

# THE INTERSECTION OF MEDIA TECHNOLOGY AND HUMAN ATTENTION:

## A REVIEW OF COGNITIVE OVERLOAD RESEARCH

### Background of Study

The evolution of media from the traditional media to electronic media has fundamentally transformed creation, distribution, and use of information. Pre-social media communication tools were newspapers, magazines, Radio and Television, this media operated on a fixed schedules and emphasized passive audience engagement (Andrey, 2024). On the other hand, digital media makes use of internet-based platform for interactivity, update options and user-generated content (Babu & Barik, 2024). This kind of media system is referred to as 'mediamorphosis' because it combines traditional and digital media (Nwammuo, 2014). Mobile devices and other technological innovations such as AI have made media consumption expression inherent to day-to-day life (Anna & Frank, 2020). Since existing trends are in a way leaning more and more towards digital platforms especially among younger demographics, New traditional and old digital paradigms are further reshaping people's communicational and interpersonal interactions in modern society (Roy, 2023) .

Cognitive overload occurs when an excess of information hits an individual's mental capacity, which is usually because of media platforms. According to Cognitive Load Theory this interferes negatively with attention and working memory as mental resources are fully consumed which decreases cognition outcomes (Sweller, 2011). Contemporary media increases the amount of cognitive load through notification and endless scroll, and multitasking, which always disrupts attention and decreases working memory capacity. It reduces effective decision making and the ability to concentrate and generate work output and relates to emotional outputs that include anxiety and mental exhaustion (Douglas & Daniel, 2019). If they persist over time, such impacts result in reduced quality of life and even hamper efficient engagement with tasks.

(Ophir et al., 2009) study show that peoples' productivity declines in environments that are awash with phone's notifications in that the constant distraction disrupt their concentration leading them to be overloaded cognitively and reduce their efficiency during

tasks. Media multitasking, which means doing several tasks at once hampers task productivity and overall well-being by reducing focus and increasing stress levels (Larry et al., 2024). Balanced media consumption, such as scheduled breaks and minimizing multitasking is likely to lead to better focus on individual tasks (Albert et al., 2018). Effective strategies include being mindful at work and following some or the other method to lessen the load on the human brain (Albert et al., 2018). Consumers' media dependency has shifted, and the consequences are that productivity decreases as well as mental health problems grow. Understanding media's effects is important in the development of strategies that would help in achieving a healthier work-life integration (Kuss & Griffiths, 2017).

## Aim and Objective

The aim of this research is to critically review existing studies on the intersection of media technology and human attention, with a focus on how advancements in media contribute to cognitive overload and attention deficits.

The objectives are as follows:

1. Evaluate key literature to identify trends, gaps, and contradictions in current research on media technology and cognitive overload.
2. Analyze the impact of media-induced attention deficits on individual and organizational productivity.
3. Explore how cognitive overload influences mental and emotional well-being.
4. Suggest actionable recommendations and areas for future research to address unresolved issues and advance the field of study.

## Literature Review

### Cognitive Overload and Media Technology

Cognitive Load Theory shows how media technologies increase cognitive load beyond the human brain's ability to manage information processing (Sweller, 2011). Social media increases working memory due to constant notifications and rapid information flow, while it decreases attention and decision making (Brom et al., 2022). Streaming platforms

increase overload by using binge-watch actions and plot structures that stress cognitive limits (David et al., 2015). For similar reasons, video games require integration of sensory information and decision making, which can overwhelm users (Paas et al., 2014).

Comparative research between digital and traditional media show that the former presents a higher amount of cognitive load because of the element of interactivity and multi-tasking inherent in the new media (Skulmowski & Daniel, 2024). Cognitive effort that traditional media demand is less compared to interactive media due to its capacity in supporting deeper processing and leads to better retention as shown by (Ko & Choi, 2024). Such results point to variations in cognitive involvement across the media platforms.

