Sub-Theme: Sustainable development

Title of the Paper: Potential of distance and open education in eradicating the problem of Child labour for future generation of Assam

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ABSTRACT OF THE PAPER

Child labour is an important issue to deal with as it has taken concern of the government and non-governmental organization but not yet capable of solving the problem. Therefore this study has taken initiative in response to find out possible solution through Distance education. According to UNICEF, there are estimated 158 million children aged 5 to 14 in child labours worldwide, excluding child domestic labour. When we see child labour in Indian context the very first thing come in mind is that in India children are more or less regarded as assets to parents and many children found working in parental firm or workshop. Another reason of child labour in India is poor economic condition where child can be a source of income. Sometimes poor families are without a breadwinner, as a result death or abandonment, obliging many children to work from a young age. In such condition education becomes a rare dream for them and they continue to live in same poverty striven condition by generation to generation. In this respect distance education has got its potential to eradicate this problem for future generation by providing education, especially meant for this child labour. Sarvashiksha Abhijan or basic elementary education is helping the common child a lot although child working in domestic chore and other workforce is benefited or not has got some doubt. DEC could frame some policy and scheme for child labour so that they could avail the benefit of education without loosing anything, along with awareness of human rights and avoid working in hazardous condition. This education should also consist of skill and vocational training; rather this could be a name as free and elementary distance education to a certain age period.

Key words: Child labour, distance education, poverty, human rights, skill, vocational training, elementary.
1. INTRODUCTION

Child labour is a condition which is hampering our society as well as countries overall development as it is hampering countries human resources. A child labour depicts greatest tragedy which shows economic backwardness. One of the major causes of child labour is poverty. Child labour is essentially a socio-economic problem which linked poverty and illiteracy. A poverty striven family accepts their children as economic assets and sends them for work, without aware of their future when they would have send to school. Employer accept child labour as its give them benefit at a cheaper labour cost, which in turn provide low productivity and mental harm to a child. Community acceptance of child labour is another very crucial boost of child labour. The problem of child labour is a socio-economic problem which is problem of ours society and threatens our sustainable human resources.

Practice of child labour in Assam is increasing due to various causes like urbanization, modernization and migration. Assam’s economy is basically village economy and agriculture is the basic mode of production. Traditionally Assamese society was a joint family structure and practice of child labour was rare. Some labourers are found to help assisting family firm and these are basically in agricultural production. But with the rapid growth of urbanization and migration, child labours became an acute problem in Assam. With the growth of urbanization slums in the city and migrated people from different neighbouring states and country has made the state prone zone to child labour. Economic backwardness and illiteracy is the main cause of child labour. So to eradicate child labour we need to concentrate on these two facts. The first possible measure to eradicate economic backwardness that is to reduce poverty and the second is to educate the people, so that the holistic development of the state could be achieved and both are vice versa. Education is the soul criteria through which poverty can be reduced and it will reduce child labour too.

Education is the root cause in the development of economic, social and political life of people. Therefore development process should begin with educating the people with an aim to achieve holistic sustainable development of its human resources. Mahatma Gandhi in his thought on education observed that Education not only moulds the new generation, but reflects a society’s fundamental assumptions about itself and the individuals which compose it. In this paper an attempt has been made to give the importance of education through the weapon of ODL and its importance is attached to eradicate child labour and thereby creating sustainable development for countries human resources.

Assam is a land of different types of community. Assamese is a major dominant group along with different identity and ethnicity. The common problem of this group is that majority of people suffer from the poverty. Both relative poverty and absolute poverty. The key aspect of poverty of these people is lack of proper human resource with other various causes like pattern of small land holdings, lees industrial growth, unemployment, lack of skill development, proper education which is another very important causes like lack of proper infrastructure, mobilization etc. Geographical isolation is also another very important aspect which retarded industrial development of the state. Another some
important causes like natural disaster particularly flood every year left the people of the state with helpless condition. In such condition polarization is taking place. Every year BPL families are increasing at a very high rate. Subsequently child labour is increasing. Education is a key aspect and has a responsible role in solving various issues which include child labour also. In 2001, there were total of 336,239 child labour and by 2015 it will be predicted as 449,000. Intensity of the child labour is same as the national level.

