

Final Project Paper

Open Schooling

DEPM 625
11/23/2012

Ruddhi Wadadekar

Open Schooling

Introduction

The question for this research paper is based on open schooling in developing countries. The focus is mainly on the open schooling education in India and the issues related to various technical, social and structural aspects. This paper will discuss the open schooling system in detail. The discussion will continue with the overall structure of open schooling, aims, efforts and outcomes. The successful open schooling systems in a developing country, India will be the next topic of discussion. Technological approaches in various countries and the cost issues will advance the paper more. Finally, the paper will conclude with the focus on technologies used in open schooling system in India and how new systems can be incorporated in future.

The Research Question

What is open schooling? Explain its aims, organizational structure and the use of technology in India with respect to open schooling. What are the current issues related to technology used and how new technology can be introduced into the current schooling system in India?

Many children in developing countries do not receive regular school education. Most of these children are unable to attend conventional school due to poverty, gender based discrimination, family income obligations, or simply non-availability of school system and qualified teachers and study-material. Children in developing countries, mainly from rural areas, are deprived of post-secondary education. Estimates show that around 400 million teenagers worldwide are not getting secondary and post-secondary education. (Daniel, 2011). Universal

Primary Education (UPE) has seen an enrolment growth in primary education in developing countries, but the goals for the secondary education enrolment are not satisfactory to UPE's Millennium Development Goals. However, organizations such as Commonwealth of Learning (COL) collaborate with several government and non-government organizations (NGO) and other educational organizations to promote open schooling in developing countries.

What is open schooling?

According to the definition by COL, open schooling has two characteristics: the learners and the teachers are physically separated and therefore non-traditional i.e. distance teaching methods, information, and communication technologies (ICT) are used to overcome the physical gap between the teachers and students (Open Schooling, n.d.).

The open schools provide service mainly to students from underprivileged and rural areas. The open schools provide an alternative to primary, secondary and vocational education in many developing countries. It also provides an excellent opportunity to those students who miss regular schools due to poverty, lack of support, or those who have to support their family income. Many girl students benefit from open schooling, as they are unable to attend formal schools. The primary audience for open schools is teenagers who have completed primary education and need an alternate form of education that accommodates family obligations and cost issues. The program extends to young mothers, deprived female students and young adults, who can study on their own with the provided material.

Open Schooling as a case of distance education

“ Distance education is planned learning that normally occurs in a different place from teaching, requiring special course design and instruction techniques, communication through various technologies, and special organizational and administrative arrangements” (Moore & Kearsley, 2005, pg.2)

Open schooling is considered as a case of distance education because both share the following characteristics.

- The students and the teachers are physically separated
- The learning is intentional and well-planned.
- The study pattern is flexible and student controlled
- Unconventional teaching methods, Information, and Communication Technology (ICT) is used for correspondence.

Open schooling pattern

The open schools in developing countries are getting popular due to its openness, flexibility, non-conventional teaching methods and use of ICT's. In most developing countries, open schooling follow a distance education pattern. Majority of the material is print-based which is delivered to the students. The material is developed in such way that it should meet the conventional school syllabus as close as possible. The students are required to study on their own. There are study centers available in many places. Students often get non-academic support at these centers. Sometimes tutors are available to guide the students. Technology often supports the print-based material. Depending on the country and its economical and levels of

technological infrastructure, other media such as audio-video tapes, radio, television and computers support open schooling material. The technology in open schooling is discussed in detail in the following section.

Open schooling not only provides flexibility in studying, but it also offers flexibility for examination. National Institute of Open Schooling (NIOS) offers open examination pattern, called On Demand examination. Students can appear at one of the regional centers for the exam when they feel ready and comfortable. The examination system is based on the random questions method. A huge question bank of related subject questions is stored in a computer. A computer randomly generates a question based on the blueprint stored in the computer, resulting in same difficulty level question paper for all the students. On demand examination pattern offers many advantages such as making examination less stressful to students, minimizing anxiety, offering time and location convenience and by providing uniqueness in each examination paper (On-Demand examination system, 2012).

