Longitudinal study on the relationship between students' objective smartphone and social media use and academic performance

Introduction

- Previous studies indicated that the age groups with the most time spent on their phone are teens- between 13 and 17 years old- and young adults- between 18 and 24 years old (Wire, 2010), therefore it is reasonable to propose that this might have an effect on their academic performance (Harman & Sato, 2011).

- Studies have found a link between mobile use and school failure in high school students (Sánchez-Martínez & Otero, 2009).

- The time spent text messaging could also predict negatively the college GPA (Harman & Sato, 2011), while the overall time spent on phone, including social media use (measured only over the course of 3 days) negatively correlates with the college GPA (Jacobsen & Forste, 2011).

- Lepp, Barkley and Karpinski (2015) have also measured the mobile use through reported estimates of participants and found that these estimates have predicted negatively their GPA.

- Although previous research has reported a direct relationship between increasing screen time and poor academic performance, a significant amount of these studies have based their findings on self-reported screen use and/or self-reported grades. Therefore, this study aims to look at objective data on the matter.

Study Aim:

To investigate the link between objective phone and social media use and academic performance

Methods

- Longitudinal study
- A sample of 155 first-year students, aged between 18-22 (60.1 % are 19 years old), out of those, 51 participants were male (32.9%) and 104 female (67.1%)

168 participants completed the baseline → 161 participants have completed the diary phase → 155 participants' data has been used

- Diaries were distributed and over the course of the week, information about the time spent on all devices and on social media was completed for the subjective data
- Objective data was obtained by installing a software on the Android devices or registering, at the end of the study, the information about Screen time from the Settings Menu for iOS users
- Data concerning the grades was obtained from university's system

Data analysis

- Data from the diaries was entered into EpiData

- 5 main variables were created: Average Grade, Subjective Weekly Screen Time (ST), Subjective Weekly Social Media ST, Objective Weekly ST and Objective Weekly Social Media ST

- Parametric tests were conducted in order to establish any links between Average Grade and all of the Screen Time variables (t-tests and Pearson's correlation).

Results

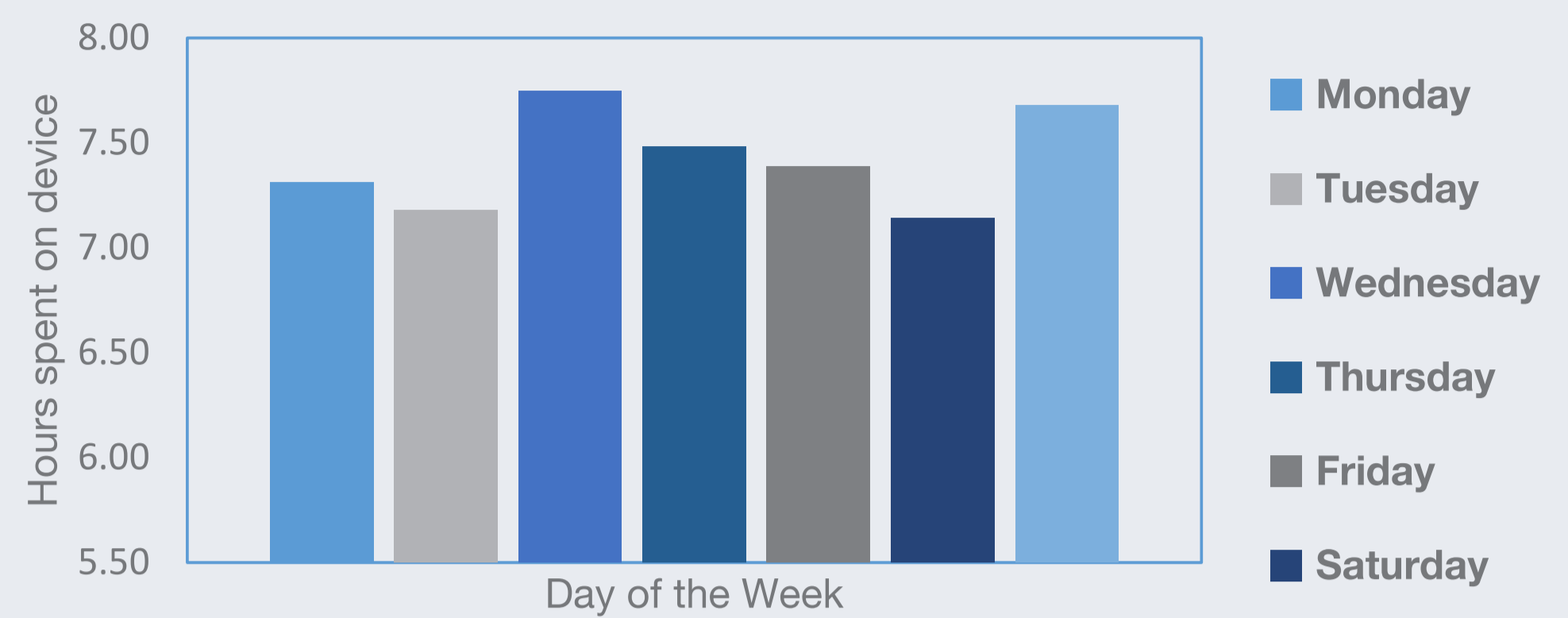Figure 1. Students' self-reported average daily screen time per day

Table 1. Correlation Results

Pearson's Correlation	Average grade
Subjective Weekly ST	$r=.019$ $p=.820$
Subjective Weekly Social Media ST	$r=.039$ $p=.637$
Objective Weekly ST	$r=.02$, $p=.863$
Objective Weekly Social Media ST	$r=.005$, $p=.967$

Table 2. Paired T-test Results

Paired t-test	Subjective Weekly ST	Subjective Weekly Social Media ST
Objective Weekly ST	$t(77)= 7.54$, $p=.001$	
Objective Weekly Social Media ST		$t(70)= -0.02$, $p=.984$

- On average, 5.2 hours is spent daily on devices and out of that 2.9 hours is on social media
- Wednesdays and Sundays are the days of the week with the most mobile use (Figure 1)
- **Pearson's Correlation showed no significant correlation between any of the Screen Time variable and the Average Grade (Table 1)**
- **The Paired t-tests indicate that participants reported (subjective) data is significantly bigger (M= 3019.66) than the objective data (M= 2170.92), but not when it comes to the Social Media variable (Table 2)**

Conclusions

- This study's results are indicating no link between the grades of participants and their time spent on social media or overall, on devices.

- This could have different implications, given that the results contradict the studies done until now, however, this might be explained by the fact that the data used was both objective and subjective, whereas a considerable amount of studies was done with only reported data (e.g. Lepp, Barkley and Karpinski, 2015).

- This might indicate a cultural shift, as the sample used was formed from young adults (18-22 years old), whom grew up with technology and therefore, managing their tasks and the time they spend on their devices could turn out to be successful.

- Further studies should concentrate more on the objective screen time recordings, including a longer period of time of recording the data.

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