Understanding and Designing for Intermediated Information Tasks in India

# Multi-User Interfaces for Developing Countries

- Most of the research in Computer Supported Cooperative Work (CSCW) has been aimed at Developed World.
- Developing countries
  - Different? In what way?
  - Multi user interfaces - a natural requirement
- Understanding Information tasks
  - A taxonomy
  - Equality of access, role of users
- Experiment
  - Deployment of mobile based app in a microfinance setting
- Design considerations

Information Tasks - A Taxonomy

- Basis of Classification: level of direct access to secondary user.
- Secondary User: End user
- Primary User: Acts as proxy, has direct access to the device
  - Illiteracy
  - Comfort level / Experience / Training in handling the device

Cooperative

- Equal or near equal access.
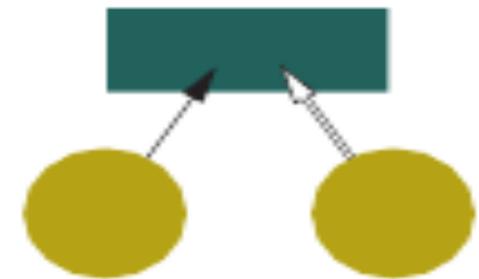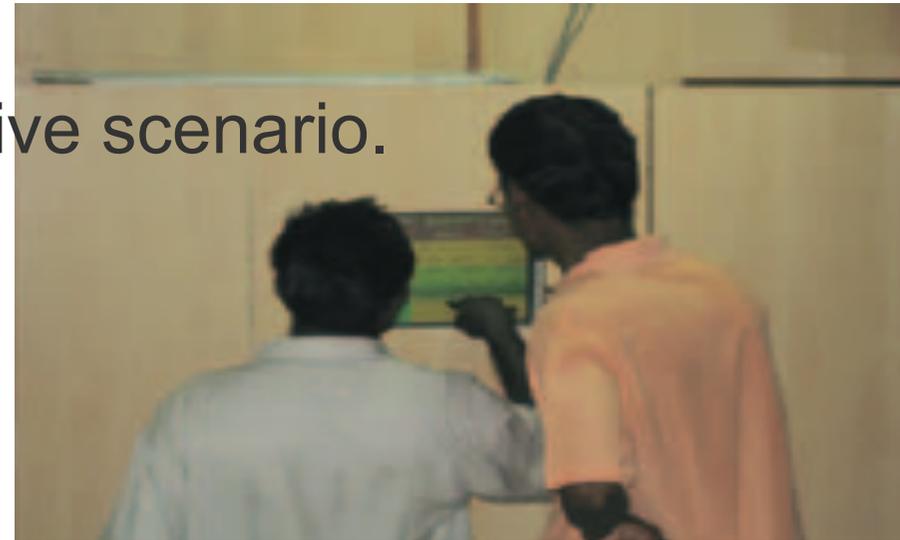- Hole in the wall.
- PC kiosks in villages.
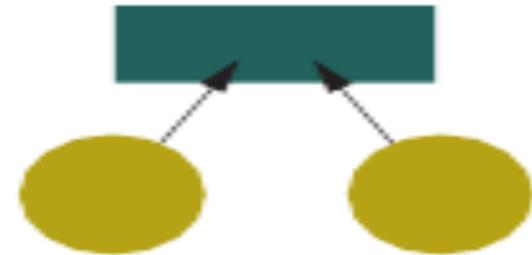
(a)   Cooperative

Dominated

- Some users may dominate in a   cooperative scenario.
- Cybercafes.
- Railway Reservation Kiosks.

(b) Dominated

Intermediated

- Secondary User doesn't have access to the device.
- Community Kiosks.
- Secondary Users must trust the right results privacy.

direct

proxy user to enter the query,convey the full and safeguard their

(c)   Intermediated

Indirect

- Similar to Intermediated but secondary user can't observe operation.
- Bus/Railway Reservation.
- Bank Transactions.

