The ‘Meditating’ Role of Mindfulness in Texting During Study Activities

Rebecca Semmens-Wheeler & Emma Griffiths

Birmingham City University

Introduction

Texting during lectures and academic reading has become common practice among students, despite the negative impact on learning (Felisoni & Godoi, 2018).

Increased mobile phone use and frequent multi-tasking are primarily associated with reduced multi-tasking ability (Sanbonmatsu et al., 2013), due to impaired attentional filtering and task-switching (Moisala et al., 2016).

However, media multi-tasking preference has also been shown to improve multi-tasking effectiveness, if disrupting tasks are familiar and frequent, such as receiving texts (Lebbon & Sigurjónsson, 2016).

Mindfulness has been associated with greater attentional control (Bennike, Wieghorst, & Kirk, 2017), and may help to tackle the issue of impaired learning and attention.

Aims and hypotheses

This study aimed to identify how multi-tasking texting affected learning across different study modalities, to clarify the disparities in findings regarding the effect of multi-tasking preference and to explore the role of mindfulness in learning whilst distracted.

Methods

Participants

160 students from the Birmingham City University took part in the study.

Design

A between-participants experimental design was used, where participants took part in one of four conditions: reading only, lecture only, texting during reading and texting during lecture. Learning ability was measured through a multiple choice questionnaire.

Participants also completed

- Multi-tasking Preference Scale (MPS; David, Kim, Brickman, Ran, & Curtis, 2015)
- Mobile Phone Use Questionnaire (MPUQ; Walsh, 2011)
- Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003)

Procedure

Participants completed the MAAS, MPS and MPUQ questionnaires and then spent 10 minutes either watching a video lecture or reading the same academic literature in script form. In the texting conditions participants were simultaneously sent 10 texts to which they responded. The multiple choice questionnaire was then completed.

Results

Performance across study modalities

There was no difference in test scores in mobile phone use, multi-tasking preference, mindfulness or comprehension test scores between reading and video lecture conditions, all *p’s* <.099.

Test scores were lower across both study modalities when texts were received, *p* <001.

As expected, test scores were higher in the reading-only condition than the lecture/text and the reading/text conditions (both *p*’s < .001). (See figure 1.)

Test scores were also higher in the lecture-only condition, compared to the reading/text condition (*p* = .025). There was no difference in test scores in the lecture-only condition, compared to the lecture/text condition (*p* = .148). (See figure 1.)

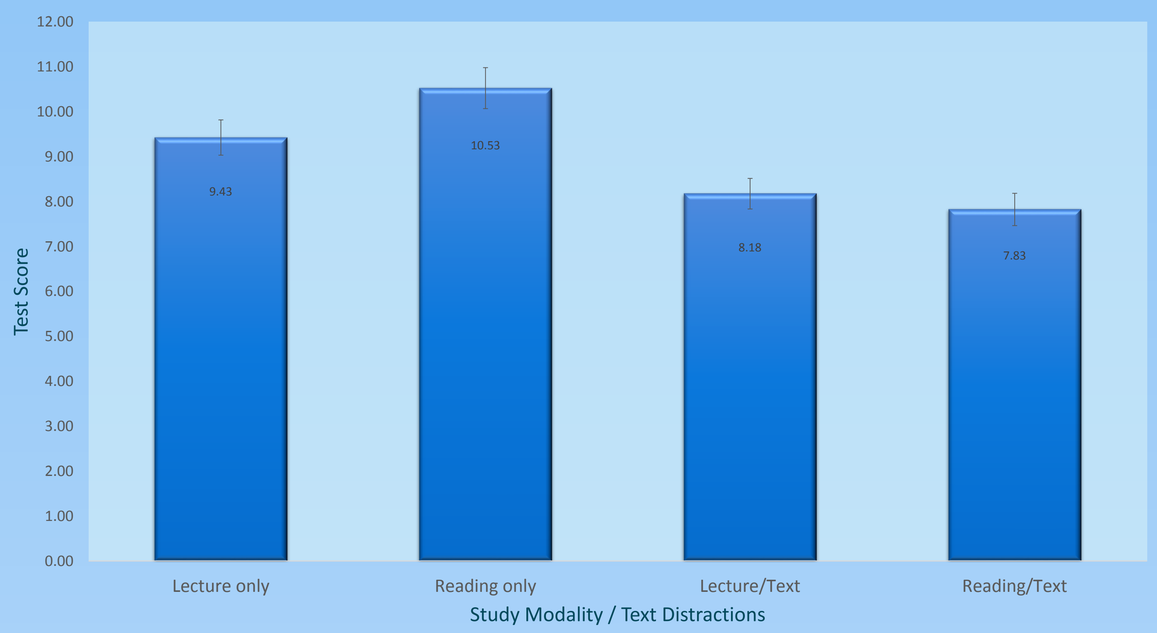

Figure 1. Test scores for different study modalities with and without text message distractions

Results, cont’d.

The Role of Mindfulness

A simple linear regression analysis was conducted to investigate further how mindfulness (*M* = 48.7; *SD* = 10.47) influenced learning (*M* = 8.99; *SD* = 2.67). The value of R^2 was .023, which identified that mindfulness accounts for 2.3% of the variation in overall learning, furthermore, the regression analysis was significant (*b* = 0.04, *p* = .027).