Nevertheless, there are several research gaps that one can identify. Skulmowski & Daniel, (2024) do not discuss how overload is amplified about features of digital learning environments. (David et al., 2015) describes the significance of AI in personalization but still tags this exploit with the usual question regarding its effects on cognition in the long run. Moreover, (Halpern, 2014) categorise “doomscrolling” as a stressor without mentioning the impact it has on the cognitive overload. Perhaps filling these gaps could enhance the knowledge of media-related cognitive problems respectively.

### Attention and Concentration

Intensive and continuous media consumption invariably leads to interruption and information overload. Frequent notifications and multitasking disrupt cognitive activities and create cumulative cognitive tiredness (Adler & Benbunan-Fich, 2013; Ophir et al., 2009). Multitasking particularly reduces task performance generated from ineffectiveness in switching from one task to another, thus resulting in higher likelihood of making mistakes, and low recall of information (David et al., 2015). These disruptions are further exacerbated in rapid information environments like the social media in which only simple and quick digestion of information overwhelms a profound understanding (Cai et al., 2016).

Algorithmic content delivery worsens the effect since people are exposed only to reinforcing content, encouraging high-level, superficial interaction rather than deep, thinking-based one (Adler & Benbunan-Fich, 2013). The effects of these factors are also moderate by user-specific factors such as age and digital literacy. The individual differences are that younger users are more adaptable to digital environments that are

encapsulated to being more flexible than older adults, owing to their reduced cognitive flexibility (Blackwell et al., 2013; Diamond, 2013). Digital literacy is another variable that in turn helps users to cope with distractions better (Mayer, 2019).

Despite these findings, critical gaps remain in understanding long-term effects of media-induced attention deficits. Although the work by Adler & Benbunan-Fich, (2013) and Cai et al., (2016) focus on short-term consequences, they fail to discuss how executive dysfunction persistently changes in academic or professional environments. Similarly, studies like Mayer, (2019) does not address scalable ways of improving digital literacy that can offset these effects adequately. Furthermore, Diamond, (2013) discussed challenges that interface age but fail to address the relationship between technology expertise and cognitive flexibility adequately. These gaps mean there is a need for more studies, which would shed more light on media's effects to mental health and efficiency.

### Implications for Productivity

Due to distraction, caused by media multitasking, it hampers both academic and workplace performance in students. (Ophir et al., 2009) claimed that cost of Cognitive control linked with task switching reduces efficiency of working on the assigned task. The “switching cost”, described by Liu et al., (2018) illustrates that when switching from one task to the next, individuals lose time and make more mistakes. Blaj-Ward & Winter, (2019) building on this said that just the mere presence of digital devices interferes with attention.

Thus, cognitive overload hinders the processing of information in academic environments and according to Liu et al., (2018), interruptions slow down learning. This is especially the case when extended concentration is likely to be needed for retention and understanding (Weihong et al., 2024) To prevent these effects Gu et al., (2024) suggest using digital self-regulation methods like Pomodoro Technique to overcome the problem of distractions and improve focus.

However, several critical gaps still exist in learning more about the effects that arise from the occurrence of the cognitive overload. The cost of overhead distraction is, by now, a familiar phenomenon due to its immediate negative impacts, but the question relating to distraction's cumulative impact on the quantity and quality of work remains unanswered, as suggested by Tawaziwa & Jacob, (2024). Furthermore, in their study (Biedermann et al.,

2021) recommend future research on the chronic effects of media multitasking on career trajectories and economic returns.

### Effects on Well-Being

Media technology causes cognitive overload, and thus exerts substantial influence over psychological fitness and work-pressure related stresses along with other forms of anxiety and work-burnout. Pang et al., (2024) identifies 'social media fatigue' referring to emotional exhaustion and disconnection from the real-life interactions that prove that social media can be destructive when used excessively. In this regard, Omar, (2024) also note that the Facebook use is significantly correlated to burnout level of healthcare workers and specifically stress the worsening of burnout by social media utilization. Ethan et al., (2013) also show how the continuous stream social media augments state-level anxiety and depressive experiences.