Open Schooling in India

Need of Open Schooling in India

India is a vast country with population over 1.2 billion. The overall literacy rate in India is around 80 % of which female educators are around 65 % (Medindia, 2011). As the resources are fixed and the population is steadily increasing, there is a high demand for more educational infrastructure.

In India, government funded higher secondary education is free for all girls and primary education for boys in government funded schools is at a nominal cost. In spite of all these

opportunities, there is a need for alternate form of education (Agarwal, 2008). First, there are not enough physical infrastructures to support the growing population. The educational funding limits building new schools. The teaching staff is either not well trained or inadequate. Young adults often drop out after primary education to support family income. Higher female dropout rates are either due to preference to male education, early girl marriages or due to safety to girl students. Many adults seek vocational training for job requirements cannot get it in formal school settings.

Open schooling is the best alternative to above-mentioned problems. Open schooling is a great option as it provides alternate form of education to those who do not have access to regular schools. Open schools provide flexible and convenient study pattern. Learners can self-study the required courses without having to compromise work and family obligations.

In India, National Open School (NOS) was founded in 1989 with an aim to provide education for all. Later, NOS was upgraded to National Institute of Open Schooling (NIOS), which provides primary, secondary as well as degree level education. Currently NIOS provides education to over 2.2 million students, which makes it the largest open school system in the world. The main goals of NIOS are as below (Vision and Mission, 2012).

- To provide the basic primary and secondary education and/or the vocational training courses to children in especially rural areas.
- To provide education to unprivileged and deprived students, especially the female educators who cannot attend regular schools
- To provide education in the areas where schools are not present or the teaching staff is not adequate.

- To communicate with other educational agencies that provides such services and collaborates to offer better choices in terms of communication, interaction and technology.
- To bridge the gap between the learners and technology used for distance education.
- To increase the literacy rate in general and in female educators in particular.
- To provide a low cost education to all.

The Model:

NIOS operates in five major areas (Rumble & Koul, 2007).

- Open Basic Education (OBE) for children below 14 years
- Secondary Education certificate courses
- Higher Secondary Education certificate courses
- Vocational Training courses
- Life Enrichment courses

Open schools in India have a flexible and open model. NIOS carefully designs a study material so that students can study their own. The material is distributed to all the students seeking education for a nominal fee. NIOS conducts a program called Open basic Education (OBE) (Objectives and Functions, 2012). The OBE is geared towards all those individuals who seek regular primary, secondary and vocational education, but are unable to attend regular schools (Open Basic Education, 2012). The study material is developed in parallel with the regular school syllabus, which makes OBE equivalent to the formal school education. India has

many regional languages and they vary by states. The study material is therefore available in various regional languages as well as in English and Hindi. The subjects of study include math, sciences, languages and vocational training courses. The study pattern is self-study through printed material or through audio-visual material, Tutor marked assignments (TMA) or participating in Personal Contact Program (PCP).

The course delivery procedure:

Unlike the traditional school settings, open schoolings offers much more flexibility. Some of the key aspects where open schooling differs from the traditional education are as follows (Rumble & Koul, 2007).

1. Open schools do not have any entry requirements.
2. The course can be completed anytime, anywhere within the given period (usually five years).
3. The curriculum is open.
4. The course materials are usually self-study, with face-to-face meetings sometimes. Direct interaction between the learners and the teacher is not required.
5. The study-materials are prepared for self-learning, keeping it in parallel with the regular school curriculum. Regular school text-books are not required. Sometimes, media is involved to support the study-materials.
6. The studies are paced and monitored by the students.

7. Examinations are external, on demand, which offer more flexibility.

The Examination:

The examinations are on demand and mostly paper-based. The students who wish to appear for exam go to the exam center. A random question paper out of huge question banks is generated from computers. The open examination model allows students to take exams when they feel ready, which reduces exam anxiety and provides flexibility (On Demand examination system, 2012). The students can retake the exams in each subject for up to nine times, till they get the satisfactory results (Agarwal, 2008).

