

Media Center Case Study – TIER – Eye Center

Theni, Tamil Nadu, India

Overview:

In collaboration with the Intel Corporation, UC Berkeley research group TIER (Technology and Infrastructure for Emerging Regions) designed and implemented long distance wireless networks connecting 5 rural clinics to Aravind Eye Hospital in Theni, India. Using long distance low-cost wireless technologies (WiLD) doctors can conduct patient consultations via videoconference at distances of up to 40 miles. These smaller clinics see about 1,500 patients per month. TIER plans to expand the initiative to include 5 larger hospitals serving 500,000 patients at 50 remote clinics.

Patients can be seen by doctors via videoconference at local clinics to receive basic exams and diagnoses. By avoiding the trip to Theni, people miss less work and save money that would have been spent in transportation. Many people who had lost their jobs due to poor eyesight have been reintegrated into the workforce. The large video screens make patients feel comfortable using video to meet with doctors.

Each small eye clinic must have a trained nurse to conduct basic check-ups. Patients must travel the longer distance to Theni for surgery and more complex procedures.

Technology:

TIER developed long distance low-cost wireless technologies (WiLD) so that they could link computers up to 50 miles apart with wireless networks. Directional antennas and routers made it possible to span farther and over hills. For more on WiLD research: <http://tier.cs.berkeley.edu/wiki/Wireless>

One of the main issues that TIER encountered was the lack of an uninterrupted power supply (UPS). They have conducted research on electricity generation through the use of solar power. This type of on-site power generation must be integrated into the structure during the construction period. For more on TIER's power research: <http://tier.cs.berkeley.edu/wiki/Power>

Name: Aravind Telemedicine Center

Sponsor: TIER at UC Berkeley, Intel Corporation, the National Science Foundation (funded research)

Location: Theni, Tamil Nadu, India

Established: 01/2005

Lead: Eric Brewer

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Functionality: to examine rural patients via high quality video conferencing technology

Budget: n/a; will break even in 2-3 years



Map of wireless network connecting rural clinics to central hospital (map by Sonesh Surana)



Patient videoconferencing with doctor at hospital 10 miles away (Photo by Sonesh Surana)



Nurse examines patient at rural vision center (Photo by Sonesh Surana)

Media Center Case Study – TIER – MILLEE

India

Overview:

Mobile and Immersive Learning for Literacy in Emerging Economies (MILLEE) is an initiative to facilitate English-language acquisition by rural children through the implementation of educational immersive language games on cell phones. It is intended to augment English-learning both in and out of the classroom, allowing rural children who often miss school while working in the fields to practice language skills at home.

The interactive games and subtitled videos are designed to be enjoyable so children don't even realize they are learning. The research team has developed a unique learning framework called PACE (Pattern-Activity-Curriculum-Exercise), which involves conversational skills, listening comprehension, phonetic decoding and sight-reading.

Technology:

The most important aspect of the program is that it utilizes existing cell phones, which are becoming increasingly widespread even in rural India. It also involves an element of local capacity building through developing software to allow for different levels, teaching styles, cultural conventions and even languages other than English.

NOTES:

- games focus on language acquisition, we are designing a suite of mobile learning applications that target conversational skills, listening comprehension, phonetic decoding and sight reading
- cell phones are a rapidly-growing platform in the developing world
- subtitled videos and interactive games
- PACE (Pattern-Activity-Curriculum-Exercise) framework for acquiring language
- isolation of pedagogy, curricula and software to allow for different levels, teaching styles and cultural conventions
- purpose= to augment learning in and out of class situations
- children who live in rural areas and work in the fields can play English-learning games on their cell phones at home
- they are designed to be enjoyable
- the lessons are designed to be adapted to learning other languages
- local capacity building to facilitate the development of high-quality educational software that address local learning needs in a scalable manner.

Name: MILLEE- Mobile Immersive Learning for Literacy in Emerging Economies
Sponsor: TIER at UC Berkeley, Berkeley Institute of Design, National Science Foundation (provided funding)

Location: India

Established: 07/2004

Lead: Matthew Kam

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Functionality: cell phones

equipped with language games will help rural children learn English and practice outside of school

Budget: \$400,000 USD



Graphic by MILLEE team



Translator with student (Photo by MILLEE team)



Students with cell phone (Photo by MILLEE team)