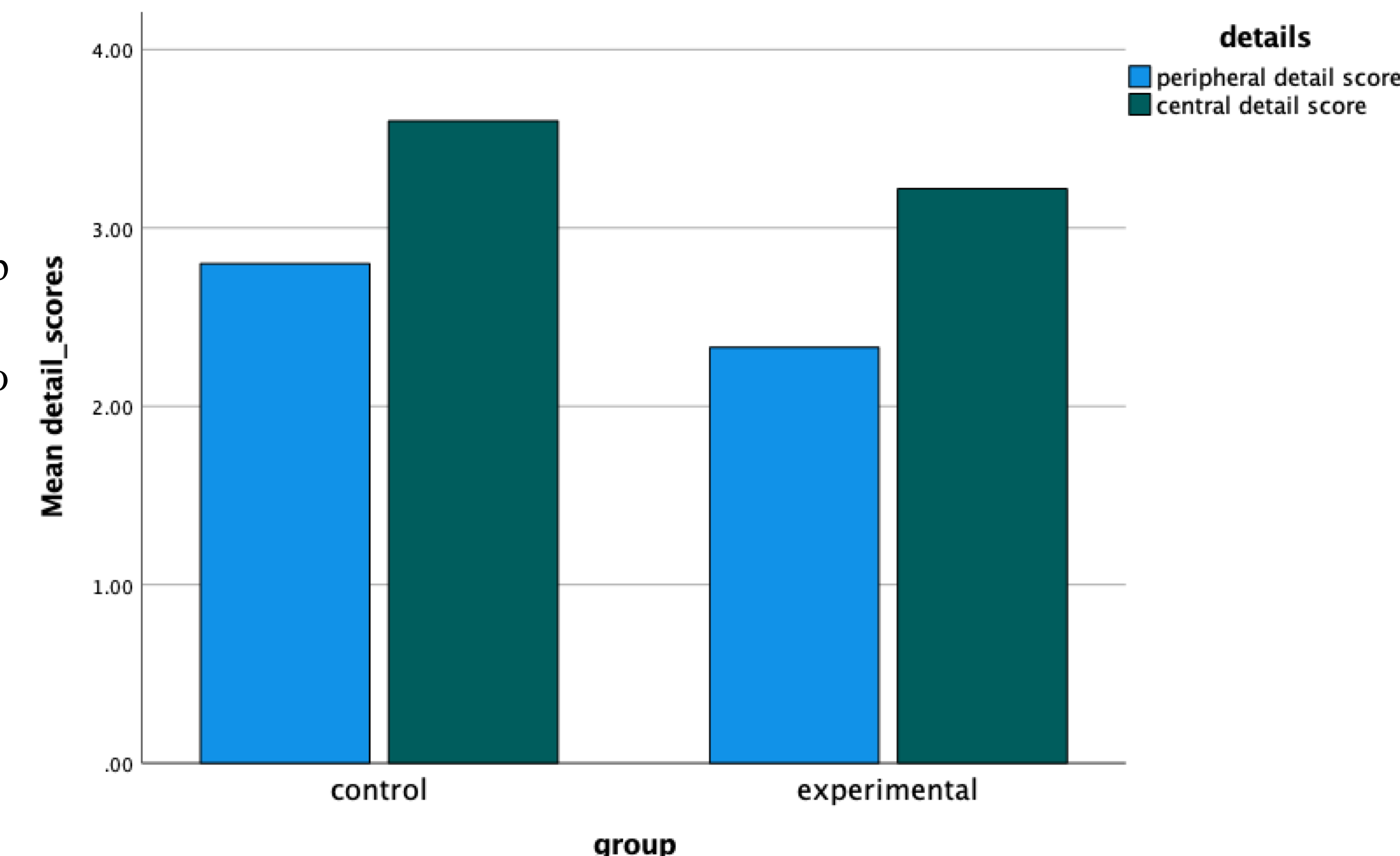


Figure 1. Mean Scores on Peripheral and Central Details Between Groups

Discussion

Findings

- Though students in the control condition answered more questions correctly than students in the experimental condition overall, no significant effects of texting on memory recall were found in the present study.

Limitations & Suggestions

- Being that the results are inconsistent with previous literature, it could be the case that students in the present study were not motivated to attend to and retain information from the lecture.
- Additionally, sample size was significantly smaller than intended. Consideration and implementation of a longer length of sessions should be accounted for future replicated investigations.
- Sample size was limited demographically by university-aged SPU students. Creating a lack of diversity and external validity for the investigation.
- While researchers read from a script, factors like individual researcher cadence, intonation, and other traits were not controlled for. Researcher and participant placement in room was not controlled for either. A future study may need to use a prerecorded message to guide participants through setup. Attention to greater control of the study's environment would decrease the likelihood influence from outside factors.