Is E-reading Environmentally More Sustainable than Conventional Reading?

Evidence from a systematic literature review

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Sustainability and going green

- Environmental issues are one of today's growing concerns

- Sustainability and going green is a popular trend

- Green is more than a color.

The 2030 Agenda for Sustainable Development

IFLA Green Library Award & AIA/ALA Library Building Award

From websites

Which one do you think is Greener?
Are E-Readers Greener Than Paper Books?

E-Readers (i.e., Kindle, iPad, Computer)
Digital reading

Printed book, newspaper, journals, etc.
Traditional reading

Prevailing prejudice: environmentally preference of e-reading

- The popular stereotype is that e-reading is environmentally more sustainable than conventional.

- Digital reading saves a lot of paper, thereby saving trees

- However, many studies have shown conflicting results regarding the environmental implications of both formats (Print, digital).

- Given these controversies, we conducted a holistic review of findings comparing paper reading with screen reading from an environmental perspective (Kang et al., 2021).

Environmental aspects of digital reading

- Digital reading is part of the extensive use of ICT (Information and Communication Technology) throughout the lifecycle of creation of content to its access and use.

- The increasing use of ICT can have a significant amount of environmental impact and increase GHG emissions (Chowdhury, 2012a, 2012b, 2012c, 2013).

- Many studies have conducted a life cycle analyses (LCAs) for a variety of ICT products and services to assess their environmental impacts, and their results reveal that ICT products have both positive and negative environmental impacts (see Achachlouei, Moberg, & Hochschorner, 2015; Hischier, Achachlouei, & Hilty, 2014; Moberg et al., 2010).

Findings and conclusions

- Mixed conclusions/Inconsistent results

- Depending on various parameters

  - Parameters of user behaviors

  - The number of readers

- Digital reading also has its own negative environmental impacts

- Not enough evidence to definitively conclude which format — print or electronic — is better when considering environmental sustainability.

GHG emissions from paper books and e-books

- As shown in Figs. 2 and 3, the greater the number of users per book, the more beneficial it is to read from a printed book
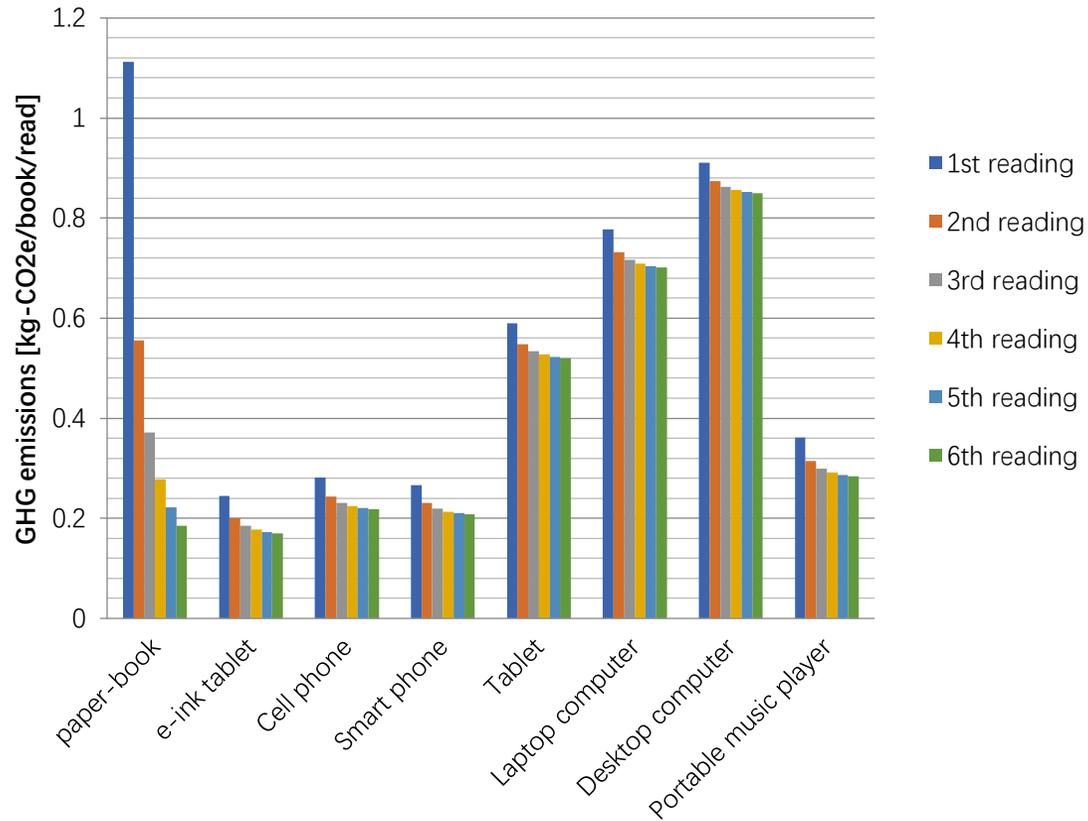

