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Topic: Technology use, sleep, and memory

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Title: The Impact of Technology Use Before Sleep and its Effects on Implicit and Explicit Memory Retention

Abstract

While sleep, technology, and memory all play massive impacts on people's everyday lives, they are still severely understudied in terms of the correlations between one another. Previous literature has established that technology negatively impacts sleep time & quality, and inadequate sleep negatively impacts memory, no study has ever looked at how all three things correlate and causate one another. This study aimed to establish a connection between sleep quality and quantity, memory, and technology use to better understand the impact of technology on sleep and memory. Participants were divided into three groups with varying access to technology in the hour before sleep: a no technology group, a can use technology group with reported use, and a must use technology group. Following a voluntary informed consent form, participants completed a pre-survey and were given an Oura ring, a state of the art sleep tracker, which they were all required to wear for two weeks. Self-reported daily sleep diaries were completed and at the conclusion of the two week sleep study, participants completed a post-survey and two memory tasks to assess their implicit and explicit memory. Data was statistically analyzed using descriptive statistics, ANCOVA, and ANOVA on the sleep diaries, memory tasks, and post-surveys respectively. Results illustrated that the Word Pair Association Task was found to be significant. There were significant correlations between the groups and feelings of morale & focus and the restrictions to technology use. There was also a negative correlation between changes in daytime sleepiness and restrictions to technology use. The results of this study could provide valuable insights into how technology impacts the adolescent brain, which has become more important than ever with the recent increase in online learning.

