Technology for Video-Based Agricultural Education in Rural India

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Tutored Video Instruction (TVI)

Excellent educator
Recorded at one site

Video shown to students at another site by Semi-skilled facilitator

Technology to increase capabilities of facilitators
My Goal:

- Use technology in low-resource TVI to provide structure to the interaction

Approach: Provide prompts to the facilitator
- When to stop the video
- What to say
- On a handheld device
TVI in Rural India

- Digital StudyHall
  - Primary education
- Digital PolyClinic
  - Women’s health information
- Digital Green
  - Agricultural Extension
Digital Green

- TVI for agricultural extension
  - Teaching farmers better farming practices
- Facilitators local-language literate
  - Not necessarily knowledgeable about practices
MSRI Internship with Digital Green

- Facilitators receive very little training in leading interaction
- Subtitles prompting interaction
Why use handheld technology?

- Private channel to the facilitator
- Monitoring
- Updating materials
- Richer materials
- Possibly data collection/analysis
Challenge: How does the device know what video is playing and where it is?
First approach: “Smart” remote control

- Custom hardware
- Normal remote control + screen
- Tracks button presses
- Capstone project
Second approach: Android application + audio codes

- Create “audio codes” with distinctive frequency distribution
- Embed into video at regular intervals
- Android-based application
  - Listens to audio
  - Uses DSP to detect codes
Deployment: March-April 2010

- 3 audio code users, 1 remote user
- About 2 weeks’ solid deployment
User response

Users said

- They liked using the device
- It helps them remember the points they should highlight
- Without it sometimes they would forget points
- Facilitating was easier; without the device they needed to watch the video more closely
Audio Codes Results and Lessons Learned

- Users had no problem ignoring incorrect prompts
- People didn’t mind noise from codes
- No real difference in stop frequency – since stopping more than instructed/prompted
- Stopped for most of the prompts

<table>
<thead>
<tr>
<th>User</th>
<th>% prompts stopped for</th>
</tr>
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<tbody>
<tr>
<td>User1</td>
<td>89%</td>
</tr>
<tr>
<td>User2</td>
<td>75%</td>
</tr>
<tr>
<td>User3</td>
<td>65%</td>
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Lessons Learned - Remote

- Stopped for most prompts
- Not an extra device
- Remote can get out of sync with DVD player
Next Steps

- Server/call-in model
  - Lower cost
- Wider deployment