

IS PHONE TIME SMART TIME?

Investigating the Effects of Your Smartphone on Attention

Estrella Blackstock Pedroso, Surjinder Cheema, Leah Cesarone - Bachelor's of Physical Education and Coaching

DOUGLAS

43% of people in the world owned a smartphone in 2016

(Han & Yi, 2018; Kim & Koh, 2018)

We view smartphones as an extension of ourselves and have since become addicted. 50% of users check their phones within minutes of waking up and it is the last thing they check before going to bed. Of those most affected are females, who tend to spend an average of 5.2 hours on their smartphones vs. 3.9 hours for males

Students bring their phones to class and do not realize how distracting they are. When asked on average how many times they access their phones, students reported only 3 times per class, but in reality it was over 20 times

This has serious implications on their academic performance.

(Nayak, 2018)

(Felsoni & Godol, 2018)

“BRAIN DRAIN’ HYPOTHESIS

“The mere presence of of one’s own smartphone may induce ‘brain drain’ by occupying limited capacity cognitive resources for purposes of attentional control”

(Ward, Duke, Gneezy, & Bos, 2017).

OUR HYPOTHESIS

The closer and more visible the phone is to an individual, the more it will negatively impact their ability to focus their attention on a task-relevant activity.

METHODS

OUR PARTICIPANTS

- > 58 Douglas College students
- > 34 females and 24 males
- > 4 classes, 2 class subjects
- > Class A = 35 students, Class B = 23 students
- > Class A = all students participated due to strong encouragement from teacher
- > Class B = students were not strongly encouraged by teacher
- > 25 total students excluded (i.e., incorrect testing, no-show on 2nd trial)

- > 2 conditions: with phone facedown on desk and without phone (in backpack)
- > No technology use allowed for 1st half of class (e.g., smartphones, laptops, tablets)
- > 2 trials per class, 1 week interval
- > Conditions were randomized between classes and between trials
- > Complete the d2 Test of Attention per trial
- > Fill out survey: age, gender, # times you use phone for non-academic purposes in class

The d2 Test of Attention

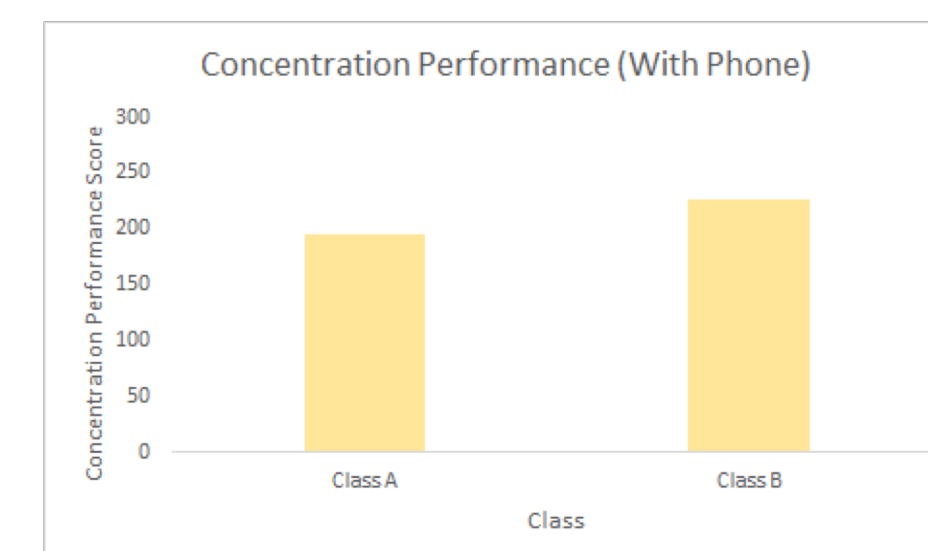


> Tested for Concentration Performance (CP) and Total Number Items Processed Minus Errors (TN-E)