The problem of child labour can be solved through education. The Directorate of Elementary Education of Assam organizes numerous activities to universalize Elementary Education (UEE). The Elementary education in Assam includes classes from Class I to Class VII, within the age group of 6 - 14 years of students. Sarba Siksha Abhijan, Assam in its bid to achieve the goal of Universalisation of Elementary Education has been facing its toughest hurdles in covering the child labours. The children engaged in work get embedded in a cobweb where the interest of the children is diluted. Therefore we have developed a hope on ODL that they will prove helpful in eradicating the problem if not immediately then in future course. But the concept of distance and open education is a new concept to Assam and people were not aware of the functioning of open and distance education properly. There are few institutes of vocational and professional educational courses in the state. Presently there are one single open university. K. K. Handiqui State Open University, along with institute of distance and open learning (IDOL) under Guwahati University and Director of distance education with different study centre of NIOS. Distance education has its immense potential to eradicate the problem of child labour by providing non-formal education to the working child and also to the family members in Assam. National open schooling and other correspondence school are also providing education in non-formal way and doing well. We need to make people aware of the possible avenues of open and distance learning and about the potential benefit of this system which has differentiate it from conventional education. These can be better explained as:

- Counselling and personal contact system
- ICT
- Student support service
- Self learning study material: Audio video lessons

These tools can be used immensely and utilized to the problem of child labour.

The distance education of the state is doing well but it is painful that its immense potential is hidden as common people are unaware of its real benefit. It is been also observed that this system is urbanized such a way that the rural and illiterate people are not even aware of it. Around 36.09% of states population continues to live below poverty line. There is a rural urban divide; four out of ten people in rural Assam is below the poverty line, while in urban the incident is less than one in then. But the problem of intensity of child labour is same in the case of rural and urban. The people of villages and below poverty are less or not aware of the distance education because:

- No access to know the available resources of distance and open education especially among the isolated and disadvantageous community in villages.
• Distance education had to compete with conventional structure.
• Villagers are less aware and not interested to know the scope, they usually send their child to primary school, and their education usually comes to an end during family crisis.
• Common people have less faith or the negligence of the system.

2. SOME STEPS
Assam government has dealing the issue of child labour with different plans and programmes. It will launch an exclusive child labour literacy programme for child labourer in the age of group of 14 to 17 years in the urban areas. Unicef on the other hand is complementing the elementary education programme in nine districts.

Limitation of these schemes can be judged when a person crosses his maximum limit of education. For example elementary primary education which is meant for up to 14 years of age, when one crosses this age group he will left nowhere in education scenario. In another case a child of 13 or 14 will found no convenience to take lesson with a 6 years child. In fact child labourers are unable to devote more time as the aim should not be stop child labour with severe punishment but to eradicate the problem by holistic development with providing them education now, so that in future they are in no need to send their offspring to work.

Open learning is an opportunity for child labourers of the state to fulfil the goal of achieving education without the troubles of time bound non-flexible routine and also without harming their working condition of these children, this may create a sustainable scenario for future generation. This system is free from the age barrier which has prevented them earlier to attend school. It has also benefit of educating the adult member of the family and built a road to economic independency.

It has capability of overcoming geographical barriers with different broadcasting media, where radio places a significant role. Now a day’s development communication has its crucial importance in educating people, providing skill education to people. And it can prove beneficial for child labour also. It can provide education without harming the work culture of the child in non-hazardous work condition and helps to build a nation with sustainable development.

