

Information and Communication Technology Acceptance and Digital Inclusion among Elderly Users

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Information and Communication Technology (ICT) has the potential to empower the elderly and improve quality of life by sustaining functional independence and effective communication. Nonetheless, with increased pervasiveness of ICT, technology acceptance and use among the elderly is limited. The elderly have limited training and exposure to the widely accessible ICT as it emerged into their lives at a much later stage than the younger generations, leading to a digital divide. Some researchers argue that ICT use is reduced among the aged due to an unfavorable attitude towards digital technology, arising from fear, anxiety, lack of motivation, and interest in learning about newer technology. Due to low self-efficacy and under-confidence, some elderly users anticipate difficulty in learning new technology and question their ability to learn and use digital technology. They often experience anxiety due to limited information-technology literacy, unfamiliarity with digital platforms, fear of negative consequences of errors, and express unwillingness to use social media and technology. Those who feel intimidated and anxious do not adopt digital technology easily. These self-imposed barriers are associated with reduced use of ICT among the older generation. However, older individuals who are independent, persevering, and optimistic are more accepting of ICT. Therefore, there is a need to systematically understand the potential difficulties and expectations of the elderly regarding ICT use. This study is a qualitative investigation to explore the needs, attitudes, and perceived limitations of the existing ICT platforms from the perspective of the elderly.

Twenty healthy individuals [12 females (M= 65.1, SD= 3.8); 8 males (M= 68.8, SD= 1.8)] between the ages of 60-75 years were recruited online via purposive sampling. A brief

survey on the nature of technology use was administered online using Google Forms, followed by telephonic semi-structured interviews. The interview questions primarily explored the role of ICT platforms, user experiences, need for assistance or training, and the preferred changes for ICT platforms to enhance technology adoption among the elderly. The interviewer probed the participants to obtain a detailed understanding of their experiences. The data was analyzed manually following the stages of thematic. The interviews were transcribed, and the data was anonymized by assigning a code name for each transcript. The transcripts were compared by other authors for accuracy and familiarized by repeated reading. Further, the key sentences and phrases were identified and labelled by open coding, and the initial codes were formed manually. The initial codes were further arranged into sub-themes based on similarities. The sub-themes were categorized based on similarity into four major themes, which accurately reflected that data. The codes and themes were reviewed by each author to ensure consistency of the data, following which the themes were named and defined to enhance their clarity. Finally, the quotations corresponding to each theme were extracted. The data was finally interpreted, analyzed, and reported. The study was ethically approved by the Institute Human Ethics Committee (IHEC), the Indian Institute of Technology Roorkee, with protocol number IHEC No.: BT/IHEC-IITR/2020/7004/15.

Thematic analysis of the interview transcripts yielded four overarching themes based on the subjective responses of the elderly participants. The themes are: i) Usability of ICT, ii) Anxiety and privacy concerns, iii) Self-perception of technology use, and iv) Need for technology literacy and inclusive design. The theme 'Usability of ICT' encompasses various ways in which ICT contributes to the life of the elderly. ICT is majorly used for communication, entertainment, and professional purposes. Some participants perceive ICT to be structured and accessible, while others feel confused and are unable to navigate effectively. The theme 'Anxiety and privacy concerns' encapsulates several reasons like

unfamiliarity and limited ICT literacy, negative consequences of errors, preference towards traditional methods and adherence to accustomed ways of functioning, harassment and security concerns, which impact technology adoption among elderly. The third theme, 'self-perception of technology use,' highlights that the individual differences like motivation, interest, confidence, level of trust, perseverance, adaptability, and optimism influence technology acceptance. Individuals with higher self-efficacy and favorable attitudes are more accepting of ICT. The fourth theme portrays the need for awareness about the application and its functions, safety behavior, comprehensive training modules, and modifications in the user interface to alleviate challenges due to physical and cognitive deficits.

The results of our study would help understand the user experiences of the elderly, including the challenges faced while using ICT platforms, the specific preferences and expectations, which could enhance their technology adoption when addressed. Incorporating technology in their daily lives may enable them to carry out activities like shopping and banking independently. As loneliness and social isolation among the elderly is an alarming public health concern, the use of technology may allow them to engage in leisurely activities and communicate with close ones easily.

Further, the knowledge about the needs and preferences regarding the user interface of the existing platforms may help develop elderly-friendly interfaces, which would enhance the user experience of the elderly. This finding supports a previous study comparing the technology use among older and young adults. Additionally, the results indicate a need for technology literacy for the elderly through video tutorials, chat-bots, FAQs, detailed user manuals designed especially for the elderly.

ICT usage is also related to the level of education and social status of the users. Individuals who are educated and have been exposed to ICT for their occupational purposes are less anxious and are more self-reliant and confident while using web-based technology.

However, most of Indian users including professionals are unaware about the developments in ICT domain, hence it is found that it as a major challenge of adopting assistive and enabling technology. Nevertheless, the digital exclusion of a large segment of older users of ICT in India are linked to lack of accessibility to various technologies, limiting their adoption of technology. In conclusion, our results suggest that incorporating the user-needs and individual factors to the existing platforms could enhance technology adoption among the elderly. Further studies could explore the various socio-cultural and psychological factors hindering technology adoption among the elderly.