Student Support

The material provided is self-study material and supplemental media formats. Students therefore need a constant motivation, support and encouragement (Student Support Services, 2012). Many times, students face lack of self-esteem and commitment. To support the students, NIOS has collaborated with other institutions. These regional institutions act as study-centers. In study centers, students can have access to Personal Contact Programme (PCP) where they meet face-to-face with instructors for some compulsory subjects like lab. The study-centers also offer help with Tutor Marked Assignment (TMA) programs, in which students hand over previously solved assignments. The students are required to submit at least three assignments in each subject. The tutors grade the assignments and the scores are sent to NIOS. As seen over the years, female educators are steadily increasing. However, the enrolment rate is still low (Mitra, 2008). Support services help spread the word about education and teach the importance of education, especially for the girls.

Challenges:

The biggest challenge is infrastructure. In many rural parts of India, regular supply of electricity is still a problem. Instructions through Television or radio are not as regular as desired. The Internet is not easily available due to lack of necessary equipment. Print is still is preferred form of education in Indian open schools and is supported by audio-visual material.

Organizational structure and cost issues in open schooling in India

India is a very diverse country. It has various types of geography, culture, languages, religions and income levels. There is a central government, which runs the whole country, as well as state governments, which are in charge of the region. To make matter more complicated, there are local authorities in rural areas which are of course a part of the state government but sometimes follow the local rules adopted by that ethnic group. When it comes to the organization, it therefore, becomes a very complicated system. The very first challenge in production of the study material is the medium of language. Although Hindi is an official national language of India, many people especially from the south are unable to communicate effectively. English is not as widespread either. Currently, National Institute of Open Schooling (NIOS) has primary, secondary and vocational study material as well as examinations in English, Hindi and in more than seven major and regional languages. By offering regional languages, NIOS makes the curriculum unique for each state and by making five subjects mandatory for all, the curriculum becomes more universal for all (Wadadekar, 2012).

In some remote areas, access is a very big issue. Some children cannot attend school due to lack of transportation. Again, the schooling system lacks the basic need of infrastructure. The available teaching staff is also inadequate or not well trained.

The management system is bureaucratic. It needs to be more organized, structured to speed up the process and to deliver quality education. To make the matters worse, politics, corruption are some of the major issues too.

Cost is the biggest factor. Right now, open schooling gets funding by both the central and the state government, of which the state government does not contribute much. The study material covers some of the financial burden but is minimal. Although urban population in India is vast, which has access to regular descent school systems (most often private schools in large cities); a large chunk of population resides in the rural area, which does not have access to the basic school system and the modern technology. Most of the rural areas do have some basic primary schooling infrastructure but the secondary schooling infrastructure exists in a very small ratio or none at all. This is why the use of technology is not widespread

Technological challenges in open schooling in India

The open schooling in India is still largely print-based. Students get some supplemental audio-video media along with the self-study material but technology is still not widely used as a form of education, especially in rural areas.

The main issues are

- Lack of basic infrastructure for advanced technology. In rural areas, where open schooling is more popular, there are not enough infrastructures to support computers, and

the Internet connections. In some areas, the satellite does not cover signal. Many times, the electricity supply is not regular. With so much population and with limited resources, there is a regular electricity load shedding. So the equipment that uses electricity such as computers and Televisions become less reliable.

- Lack of trained instructors: In spite of having well-built infrastructures, the lack of able staff can become a problem. The staff at the study-centers or at Personal Contact Programs has to be well trained. Carefully designed lessons, with learners' need in mind are only useful if the demonstrator is able and well- trained.

Even with the lack of enough technology, open schooling is still successful in India. NIOS is updating its curriculum but the old curriculum is still not compatible with new technology. Some of the material is uploaded online with a lesson in depth and supporting explanation and question banks.

Technology used in open schooling in developing countries.