The impacts of media-induced stress vary across demographics. Studies like Omar, (2024) and Ni et al., (2020) shows that younger individuals are more vulnerable to social media addiction and burnout than older generations. There is also evidence of higher adverse impact on the people in the high-stress occupation, especially the healthcare workforce. In Han et al., (2020) view, more time spent on social comparison makes people feel incompetent and weary, highlighting the interplay between personal and professional digital engagements.

Current studies on social media fatigue by Pang et al., (2024) lacks insights regarding the indirect cumulative consequences of excessive engagement. Literature reviews by Omar, (2024) and Han et al., (2020) pay insufficient attention to the context features such as organizational support and coping resources. In addition, the actions based on the perspective from Calandri et al., (2017) and Biedermann et al., (2021) are fragmented and do not consider the potentials of the multidisciplinary approaches. It is, therefore, pertinent to fill these gaps through a synthesize literature from psychology, sociology and information technology to come up with comprehensive interventions to reduce cognitive overload.

## Methodology

This study followed a systematic and principled approach to identification, selection, and analysis of literature related to the use of media technology and impact of cognitive overload and poor attention. The process began with the comprehensive search of only academic sources from affiliated databases like Scopus, Springer Link & Google Scholar. Keywords were selected relevant to the subject to stress the range of the issue. These keywords as primary are media technology, cognitive overload, attention deficits, productivity, and well-being. Some of the descriptive term strings included: Boolean operators, “media technology AND cognitive overload”, “attention span AND productivity”. To keep the various analyses modernized, the search was restricted to journal articles, conference papers, and book chapters published between 2010 and 2024 only.

The first search through the databases, 150 sources were found. Titles and abstracts were screened to make sure they match the study’s objectives. Articles were included if they are focused on the effects of media technology on cognition, if they offer empirical or theoretical knowledge regarding students’ deficits of attention or productivity, or if they deal with well-being affected by information overload. To ensure that only the most applicable studies were included the following types of articles were excluded: If the article was not relevant to the study, non-peer reviewed and articles pertaining to other fields of study. Out of these, 20 articles have been reviewed and analysed more thoroughly based on this strict selection criteria.

Thematic analysis was used to synthesize the findings qualitatively. By using this method, it was possible to identify conceptual outlines such as, media multitasking and cognitive load, divided attention and its impact, and psychological implications of media overload. In some cases, papers were combined in groups according to the similarity of results obtained; in other cases, papers were compared to identify methodological discrepancies. To improve the replicability of the process, the search and selection process was carefully documented. Specific software as Mendeley was used to organize citations. In this manner, the study was able to maintain a structured and robust methodology, providing a solid foundation for addressing the research objectives and draw proper conclusions from the body of literature.

## Result and Findings

### Cognitive Overload in the Digital Age

Cognitive overload is contextualized by de Bruin et al., (2020) within the framework of cognitive load theory but as a result that influences self-regulation and learning in educational environments. This provided theoretical perspective provides insights into how people manage their cognitive resources under conditions of informational abundance. However, it may be limited in the current complex world that deals with large amounts of information daily because cognitive load theory addresses to static learning only, which does not consider the dynamic environment where users must switch between various tasks using different modalities. Building on this, Misra et al., (2020) investigates the link between information overload and stress in digital communication, with reference to cognitive stress and anxiety caused by vast and continuous the flow of information. These findings are consistent with real-world digital experiences, particularly showing that constantly engaging with digital technologies increases stress and may not consider a range of overload experiences that may occur between different cultural and demographic groups. Schmitt et al., (2021) move to the professional context in assessing how the extent of cognitive overload due to telework impacts performance and well-being. Their study provides a useful insight into work-related digital overload but may not be very generalisable beyond the context of telework, at least, for the type of work they are doing and in other industries settings.

de Bruin et al., (2020) does not have empirical data on digital multitasking, Misra et al., (2020) do not account for cultural differences, and Schmitt et al., (2021) provide telework findings without time variation information. Further studies should consider these limitations regarding the development of broader cognitive overload approaches.

