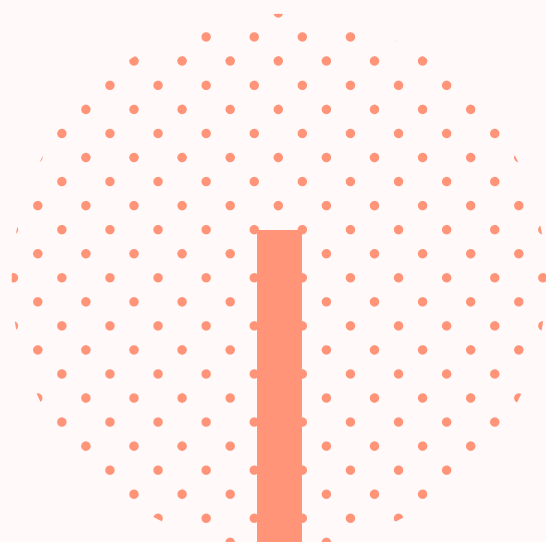


EVALUATING AGE BIAS IN E-COMMERCE

COMMUNITY
REPORT



EVALUATING AGE BIAS IN E-COMMERCE

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ABSTRACT

Background: Software is designed with specific targets which potentially introduce biases. Within the e-commerce domain, the older demographics have often been overlooked. The objectives of this paper include evaluating what facets influence how users from different generations interact with e-commerce applications and developing personas for these cohorts accordingly.

Methods: We employed a qualitative study through semi-structured interviews, research and grey literature, and performed mixed methods research analysis using deductive thematic analysis and quantitative analysis. The interviewees within the study were split based on our defined age groups which are Generation Z (Gen Z) combined with Generation Y (Gen Y), Generation X (Gen X), Baby Boomers (BB) and Silent Generation and beyond.

Conclusion: Our research provides a baseline for evaluating age bias in e-commerce applications through the developed personas for the different generation groups considered in our research.

Implications: This research is expected to provide a basis for the age-inclusiveness Magnifier (AgeMag) which can be further developed within industry.

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BACKGROUND / AIMS

Age bias in software can be described as inconvenient features that make it difficult for certain age groups to use the software application. Considering the growing population of older individuals, there is likely to be a higher usage of technology by the older generations. The implications of age bias can impact a user's e-commerce experience. This age bias issue can be mitigated by the development of a framework to guide software developers in creating more age-inclusive software.

The aim of the research is to build upon existing research on age-related behavioural variances and the InclusiveMag method to establish an applicable methodology for identifying age biases in e-commerce software.

METHODS / WHAT DID WE DO?

- All interviewees aged 18 and above were invited to participate through email between September and October.
- The participants were split into 4 age groups:
 - Gen Y and Gen Z (18 - 39 years old)
 - Gen X (40 - 55 years old)
 - Baby Boomers (56 - 74 years old)
- Participants were interviewed through Zoom and undertook a demonstration to observe the interactions with e-commerce applications based on their age group.
- The study was approved by the Monash University Human Research Ethics (MUHREC) Committee [Ethics ID 26123].

SUMMARY OF FINDINGS

- Our data shows that 94% of the participants indicated that the text size on e-commerce websites are acceptable and adequate.
- Our interview data suggested that 77.8% of the participants consider risk while using e-commerce applications.
- All Baby Boomers who expressed that they did not store card details on e-commerce applications used secure payment methods such as Paypal for purchasing items.
- 80% of generation X participants displayed a similar behaviour as only one participant, participant 10, stated that they still use their credit card while buying items online.
- For generation Y-Z participants, only 60% of those who said they do not store their card details on e-commerce applications stated they would use secure payment methods.
- Most participants compared items before buying them.
- Those that compared items are likely to also read reviews before buying them, except for the Baby Boomer generation.
- Our research developed three personas for the three generational groups.
- Each persona consists of customizable characteristics such as name, work, location, gender, goals and age as long as the age value lies within the valid generation ranges.

REFERENCES

1. Australia Post. (2020) Inside Australian Online Shopping 2020 eCommerce. [Online]. Available: <https://auspost.com.au/content/dam/auspost/corp/media/documents/2020-ecommerce-industry-report.pdf>
2. C. Mendez, "The inclusivemag method: A start towards more inclusive software for diverse populations," 2020.
3. M. Burnett, S. Stumpf, J. Macbeth, S. Makri, L. Beckwith, I. Kwan, A. N. Peters, and W. Jernigan, "Gendermag: A method for evaluating software's gender inclusiveness," *Interact. Comput.*, vol. 28, pp. 760–787, 2016.
4. T. Smith, "Senior citizens and e-commerce websites: The role of perceived usefulness, perceived ease of use, and web site usability," *Informing Science*, vol. 11, 2008.

CONCLUSIONS

- Our analysis indicates that Risk Aversion influences the behaviour of users using e-commerce applications.
- Personas were developed with our facets and themes findings and could be used to identify age-inclusiveness issues in real-world e-commerce applications.