This section will focus on the technology used in different developing countries. There are many forms of communication. "Media is means of communication" (Bates, & Poole, 2003, pg 48). It is further argued that technology is only a vehicle that delivers instructions. A number of technologies have been used for distance education; some of them were successful, while some were not so impressive. Although, a print-based material can be argued as a technological communication due to its production with the use of machines, it is still considered as a very basic form of correspondence. The more advanced forms of technological communication include radio, television, audio-video tapes, computers and mobile learning.

Radio based education

Repetitions and interactions are two major pedagogical approaches in radio-based education. The infrastructure needed for Interactive Radio Instruction (IRI) is very basic. A good transmitter and a radio station, and radios for each group of audience are the required material. The battery operated radios work well in remote areas where electricity is unpredictable or unavailable. Audiocassette tapes are an alternative for areas receiving poor or no signal. A good lesson plan, as with any curriculum, along with interesting and interactive narration is a key requirement IRI. A number of countries such as Zambia, Bolivia, Thailand, Papua New Guinea used Interactive Radio Instruction to broadcast lesson plans. In Nicaraguan, the interactive radio instruction was used to teach mathematics. The radio-lesson facilitator asked question to students and provided repetitions, giving them a sense of actual teacher in classroom (Perraton, 2007). Another successful use of IRI was in Zambia called Taonga Market broadcast (Sitali, 2006). The radio was used to teach English and other languages, math, science, social science, life skills etc. The interactive lessons were followed by print-based tasks, often guided by a mentor. Although IRI was successful in many countries, it could not sustain due to increase in cost per student (Perraton, 2007).

Television based education

Some developing countries have tried Television based lesson plans, though they were not as successful as radio-based instructions. The main reason for its failure could be the advanced infrastructure needed for broadcasting as compared to radio-based instructions. The upfront cost for the equipment is also higher for Television lessons. In rural areas where electricity is unpredictable or unavailable, television lessons are not a reliable source of

education. Videotapes are a good alternative but it also adds up to the basic cost of material production. Countries like Mexico and Brail have successfully developed and run television based lessons.

Mexico uses satellite-based television to broadcast lessons to grades 7-9 students. Each program runs for about fifteen minutes, followed by the print-based study material assignments. The supervisors who co-ordinate each grade for all the subjects assist students during the follow up activity. There are about thirty television lessons per week, which are conducted on local premises. The main goal of this broadcast is to provide education to rural students of Mexico. The country has been successfully running this program for more than 40 years (Perraton, 2007).

Brazil also used Television for education but has different approach. The broadcasting is made in conjunction with a private television network. The program is mainly targeted towards the secondary level and the vocational students. The idea behind the program is to provide vocational training to learners' at work. The textbooks are used for supporting television broadcasting.. The learners can watch the two hour program in small groups with a tutor and work on the assignments with the help of the tutor, learners can watch the program in small groups and then contact the tutor or they can watch the program individually and then self-study the material (Perraton, 2007).

Computer based lessons

Computers are getting popular in distance education and open schooling is no option. As technology develops every day, new, cost-efficient, affordable computer systems are being introduced. Computers are far more interactive than radio and television broadcasting. The

learners can use a CD/DVD-ROM to repeat lessons. Specifically designed educational software can enhance the creativity and interest amongst students. As with any educational material, computer based material also requires upfront planning and organization. Computer-based education also requires support and maintenance. The basic technological infrastructure is very complex if the Internet is required for lesson plans. Many developing countries do not have all the necessary infrastructure in place. Moreover, the satellite signals and transmissions may not reach in remote areas of some countries. Computer literate teaching staff is another obstacle in introducing computers in schools. If the staff is inefficient in using computer systems, then it is not very useful to invest a considerable amount of money in developing a computer-based infrastructure. Along with developing good computer based curriculum and effective lesson plans, it is equally important to train the teachers on how to use the system effectively and efficiently.