### Media Multitasking and Its Impacts

In their article, Leysens, (2016) associate media multitasking with learning difficulties and proffer that attending to media while performing other tasks leads to cognitive overload. However, their study is mainly correlational and does not clearly show causality, and, therefore, the direction of effects is unclear. Y. Liu & Gu, (2020) define fragmented reading as one of the key components of multitasking, the negative effect of which on attention and

comprehension is noted. They illustrate how fragmented processes interfere with cognition but do not explore individual difference or adaptive strategies. Harvey & Pointon, (2017) focus on disruption that is caused by mobile device highlighting the difference between passive interruption like notification from active multitasking. Nonetheless, their observation-based approaches are weak at describing the rich details and dynamics of complex multitasking behaviours such as balancing task relevance and distractions.

In terms of research approach, Leysens, (2016) limited sample diversity raises concerns about the generalizability of their findings. In their experimental design, Y. Liu & Gu, (2020) design independent variables such as reading difficulty but overlooks individual multitasking tendencies. Most of Harvey and Pointon's (2017) arguments are based on surveys and not real-world multitasking situations. While practical implication varies: Leysens et al (2016) suggest that multitasking should be discouraged in academic contexts but provide idealistic, not practical suggestions. Y. Liu & Gu, (2020) offer suggestions for designing digital learning materials to avoid fragmented processing. Harvey and Pointon (2017) suggest how mobile distractions could be managed but fail to address changing patterns of use for devices. The future research should focus on causality, adaptive strategies, and the benefits of multitasking.

### Attention Fragmentation and Productivity

Clemente-Suárez et al., (2024) describe attention fragmentation as being particularly damaging to both task completion effectiveness and efficiency. Their study employs a controlled experimental design based on a set of conditions to test distinct mechanisms such as notification interruptions. However, their focus is limited to mobile devices only, potentially limiting applicability. Practical implications for employees are mostly realistic though not entirely applicable to today's tech-reliant environment. On the other hand, Wu et al., (2021) associate fragmented attention with learning comprehension employing cognition and learning tests. Although, their approach has a high level of methodological accuracy, it inadequately addresses differences in performing multiple tasks. Their contributions have implications for developing educational content and resources, but these contributions do not extend to proposing clear inclusion-enabling instructional practices to support the variety of students. Mental fatigue is examined through the neurobiological approach in the work by Tran et al., (2020) revealing the influence of mental



fatigue on the attention fragmentation based on the EEG data. While their integration of neural and psychological data is robust, their analysis focuses on short-term effects, neglecting longitudinal implications. Their findings highlight potential interventions for study and/or prevent fatigue within the working and studying environment albeit being hampered by the low sample size and generalization.

Methodologically, Clemente-Suárez et al., (2024) use only observational studies with inadequate demographic diversity, whereas Wu et al., (2021) base their arguments on cognitive tests, giving stronger evidence for the necessity of an adverse impact. Tran et al.'s (2020) study of EEG adds biological plausibility, however, sampling on such research should be extended and more diverse in the future.

### Well-being and Psychological Implications

Correlations between digital environments and well-being have been established and different psychological effects identified across the studies. In their article, Husain et al., (2024) investigate the concept of digital detox focusing on the triangle of well, being and Work Productivity with the strategies on how to disconnect without negatively affecting performance. While they raised pertinent issues, they do not present the difficulties across various sectors, and potential consequences of digital detox may be best addressed by future longitudinal research. (Zheng & Ling, 2021) define social media fatigue as a psychosocial effect caused by individual, relational, and contextual factors. Their insights, though robust, fail to capture cultural or individual differences and that requires future attempts to consider these issues. Beyens et al., (2018) associate information overload with stress, demonstrating chronic detrimental impact on psychological well-being. However, their findings could integrate different levels of digital literacy and coping styles to improve relevance among the users.

