Computing and the Developing World

CSEP 590B, Spring 2008
Lecture 9, Part II
User Interface

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Highlights from Lecture 8

- Vadadora Study: Poverty Action Lab
  - Computer Aided Learning improves educational outcomes
  - MultiMouse
  - One on one classroom computing

Announcements

- Digital Green wins award at the Stockholm Challenge
- Business Standard, May 20, Article on e-choupals

Return of the native
Farmers who deserted mandis for e-choupals in Madhya Pradesh are now moving back

Soya arrival in mandis	Total soya in MP	Year	Percentage
2338	2674	2002-03	87
3596	4653	2003-04	77
2589	3760	2004-05	67
4170	4814	2005-06	87
4696	4785	2006-07	98

(Figures in thousand tonnes) (Source: MP government)

Today

- Tapan Parikh
- Designing for the developing world
  - Language
  - Use models: intermediated use

Designing for the developing world

- How do you design systems and applications for use by people with very little education?
- Important distinctions
  - Systems vs. applications
  - End user vs. mediated use

Internationalization and Localization

- Adapting software for language and culture
- Major part of the industry
  - Support built in to major software systems
- Language
  - Translation
  - Character set
  - Images
  - Local conventions

Localization pitfalls

Why don't people use Nepali software?

- Paper by Pat Hall (ICTD 2007)
- Nepali software available, but not used
  - Nepalinux, Windows Language Interface Pack

- Nepal
  - Population 29.5 Million
  - GDP (Per capita) $400
    - 163rd / 179
  - HDI: 142nd / 177
- Literacy (15 years +)
  - 48% (M 63%, F 35%)
- Languages
  - Nepali: 48%
  - Maithali: 12%
  - Bhojpuri: 8%

Should the Nepalese government require the use of Nepalese language software?

YES   NO

Why?

Why people don't use Nepali Software

- Structure interview study
  - Grounded theory
  - Qualitative approach, emergent themes
- Describe users

Technical Issues

- Keyboards
- Legacy issues
  - Compatibility with printing software
- Translation quality
  - Users considered many words to formal
  - Translation of key idiomatic works
    - Cut, Copy, Paste, File, etc.

Group identities

- English Group
- Nepali Group
- Separated by economic and social status
  - "I will not ask my daughter to use the Nepali interface because I want her to be good in English"
  - "Nepali interfaces good for people in rural areas"
  - "Learning to use an English interface is an ambition"
  - Nepali interfaces important for other people
- Arguments for Nepali interface were often broader, e.g., preservation of the language

Quotes from the paper

- Denying access to computers in one language forces a person into a group of the other language.
- We would like to foster a positive appeal for computing in Nepali, and here see that perceptions and values need to be changed. Maybe what is needed are campaigns similar to those mounted against smoking and in favour of road-safety.

Comments on paper

- Language politics are complicated
  - Nepali/English vs. Nepali/Hindi/English/Other
- Failure to distinguish between systems level software and applications
- Network effects
  - Advantages to using widely used systems level software
- Potential symbolic advantages to local software
  - Important that it is available, not that it is used

Language Issues

- Examples of language issues discussed in class:
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Information Tasks

- Advantages of the following systems
  - ATM

  - Automated check out at grocery store

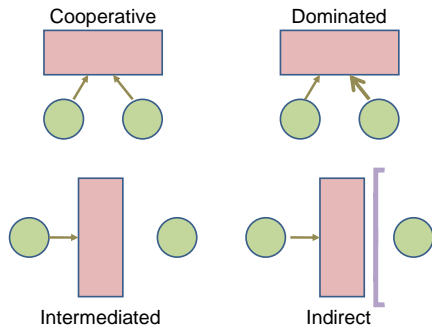 - On-line ticket airline purchase

Intermediated Tasks

- Developing world
  - Constrained resources limit single person ownership of devices
  - Labor is cheap
    - Even skilled labor
  - Significant differences in levels of education
  - Different expectations for privacy

Shared use scenarios

- Education
  - Multimouse / Hole-in-the-wall
- Village phone operators
- Kiosks

Taxonomy of Intermediated Tasks (Parikh)

Cooperative   Dominated

Intermediated   Indirect
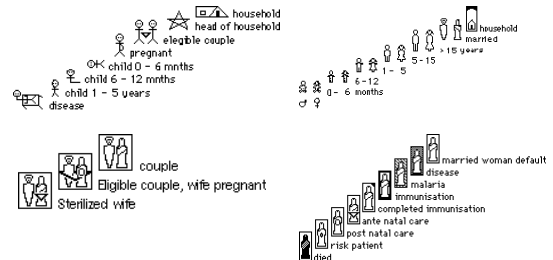

User Interface Case Studies

- e-IMCI

Apple health worker project

- Apple Newton based device (c. 1995)
- Support for health workers
  - Data collection and record keeping during visits
- Hindi interface
  - Language not supported by Newton
  - Soft keyboard
- Icon based interface with menu navigation

Icon Use

Lessons Learned

- Stylus based iconic navigation successful
- Soft keyboard not successful
- Navigation path acceptable
- Interface text problems:
  - Computer terms such as "cancel" and "delete"
  - Translate in Hindi or Transliterate
- Users relied more on text than on recognition of icons

Next week

- James Utzschneider
  - Microsoft Unlimited Potential Group
- Non literate UIs
  - Text Free UI (ICTD 2006)
  - Case study of job search application (CHI 2008)
- Assignment 9
  - Create a text free UI
    - Submit JPEGs by email by 6/2 for inclusion in lecture