

The Price of Convenience: How Technology Hurts our Memory

Annotated Bibliography #2

My research question is: To what extent does reliance on, and use of, technology to preserve memories and knowledge diminish our memory? I anticipate arguing the use of technology to offload memory for our brains to our technology will decrease cognitive recall and memory performance over time. I will focus on a phenomenon known as “Digital Amnesia” whereby the overreliance on technology to keep and store our information leads to a decline in memory performance. I anticipate an opposing argument focusing on the positive influences of technology on memory, such as assistive memory technology for the elderly and memory impaired, photo and video capture, and organization and recordkeeping technology. My rebuttal will argue that the cons outweigh the pros and that despite its numerous benefits, over-reliance on said technology can still lead to adverse effects. Moreover, I anticipate including the time and effort it takes in order to make sure the technology properly captures the moment at hand, taking away from the human experience.

Annotation 1 - Peer-Reviewed Article (evidence)

Ali, Z., Janarthanan, J., & Mohan, P. (2024). Understanding Digital Dementia and Cognitive Impact in the Current Era of the Internet: A Review. Cureus.

<https://doi.org/10.7759/cureus.70029>

This peer-reviewed article discusses the causes, effects, implications of, and solutions to Digital Dementia in the modern age of technology, particularly within adolescence, where the brain is still developing. The article discusses the various negative effects and developmental issues, such as slowed brain development, attention deficits, and reduced cognitive processing, associated with heavy reliance on technology in place of memory.

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This article heavily supports the notion that overreliance on technology for memory leads to reduced memory. As a tier 1 peer-reviewed article, it provides heavy credibility, reinforcing the aforementioned notion greatly. Its vast amounts of conclusions and correlations make it a strong piece of evidence towards my side of the argument.

Annotation 2 - Peer-Reviewed Research Report (context/evidence)

Lodha, P. (2019). Digital Amnesia: are we headed towards another amnesia. Indian Journal of Mental Health, 6(1), 18. <https://doi.org/10.30877/ijmh.6.1.2019.18-22>

This peer-reviewed research report reviews the concept of digital amnesia and how it has changed over time as technology has evolved. It discusses various statistics regarding digital amnesia as well as potential effects that may prove to be problematic in the future. It also touches up on a concept known as ‘The Google Effect,’ whereby people have a tendency to easily forget information readily available on search engines such as ‘Google.’ Although the article takes a mere informative stance, not arguing for or against either side, it does encourage further research as to whether clearing up ‘free space’ in our head is a benefit or a detriment overall. I believe I can use the article’s information for either of the 2 main perspectives on this issue. It provides a framework of context by thoroughly describing both of the aforementioned phenomena as well as their changes over time. Its numerous statistics make the article easily able to provide evidence towards multiple perspectives. As a Tier 1 source, it gives immense credibility to its various statistics, allowing a multitude of statistically supported claims to be advocated for.

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Annotation 3 - Interview With Neuroscience Professor (evidence)

Genova, L. (2022, March 20). Is technology melting your memory? Or helping it? Big Think.

<https://bigthink.com/series/explain-it-like-im-smart/digital-amnesia/>

This interview with Lisa Genova, Harvard PhD in neuroscience, provides insightful information about the implementation of technology into our daily lives. Genova describes technology as a ‘double-edged sword,’ explaining how it provides both positives and negatives to our memory. She explains various downsides to overreliance on technology, but also the benefits that technology has on memory. She claims that despite the distraction that technology can be, it provides more of a benefit than a hindrance, in the fact that it can allow us to tap into levels of knowledge and research never before seen, making us have more memory associations as opposed to few. Despite being a Tier 3 source, the credibility it's boosted by the education of the interviewee, providing decently strong evidence for a counterargument.

Annotation 4 - Peer-Reviewed Study (evidence)

Musa, N., Mukhtaruddin, & Viona Febiyola Bakkara. (2023, December 26). The Effects of Digital

Amnesia on Knowledge Construction and Memory Retention. ResearchGate; Universitas Islam Negeri Alauddin Makassar.

https://www.researchgate.net/publication/378274163_The_Effects_of_Digital_Amnesia_on_Knowledge_Construction_and_Memory_Retention

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This peer reviewed study evaluates the effectiveness of digital amnesia's impact on cognitive and memory performance. Their results find a significant disparity in memory retention and information processing between those who rely on technology for memory and those who do not. This showcases the heavy impact that using technology to remember things can play in our lives and just how much of a change it can make. The article also offers solutions to mitigate the effects of technology usage on memory. As a Tier 1 peer-reviewed study, this article boasts tremendous credibility in addressing the issues of reliance on technology for memory. Moreover, It provides substantial evidence and statistics to support the aforementioned claims.