3. Role of ODL
Distance education with its objective, pedagogical innovation and dynamics of operation has provided it an independent state of its own and hence can do a great deal in overall development of states human resource. It can provide education as per it needs, convenience and requirement and also equipped with knowledge with skills of varied nature which in turn separate it from conventional set up. It has got also the benefit of communication technology which can be used immensely to educating these child labourers. Although these aspects are not very known to people, local NGO, s, Medias have to make people aware of the benefit of open learning and then make reachable its new pedagogical structure to the people concerning with child labour, parental education and adult education and to those who live below the poverty line, Medias have to make people aware of the benefit of open learning and then put before people its new
pedagogical structure to the people who live below the poverty line and to those who are unaware of the system. Some steps in these possible ways are:

- **Flexible schooling:** Establishment of study centre or schools in every village covering the target groups providing vocational training and skill education, one day or two day classes according to one's situation and should be in regular contact with student support service and mid term surveys for fulfilment of its goal covering both rural and urban areas.
- **Counselling:** A separate counselling centre should be established in community level to help the child labour along with other member to face any kind of problem in education which include personal problem also. Where community support and employers acceptance is appreciated and they are also motivated to send child labourer to these centre.
- **Every school in a village and community should equally supported by a NGOs. NGO people should find out the child labourer engaging in different activities and brought them to school which in turn will not do any harm to their working life but create a better future.**
- **Adult education:** Providing vocational education to adult members of the family an employment generation activity will rightfully solve the issue of child labour. A scheme should be developed to altering basic education system covering the target groups with local NGO, s. Schemes in developing self-help group, helping them to educate with different micro-planning and is important to eradicate poverty and child labour.

3. **HOW TO REACH THESE CHILD LABOURERS:**

It is very difficult to reach the child labour as they are scattered and unorganized and actual figure is hidden. Here we can use the concept of social capital or network where no single institute will function independently. A regular and smooth flow of network between local communities, NGO, s working on child rights, government, and educational set up, both formal and informal should be a necessary condition to reach these unreached labourers.
4. SUMMARY

Sustainable development can be achieved when there is a proper growth of human resources. And this proper human resource can be brought up when the future of the state is shaped and modified with required education and growth. Children are important human resource of the state which needs to be bring out from the menace of child labour. And this can be possible only through education.

Practically when child labourer will be motivated to education and respond to shape their future in competitive environment and capable of taking opportunities presented outside in labour economy then the motto of sustainable development will be achieved. The solution of child labour is holistic sustainable development of all the societies. Children are the root of any developed nations and a nation should consider the needs of the child and child labour important. The causes of child labour need to be taken out in front of the policy and try to solve the issues which caused child labour with different targeted interventions. Adequate resources are needed to be met to formulate plans and programmes on child cantered, innovative and sustainable strategy for development.

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ICT based Gender Education for Sustainable development

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Sub-Theme: Education for Sustainable Development.

INTRODUCTION:

Sustainable development is a very popular term used today by scientists, policy makers, educationists and commoners alike. The environment conservation movement initiated in the 1970's started creating awareness about preserving the Earth's resources. The phrase ‘sustainable development’ then had a limited meaning concerning preserving earth's environment for the benefit of the future of mankind.

Shah (2010) elaborated the term by adding social meaning to it, making it more comprehensive, saying that ‘Sustainable Development is often an over-used word, but goes to the heart of tackling a number of inter-related global issues such as poverty, inequality, hunger and environmental degradation’. In any effort of looking at sustainability from the three important perspectives of economic, social and environmental development, women in the society make a meaningful contribution. Their position, status and participation in the process of development are very significant for a harmonious growth of any society.

