

SHORTCOMINGS OF WHITE CANES

FOR PEOPLE WITH VISUAL IMPAIRMENTS OR BLINDNESS

CREATED BY: SHIR GRUNEBAUM

Established using a user requirements and expectations survey conducted at a school for the blind. A total of 210 visually impaired people and caretakers were surveyed.



INFO

93.2% of the survey participants confirmed that a white cane did not provide information about the surrounding environment



HEAD LEVEL

84.5% of survey participants felt the need to detect scaffolds and head level obstacles to avoid injury



DESCENDING STAIRS

93.2% of the survey participants confirmed that a white cane did not provide information about the surrounding environment



WET FLOORS

43.1% of survey participants acknowledged that a white cane did not provide knowledge of descending stairs which pose significant danger



OBJECTS & COLOURS

73% of survey participants acknowledged the need to identify objects and colours




AUDIO FEEDBACK

88% of survey participants felt that an alternative device should provide audio feedback to them about obstacles



Meshram, V., Patil, K., & Shu, F. (2019). An Astute Assistive Device for Mobility and Object Recognition for Visually Impaired People. *IEEE Transactions on Human-Machine Systems*, 49(5), 449-460. <https://doi.org/10.1109/THMS.2019.2931745>

IMPORTANT STUDY CONSIDERATIONS

 It is essential to note that the impetus of this study is the presentation of a new assistive cane called NavCane which uses sensors to provide priority information to users.



Interestingly, the participants interviewed in this study attended a school for the blind, but the NavCane was tested on senior individuals.

While this study was conducted in India, very little other demographic information was presented (socio-economic status, age, sex, etc). As such the generalizability of this study is difficult to ascertain.



Feminist Science and Technology scholars have long emphasized the importance of incorporating end-users in the design processes (1). End users are those who are directly affected by the production of a technological innovation (1). This ensures the success of a new technology, and also empowers stakeholders to be involved in knowledge-production processes, which they may otherwise not have access to (2,3,4). However, in this research, the end-users are not consulted. Furthermore, the knowledge is being produced for people with disabilities by people who consider themselves to be able-bodied (vii.ac.in)

CRITICAL THINKING

IMAGE DESCRIPTION

Infographic Title: Shortcomings of White Canes for People with Visual Impairments or Blindness

Created by: Shir Grunebaum

On the right of the title there is a box that states that the findings of this study were established using a user requirements and expectations survey conducted at a school for the blind. A total of 210 visually impaired people and caretakers were surveyed.

There is then a white cane symbol that stretches horizontally across the image. There are 6 connections made to this white cane which indicate some of the important findings from the study.

The first finding listed on the right is titled "info" and states that "93.2% of the survey participants confirmed that a white cane did not provide information about the surrounding environment". There is an icon that correlates with this text, the icon is a white information icon

The second finding listed is titled "head level" and states that "84.5% of survey participants felt the need to detect scaffolds and head level obstacles to avoid injury". The icon associated with this is a silhouette of a head with a dotted line on top.

The third finding listed is titled "descending stairs" and states that "93.2% of the survey participants confirmed that a white cane did not provide information about the surrounding environment". The icon associated with this finding is a picture of stairs with a downwards facing arrow.

The fourth finding listed is titled "wet floors" and states that "43.1% of survey participants acknowledged that a white cane did not provide knowledge of descending stairs which pose significant danger". Underneath this is an icon of a puddle of water.

The fifth finding listed is titled "objects & colours" and states that "73% of survey participants acknowledged the need to identify objects and colours". This is associated with a binocular icon underneath.

The sixth and final finding listed is titled "audio feedback" and states that "88% of survey participants felt that an alternative device should provide audio feedback to them about obstacles". The icon that correlates this text is a silhouette of an ear.

The article citation is: Meshram, V., Patil, K., & Shu, F. (2019). An Astute Assistive Device for Mobility and Object Recognition for Visually Impaired People. IEEE Transactions on Human-Machine Systems, 49(5), 449–460. <https://doi.org/10.1109/THMS.2019.2931745>

Underneath this users are presented with three important study considerations. The first important consideration is that the impetus of this study is the presentation of a new assistive cane called NavCane which uses sensors to provide priority information to users (represented with an money icon). The second consideration is that interestingly, the participants interviewed in this study attended a school for the blind, but the NavCane was tested on senior individuals (represented with an icon of a young person aiding an older person). The third consideration is that While this study was conducted in India, very little other demographic information was presented (socio-economic status, age, sex, etc). As such the generalizability of this study is difficult to ascertain (represented with a generalizability/growing icon).

In a white cloud at the bottom right hand of the infographic, there is a box titled critical thinking in which infographic readers are asked to engage in critical thought. In this white cloud, there is text which states the following: Feminist Science and Technology scholars have long emphasized the importance of incorporating end-users in the design processes (1). End users are those who are directly affected by the production of a technological innovation (1). This ensures the success of a new technology, and also empowers stakeholders to be involved in knowledge-production processes, which they may otherwise not have access to (2,3). However, in this research, the end-users are not consulted. Furthermore, the knowledge is being produced for people with disabilities by people who consider themselves to be able-bodied (viit.ac.in).

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