Annotation 5 - Peer-Reviewed Survey (evidence/context)

Harvey, M., Langheinrich, M., & Ward, G. (2015). Remembering through lifelogging: A survey of

human memory augmentation. *Pervasive and Mobile Computing*, 27, 14–26.

<https://doi.org/10.1016/j.pmcj.2015.12.002>

This peer-reviewed survey discusses an up and coming trend known as 'lifelogging,' whereby people employ assistive memory technologies, such as wearable sensors and cameras to 'log' every day life. This allows human memory to be extended beyond its base capacity. The article explores its effectiveness and concludes with the need for further evaluation. It explains its usefulness, but questions if its long term usage will ultimately impair memory rather than assist it. As a Tier 1, peer reviewed article, it provides tremendous credibility in its results. The survey provides context towards what assistive memory technologies currently look like, as well as their implications. These

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implications can serve as evidence both for and against the use of technology to assist memory as the study finds mixed results.

Annotation 6 - Peer Reviewed Study (evidence)

de Joode, E., van Heugten, C., Verhey, F., & van Boxtel, M. (2010). Efficacy and usability of assistive technology for patients with cognitive deficits: a systematic review. *Clinical Rehabilitation*, 24(8), 701–714. <https://doi.org/10.1177/0269215510367551>

This peer-reviewed study aims to evaluate the effectiveness of assistive memory technology for people with cognitive impairment. It claims that the technology is properly effective and useful for aiding the cognitively impaired demographic with a variety of issues. However, the article claims, the technology does have its limitations, and can actually further impair memory deficits in people in some rare instances. As a Tier 1 source, it harnesses immense credibility of its authors and other studies reviewed within the article. It provides a framework of credibility for both sides of the main argument, showcasing assistive technology's strengths and weaknesses.

Annotation 7 - Peer-Reviewed Article (evidence)

Călinescu, A. (2024). View of The Impact of Digital Technologies on Memory and Memory Studies. Ekipub.com. <https://journals.ekipub.com/index.php/jcpas/article/view/161/117>

This peer-reviewed article aims to evaluate the impacts of digital technologies on both memory and memory studies. The article concludes that digital technologies are both a positive and a negative. On one hand, they allow profound access to immense magnitudes of knowledge and research at one's fingertips. On the other, they claim, over reliance on

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said technologies can lead to a plethora of challenges, such as information overload, memory deficits, digital amnesia, and privacy concerns. Yet, they claim that as these technologies become more and more abundant, humans will do what they do best: adapt to the ever changing world we live in. As a Tier 1 source, this article has tremendous credibility towards all of its claims. Its numerous pros and cons can serve as evidence for both sides of the argument, making it a valuable source.

Annotation 8 - Peer-Reviewed Article (evidence)

Mandolessi, S. (2024). Memory in the digital age. Open Research Europe, 3, 123–123.

<https://doi.org/10.12688/openreseurope.16228.2>

This Peer-Reviewed article argues that, despite the innovations that have undergone to memory as a result of technological advancement, it is not a new era of memory. Instead, they argue, memory technologies are just an extension of existing human memory systems and the idea of collective memory. This article will allow the counterargument to advocate for the insignificance of memory technology and its impact on human memory as a whole. As a Tier 1 source, the article has high levels of credibility towards its arguments. It can provide evidence towards denying the heavy impact of technology on memory as it argues how technology reliant memory is indifferent from contemporary collective human memory.

Annotation 9 - Peer Reviewed Article (Context/Evidence)

Kanbay, Y., Babaoglu, E., Yalcinturk, A. A., & Akcam, A. (2025). Digital Amnesia: The Erosion

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of Memory/Dijital Amnezi: Hafizanın Erozyonu. Psikiyatride Güncel Yaklaşımlar/Current Approaches to Psychiatry, 17(3), 544+.