The gender perspective:
The position of women in the Indian society is in the process of transformation and will have an important impact on future social development. In the recent past, there has been an increasing awareness about the longstanding patterns of discrimination that created conditions for women which threaten their lives even before birth, limit their opportunities for education and training, deny them choices, restrict their economic participation and curtail their social, political and economic rights. In Maharashtra in year 2002, 56% pregnant women were found suffering from Anaemia. (IIPS-2002) The badminton icon of India Ms. Saina Nehwal who has won a number of international tournaments has openly shared her experiences of gender discrimination and expressed regret about the way even today women are treated in Indian society. (Sakal, 2010)

The status of women in any society is determined by the interplay of various socio-economic factors. Some of these may be ‘objective’ in nature like education, employment, income, etc., or ‘subjective’, depending on the social values prevailing in the society. Women’s status is determined by social norms. These ‘social norms’ which support inequality between men and women is the one of the major causes of the backward status of women socially, economically, educationally, politically and health wise. National Family Health Survey (1999) revealed that 50% women in India marry before the age of 18 years and 47.7% in Maharashtra. For generations the institutions like religion, family, school, media and marriage etc. have worked to propagate and confirm the pre-determined gender ideas and stereotype values in the upcoming generations. The incidences of rape, sexual harassment, wife battering and dowry deaths, female feticide are rampant in Indian cities. Human Development Report, Maharashtra (2002) mentions that in the absence of gender discrimination, a population should contain as a norm at least 1,050 women for every 1,000 men, because of the inherent biological superiority of women. However, due to the non-acceptance of a female child in the society; the deficit of women, in absolute terms, has been rising steadily from slightly more than 2,00,000 in 1901 to nearby four million in 2001, jumping by more than a million in the last decade. A deficit of this magnitude is a sure sign of socio-economic condition that are so punitive to women as to wipe out their biological advantage. ‘Despite the booming growth rates and rising illiteracy, more girl children are being muffled into the silence of death at or before birth. Statistics of 2001 showed that the capital state of Delhi, with all its cosmopolitan pretensions, has registered a 47-point drop from 915 girls to 868 girls per 1000 boys.’ (Times, 2006) The most adverse child sex ratios are among the prosperous states of Punjab, Haryana, Gujarat, and Maharashtra. It seems to be their prosperity, which enables them to exercise the “choice” of preventing the birth of a baby girl. (Rustagi, 2003)

Even today in Indian society, a daughter is seen by society to be of negative worth. Sons, in the Indian context, are traditionally seen as assets in economic, political and ritualistic terms by a male-dominant society. The norms, values and customs, especially those pertaining to property, make the girl child the lesser child. The birth of a daughter is therefore not celebrated. The girl child if survives the neglect and continues to live, she experiences trials and tribulations as a reproductive being. At what age she marries and
how many children she bears, how many she avoids by using contraception, influences her health and limits her abilities and also has an implication on sustainability.

**Why Open and Distance learning?**

Knowledge is a significant determinant of competitiveness in the world economy today. Without education and technological advancement any future growth is impossible for a developing country like India. Information and Communication Technologies (ICTs) are contributing a great deal in achieving educational goals world over. The concepts, methods and applications involved in ICTs are constantly evolving. Educators and policymakers both feel that ICTs are of vital importance to the future of education. Hence most higher education institutions have developed distance-learning platforms to meet the issues of increasing number of students, lack of appropriate and enough study space, uniformity, quality assurance and control of the information delivered, increasing costs of higher education etc. ‘Distance education augments opportunities for education, ensures access, is cost effective and promotes a flexible and innovative system of education.’ (Azad, 1988) In Murahari’s (2008) view, the credibility enjoyed by distance education today was mainly because of its multi-media approach. Media eliminates the problem of distance and carries education to the doorsteps of the learners. Different media tend to support self-directed, individualized, as well as collaborative learning. The multi-media approach creates enthusiastic environment for the learners in distance teaching. Distance education is trying to shift the focus to self-learning. This is made possible by the use of multiple media instructional packages designed to aid self-learning on variety of subjects.

Development is an important phenomenon and a vital goal in the process of globalisation. However, to achieve continuous all-round and sustainable development for society certain fundamentals are mandatory to any developing community. Gender parity and community building are the bare bones that can cause accelerated growth of any emergent society. Therefore, it was felt that if ODL technology is used to disseminate value education like ‘Gender Equality Education’, we might succeed in achieving social justice to foster sustainable development. The existing means to bring about this transformation, like media and literature, are indirect and naive. A more direct, pinpointed message, and self-learning technique presented in an interesting and interactive manner using ICT would work wonders to introduce gender equality values. It would yield greater awareness and understanding and be instrumental in making a small beginning of an attitudinal change that further brings about changes in mindsets and ideology.