Fig. 2. GHG emissions after the reuse (reread) of paper-book and e-book read by various devices. (own work, adapted from Tahara et al., 2018).
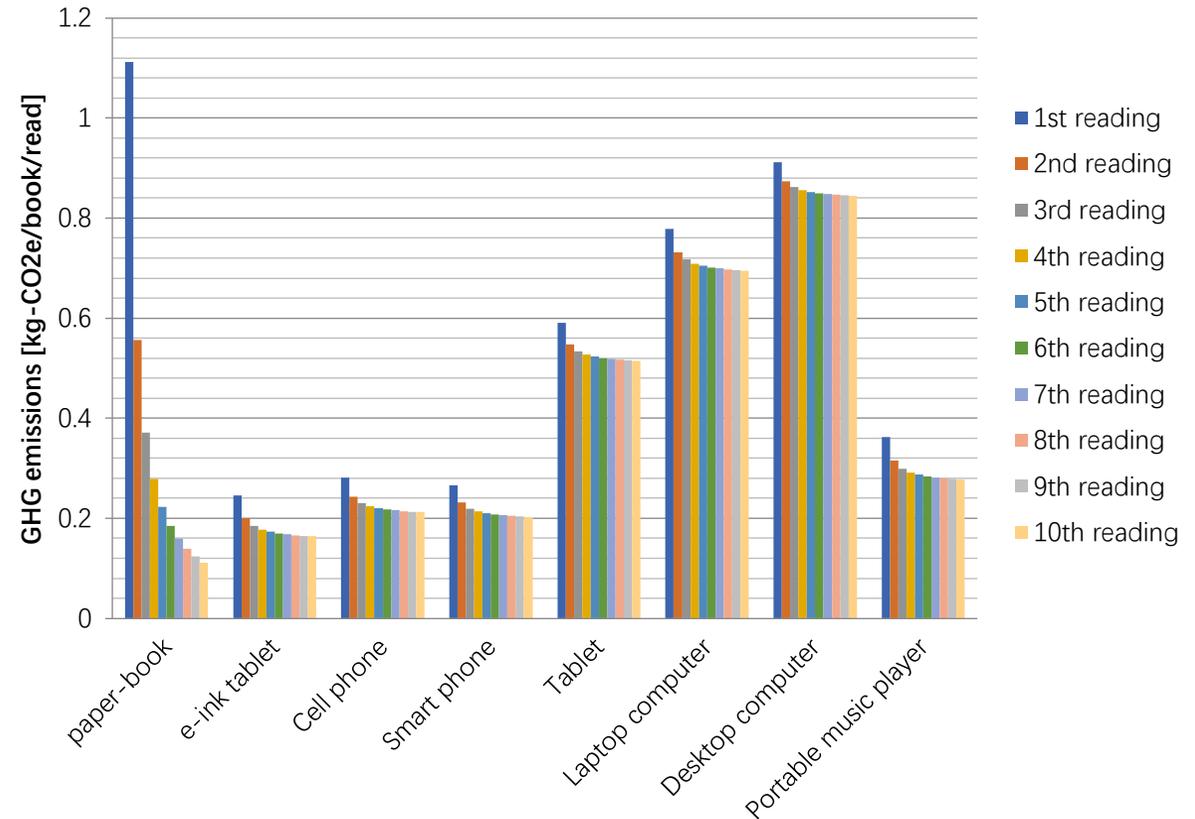
Fig. 3. GHG emissions after the reuse (reread) of paper-book and e-book read by various devices. (own work, adapted from Tahara et al., 2018).

Suggestions

- Print and digital formats complement each other to motivate and support users' information needs.

- Encourage libraries to adopt sustainability principles and practices in libraries and enhance their environmental concerns.

- Sharing digital reading devices in physical library or lending to homes.

- Walking to visit the local library for materials circulation and public facilities usage would be a better option to reduce negative impacts.

References

- Chowdhury, G. G. (2012a). An agenda for green information retrieval research. *Information Processing & Management, 48*, 1067–1077.
- Chowdhury, G. G. (2012b). Building sustainable information services: A green IS research agenda. *Journal of the American Society for Information Science and Technology, 63*, 633–647.
- Chowdhury, G. G. (2012c). How digital information services can reduce greenhouse gas emissions. *Online Information Review, 36*, 489–506.
- Chowdhury, G. G. (2013). Sustainability of digital information services. *Journal of Documentation, 69*, 602–622.
- Achachlouei, M. A., Moberg, Å., & Hochschorner, E. (2015). Life cycle assessment of a magazine, part I: Tablet edition in emerging and mature states. *Journal of Industrial Ecology, 19*, 575–589.
- Hischier, R., Achachlouei, M. A., & Hilty, L. M. (2014). Evaluating the sustainability of electronic media: Strategies for life cycle inventory data collection and their implications for LCA results. *Environmental Modelling & Software, 56*, 27–36.
- Tahara, K., Shimizu, H., Nakazawa, K., Nakamura, H., & Yamagishi, K. (2018). Life-cycle greenhouse gas emissions of e-books vs. paper books: A Japanese case study. *Journal of Cleaner Production, 189*, 59–66.

Future Reading

- Kang, Q., Lu, J., & Xu, J. (2021). Is e-reading environmentally more sustainable than conventional reading? Evidence from a systematic literature review. *Library & Information Science Research, 43*(3), 23-31.

- Kang, Q. (2020). Library directors' concerns and attitudes towards going green and sustainability in China: An unexplored area. *Journal of Librarianship and Information Science, 52*(2), 382-398.

- IFLA Green Library Award. https://www.ifla.org/g/environment-sustainability-and-libraries/ifla-green-library-award/

Thank You!

Any Questions?