The Effect of Screen Time on Memory

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This experiment is about screen time and memory. We tested what the effect of active screen time was on children's short term memory. In the procedure, we ran multiple trials with different amounts of active screen time used by the test subject. The increased amount of screen time correlated with a better short term memory.

Introduction

Have you ever wondered how screens affect your mind? Over the pandemic, the world has used a LOT more technology. Whether it be for work, school, or socialising, there's definitely been an increase in screen time! As a worried parent, or a curious kid, you might wonder if all this screen time has an effect on you or your family. You might wonder if it could impact how hard you could study or remember the script for a presentation. Memory is how you store things that you've done in the past, as well as things that have happened to you. With this experiment, we want to find out what the effects of active screen time on your short-term memory are.

Background Research

Screen Time

Screens develop social skills slower in younger children as opposed to hands-on learning. It can also lead kids to like other activities less, and value them lower than screen time.

Most screens, such as phones and tablets, emit blue light. This blue light can make the brain more awake and negatively affect sleep and REM cycles. This can lead to less sleep and a reduced attention span, as well as a less effective memory due to the lack of memory processing. There's many other interesting things about screen time.

Media multitasking is when you do several things on a screen at once, for instance watching a movie while playing a game. This can make you less focused on both activities, which can be a problem when you're trying to recall information from one of them.

Memory

Memory itself is quite an interesting topic. Memory is how your brain recalls past events, and is vital to everyday life. Your memories are more vivid the more recently you created them. This helps your brain to be oriented in the present. Amnesia is a condition where people lose

memories, often due to head injuries. There are two main types of amnesia. Short term memory loss makes you unable to make new memories. Long term memory loss makes you unable to recall events before the event that caused you to lose your memory.

Experiment

For the experiment, my independent variable was the amount of active screen time on the app Toca World. The dependent variable was the quality of the test subject's short-term memory. My hypothesis was that the short-term memory quality would lower in accordance to the amount of screen time level rising. Nutrients such as water, food, and sleep stayed the same, Toca World is the only app used for screen time, and we used the same memory test over the course of the trials.

To start out my experiment, I asked my test subject if she would like to be a part of my experiment. She said yes. For the first day, we gave her no recreational screen time whatsoever- this means no video games, watching shows, or anything that isn't school related. At the end of the day, I pulled up the online memory test that we were using. The test was simple. First, it showed a few letters for a couple seconds. Then the letters disappeared and I asked the test subject to say the letters she remembers. After this, I recorded the results in my science notebook.

Then the next round started. We repeated this process for six rounds, and then added up all the results to compare with the other scores later.

The next day, the test subject got one hour of screen time. Since different types of screen time affect the brain differently, we had chosen to keep the same type of screen time throughout the experiment. She used the app Toca World, a video game. Though Toca World is relatively relaxed, it still counts as active screen time as the subject is still interacting with the screen often. We repeated the memory test at the end of the day, and recorded the results again in my notebook.

Over the next three days I repeated these steps but with screen time measurements of 2, 3, and 4 hours. At the end of the experiment I compared all my results in a chart.

Results and Analysis

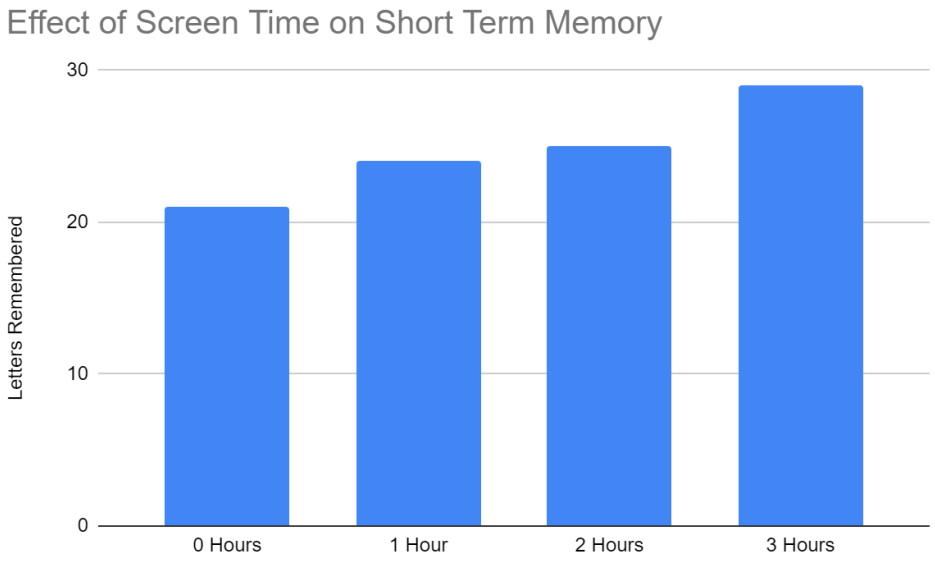
Data and Observations

The increase in screen time correlated with improved short term memory. The test subject was especially irritable after the increased amounts of screen time.

Table One

	0 Hours	1 Hour	2 Hours	3 Hours
Letters Remembered	21	24	25	29

Chart One



Analysis

I may note that the test subjects did unauthorized television programs during the given screen time. Along with this, we allowed the subject to do screen time after the memory tests. As I spoke about in the background research, media multitasking can result in less focus. The subject's memory may have been impacted by this.

The memory test also showed the same letters every time, which could have impacted the results. Most likely, the repetition of the same

letters would make the test subject improve with practice for reasons aside from screen time.

The results of the experiment were against my hypothesis. However, it is likely that the repeated letters in the memory test boosted the results.

Conclusion

My hypothesis was incorrect. The quality of short-term memory improved along with increased screen time. The initial hypothesis was that the increased amounts of screen time would negatively impact the subject's short term memory.

If I repeated the experiment, I would make sure the test had different letters each time. I would also ensure that the test subject did no other screen time than the given for each trial for the duration of the experiment.

My suggestions for anyone continuing this research is to observe a wide range of ages as well as more test subjects to get more accurate results.

Screen time is becoming a more and more prominent part of society as the world progresses. It is constantly evolving, and we need to know if these screens could impact us negatively to make sure we maximize our use of technology. There is quite a deep divide on the issue of screen time and our health. One side argues that screen time is very bad for you, causing health issues, attention deficits, and so on. The other side argues that screen time improves communication, reflexes, and such. This divide causes people to have biases, without necessarily having scientific evidence to back them up. If we study and expand our knowledge on how screen time affects us, we can ensure public health and maybe bridge the gap on this screen time divide.

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