**SUPPORTING LITERATURE:**

Today, sustainable development means different things to different people. The definition given by the Brundtland Commission Report (1987) is the most widely used connotation of ‘sustainable development’. It says, “Sustainable development means meeting the needs of the present without compromising the ability of future generations to meet their own needs.” It suggests that when we use the earth’s resources we must not just consume
whatever is available to us, depleting it beyond repair so that the future generations suffer. What it implies is that we need to be alert about our decisions and actions today to have a pleasant tomorrow.

In simple words we can say that sustainability means environmental, economic and social well-being for today and tomorrow. Man is a social being. Human societies are most often organized according to their primary means of subsistence. They are characterized by patterns of relationships between individuals sharing a distinctive culture and having specific institutions. (Wikipedia) In order to bring about a sustainable change in the society we need to see the humanity as a system—a system that connects space and time. And then we start to realize that the decisions our grandparents made about farming, about untouchables and the social hierarchies then continue to affect agricultural practices and the reservation policies today. Similarly the economic and social policies we endorse today will have an impact on the urban poverty as well as the quality of life of our grandchildren when they are adults. (IISD, 2010) The focus on ‘sustainable communities’ is key to understanding how the ‘social dimension’ must be considered alongside economic and environmental dimensions within a Triple Bottom Line Approach, incorporating the economic, social and environmental dimensions to sustainability. (Dixon, 2010)

Women being half of the world population and important partners in world economy need to be considered participants and beneficiaries of every development initiative. In the recent past, numerous studies have been undertaken to draw attention to the issues related to women. Rustagi (2003) in his study supported the subsistence of gender disparity with statistical indicators that were able to measure disparities and gaps between men and women on a number of issues pertaining to human well-being. He found that the most adverse child sex ratios were among the prosperous states of Punjab, Haryana, Gujarat and Maharashtra. In Kaur’s view (2008) domestic violence is widespread, deeply ingrained and has serious impacts on women's health and well-being. According to Vargas and Ypeij (2007) achieving gender equality remains one of the greatest challenges of development. In most societies there are remarkable differences between the access men and women have to assets, decision-making, power and participation in productive and reproductive activities. Paul (1988) has brought out the economic interpretation of women’s oppression lucidly. She discovered it was due to two major men-held concepts: (a) that men were more important than women, and (b) that women were pleasure-givers and help men by coping and adjusting to their needs and demands all the time and thus the women were to be placed on a pedestal for all this sacrifice. Flood (2007) supported the target selection of the present study by emphasizing that male inclusion, both for gender equality and for men themselves is a must. Patterns of gender injustice are tied to social constructions of masculinity and male identity. It is therefore crucial to work with men to build new definitions and identities to which they can aspire. Men, as well as women, have a stake in fostering gender equity for sustainable development.

Klasen (2007) and Okali (2006) strongly recommended examining the enabling environment for promoting gender equality in a country. They reaffirmed that gender needs to be better mainstreamed, new concepts and thinking needs to be incorporated into
frameworks used to help livelihoods programmes move beyond traditional role analysis. In his action research Quisumbing (2004) devised a practitioners’ guide related to ‘Food Security’ Using Gender Researches done in the field of development. Evertzen (2003) developed a ‘Manual for the Gender Self-Assessment’ to enhance self-reflection and staff ownership of efforts to promote women's empowerment and gender equality. Unterhalter (2005) and Gurumurthy (2007) suggested tackling the issue of gender equality more creatively with use of ITC.