Computers do offer an excellent source of communication. However, as mentioned above, a well-trained staff is essential for carrying out the tasks. Many times, it is observed that the computers are not being used to the full capacity. In fact, many times, computers do get in the way with the learning process as students get easily distracted towards other things on computers. Hence, a careful and effective design of lessons with minimum distraction is essential.

There were a number of successful computer-based applications, which replaced classroom teaching. Some interactive tasks, especially in science and math were effective and innovative. A study shows that the use of computers in teaching the flow of electricity in an elementary school in Finland was very successful (Jaakkola & Nurmi, 2008). Many pilot projects

have been introduced in countries like India, Costa Rica, and Malaysia (Perraton,2007).

Schoolnets or the exclusive network for educational purposes has been introduced in some countries.

Mobiles for learning

Using handheld devices such as mobiles, tablets and smartphone is still an emerging concept. It is rapidly getting popular in developed countries such as United Kingdom, Germany and the USA. Although, developing countries now have an extensive mobile network, use of mobile devices for education is still a near future concept. The main issue is lack of the infrastructure. Almost all metro cities and urban areas from developing countries do have a strong satellite and network connection. Nevertheless, the rural parts are still lacking the basic infrastructure. Even though the mobile signals are presents in the deepest parts, the signal is not to the fullest strength for data receiving, downloading or uploading. The cost of mobile devices is another setback. Open schooling institutions cannot afford to provide expensive mobile devices to every student.

In-spite all the issues mentioned above, mobile learning offers an innovative pedagogy. The students can connect anytime, anywhere with their instructors and/ or peers. This develops a great synchronous learning. Reducing the physical gap between the learners and the instructors virtually is an important step in distance education. An asynchronous learning is achievable too, as the participants can conveniently download the study material and complete the necessary tasks at their own comfort.

Current and future use of technology in open school system in India.

Open schools in India provide limited audio-visual support along with the print based self-study material. The lessons are mainly recorded on audio/video tapes or CD/ DVD-ROMS and distributed to students. In many schools, computers are now being introduced. Under the program like One laptop per Child, or I-slate ,private companies offer specialized laptops to children 6-12 age from rural India. Some of these specially designed computers run on solar power or are electronic and use minimum electricity. These laptops are designed with the local language compatibility and are easier for children to use. Recently, a company called Datawind launched a new tablet 'Aakash' (Aakash, 2012). This is a project of Indian government in collaboration with Datawing to provide a low cost tablet to students. Aakash cost Rs. 3499(Approximately \$ 75.00) and can be purchased only through government agencies.

India has launched National Satellite system INSAT under which more than 5 satellites work to increase telecommunication, television broadcasting, spreading of mobile signal etc. Along with the satellite, on ground networks are also being developed with high speed. The huge progress in Information Technology (IT) has made considerable changes in telecommunications in India. More education organizations are now relying on offering distance education as correspondence has become easy.

It will not be too long for India to develop basic networking infrastructure in remote parts of the country. Use of mobile computing can be seen in the near future, if enough funding for the inventory is provided.

How to incorporate more technology in Open Schooling in India?

In spite of all the challenges that India faces right now, introduction of new technology for open schooling can be visualized in near future. Although use of modern technology such as computers and mobiles is not a must criterion for a successful distance education program, use of technology is definitely beneficial. Some of the most common advantages of using technology in distance learning are as follows.

- Technology is fast and most of the times reliable
- Students can study on their own and can still be connected virtually with their peers and instructors.
- Technology can make a lesson plan more interesting.
- Many science and math subjects can be taught easily with the help of appropriate technology.
- The Internet opens a completely new world to the students. Hence, students can become more interested in a particular subject if adequate information is provided.

Open school system in India is progressing rapidly to meet the standards of distance education. Some modifications in lesson delivery can be beneficial for already successful system.

- Use of interactive radio: Interactive radio can be used in remote parts of the country where strong satellite signals cannot reach. Interactive radio has been proven successful in teaching math and languages in many countries such as Nicaraguan and Zambia. The set-up cost is low and the battery operated equipment is independent of electricity, hence is more reliable.