Each study offers practical recommendations referring to enhancing mental health within digital environment. More flexible detoxification approaches are described by Schmitt et al. (2021), however, their application in the context of dynamic workplaces remains uncertain. Zheng & Ling (2021) propose platform redesigns which opens a way to reducing fatigue to determine user experiences. However, Beyens et al., (2018) suggests moderation of screen time, which requires more specific, scalable interventions for varied user demographics.

## Conclusion

This review has highlighted various extents to which media technology impacts human cognitive functions, causing cognitive overload and compromised attention. The study has offered pragmatic theories to conceptualise cognitive load, showing how multitasking and micro-interaction hinder cognitive supplies, or lessen the efficiency and encourage stress and lethargy. Primary research works on the impact of media multitasking and learning reveal that when attention is divided, in terms of task switching or from mobile intermission, the results are negative on the results of the tasks and comprehension of the content. However, such limitations as small number of participants and observation biases all suggest for future research studies that aim at capturing the Cognitive effects of media in a variety of groups and contexts over much longer periods.

The psychological consequences of media-related cognitive overload were revealed with data on approaches to digital detachment and social media burnout, indicating a complex relationship between media consumption and well-being. Nevertheless, the impact of these interventions in different contexts, for different durations, and in terms of individual differences in digital literacy and stress-coping strategies is not well understood.

The results of these studies inform the fact that as with previous research conducted on media and attention(cognition), it's critical to identify potential mediates from a systems-level perspective. Further studies should therefore focus at trying to fill the gaps existing in the current literature on the long-term consequences of media use, investigating how various social categories of users perceive and manage cognitive overload. Focusing on adaptive approaches and entering in the intervention strategies, also utilising a broader range of digital tools beyond mobile devices . This will provide a comprehensive perspective, ultimately resulting into more practical recommendation for improving mental health, work output and learning in the digital age.

## References

- Adler, R. F., & Benbunan-Fich, R. (2013). Self-interruptions in discretionary multitasking. *Computers in Human Behavior*, 29(4), 1441–1449.  
<https://doi.org/10.1016/j.chb.2013.01.040>
- Albert, M., Zhu, Y., Moghekar, A., Mori, S., Miller, M. I., Soldan, A., Pettigrew, C., Selnes, O., Li, S., & Wang, M.-C. (2018). Predicting progression from normal cognition to mild cognitive impairment for individuals at 5 years. *Brain*, 141(3), 877–887.  
<https://doi.org/10.1093/brain/awx365>
- Andrey, M. (2024). *Examining the impact of new media on the news media from the integrated viewpoint of media ecology and the political economy of communication*.  
<https://yorkspace.library.yorku.ca/items/5eca01aa-fcc8-4e4f-9676-821bd9ab3f73>
- Anna, S.-S., & Frank, M. (2020). *Day-to-day routines of media platform use in the digital age: A structuration perspective: Communication Monographs: Vol 87, No 4*.  
<https://www.tandfonline.com/doi/abs/10.1080/03637751.2020.1758336>
- Babu, K. V., & Barik, B. (2024). Revitalizing a Traditional Heritage Hotel for Modern Tourism in Asia Pacific Using Influencer Marketing. In R. Tiwari, M. Scerri, & C. Lee (Eds.), *Teaching Case Studies for Tourism and Hospitality in Asia and The Pacific: With Cartoon Illustrations* (pp. 129–152). Springer Nature. [https://doi.org/10.1007/978-981-97-6047-3\\_7](https://doi.org/10.1007/978-981-97-6047-3_7)
- Beyens, I., Valkenburg, P., & Piotrowski, J. T. (2018). Screen media use and ADHD-related behaviors: Four decades of research. *Proceedings of the National Academy of Sciences*, 115(40), 9875–9881 | 10.1073/pnas.1611611114. <https://sci-hub.se/10.1073/pnas.1611611114>