The review suggested that societal biases were prevalent and they needed to be addressed in order to promote gender equality to support sustainability. ICT is used widely to encourage gender mainstreaming. However, direct intervention methods such as giving gender education by using ICT are rare and therefore could be pioneering. A human society is a group of people related to each other through persistent relations such as social status, roles and social networks hence in order to create a sustainable society we must strive to bring about gender parity.

**METHODOLOGY:**

Development of the tool: Since multimedia is multi-sensory and it engages the senses of the learners, an interactive multimedia package, containing a documentary film of 22 minutes named ‘Beyond Boundaries’ and an interactive self-learning computer programme titled ‘Building Bridges’ was developed with a systematic process to give Gender Education. Several Books, articles and research studies were referred to develop the body of subject matter used for the multimedia package.

Validation of Tool: Ten ‘Experts’ from related fields of gender studies and education media development etc. did critical appraisal of the tool on a five-point likert scale concerning eight valid criteria. Their qualitative suggestions were invited and incorporated while refining the package.

Target Audience: Adult men and women of 18 years and above with basic knowledge of computer usage constituted the target audience. The tool was prepared keeping in mind the needs of target participants.

Sample size: A representative sample of 833 individuals was selected with stratified random sampling method. Out of which 444 were females and 389 were males whose age was ranging from 18 to 61 years. Adult men and women having knowledge of simple computer operation were selected from twenty-two different localities in Nashik city representing different socio-economic backgrounds. 833 adult men and women selected for the survey. 287 students and 546 citizens constituted the sample.

Research Design: A ‘pre-test and post-test’ pattern of research design was adopted for the current study. The same questionnaire was administered twice, before and after the administration of the multimedia package.
Research tool: Exhaustive questionnaire of 85 items was administered before and after execution of the interactive multimedia package as pre-test and post-test. Validation of questionnaire was done before its administration from three gender experts.

FINDINGS:

- **Observations:**

  It was observed that most of the respondents preferred to see the ‘film’ first and then were inspired to go through the interactive part. Since the subject was attention-grabbing audience gave in total involvement. Various learning patterns and interesting learning outcomes emerged. The younger age group of below 30 yrs. took lesser time to go through the entire multimedia package. Older age group of above 30 yrs. took more time as they scrutinized each and every frame and lingered on sensitive issues, sometimes re-reading and repeating those portions. The audience found the tool very interesting and informative.

- **Reliability of the multimedia package:**

  The ratings given by ten experts to the multimedia package were treated statistically by applying ‘Cronbach Alpha’ to prove its reliability. Alpha coefficient ranges in value from 0 to 1 and may be used to describe the reliability of factors extracted from dichotomous (questions with two possible answers) and/or multi-point formatted questionnaires or scales (i.e., rating scale: 1 = poor, 5 = excellent). The higher the score, the more reliable the generated scale is. There is not a generally agreed cut-off point. Usually 0.7 and above is acceptable (Nunnally, 1978). According to Reynaldo (1999) Cronbach Alpha 0.9 indicated a high reliability of the scale.

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>Cronbach's Alpha Based on Standardized Items</th>
<th>N of Items</th>
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<tr>
<td>.950</td>
<td>.962</td>
<td>8</td>
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When Cronbach’s Alpha was calculated based on standardized items it was 0.962 which was nearest to ‘One’. Hence it can be said that it was a highly reliable scale for the tool proving the multimedia package highly dependable for giving Gender Education.

In the rating of the experts none of the eight aspects of the tool was found ‘Poor’. Around three fourth i.e. 74% of the criteria were rated ‘Very good’ and ‘Excellent’ by the judges. This confirmed that the self-learning interactive multimedia package, containing a documentary film and a self-learning computer programme, was a highly reliable tool to disseminate knowledge about ‘Gender Education’.
Effectiveness of the multimedia package:

Every answer, in the close-ended exhaustive questionnaire of 85 items, was given a ‘plus one’ for a gender-bias reply and ‘a zero’ for a gender balance response while coding the survey. The pre-test and post-test bias scores were compared in four respects of the population i.e. sex, age, education level and economic strata to prove the effectiveness of the tool.

