Executive Summary
Digital StudyHall is a collaboration between computer scientists and education experts who are trying to bring good teaching methodology and pedagogy to rural and slum schools. It is trying to address the question - how can the poor have access to the same standard of education as received by middle-class students in cities? Its vision is to become a catalyst that augments the quality of education in under-served communities around India and in other developing countries.

Project History
During mid-2005, a professor from Princeton decided to come to India to work on rural education. His name is Dr. Randy Wang. He came to India at that time to start Digital StudyHall in a poorer town called Lucknow in North India. Since that point, Digital StudyHall has become recognized as a 501c3 non-profit organization receiving financial support from Microsoft, Microsoft Research, and a number of other donors. It now has three project sites, in Lucknow, Pune, and Bangalore, India.

Rural Education in India
Government schools in India are the only schools that are accessible to the majority of Indians who live in rural areas. These schools have a few major problems

1) There are not enough teachers in these schools.
2) those teachers are not very well trained.
3) they are not very motivated to do a good job teaching
4) teachers do not show up for class which leaves a 'star student' in charge of a class for the day.

There are obviously many other problem that are not addressed here, but these are the big ones that Digital StudyHall is especially interested in.

Other Educational Outreach Projects in India
To avoid retracing the missteps of earlier "wire-the-schools" projects, Digital StudyHall follows two important principles: (1) cost realism, essential if the system is to scale up to a significant number of schools and students; and (2) building systems that solve end-to-end education problems, beyond just
providing connectivity, so the twin pillars of technology and pedagogy must develop side by side.

**Distinguishing Features**

1) **The 'people's database'**:  
This database is being built by Digital StudyHall, and houses all sorts of educational content (taped lessons, plays, digital stories). It is named so as it is intended to be built 'by the people, and for the people.' The hope is that this database will, in the future, contain every lesson in every language. This vision is unlike any other educational initiative. This database currently houses about 300 lessons in 3 different Indian languages. These lessons are excellent lessons that are taught by the best teachers that can be found - ones that use excellent pedagogical practices in their classes. These lessons are usually very interactive, involve the students in learning, and include a lot of feedback. I should also point out that these are not random sequences of lessons, they are coherent sequences of lessons in a specific language and subject - for instance 5th Grade Math would be divided into 20 lessons, and these lessons would become part of the 'people's database.' In short, this database houses educational content that is carefully planned, developed, recorded and digitized. Content development is continuing in three Indian languages.

2) **A Network of “Hubs” and “Spokes”**:  
In any area where the Digital StudyHall system is working with rural schools, a "Hub" is established. These Hubs are responsible for a number of things: 1) They figure out what type of content is needed in rural schools in their region, 2) how to develop this educational content, and 3) how it should be distributed to which village and slum schools. These Hubs so far have been major private schools in urban areas, or NGOs. Content that is developed is distributed to 'spokes' which are the rural/slum schools. This creates a network of hubs and spokes, where the hubs are radiating good educational content out to the spokes. Multiple Hubs are important for a number of reasons 1) to develop locally relevant content 2) to be geographically closer to the spoke schools 3) the need for content in a number of languages.

In order for Hubs to begin regularly producing lessons that would be relevant to village/slum schools, they need to connect excellent teachers with students from lower-socio economic background. Such lessons are recorded, digitized, and uploaded to the ‘people's database.' One way that good teachers are paired with these students is to source these teachers from urban private schools to be guest lecturers in schools in rural areas.

Another source of content is from teachers that belong to the government schools situated in rural areas. Distinguished teachers can contribute to the database by giving a lesson which after it has been uploaded to the database then becomes redistributed as any other lesson.

3) **Content-use:**
It is very important that our system and distribution mechanism be very cost effective. In a rural school a single TV / DVD player is installed. That is not too expensive considering the number of students that this piece of
equipment reaches. This TV / DVD player basically is an educational resource for the school, and it is used in a number of ways.

Teachers in such schools are currently the main beneficiary of the content. One way the teachers use the content is as a resource material to help them prepare for a lesson. They can look up a lesson which they are planning to give – say Algebraic Expressions, and watch an example lesson from an excellent teacher to get ideas of what types of pedagogical practices, and materials they should use for the upcoming lesson. The teacher watching the lesson would see how engaged these students are in the learning process, and mimic some of those techniques in his/her class (doing the games, boardwork, songs, etc.).

Another way this content is used is through “technology mediation.” This is especially useful for subjects like English where the teachers in rural areas do not really know the subject material or have the knowledge to properly teach such material. Mediation assumes the following steps: 1) teachers would have the TV playing a lesson during a live class. 2) Then he/she would pause the lesson, and repeat whatever the teacher on the TV had said / done during that chunk in the video. That means the teacher would repeat the board work, conduct the same games, ask the same questions, etc. Teachers of course are given room to modify/add on to existing material played on the TV. We have found that students using this sort of system have been able to learn conversational English within 6 months from a teacher who previously did not know any English!

There are others ways that our material is being used in rural schools, however I will not go into much detail. In short, in the case of teacher absenteeism, which is a huge problem in India, Digital StudyHall tries to work with the students to do mediation. When a teacher is absent, instead of the students just sitting around the classroom unengaged in learning activities, we are conducting experiments to see if we can get some 'star student' to become a mediator of our content. These experiments assume that one such student would become a facilitator of the class replicating what they and their classmates see on the TV - thereby engaging the students in learning.

In summary, this content and the teacher form a team by which they can more effectively deliver educational content to a class. This system is in no way meant to replace or replicate teachers, rather it is meant to augment the effectiveness of teachers in rural/slum schools.

4) Distribution to rural/slum schools:
Our distribution mechanism is rather simple. Even though we are using some technology, we are not going to do something that is extremely costly to distribute this content. Instead we use the worlds largest and most connected network - the postal system. In India this network already reaches every village. DVD's are created from the content in the people's-database, and are sent via the postal system to these 'spoke' schools to be played on TVs. We have made it very easy for us to use our database to add content, search for content, and create DVD's of our content. There are a number of other more technical things that our system that are not being explained for brevities sake.
**Online Information**
Here are some online pointers that might offer further information:

1) *Digital StudyHall power point presentation:*

2) *Movie Presentation of the above slide deck:*

3) *Information/pictures/talks:*

4) *Our online repository as of June 2006:*