- Biedermann, D., Schneider, J., & Drachsler, H. (2021). Digital self-control interventions for distracting media multitasking—A systematic review. *Journal of Computer Assisted Learning*, 37(5), 1217–1231. <https://doi.org/10.1111/jcal.12581>
- Blackwell, S. E., Rius-Ottenheim, N., Schulte-van Maaren, Y. W. M., Carlier, I. V. E., Middelkoop, V. D., Zitman, F. G., Spinhoven, P., Holmes, E. A., & Giltay, E. J. (2013). Optimism and mental imagery: A possible cognitive marker to promote well-being? *Psychiatry Research*, 206(1), 56–61. <https://doi.org/10.1016/j.psychres.2012.09.047>
- Blaj-Ward, L., & Winter, K. (2019). Engaging students as digital citizens. *Higher Education Research & Development*.  
<https://www.tandfonline.com/doi/abs/10.1080/07294360.2019.1607829>
- Brom, A., Omelchenko, I., & Maslennikova, Y. (2022). Cognitive Modeling of Digital Production Factors. *2022 4th International Youth Conference on Radio Electronics, Electrical and Power Engineering (REEPE)*, 1–5.  
<https://doi.org/10.1109/REEPE53907.2022.9731499>
- Cai, Z., Huang, Q., Liu, H., & Liang, L. (2016). The moderating role of information technology capability in the relationship between supply chain collaboration and organizational responsiveness: Evidence from China. *International Journal of Operations & Production Management*, 36(10), 1247–1271. <https://doi.org/10.1108/IJOPM-08-2014-0406>
- Calandri, E., Graziano, F., & Bonino, S. (2017). *Coping strategies and adjustment to multiple sclerosis among recently diagnosed patients: The mediating role of sense of coherence—Emanuela Calandri, Federica Graziano, Martina Borghi, Silvia Bonino, 2017*. <https://journals.sagepub.com/doi/abs/10.1177/0269215517695374>

- Clemente-Suárez, V. J., Beltrán-Velasco, A. I., Herrero-Roldán, S., Rodríguez-Besteiro, S., Martínez-Guardado, I., Martín-Rodríguez, A., & Tornero-Aguilera, J. F. (2024). Digital Device Usage and Childhood Cognitive Development: Exploring Effects on Cognitive Abilities. *Children*, 11(11), Article 11. <https://doi.org/10.3390/children11111299>
- David, F. J., Robichaud, J. A., Leurgans, S. E., Poon, C., Kohrt, W. M., Goldman, J. G., Comella, C. L., Vaillancourt, D. E., & Corcos, D. M. (2015). Exercise improves cognition in Parkinson's disease: The PRET-PD randomized, clinical trial. *Movement Disorders*, 30(12), 1657–1663. <https://doi.org/10.1002/mds.26291>
- de Bruin, A., Roelle, J., Carpenter, S., & Baars, M. (2020). *Synthesizing Cognitive Load and Self-regulation Theory: A Theoretical Framework and Research Agenda | Educational Psychology Review*. <https://link.springer.com/article/10.1007/s10648-020-09576-4>
- Diamond, A. (2013). Want to Optimize Executive Functions and Academic Outcomes? Simple, Just Nourish the Human Spirit. In *Minnesota Symposia on Child Psychology* (pp. 203–230). John Wiley & Sons, Ltd. <https://doi.org/10.1002/9781118732373.ch7>
- Douglas, P., & Daniel, R. (2019). *Media multitasking and cognitive control: A systematic review of interventions—ScienceDirect*. <https://www.sciencedirect.com/science/article/abs/pii/S0747563218305661>
- Ethan, K., Phillipe, V., Emre, D., Jiyoung, P., David, L., Natalie, L., John, J., & Oscar, Y. (2013). *Facebook Use Predicts Declines in Subjective Well-Being in Young Adults | PLOS ONE*. [https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0069841&mbid=synd\\_msnhealth%20\(https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0069841&mbid=synd\\_msnhealth\)](https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0069841&mbid=synd_msnhealth%20(https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0069841&mbid=synd_msnhealth))