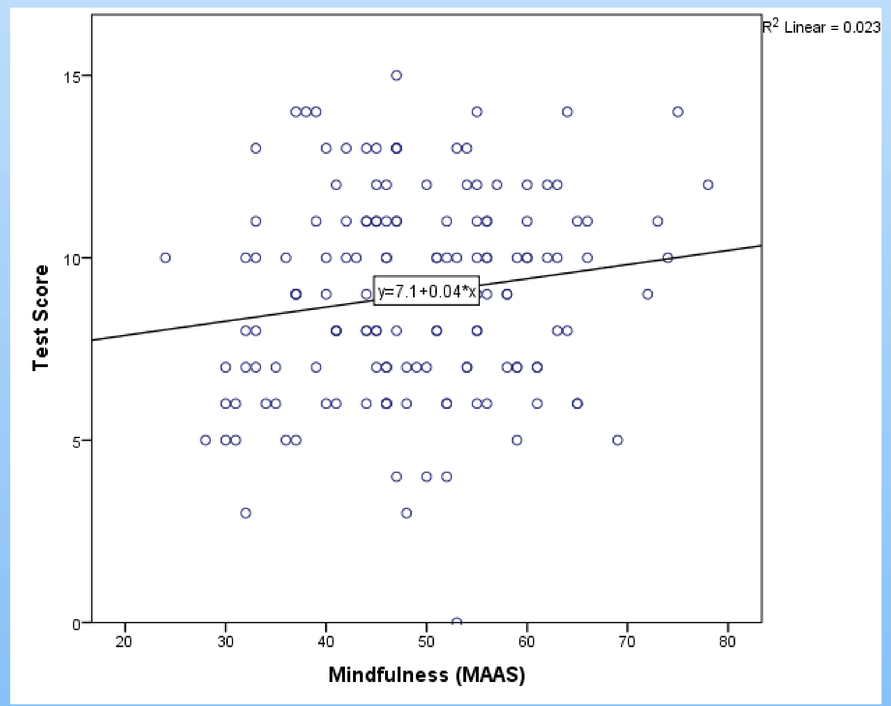

Figure 2. Mindfulness as a predictor of learning

There was a small but significant effect of learning condition on levels of learning after controlling for the effect of mindfulness, $F(3, 155) = 11.28$, $p < .001$, $\eta_p^2 = .179$.

Multi-tasking and Mobile phone use

Contrary to predictions, no significant associations were found between learning and mobile phone use frequency (*r* = - .124, *p* = .059) or multi-tasking preference (*r* = -.004, *p* = .479).

Conclusions and Future Directions

As expected, multi-tasking texting during both lecture and reading activities negatively affected learning. Also as predicted, mindfulness positively mediated learning.

No associations were found between learning and multi-tasking preference or the frequency of phone use.

The mediating effect of mindfulness found within this present study supports literature proposing that mindful individuals have greater executive and top-down control of attention, which decreases susceptibility to distraction and minimises the loss of task-relevant information (Mrazek, Franklin, Phillips, Baird, & Schooler, 2013). It also supports research which identifies that mindfulness training significantly increasing attentional control during tasks susceptible to distraction (Bennike et al., 2017), improves media multi-tasking abilities (Gorman & Green, 2016), and aids emotional regulation during tasks to combat feelings of boredom (Rahl et al., 2017).

In sum, it appears that mindfulness positively mediates the negative effect of media multi-tasking whilst studying.

Future research should now explore the mechanisms underlying this effect, whilst also considering advanced technologies to support subjective self-report measures. The established benefits for learning mindfulness provides also warrants the integration of mindfulness into curricula, as this could prove an effective and efficient way to improve learning for both the student and educational establishment.

Selected References

Bennike, I. H., Wieghorst, A., & Kirk, U. (2017). Online-based mindfulness training reduces behavioural markers of mind wandering. *Journal of Cognitive Enhancement, 1*(2), 172-181.

Felisoni, D. D., & Godoi, A. S. (2018). Cell phone usage and academic performance: An experiment. *Computers and Education*, *117*, 175-187.

Gorman, T. E., & Green, C. S. (2016). Short-term mindfulness intervention reduces the negative attentional effects associated with heavy media multitasking. *Scientific Reports*, *6*(24542).

Lebbon, A. R., & Sigurjónsson, J. G. (2016). Debunking the instant messaging myth? *International Journal of Information Management, 36*(3), 433-440.

Mrazek, M. D., Franklin, M. S., Phillips, D. T., Baird, B., & Schooler, J. W. (2013). Mindfulness training improves working memory capacity and GRE performance while reducing mind wandering. *Psychological Science, 24*(5), 776–781.

Moisala, M., Salmela, V., Hietajärvi, L., Salo, E., Carlson, S., Salonen, O., ... & Alho, K. (2016). Media multitasking is associated with distractibility and increased prefrontal activity in adolescents and young adults. *NeuroImage*, *134*, 113-121.

Rahl, H. A., Lindsay, E. K., Pacilio, L. E., Brown, K. W., & Creswell, J. D. (2017). Brief mindfulness meditation training reduces mind wandering: The critical role of acceptance. *Emotion*, *17*(2), 224.

Sanbonmatsu D. M., Strayer, D. L., Medeiros-Ward, N., & Watson, J. M. (2013). Who multi-tasks and why? Multi-tasking ability, perceived multi-tasking ability, impulsivity, and sensation seeking. *PLoS ONE, 8*, 1-8.

Rebecca.semmens-wheeler@bcu.ac.uk Emma.Griffiths6@mail.bcu.ac.uk