

## **Access and Quality in Self Organized Learning Environments** **Formal Education: Quality Issues**

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### **Learning Environments in remote areas:**

Almost no one in the world will deny that children need to have access to meaningful learning experiences if they are to truly gain from these experiences and go beyond rote memorization for the sake of passing an examination without understanding the concepts involved. This concern becomes even more critical in disadvantaged and remote settings, where it is even harder to find 'good' teachers and schools.

Typically, remoteness is understood in geographical terms. The focus is often on distances from city and urban centres with the corollary assumption that these settings are far from the resources, services, facilities that one has come to associate with urban life. However, in the context of the current effort of Self Organized Learning Environments [SOLEs] and its basis, the Hole in the Wall [HiW] the concept of remoteness and thence access, goes way beyond simple geographical distance from an urban setting. Remoteness is understood to exist in resource poor, underprivileged, economically and socially deprived sections of society. Many of these exist within the heart of the city, in slums, or other areas where freedom of movement, of interaction, of choice, of thought, and therefore access, is often dictated by stringent social norms. All these aspects have implications for the quality of educational facilities available to children as well as the manner of participation in learning that is possible on part of the children. Even in these locations in the midst of the city, 'good', trained teachers are hard to come by, since neither the salary that can be given to them, nor the setting in which they would have to work, make this an appealing proposition. The quality of education naturally suffers. [Mitra, Dangwal, Thadani 2008]

Yet the need to provide children with quality education remains a prime concern.

### **The Hole in the Wall – Earliest Efforts:**

Mitra's earlier experiments, better known as 'The Hole in the Wall', were first implemented in 1999, when a computer with an internet connection was installed through a hole in the wall, for children to discover and use unsupervised (Mitra et al 2005). The wall adjoined a slum; and only a month later, it was evident that the children had taught themselves to use the computer and also picked up some skills in English and Mathematics. This kind of design up was then set up in more and more remote areas across India with almost identical results.

The HiW experiences gave credence to the belief that given the facilities, groups of children from disadvantaged and remote settings can learn to use computers and access internet resources, on their own.

What came through unequivocally in further work (Mitra & Rana 2001, Mitra et al 2005) on self organizing systems in education was that groups of children, irrespective of who or where they are, or what language they speak in; given free and public access to computers and the Internet can:

1. Become computer literate on their own, that is, they can learn to use computers and the Internet for most of the tasks done by lay users.
2. Teach themselves enough English to use email, chat and search engines.
3. Learn to search the Internet for answers to questions in a few months time.
4. Improve their English pronunciation on their own.
5. Improve their mathematics and science scores in school. (Inamdar, 2004)
6. Answer examination questions several years ahead of time.
7. Change their social interaction skills and value systems.

8. Form independent opinions and detect indoctrination.

**The Next Step – Self Organized Learning Environments:**

Through the years of the HiW initiative, many concerns had been voiced about the potential of such facilities/environments for children's 'academic' learning. Hence, the SOLE initiative sought to design the learning environment in a way that would facilitate children's search related to themes/topics that were part of their curriculum. SOLEs were set up in 11 locations in urban slums and rural areas in and near Hyderabad, Andhra Pradesh and 1 in rural Sindhudurg, Maharashtra.

The initial interactions with the children in the SOLEs indicated that many of them came from traditional, relatively conservative homes and functioned within an authoritarian structure at both home and school. Although the schools they attended are technically English medium schools, even the teachers' fluency in the use of the English language is severely limited. The schools experience

- Severe resource constraints in terms of space, and material resources,
- A formal school structure that functions with untrained or minimally trained staff,
- A lack of adherence to safety and sanitation standards taken for granted in many other places of the world, with none or very restricted toileting facilities,
- Limited educational resources, operating within a social system that has clearly defined norms of behaviour, even more so for girls.
- Children coming from family backgrounds that do not typically involve higher education or even literacy. The SOLEs provided them with their first exposure to computers.

A typical SOLE comprises of 9 computers with internet and broadband access [often in clusters to encourage/facilitate peer interaction] within a room that is publicly visible facilitating unobtrusive supervision from outside. It can accommodate 36 children [usually 4 at each computer]. Children can work often in clusters of three, creating a circular arrangement that further facilitates interaction in a larger group. Activities include surfing the Internet, accessing software, following up on a class activity or project, playing games, or going where their interests lead them. It creates opportunities for learners to search for curriculum related or other information.

Given free access, children learn effectively and creatively, often succeeding in coming up with answers to questions beyond their grade level. Under these circumstances they self-organize and figure out group size, age and gender mix, as well as time-sharing. The ideal group size seems to be 4-6. Mixed age and gender groups were observed to work better by exerting natural restraint and preventing too much rowdiness.