- Gu, Y., Wang, C., & Ma, J. (2024). Explaining the negative effects of workplace incivility on family lives: A moderated mediation model of surface acting and resource-providing variables. *Frontiers in Psychology*, 15. <https://doi.org/10.3389/fpsyg.2024.1409144>
- Halpern, D. F. (2014). A Cognitive-Process Taxonomy for Sex Differences in Cognitive Abilities. *Current Directions in Psychological Science*, 13(4), 135–139. <https://doi.org/10.1111/j.0963-7214.2004.00292.x>
- Han, R., Xu, J., Ge, Y., & Qin, Y. (2020). The Impact of Social Media Use on Job Burnout: The Role of Social Comparison. *Frontiers in Public Health*, 8. <https://doi.org/10.3389/fpubh.2020.588097>
- Harvey, M., & Pointon, M. (2017). *Searching on the Go. Proceedings of the 40th International ACM SIGIR Conference on Research and Development in Information Retrieval—SIGIR '17* | 10.1145/3077136.3080770. <https://scihub.se/https://dl.acm.org/doi/abs/10.1145/3077136.3080770>
- Husain, M., Mushtaq, D. N., Mahsud, D. N. K., Afzal, H., Naseer, S., & Hussain, D. (2024). The Effect of Social Media Addiction on Attention Span and Aggression among University Students. *Kurdish Studies*, 12(2), Article 2. <https://doi.org/10.53555/ks.v12i2.2873>
- Ko, Y., & Choi, K. (2024). Exploring the Role of Social Factors in Cognitive Frailty among South Korean Older Adults. *Healthcare*, 12(14), Article 14. <https://doi.org/10.3390/healthcare12141394>
- Kuss, D., & Griffiths, M. (2017). Social Networking Sites and Addiction: Ten Lessons Learned. *International Journal of Environmental Research and Public Health*, 14(3), 311. <https://doi.org/10.3390/ijerph14030311>

Larry, R., Mark, C., & Nancy, C. (2024). *Facebook and texting made me do it: Media-induced task-switching while studying*—ScienceDirect.

<https://www.sciencedirect.com/science/article/abs/pii/S0747563212003305>

Leysens, J.-L. (2016). *Can I Have Your Attention, Please? Proceedings of the Annual Conference of the South African Institute of Computer Scientists and Information Technologists on—SAICSIT '16* | 10.1145/2987491.2987498. <https://sci-hub.se/https://dl.acm.org/doi/abs/10.1145/2987491.2987498>

Liu, M., Rubenstein, D. R., Cheong, S.-A., & Shen, S.-F. (2018). Multitasking and the evolution of optimal clutch size in fluctuating environments. *Ecology and Evolution*, 8(17), 8803–8817. <https://doi.org/10.1002/ece3.4364>

Liu, Y., & Gu, X. (2020). Media multitasking, attention, and comprehension: A deep investigation into fragmented reading. *Educational Technology Research and Development*, 68(1), 67–87. <https://doi.org/10.1007/s11423-019-09667-2>

Mayer, R. E. (2019). Thirty years of research on online learning. *Applied Cognitive Psychology*, 33(2), 152–159. <https://doi.org/10.1002/acp.3482>

Misra, S., Roberts, P., & Rhodes, M. (2020). Information overload, stress, and emergency managerial thinking. *International Journal of Disaster Risk Reduction*, 51, 101762. <https://doi.org/10.1016/j.ijdrr.2020.101762>

Ni, M., Yang, L., Leung, C., Li, N., Yao, X., Wang, Y., Leung, G., Cowling, B., & Liao, Q. (2020). *JMIR Mental Health—Mental Health, Risk Factors, and Social Media Use During the COVID-19 Epidemic and Cordon Sanitaire Among the Community and Health Professionals in Wuhan, China: Cross-Sectional Survey*. <https://mental.jmir.org/2020/5/e19009>

Nwammuo, A. (2014). *Mediamorphosis: Analyzing the Convergence of Digital Media Forms alongside African Traditional Media* | *African Research Review*.

