Advances in technology have dramatically facilitated discussion and encourages group interaction. Video record good teachers and subject matter experts to offer courses at external locations. How can Benson Chishala’s soil science course be offered at Copperbelt University and Mongu College of Education? How can University of Zambia inform local farmers about soil conservation practices?

World’s largest eye hospital, providing fee paid and subsidized care. 2.3 million patients and 250,000 surgeries per year (including managed hospitals). Educational Projects: Ophthalmology, Support workers, Community outreach.

Provide the means for an institution to offer courses at external locations. Challenge: external locations do not have staff with the background to teach the courses.

**Digital StudyHall**

**A Case Study of TVI**

**Outreach Education**

**Scenario 1: Soil Science In Zambia**

- University of Zambia in Lusaka has the only Soil Science department in the country.
- How can Benson Chishala’s soil science course be offered at Copperbelt University and Mongu College of Education?
- How can University of Zambia inform local farmers of soil conservation practices?

**Scenario 2: Aravind Eye Hospitals, Madural, India**

- World’s largest eye hospital, providing fee paid and subsidized care.
- 2.3 million patients and 250,000 surgeries per year (including managed hospitals).
- Educational Projects:
  - Ophthalmology
  - Support workers
  - Community outreach

**Tutored Video Instruction**

- Video record good teachers
  - Subject matter experts
  - Good pedagogy
- Groups of students watch the videos with a facilitator
- Facilitator leads discussion, encourages student interaction
- Advances in technology have dramatically changed costs
  - Capture, replay, distribution

**Stanford Tutored Videotape Instruction**

- Jim Gibbons, 1977
- Master’s level courses offered between Stanford University and HP Engineering sites
  - Offer Stanford classes to remote degree candidates
  - Students received Stanford Credits
  - Centralized grading
- Courses recorded live
  - Single camera
  - Distributed by videotape
  - Video quality poor – e.g., blackboard writing illegible
  - Quality of instructor considered important
### Stanford TVI
- Small sections led by facilitators
  - 3-10 students
  - Model – stop video frequently for discussion
    - Once every five minutes or when question
    - Goal – student initiated discussion
  - Peer facilitation
    - Theory that discussion would be better with peer facilitation
    - Student who took the course the previous year

### UW – Community College Introductory Computer Programming
- Lectures recorded from UW Intro Class
- Shown at CCs with local instructors as facilitators
- Project lasted 3 years, involving 9 CCs
- Phase I
  - Materials from live lecture, centralized grading, management from UW
- Phase II
  - Studio created materials, CC grading

### Lessons Learned
- Results were mixed
- Complicated institutional relationships
  - CC students concerned about competition with UW students
- Facilitation model
  - Did not achieve peer facilitation
  - Co-teaching a more accurate description
  - Facilitators wanted external support (e.g., classroom activities)
- Program helped with instructor development

### UW-Belihang Algorithms Course
- Offer version of UW algorithms course in Beijing
- Instructor could not spend term in China
- Synchronous course was not an option
- Materials captured from live class
  - Video, Audio, Slides, Ink
- Beihang grad students served as facilitators

### Building on UW – CC experience
- Instructor visited to Beijing to set up project
- Balanced role of institutions
  - Materials from UW
- Grading, administration at Beihang
- Students viewed the course as a Beihang course
- Training of facilitators
- Support materials
Educational Challenges in Rural India

- Lack of qualified teachers
- Poor infrastructure
- Teacher absenteeism
- Poor teaching techniques
- Few books or supplies

Schools

SEWA, UP

CHINHAT, UP

Digital StudyHall

RECORD LESSONS AT CENTRAL SCHOOL

Replay lessons at rural schools

FACILITATORS PLAY A KEY ROLE
**Digital StudyHall**

- DSH Partners with Educational Centers of Excellence
  - Radiate their excellence to surrounding slum and village schools
- First DSH Partner: StudyHall Private School in Lucknow
  - Employs many excellent teachers
  - Afternoon school program for neighboring slum children

**Project Background**

- Project started by former Princeton Professor Randy Wang
- Initially established at StudyHall Private School in Lucknow, India

**Project Partners**

- Digital StudyHall
- StudyHall Private School, Lucknow, India
- Microsoft Research India
- University of Washington, Department of Computer Science
- Local centers of excellence

**Digital StudyHall Hubs**

- Lucknow, India
- Pune, India
- Bangalore, India
- Sulagiri, India

**Capturing Pedagogy**

- How do we distribute excellent teachers?
  - Typically centralized at private schools
- Build a database of excellent teachers
  - Deliver sequences of classes from the government curriculum

**Lesson Database**

- Videos of live classes, by best teachers
  - Of all subjects
  - Of all grades
  - In all languages
Videoing Live Classes

Based on state government textbooks
Carefully planned coherent sequences

Recording of Live Lessons

Highly interactive, with lots of:
- Questions and answers
- Role playing
- Activities

Matching student background

- StudyHall morning sessions
- StudyHall after school program for slum girls
- Madantoosi (village) school (public)

Just watching TV doesn’t work

The teacher and the digital lesson form a team
The teacher is the most important part
Digital lesson provides the framework
Teacher engages the class, conducts activities

Mediation Based-Pedagogy
Training for mediation

Mediation Based Pedagogy

Why being video-centric is key

Different uses of lesson material

What's unique about the DSH content approach?

A Network of Hubs and Spokes

- Society: low literacy rate
- Content production: easiest to scale
- Effective in capturing pedagogy and showmanship of great teachers

- Motivated teacher took own initiative
- Used the system to train/teach self
- Abandoned crutch during live lessons
- "Graduating" teachers: the ultimate success

- Community-based
- Video-centric
- A goal of a database of "everything"

- Networked centers of excellence
- "Radiating" content and methodology into neighboring slums and villages
- Content in local languages
Key technologies

Digital Video

Relatively cheap digital video cameras
PC software for video editing

Cheap replay devices

Content distribution by DVD

Televisions and DVD players
Central database of recorded lessons
Send selected lessons on DVD

Digital Green

Digital Study Hall for Agricultural Education

Compost pit
Rice planting for water conservation
Digital Green Screening

PUBLIC SQUARE VILLAGE HOUSE

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Digital Green

VIDEO REPLAY

DATABASE OF AGRICULTURAL CONTENT

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Digital Green

VISITING EXPERTS

- Partner with established educational program
- Hub and spoke model
- Central site
  - Strong teachers
  - Interested in educational excellence and outreach
  - Available teachers to record lectures
  - House recording technology and database
  - Hold teacher training sessions
  - Established connections with remote sites
  - Facilitators to conduct lessons

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Equipment and Infrastructure

- Central site
  - Digital recording equipment
  - Computers for video editing, data based, DVD production
  - Reliable electricity
- Remote sites
  - Replay facilities (TV + DVD Player)
  - Electricity while lessons are shown

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Digital StudyHall site

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Thank you!