KELSA+
Persistent IT Access for Low-Income Workers

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Contact? aratan@microsoft.com
Proximate ICTD opportunity? Workers characterised by...

- ICTD initiatives: Looking outside at low-income communities
- One community of low-income individuals amongst us: service staff at corporate facilities, ratio ~10-60%, >5M workers

- Low incomes: $50-200 per month; average ~$100
- Low and/or low-quality education: Average worker with Class 10 govt-school education in local language
- Young: Average age 26 yrs
- Recent urban migrants
- Proximity to IT, but little usage
- Limited possibilities to upgrade skill and shift to higher-paying jobs
- PCs dominant in aspirational discourse
- But functional understanding of PC poor

“Even if you are poor, if you learn computers and try and get used to it – you can improve.”
Related work

• The ‘Hole in the Wall’ experiments – NIIT, New Delhi
  – But ‘technologically deterministic’
  – Strictly focused on children aged 6-14

• Computer-Aided Learning
  – But mostly in-school investigations
  – Limited application to adult learning

• Computer kiosk and telecentre initiatives
  – Many financially unsustainable
  – Short-term training
  – Social outreach questionable
The experiment

- Offered the low-income service staff (n~35) in the MSR office facility an Internet-connected PC for free, unrestricted use during off-duty hours

- High-level research questions:
  - Will the PC attract sustained usage? If so, for what?
  - With what impact on workers and the workplace?
  - How will workers learn?

Methods

- A mixture of quantitative and qualitative methods employed to suit small-sample study and high-turnover environment:
  - Collective usage: Logging of applications+urls; screenshots and videologs
  - Individual impact: Rosenberg self-esteem index (11), digital literacy test (2), Cambridge University’s Key English Test (7): results presented ONLY for those workers in common between the pre- and post-tests; Qualitative narratives of change (6)
High and sustained collective usage

Average daily usage of 10.1 hours across 13 primary users

40 unique users over study period

* Two breaks in logging due to (1) change in broadband connection, and (2) OS re-installation

Shift to the Internet as main app

Dominant use of the Internet for Ent (video) and Commn (email, Orkut?)
Learning through observation; learning by doing

Workers creating personalised desktop backgrounds using the Kelsa+ PC’s webcam

Learning through observation of peers: “For the first one and a half months, I just watched how other people used the computer,” [Why?] “what if something happened when I used it?”
Usability adaptations

Browser history is repeatedly used as an easy way to access content of choice
### Basic PC Literacy gains

<table>
<thead>
<tr>
<th>Occupation/ Age</th>
<th>Education/ Medium of instruction</th>
<th>A</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver/ 55</td>
<td>Class 4/ Tamil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housekeeping/ 23</td>
<td>Class 7 / Kannada</td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Annual Income (US$)</th>
<th>$1600</th>
<th>$1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous PC Exposure</td>
<td>Never touched a PC</td>
<td>Had touched a PC before, but never used one</td>
</tr>
<tr>
<td>Reported usage frequency</td>
<td>30-45 min each session; 3-4 sessions a week</td>
<td>30 min every day</td>
</tr>
<tr>
<td>Key applications used</td>
<td>Local-language news portals, games, local-language music and films</td>
<td>Local-language music and films, email, games</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PC literacy scores</th>
<th>Pre-18 mths</th>
<th>Post-18 mths</th>
<th>Pre-18 mths</th>
<th>Post-18 mths</th>
</tr>
</thead>
</table>

- **Turn on the PC**<br> - **Play Windows (offline) Games**<br>- **Open Internet Browser and go to a search engine**<br>- **Enter a search query**<br>- **Open the best search result and go back to results list**<br>- **Sign-in to E-mail client**<br>- **Start MS-Word application**<br>- **Type in MS-Word application**<br>- **Save document**<br>- **Print document**<br>- **Close Word application**<br>- **Shut down PC**

- **✓**: Successfully completed the task
- **?**: Partially fulfilled the task/ completed the task with extensive prompting
- **X**: Does not know/ did not attempt

### English proficiency gains

- **Cambridge University’s Key English Test (KET)**: Average English proficiency score for the 7 workers common across 2 tests increased from 32% to 41% (+9.5%, p=0.14)

- Individual worker motivation interacts with the availability of the PC-based learning material, to produce differential skill gain outcomes
Self-esteem and confidence gains

- **Rosenberg self-esteem index**: 5 weeks into the intervention, the average self-esteem score of 11 workers increased by 5%.

  - “I see some changes in my life – I couldn’t speak English before, now I can speak a little... I haven’t yet changed my job or used English outside, but I now have some hope to learn... I have that courage.”

  - “To do any computer course outside, I think I should know some basics.... having picked up some basics today I have the confidence that when I take up a course... I will be able to catch up ... and I am very inspired by using the PC here to know more and learn.”

Socio-economic mobility pathways

**Housekeeping staff**

Usage: 1.5 hours every day
Previous exposure: none
Education: Class 7, Kannada medium, rural school

He began using the PC for games, internet video, etc. A few months later, he created an email ID, began using the Learn-English CDs available at the PC, and various Office applications. He was given an initial typing job on MS Excel by the IT staff within the office, which he completed and submitted satisfactorily. He was then given additional inventory data entry jobs (on Excel) by the IT dept, before being hired as a dedicated worker for the IT staff.
“Today I can stand up in front of my father and friends and say that I am no more a watchman, but I am doing a computer job.”
Critical success factors

**Institutional context:** Infrastructure availability and support for device maintenance and connectivity

**Access context:** ‘Digital habituation’ through continuous, free, voluntary and unrestricted interactions. Allows discovery of value, and incrementally sophisticated usage.

**Learning context:** Learning by doing and peer-mediated learning

“They used to teach us basics...but I didn’t pick up much from the class... I generally learnt things on my own after coming here...once I see some people using [certain applications or features] ....and then next time I generally go about following the same.”
Summary

• Kelsa+ is a program that offers the low-income service staff in modern offices Internet-connected PCs for free, unrestricted use during off-duty hours.

• Over an 18 month pilot, we measured preliminary gains in workers’ self-esteem, basic digital literacy, English proficiency, and career opportunities.

• Under suitable conditions, Kelsa+ can have strong development impact on urban low-income workers, at a negligible cost to corporations.
Aishwarya Lakshmi Ratan
Sambit Satpathy
Lilian Zia
Itamar Kimchi
Udai Singh Pawar
Sean Blagsvedt
Kentaro Toyama
Thanuja Subramanian

THANKS! Q?