<http://dx.doi.org/10.18863/pgy.1539145>

This peer reviewed article encompasses a high magnitude of research about the phenomenon known as Digital Amnesia. It provides high amounts of context and exposition towards the issue as well as explaining how and why these processes occur. Overall, it showcases the heavy negative impacts of technology on memory, and provides solutions to mitigate said impacts. It will allow me to argue that the use of technology diminishes overall memory and cognitive function. As a Tier 1 source, it provides accurate and convincing evidence of the aforementioned processes, and has large amounts of credibility when used to support related arguments. It provides both context and evidence by explaining what the issue is and the implications of it respectively.

Annotation 10 - Peer Reviewed Study (Evidence)

Yuce, A. E. (2025). Cost of Being Online for Brain: Changing Working Memory Attributes, Associated Metacognitive Knowledge and Long-Term Memory Processing/Cevrimiçi Olmanın Beyin İcin Maliyeti: Çalışan Bellek Niteliklerinin Değişimi, İlişkili Ustbilisellebilgi ve Uzun Sureli Bilgi İşleme. Psikiyatride Güncel Yaklaşımlar/Current Approaches to Psychiatry, 17(1), 166+. <http://dx.doi.org/10.18863/pgy.1433144>

This peer reviewed study discusses the relationships between high usage of the internet and levels of activity with different parts of the brain associated with memory. It highlights various trends that can help argue both for and against the notion that technology usage for memory keeping purposes depreciates the value of one's actual

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memory. Moreover, the article discusses ways in which the increased reliance on technology for remembrance can be mitigated. As a Tier 1 peer-reviewed source, the paper aids in providing evidence towards multiple perspectives, although some more than others, by providing a large amount of data and correlations.

Annotation 11 - Peer Reviewed Article (Evidence)

Schacter D. L. (2022). Media, Technology, and the Sins of Memory. *Memory, mind & media*, 1, e1. <https://doi.org/10.1017/mem.2021.3>

This peer reviewed article discusses the varying effects of technology and media usage on four “sins” of memory: transience (forgetting over time), absent-mindedness (lapses in attention that produce forgetting), misattribution (attributing a memory to the wrong source). It discusses a variety of sources and evaluates the effectiveness of various correlations. It finds technology to have a bigger impact on some of the sins compared to others. Because of this, it suggests that no major claims be made about a true correlation between technology and memory. It even goes as far as to say some sectors of technology can actually aid memory rather than harm it. Thus, this Tier 1 article can provide major evidence for a multitude of perspectives.

Annotation 12- Stimulus Materials/Reputable Article (Context/Evidence)

Norberg, J. (2022, January). False Nostalgia. Reason; Reason Magazine.

<https://reason.com/2021/12/05/false-nostalgia/>

This credible article provides various insights into the skewage of people’s perspectives due to nostalgia. And, although it is not directly related to the relationship between

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technology and memory, it provides evidence of the implications of the displacement of memories as well as evidence as to how this can occur. This can be used as context to situate the effects and significance of memory displacement in the real world and show just how pressing this issue can be. Moreover, it can be used as evidence to show that people's memories are in fact being skewed, as well as the processes by which this skewage occurs. Overall, this tier 3 source provides excellent insights into the falsification of memory due to nostalgia and can connect and situate to the context at hand.

Annotation 13 - Stimulus Materials/Reputable Essay (Context/Evidence)

Binney, J. (2004, October). Maori Oral Narratives, Pakeha Written Texts.

Ndhadeliver.natlib.govt.nz.

https://ndhadeliver.natlib.govt.nz/delivery/DeliveryManagerServlet?dps_pid=FL3985438

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This reputable essay discusses the trials, tribulations, cultural communications, oral histories, and ideas of the Moari people and their dealings with the Pakeha people in terms of memory. Although not directly correlated to any technology, it discusses two major types of historical transfer: Maori Oral Narratives and Pakeha Written texts. When a third type, technology, is introduced, it adds a new level of interplay, comparison and correlations of the differing types of memory. This essay can provide context in describing contemporary types of memorial exchange that can be added onto by modern practices. It can also provide evidence as to the effects of these varying types of memory.

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Overall, although this Tier 2 source is not directly relevant, it adds another level of interplay by describing other types of memorial exchange, allowing for new perspectives.