- **Television for education:** Mexico and Brazil have already run television based education programs successfully. A community based activity can benefit children from rural India. Some weekly broadcasting with follow up lesson plans not only brings students together but it also motivates them in studies. As technology advances, basic cost of a Television set is cheaper than it was before. A significant improvement in broadcasting over the years can make this alternative more reliable.
- **Computers:** Computers are getting widely popular in India. Almost every household in urban areas possess a computer. Some programs like hole in the wall, institutions promote the awareness of using computers in deprived children. Many organizations are building customized laptops for children in rural areas, where they can access the computer in their regional language. Costa Rica and Chile have successfully used computers in schools (Alvarez et al, 1998). Although both countries used different approach, they got successful results.

India can study and implement these technologies, which have already been successful many developing countries. Table 1.1 summarizes the use of technologies.

Technol ogy	Countries	Implementation	Adaptation
Interacti ve Radio	Zambia, Bolivia, Thailand, Papua New	Radio is used to teach interactive lessons in math and languages.	India has a massive radio network, All India Radio (AIR)(http://allindiaradio.gov.in/). It reaches 92 % of country's area. NIOS can successfully collaborate with AIR to deliver

	Guinea		lessons.
Television	Mexico, Brazil	Television is used to deliver weekly lesson plans.	A television network called Doordarshan reaches almost all parts of India (http://ddindia.gov.in/). It can be successfully used to deliver weekly lessons.
Computers	Chile and Costa Rica	Computers are used in schools.	NIOS can collaborate with computer institutions like NIIT (http://www.niit.com/global%20solutions/computer%20courses/pages/default.aspx) to deliver computer based instructions.

1.1

Conclusion

Open school system is very successful in India. It provides alternate way of school grade education to unprivileged children. Due to large population growth, educational, monetary and manual resources are limited. There are none or limited physical school structures in many rural parts of India. Sometimes, physical structures are present but lack of well-trained teaching staff can be a big issue. Many times, children are required to get out of school and work to support their family. Female students are often taken out of school due to poverty and male students get preference over them. Girls are often required to learn household tasks like cooking, cleaning and taking care of young ones, rather than formal school education.

Open schooling addresses all these issues and provides open, cost-efficient, flexible and convenient education to all. Student support services help students keep on track and motivate and assist them. Technology is still not widely used in open schooling in India. Most of the study-material is still print-based. Cost is the biggest barrier in using technology. With proper implementation of appropriate media, technology can soon be successfully introduced.

The main goal should be to focus on education rather than technology (Daniel, 2006). Technology can assist interactive learning but it can never dramatically change the current learning system. Hence, a good balance between lesson plans and technology is required. By following the examples of other developing countries with respect to use of technology, NIOS can successfully reach more students by communicating through technology and hence can improve the overall quality of education.

References:

Aakash (2012). *Aakash* Retrieved from <http://aakashtablet.com/aakash/index.html>

Alvarez, M., Roman, F., Dobles, M., Umana, J., Zuniga, M., Garcia, J. Means, B., Potashnik, M. &

Rawlings, L. (1998). *Computers in Schools: A qualitative study of Chile and Costa Rica*.

A World Bank Human Development Network.

Agarwal, V. (2008). *ccsindia*. Retrieved from www.ccsindia.org:

<http://ccsindia.org/ccsindia/downloads/intern-papers-07/National-Open-Schooling-186.pdf>

Bates, A.W., & Poole, G. (2003). *Effective teaching with technology in higher*

Education. San Francisco, CA: Jossey-Bass.

