

College of Saint Benedict and Saint John's University

DigitalCommons@CSB/SJU

Celebrating Scholarship and Creativity Day

Undergraduate Research

4-25-2019

Memory Recall with Distractions

Emily Whittaker

College of Saint Benedict/Saint John's University, EWHITTAKE001@CSBSJU.EDU

Follow this and additional works at: https://digitalcommons.csbsju.edu/ur_cscday

Recommended Citation

Whittaker, Emily, "Memory Recall with Distractions" (2019). *Celebrating Scholarship and Creativity Day*. 70.
https://digitalcommons.csbsju.edu/ur_cscday/70

This Paper is brought to you for free and open access by DigitalCommons@CSB/SJU. It has been accepted for inclusion in Celebrating Scholarship and Creativity Day by an authorized administrator of DigitalCommons@CSB/SJU. For more information, please contact digitalcommons@csbsju.edu.

Memory Recall with Distractions

Emily A. Whittaker

College of Saint Benedict and Saint John's University

Author Note

Emily A. Whittaker, Psychology Department, the College of Saint Benedict

Correspondence concerning this article should be addressed to: CSB Box #1872, 37 S.

College Ave., St. Joseph, MN, 56374; E-mail: ewhittake001@csbsju.edu

Abstract

There are many distractions that happen in our daily lives, throwing us off course or making us forget what we were doing completely. Even though we feel as if we are paying attention to the subject at hand, distractions can cause us to forget about it. According to a study conducted by McNab, Zeidman, Rutledge, Smittenaar, Brown, Adams, and Dolan, when people are distracted while completing a task they are less likely to remember what they were doing (McNab, et al., 2015). Technology has become an increasing part of our lives every day. For a majority of people it seems like they have at least one technological device with them anywhere they go. Not only are people tempted to look at them whenever they have a free minute, but they get notified whenever they have a new message so that they are able to instantly respond. This study was completed using random assignment and was a convenience sample for a class assignment. The study had 20 participants, 10 in the control group and 10 in the experimental group. The study looked at the difference between memory recall of 20 images when participants were listening to nothing and when they were listening to a podcast. This study was close to significance and had a high effect size and lower power, showing that my hypothesis was supported. When people are listening to something while trying to remember images, they are more likely to remember fewer images than those who were listening to nothing.

Keywords: memory recall, distraction, technology

Memory Recall with Distractions

There are many distractions that happen in our daily lives, throwing us off course or making us forget what we were doing completely. Even though we feel as if we are paying attention to the subject at hand, distractions can cause us to forget about it. According to a study conducted by McNab, Zeidman, Rutledge, Smittenaar, Brown, Adams, and Dolan, when people are distracted while completing a task they are less likely to remember what they were doing (McNab, et al., 2015). They state that it is important to have focused attention during the encoding period of working memory (WM) task without any distractions. It is important to give your full attention at the times where you need it most. This can be very challenging, especially with the increase of distractions in our world cause by technology.

Technology has become an increasing part of our lives every day. For a majority of people it seems like they have at least one technological device with them anywhere they go. Not only are people tempted to look at them whenever they have a free minute, but they get notified whenever they have a new message so that they are able to instantly respond. There is so much going on in our “technology world” that we sometimes forget about our real world. Technology can cause a lot of distraction, which in turn can lead us to forget what we were doing or what was happening in a certain situation. According to a study conducted by David, Kim, Brickman, Ran, and Curtis, testing the effects of cellphones while studying, when people are passively listening to music they are not significantly distracted (David, et al., 2015). Whereas when people are actively listening to music or a podcast, or engaging in the use of social media and texting, they are distracted, disrupting their work or causing disorientation, which results in a loss of efficiency on the primary task they were doing. Just a short amount of time on your

cellphone while completing another task can have significant effects on how efficient you are and the quality of your outcome.

Using technology while completing tasks can cause a distraction, especially with remembering what you were just doing or thinking back on what you were doing when the distraction was happening. The study I designed tested the difference between people's memory-recall of basic pictures between people who listened to a podcast while looking through the pictures and people who did not listen to anything while looking through the pictures. The people who listen to the podcast while looking through the basic pictures will remember less images than those who did not listen to anything.

Methods

Design

I conducted an independent-groups design post-test only experiment.

Participant

There were 20 participants for this study. 18 were female and 2 were male. 10 were in the control group and 10 were in the experimental group. They were all students from a small Midwestern liberal arts college.

