Design Challenges in working with low-literate users

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ICTD Applications and illiteracy

- ICTD applications to alleviate poverty and boost socio-economic development.
- Challenges - illiteracy among target populations; up to 2 billion illiterate.
Goal: Devise and implement design principles such that a non-literate person can, at first contact with a computer, immediately realize useful interaction with minimal or no assistance.
Research Methodology

- Ethnographic interviews.
- Participatory and Iterative Design.
- Controlled usability studies.

Studies conducted with people from urban slums of Bangalore, with over 180 hours spent.
Communities Studied

- Informal Sector jobs.
- HH income: 18$ - 67$
- Low level of formal education.
- Mobile phone users and non-users.
- Almost no experience with PC's.
- Some households with TV, music player.
- Local language spoken, no English.
Designed applications

- Job information for domestic helpers
- Map Navigation.

Both Applications : PC based.
UI Design Principles

and why we came up with them
What is illiteracy?

Inability to read text.
No text; Liberal use of graphics and imagery

Inability to read text

What is the optimal visual representation?
Use of static hand-drawn representations

Problems with accurate interpretation of other interpretations.
Paying attention to subtle cues

Response dependent on psychological, cultural or religious biases.
Voice feedback in local language for all functional units

Single modal information: not enough
Consistent help icon on all the screens
No text, BUT number are OK
Other principles

- Text free, but not click free
- Landmarks in geographic navigation.
Final prototype: Job search
Final prototype: Map Navigation
Experiments and results

Cultural Considerations:

- Test site: usually homes
- Conducted through trusted contacts
- Indirect story based approach.

Application:

- Find a Job for a friend, and reach the neighborhood
- Three different tasks for the map.
Experiments and results

Subjects:

4 single participants and 2 collaborative groups of 5 participants.

Quantitative results:

- Text UI: no use.
- Text free UI: prompting required in most of the cases.
Qualitative Results

Immediate comprehension of voice feedback:

- Fun for the new users
- Local language factor

Collaborative use:

- Nervousness and discomfort in single usage scenario.
- Enhanced User Experience in collaborative scenario.
Qualitative Results

Value of help:

- Encouragement to explore
- Reassurance.

Navigation metaphors:

- Metaphors are important (analogy to book).

No faith in technology:

- Need to change the mindset.
Qualitative Results

- Difficulty in conceptual abstraction when a skill required generalization from instruction material, compared with the case when instructional material was specifically tailored to the skill.

- Presence of proximate users might deter motivation to learn.