- > One-Way ANOVA
- > Correlation Coefficient
- > Linear Regression

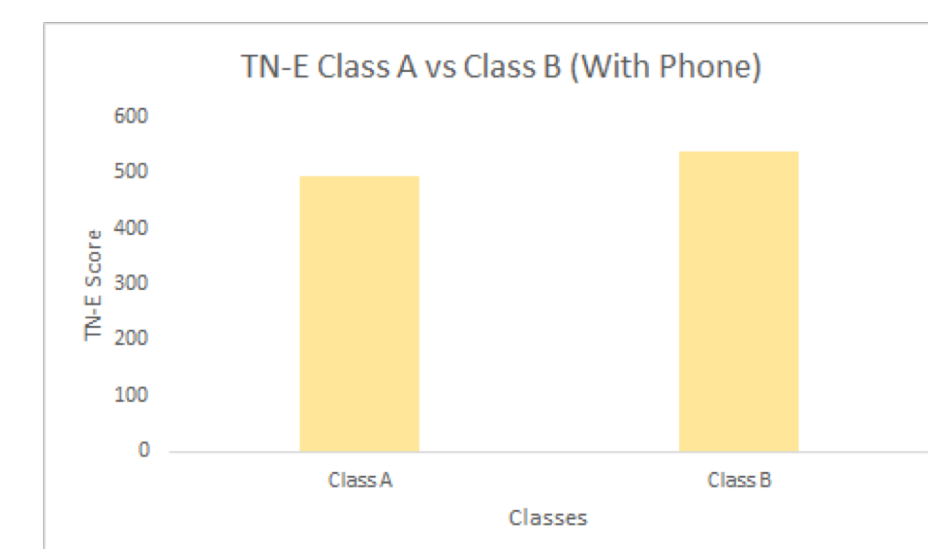
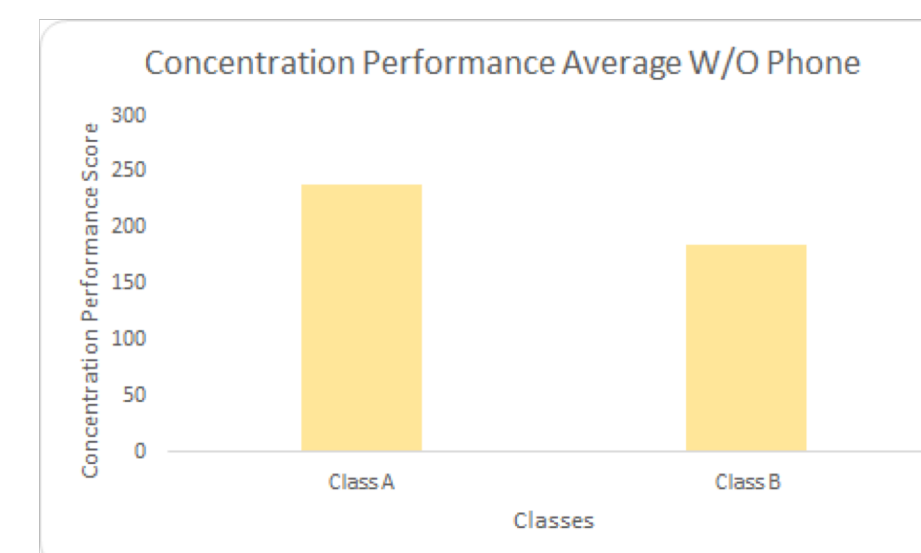
RESULTS

- > No statistical significance between conditions for all participants, however, they scored 5% less on Concentration Performance (CP) when phones were on their desk.
- > No statistical significance between genders, however females scored 8% and 3% higher than males on CP scores with phones and without phones, respectively.
- > No significant difference in correlation between phone usage and student scores.



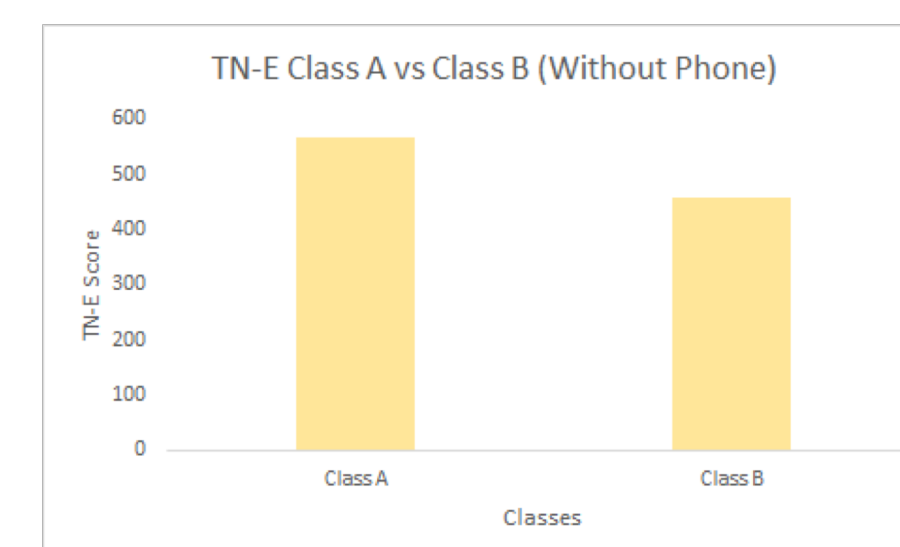
- > Class A scored significantly worse on CP than Class B when phones were present
- > p-value = 0.01
- > % diff = -15.8% (Class A did worse)

- > Class A scored significantly better on CP than Class B without their phones
- > p-value = 0.00006
- > % diff = 22.41% (Class A did better)



- > Class A scored significantly worse on TN-E than Class B when phones were present
- > p-value = 0.018
- > % diff = -9% (Class A did worse)

- > Class A scored significantly better on TN-E than Class B without phones present
- > p-value = 0.000003
- > % diff = 22.4% (Class A did better)



CONCLUSIONS

- > Females reportedly use their phones more than males, however our results indicate this causes no negative impact on their attention when compared to males.
- > Students significantly underestimate how often they check their phones, so it is highly likely that their self-reported phone usage number was inaccurate. This could explain the weak correlations we found between phone access and scores.
- > Class A performed better than Class B when their phones were not present, implying two things:
 1. Class A included more students who are more reliant on their phones
 2. The type of class structure or the type of subject impacts attention.
- > The authors of the d2 Test of Attention indicated that scores on a second trial will always improve. Yet CP performance for Class A was significantly better on their first trial (without phone) than their second trial (with phone). This implies that the presence of a smartphone does negatively impact cognitive performance.
- > The presence of your phone CAN impact performance from a min. of 2% up to 23%.

PRACTICAL IMPLICATIONS

- > Professors should encourage students to keep their phones out of sight, possibly implementing strict no-phone policies.
- > For students to increase their effectiveness, they should not study or do homework in the presence of their phone.

This evidence can be a precursor to other situations, such as:

- > You can get ticketed for having your phone next to you while driving.
- > The presence of a phone can negatively impact face-to-face interactions.

THANKS TO:

Ken Anderson, Ryan Cook, and Kristian Urstad.