Analysis of the Factors that Influence Consumers' E-waste Recycling Behaviour: Review & Case Study

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Background

- E-waste includes unwanted electronic equipment as well as batteries and fluorescent lights[1].
- Recycling electronics prevents e-waste from being illegally exported and reduces the chances that toxic materials, such as lead and mercury, pose a threat to the environment and human health[2]. Recovering resources such as gold, silver, copper, and palladium so that they can go back into circulation as materials for new products has the potential to aid in satisfying the demand for virgin-mined materials[3].
- Canada generated 757 kilotonnes (kt) of e-waste in 2019. It is estimated that 15 percent of e-waste was formally collected and recycled in the country[4]. However, approximately eighty percent of Canadians have end-of-life electronics at home[5].
- Ontario Regulation 522/20 under the Resource Recovery and Circular Economy Act (RRCEA) requires that producers of Electric and Electronic Equipment (EEE) be responsible for the collection of EOL (end-of-life) electronics[6]. To comply, EEE producers have the option to design and implement their own collection networks for EOL electronics.

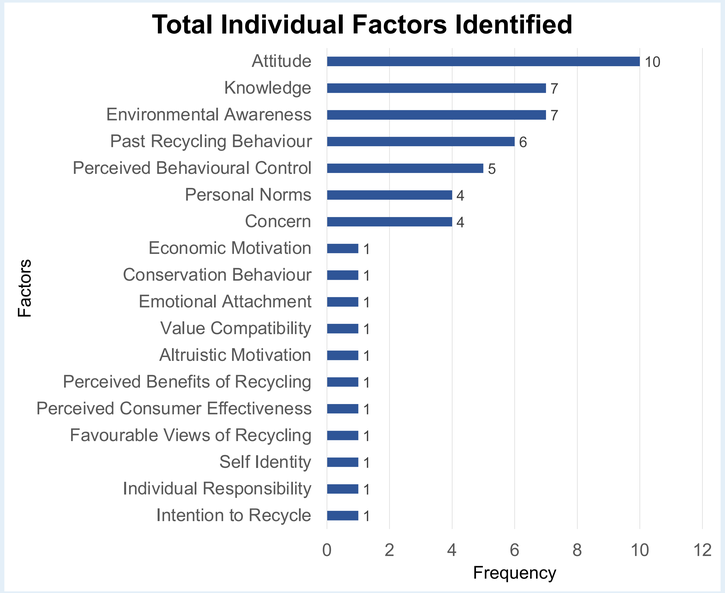
Research Questions

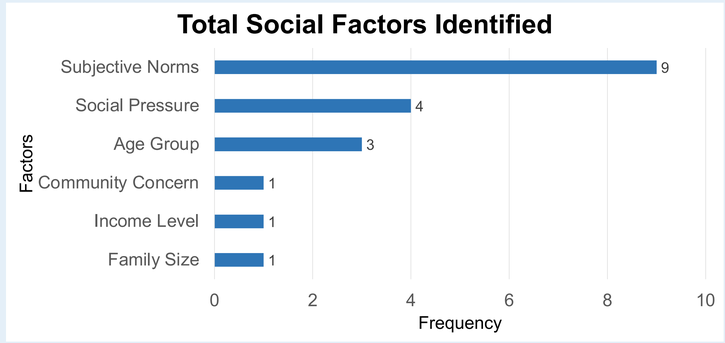
- What are the key factors that most influence consumers' participation in e-waste recycling behaviour?
- How are factors that most influence consumers' e-waste recycling behaviour reflected in Ontario's e-waste collection networks?

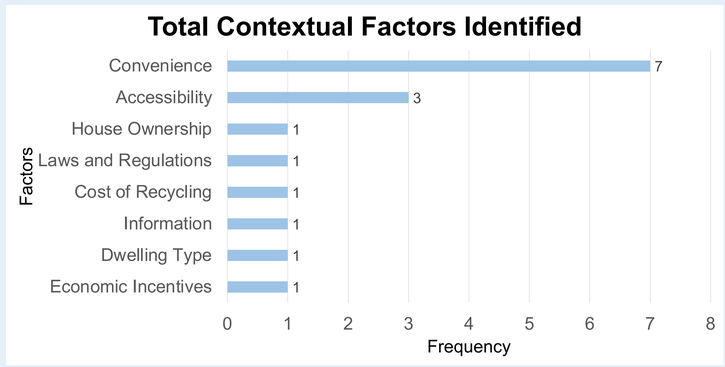
Methods

- This research paper utilizes qualitative, mainly secondary data to address the research questions. This research seeks to provide further understanding into the nature of e-waste recycling behaviour and its relevance as a tool to build effective e-waste collection networks. A literature review was conducted to gain an understanding of the relevant factors that influence e-waste recycling behaviour.
- A total of 28 articles were reviewed. These were carried out in 14 different countries.
- The factors found in the reviewed literature were then prioritized and ranked according to the frequency in which they are categorized as determinants of behaviour in the available literature
- The research paper analyzes how factors can be integrated into the design of collection networks in Ontario, considering the recent regulation that came into effect in January 2021.

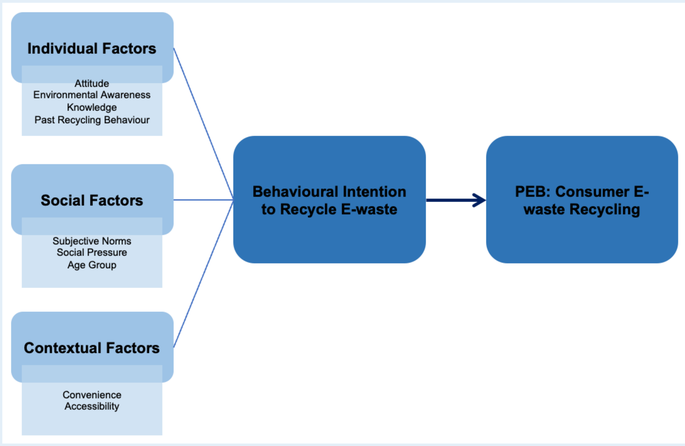
Results







Discussion



Recommendations

- **Increase positive attitudes and perceived behavioural control towards e-waste recycling**
  - E-waste recycling systems should be designed with convenience and accessibility in mind.
  - The e-waste recycling system should then be easy to use, by both operators and consumers. Collection or drop-off sites should be installed in strategic locations that are in close proximity to consumers, both by car and public transport.
- **Design proper communication channels to improve consumers' knowledge and awareness of recycling**
  - Producers must ensure that the public is well-informed about e-waste recycling collection networks, including clear messaging on e-waste recycling benefits, the producers' commitment to e-waste recycling, and information about collection locations and schedules.
  - Campaigns to increase environmental awareness should focus on children as the future recycling market and middle-aged individuals given the age effect found on literature.

References

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