The last word
Distracted

AS **STEVE HOLDEN** DISCOVERS, RESEARCHERS ARE TRYING TO FIGURE OUT WHETHER WEB-BROWSING, TV-WATCHING TEXTERS ARE DOING SOMETHING REALLY CLEVER, OR JUST NOT FINISHING THEIR HOMEWORK.

There's an argument in educational and neuroscientific research circles to do with 'excessive media consumption' by school students, and it goes like this: headphone-wearing, web-browsing students who text while they watch television and do their homework are habituating themselves to multi-tasking, and that's a good thing; alternatively, all that overstimulation leads to distraction, reducing our students' attention spans, and that's a bad thing.

The good news is that research is discovering heaps about excessive media consumption. The bad news is that the research into the relationship between excessive media consumption and distraction is ambiguous. Worse, even where the research does reveal a correlation, it doesn't reveal causation, and so, as most researchers like to conclude, further research is necessary.

Attempting to nail causation, German researchers Markus Dworak, Thomas Schierl, Thomas Bruns and Heiko Klaus Strüder, from the German Sport University of Cologne investigated excessive television watching and computer gaming to find out how they affected the sleep patterns and memory performance of students.

They got students to watch excessive television or play computer games excessively then took polysomnographic measurements during the night – stuff to do with brain activity, eye movements, muscle activity, heart rhythm, respiration and pulse – to get a picture of the students' sleep patterns. They then cross-referenced this with visual and verbal memory tests, essentially vocabulary recall tests, conducted both before the television or computer game stimulation and after sleep.

Their findings? 'Only computer game playing resulted in significant reduced amounts of slow-wave sleep as well as significant declines in verbal memory performance.' Television was okay.

The problem, as Dworak, now at Harvard University in Cambridge, Massachusetts, in the United States, told the *New York Times*'s Matt Richtel, is that the study still couldn't determine whether the significant declines in recall were caused by sleep disruption or because the stimulation from the computer game playing overrode the brain's recording of the vocabulary, although Dworak likes the second theory. 'When you look at vocabulary and look at huge stimulus after that, your brain has to decide which information to store,' he explained to Richtel. 'Your brain might favour the emotionally stimulating information over the vocabulary.' But, as most researchers like to conclude, further research is necessary.

Eyal Ophir, Clifford Nass and Anthony Wagner from Stanford University decided to do some of that further research. They took a sample of 50 heavy media multi-tasking students and 50 non-multi-taskers, and had them take three tests that showed, essentially, that heavy media multi-taskers are more susceptible to distraction and perform worse than light multi-taskers on every test.

'The high multi-taskers are always drawing from all the information in front of them,' explains Ophir. 'They can't keep things separate in their minds.'

Adds Wagner, 'When they're in situations where there are multiple sources of information coming from the external world or emerging out of memory, they're not able to filter out what's not relevant to their current goal. That failure to filter means they're slowed down by that irrelevant information.' T

This month's Last Word was written by Steve Holden, Editor of Teacher. *His latest book is* Somebody to Love *published by University of Queensland Press.*

REFERENCES

Dworak, M., Schierl, T., Bruns, T. & Strüder, H.K. (2007). Impact of singular excessive computer game and television exposure on sleep patterns and memory performance of school-aged children. Pediatrics. 120(5): 978-985.

Ophir, E., Nass, C. & Wagner, A. (2009). Cognitive control in media multi-taskers. Proceedings of the National Academy of Sciences. 106(37): 15,583-15,587.