<https://www.ajol.info/index.php/afrrrev/article/view/67309>

Omar, A. (2024). *Exploring the Link Between Social Media Adoption and Saudi Arabia SME's Sustainable Performance: The Moderating Role of COVID-19—Omar A. Alghamdi, 2024*. <https://journals.sagepub.com/doi/full/10.1177/21582440241293043>

Ophir, E., Nass, C., & Wagner, A. D. (2009). Cognitive control in media multitaskers. *Proceedings of the National Academy of Sciences*, 106(37), 15583–15587.  
<https://doi.org/10.1073/pnas.0903620106>

Paas, F., Renkl, A., & John, S. (2014). *Cognitive Load Theory: Instructional Implications of the Interaction between Information Structures and Cognitive Architecture on JSTOR*. <https://www.jstor.org/stable/41953634>

Pang, Q., Mengze, Z., Kum, F. Y., & Mingjie, F. (2024). *When the winds of change blow: An empirical investigation of ChatGPT's usage behaviour: Technology Analysis & Strategic Management: Vol 0, No 0*.  
<https://www.tandfonline.com/doi/abs/10.1080/09537325.2024.2394783>

Roy, R. M. (2023). *Bridging the Gap: Understanding and Fostering Intergenerational Communication in the Digital Age* | *IntechOpen*.  
<https://www.intechopen.com/chapters/1155846>

Schmitt, J. B., Breuer, J., & Wulf, T. (2021). From cognitive overload to digital detox: Psychological implications of telework during the COVID-19 pandemic. *Computers in Human Behavior*, 124, 106899. <https://doi.org/10.1016/j.chb.2021.106899>

Skulmowski, A., & Daniel, G. (2024). *Subjective cognitive load surveys lead to divergent results for interactive learning media—Skulmowski—2020—Human Behavior and*



*Emerging Technologies—Wiley Online Library.*

<https://onlinelibrary.wiley.com/doi/full/10.1002/hbe2.184>

Sweller. (2011). *Cognitive Load Theory—ScienceDirect.*

<https://www.sciencedirect.com/science/article/abs/pii/B9780123876911000028>

Tawaziwa, W., & Jacob, S. (2024). *The antecedents of employee engagement and their effect on public sector service delivery: The case study of government departments in Harare | SA Journal of Human Resource Management.*

<https://journals.co.za/doi/abs/10.4102/sajhrm.v17i0.1082>

Tran, Y., Craig, A., Craig, R., Chai, R., & Nguyen, H. (2020). The influence of mental fatigue on brain activity: Evidence from a systematic review with meta-analyses.

*Psychophysiology*, 57(5), e13554. <https://doi.org/10.1111/psyp.13554>

Weihong, X., Diwen, Z., Zhongshun, L., Yongjian Wang, & Ligang, W. (2024). *Digital technology and manufacturing industrial change: Evidence from the Chinese manufacturing industry—ScienceDirect.*

<https://www.sciencedirect.com/science/article/abs/pii/S0360835223008495>

Wu, C., Zhang, Y., Huang, S., & Yuan, Q. (2021). *Does enterprise social media usage make the employee more productive? A meta-analysis. Telematics and Informatics*, 60,

101578 | [10.1016/j.tele.2021.101578](https://doi.org/10.1016/j.tele.2021.101578). [https://sci-](https://sci-hub.se/https://www.sciencedirect.com/science/article/abs/pii/S0736585321000174)

[hub.se/https://www.sciencedirect.com/science/article/abs/pii/S073658532100017](https://www.sciencedirect.com/science/article/abs/pii/S0736585321000174)

4

Zheng, H., & Ling, R. (2021). Drivers of social media fatigue: A systematic review.

*Telematics and Informatics*, 64, 101696. <https://doi.org/10.1016/j.tele.2021.101696>