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Addressing Challenges in Graphical Interfaces for Elderly Users: A Call for UI Design Solutions in Mobile Apps

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INTRODUCTION

The quick spread of mobile phones has completely changed how people engage with digital interfaces, bringing both opportunities and challenges. Elderly people often face special difficulties when using mobile app interfaces, compared younger generation. This paper addresses the specific difficulties experienced by older users and underscores the important responsibility of UI designers in addressing these issues to develop a more inclusive digital space.

The use of mobile apps can be overwhelming for older people as they often struggle with age-related issues such as declining sensory abilities, cognitive changes, and a lack of familiarity with technology. This article details the main difficulties, such as problems with small text and icons, complex navigation structures, declining fine motor skills, cognitive load, limited digital literacy, inconsistent terminology, accessibility concerns, and insufficient feedback.

The term "elderly" refers to individuals who are advanced in age, typically associated with the later stages of life. defining someone as elderly, refers to people who are around or beyond the age of 65. The term is commonly used to describe older adults or seniors and is associated with considerations related to health, retirement, and various aspects of well-being in the later stages of life. We have defined our sample from the age of 60 considering the retirement age.

This study focuses on the most commonly used mobile application by Elderly. This paper attempts to

1. To assess the challenges faced by Elderly while using Mobile Apps
2. To explore strategies to ease the use of mobile applications of Elderly

Technology improvements, social connectivity, health and wellness concerns, entertainment options, information accessibility, ease of e-commerce, accessibility features, and chances for lifelong learning are all contributing factors to the growing usage of mobile apps by senior users. Creating user interfaces for mobile apps that cater to the special needs of senior users will improve their experience.

Beyond technological issues, UI challenges for senior users also involve social responsibility, ethical design, and understanding the varied demands of users in different age groups. We should contribute to a digital world that benefits everyone, regardless of age or ability, by making inclusive interface design a priority.

Creating user interfaces (UIs) for mobile apps targeted at senior citizens requires putting solutions in place that take into account changes in eyesight, motor skills, and cognitive capacities that come with aging. By conducting usability testing with elderly participants to gather feedback and identify potential usability issues. Mobile apps can be made more user-friendly, inclusive, and sensitive to the special requirements of the elderly, giving them a positive and convenient digital experience.

Designing user interfaces for the elderly in India presents particular difficulties because of the country's varied cultural, linguistic, and technological characteristics. Older people may like displays that are in their native language. Fonts should be able to handle different styles, and text should be easy to read. It's important to think about cultural issues. The colors,

images, and icons you use should be in line with national values and norms. It is very important to respect different religious views and practices.

In Indian society, family is very important. add features that make it easy to talk to family or helpers. While keeping privacy in mind, social features should be made to help people connect with each other. By doing user research with the intended audience, we can learn a lot about how to make interfaces fit their needs and tastes.

As per the observation mostly used apps by elders are in the Domain-specific classification of UI apps involves categorizing applications based on the specific industries or fields they serve. domain-specific classifications as these UI apps are tailored to meet the unique needs and requirements of specific user groups.

Inclusion for elders requires a human-centered strategy that incorporates older persons' specific needs, abilities, and preferences. Including inclusion principles makes the design accessible to a wide range of consumers.

LITERATURE REVIEW

Peek, S. T. M., Luijkx, K. G., Rijnaard, M. D., Nieboer, M. E., & van der Voort, C. S., in their paper titled: "Older adults' perceptions and experiences of digital technology: (Dis)empowerment, wellbeing, and inclusion", their key findings corroborate the existence of a digital gap and show how it is changing for society as a whole as well as from the ideographic standpoint of older persons who are active online. the obstacles to their use, and the ways in which older adults use technology to empower themselves and shield themselves from the negative impacts of the digital divide.

Antonios Tsertsidis, Ella Kolkowska, Karin Hedström in their paper titled: Factors influencing seniors' acceptance of technology for ageing in place in the post-implementation stage: A literature review focuses to identify factors that influence the acceptance of technology for ageing in place by seniors in the post-implementation stage. This review is among very few that focus on acceptance in post-implementation phase. their interesting finding was that the seniors' views of technology change between the pre- and post-implementation stages

Sara J. Czaja, Walter R. Boot, Neil Charness, Wendy A. Rogers in their book titled" Designing for Older Adults Principles and Creative Human Factors Approaches" Focuses on design for diverse groups of older adults which includes many examples of everyday activities and contexts it also includes basic information on user-centered design and specific recommendations for conducting research with older adults.

Ittay Mannheim ORCID,Ella Schwartz,4ORCID,Wanyu Xi ,Sandra C. Buttigieg ,Mary McDonnell-Naughton ,Eveline J. M. Wouters and Yvonne van Zaalen in their article titled: Inclusion of Older Adults in the Research and Design of Digital Technology" have discussed

Why is it Important to Include Older Adults in Research and Design of DT? How Can Older Adults Be Included in the Research and Design of DT?