Daniel, S. J. (2011). *Open Schooling: the next Frontier for Distance Education?* Retrieved from

http://www.col.org/resources/speeches/2011presentation/Pages/2011a-0618_Dublin.aspx

Daniel, S. J. (2006). *Technology in Higher Education: How to avoid failure and achieve success?* Retrieved from

<http://www.col.org/resources/speeches/2006presentations/Pages/2006-09-20.aspx>

Jaakkola, T. T., & Nurmi, S. S. (2008). Fostering elementary school students' understanding of simple electricity by combining simulation and laboratory activities. *Journal Of Computer Assisted Learning*, 24(4), 271-283. doi:10.1111/j.1365-2729.2007.00259.x

Kanjilil, U. (n.d.). *Information technologies and libraries in distance education: Present and Future prospects for India.* Retrieved from:

http://cemca.org/disted/Kanjilal_Uma__0301.pdf

Medindia (2011). *Medindia* Retrieved from

http://www.medindia.net/health_statistics/general/literacy-rate-in-india-2011.asp

Mishra, S. (2009). *Mobile technologies in Open Schools: COL.*

http://www.col.org/SiteCollectionDocuments/Mobile_Technologies_in_Open_Schools_web.pdf

Mitra, S. (2009). *Student support services in open schooling: A case study of students' needs and satisfaction in India.* *Open Learning*, 24(3), 255-265.

doi:10.1080/02680510903202142

Mitra, S. (2008). *Gender and Open Schooling in India.* Retrieved from

http://www.col.org/SiteCollectionDocuments/Gender_and_Open_Schooling_in_India.pdf

Moore, M. & Kearsley, G. (2005). *Distance Education, A systems View.* Belmont: Wadsworth.

N.K.Ambasht. (n.d.). *OPEN SCHOOLING IN INDIA: A Challenge to technologies for learning and training.* Retrieved from:

- http://www.col.org/SiteCollectionDocuments/Open_schooling_in_India_A_challenge_to_technologies-for_learning_and_training.pdf
- National Institute of Open Schooling (2012). *National Institute of Open Schooling*. Retrieved from <http://www.nios.ac.in/>
- Open Basic Education (2012). *National Institute of Open Schooling*. Retrieved from <http://www.nios.ac.in/about-us/objectives-functions.aspx>
- Objectives and Functions (2012). *National Institute of Open Schooling*. Retrieved [http://www.nios.ac.in/departmentsunits/academic/open-basic-education-\(obe\).aspx](http://www.nios.ac.in/departmentsunits/academic/open-basic-education-(obe).aspx)
- On-Demand examination system (2012). *National Institute of Open Schooling*. Retrieved from <http://www.nios.ac.in/default.aspx>.
- Open Schooling. (n.d.). *Open Schooling*: Retrieved from Commonwealth of Learning <http://www.col.org/progServ/programmes/education/Pages/openSchooling.aspx>
- Perraton, H. (2007). *Open and distance learning in the developing world*. New York: Routledge.
- Priyadarshini, A. (2008, May 14). *Basic Education through Open Schooling*. Retrieved from http://www.col.org/SiteCollectionDocuments/Basic_Education_through_Open_Schooling.pdf
- Rumble, G., Koul, B.N. (2007). *Open schooling for secondary & higher secondary education: Costs and Effectiveness in India and Namibia*. Retrieved from http://www.col.org/SiteCollectionDocuments/Open_Schooling_Secondary_Higher_Education_071707.pdf
- Siaciwena, R. (n.d.). *Open Schooling: Issues and Challenges*. Retrieved from Commonwealth of Learning: http://www.col.org/SiteCollectionDocuments/Open_schooling_Issues_and-challenges.pdf
- Sitali, M. M. (2006). *Interactive Radio Instruction*. Retrieved from <http://pcf4.dec.uwi.edu/viewpaper.php?id=449&print=1>
- Student Support Services (2012). *National Institute of Open Schooling*. Retrieved

Ruddhi Wadadekar
DEPM 625 [9040]
Final Project Paper

from <http://www.nios.ac.in/departmentsunits/student-support-services.aspx>

Vision and Mission (2012). *National Institute of Open Schooling*. Retrieved

from <http://www.nios.ac.in/about-us/vision-mission.aspx>

Wadadekar, R.(2012) *Open schooling conference*. Document posted in University of Maryland

University College DEPM 625 9040, archived at: <http://www.webtycho.umuc.edu>