**COGNITIVE APPROACH**
**Topic 4 (HL extension):** Cognitive processing in the digital world.
**Key Idea:** How digital technology affects cognitive processing.

| Content | Research | Use in Cognitive Approach | Links to |
|---|---|---|---|
| **The positive and negative effects of digital technology on cognitive processes – cognitive processing.** *Example: memory.* *See also the influence of digital technology on cognitive processes, above.* | Classic **Rosen et al. (2011)** | Examined the direct impact of text message interruptions on memory in a classroom environment and found the effects to be a slight, but significant, reduction in memory. | |
| | Critique/Extension **Sparrow et al. (2011)** | Negative effect on memory of digital technology and using search engines. | |
| | Recent **Blacker et al. (2014)** | Found that action video games cause improvements to the quantity and quality of information stored in visual working memory. | |
| **The positive and negative effects of modern technology on cognitive processes - reliability of cognitive processes.** *Example: memory.* | Classic **Hembrooke & Gay (2003)** | Found that students who had their laptops open during a lecture remembered less of the content than a control group who kept them closed. | |
| | Critique/Extension **Prensky (2009)** | Review that argues that digital technology enhances memory, for example, via data input/output tools and electronic storage. | **Development:** Developing as a learner – cognitive development. |
| | Recent **Sparrow et al. (2011)** | Negative effect on memory of digital technology and using search engines. | |
| **The positive and negative effects of modern technology on cognitive processes - emotion and cognition.** *Example: memory.* *See also the influence of digital technology on cognitive processes, above.* | Classic **Gerardi et al. (2008)** | Evaluated the effectiveness of virtual reality exposure therapy (VRET) for treatment of PTSD in an Iraq war veteran and found it to be effective. | **Abnormal Psychology:** treatment of disorders – individual (cognitive) therapy for PTSD. |
| | Critique/Extension **Morina et al. (2015)** | Meta-analysis of VRET research with phobias and later follow-up, to check efficacy in real-life situations. Found VRET to have real-life application in changing emotion and memories associated with phobias. | **Abnormal Psychology:** treatment of disorders – individual (cognitive) therapy for phobias. |

| | Recent | Review of research into VRET as a replacement for more traditional therapy for all classes of mental disorders. Also exploration of its use for better assessment and understanding of disorders. | **Abnormal Psychology:** treatment of disorders – individual (cognitive) therapy for all mental disorders |
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| | **Freeman et al. (2017)** | | |

**Further resources**

Gregoire, C. (11 Dec 2013). How technology is warping your memory. *The Huffington Post.* https://tinyurl.com/yb98ptre
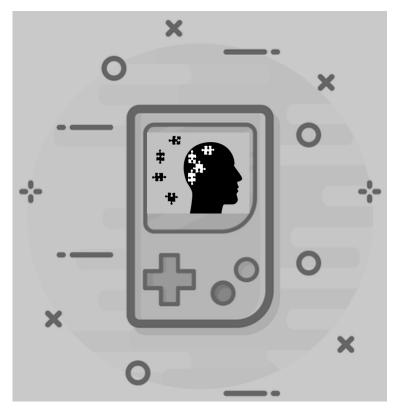
Huffington Post. Technology and memory

*TED* talk by Tom Gruber (2017). How AI *(artificial intelligence)* can enhance our memory, work and social lives. *(Note the bias introduced by his business background as co-founder of 'Siri'.)* https://tinyurl.com/y6wa36ca

TED talk by Tom Gruber



Technologies and memory
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