(d) Indirect
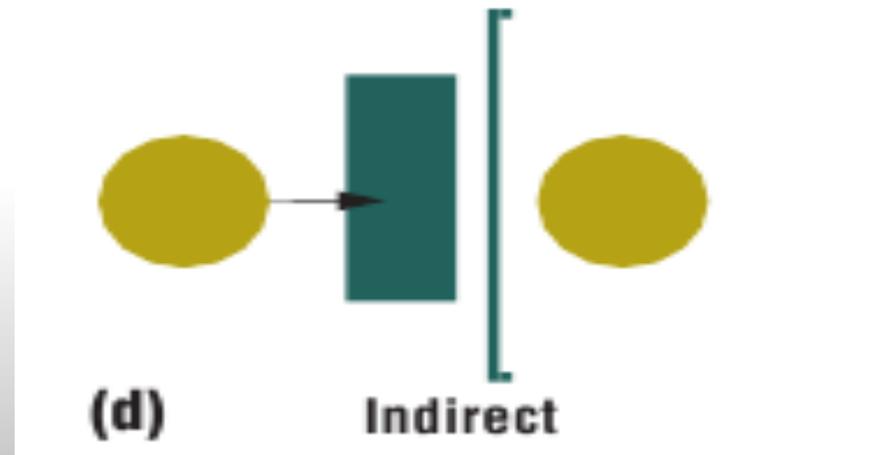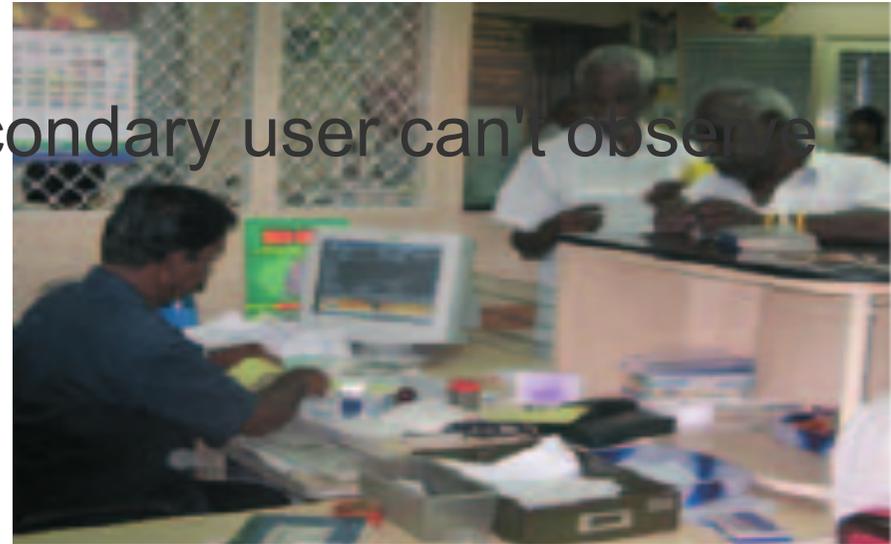
The Indian Context

- Low individuality Index (Hofstede)
  - Countries with high individuality index like USA attribute importance to individual achievement.
  - Low individuality index => strong interpersonal relationships (joint family system), collective approach to life and work.
  - Different norms of privacy
- High power-distance index (Hofstede)
  - High inequality of power and wealth amongst society
  - Deepens access inequalities

The Indian Context

- Huge population, limited means
  - Sharing of technology becomes inevitable
  - Urban cyber cafes, rural community information centres
- Illiteracy
  - Intermediation with technology becomes a requirement

Claim: Segregation of users into secondary and primary roles.

Experiment

- Microfinance group setting
- Requirement: to record transactions

Mobile App Features

- Intermediated Information task
    - Primary user: NGO member
    - Secondary users: Group members
- Medium of Information transfer between primary and secondary users - Voice
- Secondary Users must ensure that data entry is correct
- Secondary users unaware of other services provided

Primary user performance

- To measure effect of external 'participation'
- To record a number of transactions using the app
  - Group of primary user peers v/s Individual setting

TABLE 1

Average execution time and number of errors for the group and individual conditions.

Condition	Average execution time (mins)	Average errors
Group	7.19	1.80
Individual	5.68	0.68

Secondary user feedback

- Liked the new system but prefer to keep the passbook and receipts too.
- Insisted on using the Ledger till they get a complete understanding of the new system.
- Using a printer for receipts was preferred to keeping written records.

Design Considerations

- Cooperative vs Dominated
    - If dominance is unavoidable, include explicit intermediate element in the application.
- Intermediated and Indirect
    - Consider secondary user's perspective.
    - Methods of information exchange should be clearly demarcated to avoid bias and corruption.