CHALLENGES IN GRAPHICAL INTERFACES FOR ELDERLY USERS

UI apps under the following categories were observed: Healthcare, Educational, Financial, E-commerce, Entertainment, Communication and Social, as the design and functionality of these apps often reflect the nuances and workflows associated with each domain. Developing graphical user interfaces for older adults presents distinct difficulties since ageing affects vision, cognitive function, and motor ability. To keep older users engaged, it's imperative to make sure the content they see is pertinent and meaningful to them. In order to overcome these obstacles, designers ought to think about implementing inclusive design principles, offering alternatives for customisation, and carrying out usability tests on senior users to get insightful input for improvement. Additionally, developing interfaces that meet the various demands of senior users requires strict adherence to established accessibility guidelines.

UI DESIGN SOLUTIONS FOR ELDERLY

When creating mobile apps for senior users, additional attention must be given to their particular requirements, including any potential eyesight, cognitive, or motor ability impairments, by putting the most important information up and centre and giving simplicity priority.

Mobile apps for the elderly can be made more user-friendly and tailored to the unique requirements and preferences of this user group by implementing regular usability testing with senior users to get their input and keep improving the app's UI.

In order to create interfaces that are both entertaining and accessible for senior users, it is imperative to comprehend how implemented design solutions affect their overall user experience. Age groupings are based on the specific objectives of our studies factors like health status, socio-economic conditions, or geographic location. A mix of performance analytics, usability testing, and user input to evaluate how well the UI changes are working. These evaluations aid in the iterative refinement of ideas, guaranteeing that the finished UI solutions improve the overall user experience for senior citizens.

METHODOLOGY

To gather firsthand insights from elderly users about their UI experiences and challenges. We adopted a Contextual Design (where interviews were not pure ethnographic observations, but also involved the user in discussion and reflection on their own actions, intents, and values.) We conducted one-on-one interviews with elderly participants to explore their experiences and preferences. Also conducted surveys to a

sample of 50 users to collect quantitative data on common challenges. User-Centered Design (UCD) framework (which includes Empathy for Users, Focus on Usability, Prototyping and Testing, Continuous Improvement), Conducted usability testing sessions with a focus on task scenarios relevant to the elderly to Capture user feedback through direct observations, interviews, and surveys. A total of 50 unstructured interviews were conducted with elderly people over 60 years old.

ANALYSIS

Mobile applications were found to be primarily used by elderly people for social media interaction, entertainment, and information. This demonstrated the importance of interacting with others and staying in touch. The fact that entertainment is also a motivation reflects how elderly also use mobile applications to remain connected and active.

Most respondents mentioned Youtube as their favorite application when asked what it was. The intuitive design and user-friendliness of the interface may have contributed to this. Additionally, it is a video-based platform which could have appealed to them.

When asked about whether they have faced any difficulties while using mobile applications, the majority of them responded with, "yes". It therefore highlights the importance of improving applications, addressing technical issues, and designing more user-friendly interfaces in order to enhance the overall user experience. In addition to this, they were also asked to rank the challenges they have faced in terms of difficulty. Most of the respondents ranked confusing navigation and distracting visuals as the most difficult one. This was followed by difficulty in industry instructions. Signifying a gap in the making of applications for elders, navigation can be one of the areas that could be addressed along with minimizing distracting visuals in order to provide a seamless experience for them.

Another challenge that was portrayed was the lack of awareness of accessibility features which have the potential for improving their experience. This means elders were not acquainted with the availability of a few features despite their availability. Referring to the features, it was found that they were slightly satisfied with voice commands and very satisfied with search field. For contrast mode, too they were moderately satisfied. Most elderly respondents prefer a simplified layout for mobile applications. Their preference for simple, easy-to-understand app designs suggested their value for simplicity and clarity.

Over half of elderly respondents called for clearer navigation within mobile applications. Thus, the applications' navigation system can be more intuitive and easier to use, making it easy to find and access different features and functionalities.

Facing issues is not uncommon for elders while using mobile applications, most of them picked "assistance from friends or family" as their most preferred method of seeking help in such events with only very few voting for online video tutorials.

This shows that elders believe that friends and family may be more trustworthy than online resources when it comes to providing guidance and support, this can be a feature for design solution by adding Voice-based UI navigation which can be integrated for user interface design, providing an alternative and convenient way for users to interact with technology. Integrating voice commands into your UI navigation can enhance accessibility and improve the overall user experience. As a result of this preference for interpersonal support, it may suggest a for technological guidance and assistance with Audio support.

RESULTS AND DISCUSSION

User Interface (UI) design plays a crucial role in shaping the immersive experience of digital products and applications. A user-centered and inclusive UI can significantly enhance user engagement. Digital products and applications can improve user engagement and happiness by implementing …… UI design concepts, which will make the user experience more engaging and pleasurable.

CONCLUSION

The user interface (UI) is inclusive and can accommodate people with varying demands when it is designed with accessibility in mind. A more diversified and engaging user experience can be achieved by having an accessible user interface (UI) that makes the programme usable by a wider audience. This study approach seeks to provide a full understanding of the difficulties older users encounter when utilizing user interfaces (UIs) as well as practical, user-centered solutions. It combines expert assessment, iterative design processes, and direct user involvement.

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