**Moving ahead – Self Organized Mediation Environments:**

A related innovation that was developed attempted to provide opportunities to learn not just English through interaction with native English speakers, but also develop confidence and broaden their horizons. This was termed Self Organized Mediation Environments [SOMEs], or what the media often insists on calling the 'granny cloud'. SOMEs involve establishing an interaction between learners in disadvantaged and remote areas and volunteer mediators living in areas that they prefer and still being "present" in schools in remote, disadvantaged areas where they do not wish to or/cannot physically go [Mitra, 2009]. During the period of May 2009 to December 2009 a total of 471 sessions were scheduled, of which 248 were attempted. 219 were successfully completed, while 29 remained incomplete.

SOME sessions are different from typical classroom sessions.

- There is no compulsion to 'attend', nor any fixed curriculum to be completed in a specified duration. There are fewer numbers of children interacting at any given moment with the mediators.
- The interaction consists of free flowing conversation, reading storybooks, looking at pictures/models, text messages [instant messaging], and accessing links to other sites. Older children [Grades 6 and up] have become quite adept at moving the webcam around to show the mediator a bit of their surroundings and, are able to connect to mediators independently even after one or two sessions.
- The mediators take this experience further by sharing their thoughts and material with other mediators and the children through the wikis. [<http://SOLE-kids.wikispaces.com>] [<http://solesandsomes.wikispaces.com>]

- Sessions are learner centred and learning is self-directed. Mediators ask the children what they would like to do at following sessions and the pace at which the session proceeds is determined by the children.

### **IMPLICATIONS OF CHILDREN'S USE OF SOLEs & SOMEs:**

Opportunities and strategies available through educational technology and distance education are particularly appropriate in disadvantaged circumstances and remote areas, as they can “level the playing field” by providing enriched opportunities and resources for learners in areas where traditional schooling of adequate quality is not available. Attempts to address this issue have been made by distance educators and engineers alike through a variety of methods ranging from printed material to synchronous video conferencing.

The SOLEs and SOMEs represent such strategies. The concept of SOME attempts to bring to a remote area the synchronous or near-synchronous presence of an effective teacher in a classroom using a variety of technologies currently available including email, online chats, audio chats, video chats. [Mitra 2009]. Mediation may prove valuable in the ‘outdoctrination’ process of enabling learners to question, search, assist in verification of information and re-examining conclusions, as well as aiding them in their school studies. Simultaneously, the SOLEs conceptually encourage self-organization around ‘open’ computers. Friendly peer competition drives the process, while self-organization provides the means for such learning. The absence of authority figures enable the children to experiment with knowledge without fear of reprisal or assessment.

The potential of the SOLEs & SOMEs method, now combined as Method ELSE short for ‘Methods for Emergent Learning Systems in Education’ was observed at individual sessions at which project staff were present. Yet any significant impact on children’s overall achievement remained elusive due to the difficulty schools and teachers had in understanding, and thence, applying the principles on which SOLEs operate.

During the course of the project period, it became apparent that none of the children in the present study had any significant access to the SOLE or the SOME sessions with the mediators. Schools tended to use the SOLEs as computer labs that were kept locked for the most part.

If quality is to be ensured, ensuring children’s ‘ownership’ and thence free and regular access to the SOLEs and therefore, the SOMEs is critical. Determining the impact of the SOLEs requires more ‘controlled’ studies. These would need to deal with issues of both ‘access’ and ‘quality’. How much access should be considered access, as well as what kind of activities in the SOLE constitute access remains an issue. How the meaningfulness of these experiences can be enhanced would also need to be considered. This could include the use of SOLEs as resource centres with related material available for the children’s use as they await a turn at the computers.

### **CONCLUSIONS:**

The design and construction of SOLEs can be refined to a model that is less expensive, sustainable, safe, effective and fault tolerant. However this requires:

- Scheduling SOLE sessions as part of the regular school timetable so that all children have free access to the facility. Teachers need to be trained in the use of the SOLE method. Any ‘taught’ sessions are likely to negatively effect the results aimed at, namely improvements in the school leaving examinations.
- Ensuring children’s participation through “open, regular and free access”. Under these circumstances they self-organize and figure out group size, age and gender mix, as well as time sharing.
- Broadband and reliable electricity in all schools.
- Basic proficiency in English is imperative by age 8 for the method to work. This needs to be ensured through the use of better teachers at the early primary levels and extensive use of eMediators from India and abroad. SOME ‘clouds’ can be set up to provide effective moderation, particularly for the improvement of English. A technical assistant and a session manager needs to be appointed for sessions to happen on a regular basis

Development of business models to ensure sustainability in the absence of project funded support is necessary in the long run. Given the right circumstances, Method ELSE [Mitra, unpublished manuscript 2010] can bring children at par with children of affluent, urban schools, thereby

'levelling the playing field'. The beneficial consequences of such a leveling on society can only be immense.

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