Materials

Participants were assigned to a condition by block randomization. This is an experiment looking at memory-recall of two different groups. The control group will look through a set of basic pictures without listening to anything. They will have headphones in, but there will not be any sound coming out of them. The experimental group will look through the same basic pictures, but they will be listening to a podcast through headphones while they are looking. After looking through all of the pictures, there will be a ten second pause and then each group will be

asked to list off the pictures they remember. The experiment contained a PowerPoint that was shown on my computer. The PowerPoint contained 20 slides with a different picture on each slide. Each picture was shown for four seconds. I will have headphones for the participants to wear during the experiment. The experimental group will be listening to a Ted Talk on the brief history of dogs.

Results

An independent-samples *t*-test was conducted to compare memory recall of 20 images while not listening to anything and memory recall of 20 images while listening to a podcast. The results of this study were significant, $t(18) = 1.868$, $p = .078$, $d = 0.835$. The mean and standard deviation of the control group is $M = 11.80$, $SD = 1.619$. The mean and standard deviation for the experimental group is $M = 10$, $SD = 2.582$. The 95% Confidence Interval was also conducted and ranged from -0.225 (*LL*) to 3.825 (*UL*). The mean difference of this study was; ($M = 1.80$, $SD = 0.964$).

Discussion

Due to an increase in types of technology and various other distractions happening in our lives, I hypothesized that the people who had a distraction, listening to the podcast, while looking through the basic pictures will remember less images than those who did not listen to anything or have any distractions. My results supported my hypothesis; people who listened to the podcast while trying to memorize the 20 images remembered less photos than those who listened to nothing. I had a large effect size which means I lacked statistical power and would need more participants to get a significant result.

There is no external validity because this was a convenience sample, not a random sample.

The study was designed with good internal validity. This study was completed using random assignment by doing block randomization. By doing this the control and experimental groups should have had an equal variety of people in each group. There was also a manipulation check given to indicate that they were listening to the podcast while memorizing the images. The mean for the manipulation check was $M = 2.3$, and four questions were provided to answer. There is also a lot of internal validity because everything in the study was kept constant, such as everyone wearing the same headphones, whether they listened to the podcast or not and looking at the same 20 images.

Overall, there was strong statistical validity because the statistics found from my study were accurate with the conclusion that was made. There were no outliers that created anomalies in the results. All of the statistics received from the study made sense in the situation that they were supposed to. There were not any statistics that threw off the results of my study. There were not any restrictions of range within the study. I performed the correct independent-groups t-test that I needed to.

There was strong construct validity because I explained the task the participants had to complete in an easy way that made sense so that there was no confusion about what they were supposed to do. I used clear and simple images for the participants to look at so they understood what they were seeing.

I would like to conduct this study again, but with more participants to get more power. This would increase my chances of getting a significant result. If I did this study again I would hypothesize the same thing: People who had a distraction, listening to the podcast, while looking through the basic pictures will remember less images than those who did not listen to anything or have any distractions.

References

- David, P., Kim, J.-H., Brickman, J. S., Ran, W., & Curtis, C. M. (2015). Mobile phone distraction while studying. *New Media & Society, 17*(10),
- McNab, F., Zeidman, P., Rutledge, R., Smittenaar, P., Brown, H., Adams, R., & Dolan, R. (2015). Age-related changes in working memory and the ability to ignore distraction. *Proceedings of the National Academy of Sciences of the United States of America, 112*(20), 6515-6518
- Neath, I., Saint-Aubin, J., Bireta, T. J., Gabel, A. J., Hudson, C. G., & Surprenant, A. M. (2018). Short- and long-term memory tasks predict working memory performance, and vice versa. *Canadian Journal of Experimental Psychology*. doi.org/10.1037/cep0000157
- Ranscombe, P. (2017). Memory, distraction, and nostalgia. *The Lancet Neurology, 16*(4), 269. doi.org/10.1016/S1474-4422(17)30001-7
- Schussler, E. E., & Olzak, L. A. (2008). It's not easy being green: student recall of plant and animal images. *Journal of Biological Education (Society of Biology, 42*(3), 112-118. doi.org/10.1080/00219266.2008.9656123
- Wilson, J. C., & Westerman, D. L. (2018). Picture (im)perfect: Illusions of recognition memory produced by photographs at test. *Memory & Cognition, 46*(7), 1210-1221. doi.org/10.3758/s13421-018-0832-6