Table No: 1: Broad Division of Pre-test and Post-test Bias scores:

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<th>Bias scores</th>
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<tr>
<td></td>
<td>Up to 20</td>
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<tr>
<td>Pre-test</td>
<td>6.2 %</td>
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<tr>
<td>Post-test</td>
<td>93 %</td>
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The average Bias score of the entire sample population in the pre-test was 41 points with minimum bias score of 5 and maximum of 70. The above table shows that in the pre-test a huge majority of people i.e. around 94 percent were having their gender Bias scores over 20 points. In the post-test with only almost an equal number of participants i.e. 93% having their gender Bias scores within 20 points.

Thus, it was quite clearly observed that there was a marked difference in the Bias scores of Pre-test and Post-test. The position was reverse of each other in both the cases. The same was depicted in the figure given below.

Figure: 1: Comparison of pre-test and post-test bias scores

The overall results showed that in all respects multimedia package was rated highly reliable by experts and was very effective in disseminating ‘Gender Education’ to the sample population.
CONCLUSION:

The present study affirms that distance education and open learning has immense potential in reaching and educating diverse groups of people. It also demonstrates that open learning has great potential in changing attitudes of people. It was found that in India gender inequality is still an issue of concern. In spite of being youthful, educated and urbane, people in Nashik city were found traditional minded and had faith in gender stereotypes. They adhere to their patriarchal ideals and customary values. The effort of devising a multimedia package to effectively disseminate ‘Gender Education’ to aid the cause of developing a sustainable society was therefore a need based task. Gender experts found the systematically devised multimedia package highly reliable to propagate gender education to adult men and women. This endeavour had also succeeded in effectively changing people’s attitudes by reducing their biases. The current study has helped people to accept new ideas of gender equality.

It is believed that human nature is not inherent or static; it is dynamic. Therefore, it is possible for us to reconstruct our gender approaches to bring about gender equilibrium by giving education. This harmony would encompass a wider experiential and awareness base that would produce a complete whole which is necessary for social justice, a discrimination free existence and sustainable human development.

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A Paper on

Using ODL for Environmental Education

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Using ODL for Environmental Education

Abstract
The “Environment” comprises all entities, natural or manmade, external to oneself, and their interrelationships, which provide value, now or perhaps in the future, to humankind. We are experiencing a flurry of environmental problems recently due to increased pace of industrialization, urbanization and globalization. Almost all the problems like pollution of air, soil & water, global warming, depletion of natural resources etc. arise due to human activities. What Hinduism believes as “Panch Mahabhuta” (Five Elements- Air, Earth, Fire, Space and Water) is getting impacted due to improper human interference. The consequences of this manmade crisis are posing the ultimate threat to the very existence of not only human being but the whole ecosystem on the earth. The worst thing adding to the woes is most of the human population is unaware of all these issues. Only handful of the experts are keeping a track of all the changes happening on this front and it is their endeavor to spread awareness to every possible individual on this earth. Since ourselves, the human being has created all these troubles the solution lies with us only. It starts with the simple thing of creating awareness amongst the habitat and educating them regarding these issues is the very heart of environmental education.

Environmental education refers to organized efforts to teach about how natural environments function and, particularly, how human beings can manage their behavior and ecosystems in order to live sustainably. It is certainly gigantic task to educate the human population about the environment and the traditional ways of education will be inadequate for the same. Here the open and distance learning can play very vital role as the intended learners are separated by time or distance or by both. This paper is an attempt to explore the scope of using ODL for environmental education.
Using ODL for Environmental Education

Full Paper:

Overview:

Heavy snowfall across Europe, Blizzard in New York City, flood in Northeast Australia on international front and unusual rise of onion prices, extended stay of Monsoon on national front were currently grabbing a prominent pie of media coverage. Was/Is there any common thread between all these incidents? Apparently no such common thread or link is evident, since all of these were happening across the globe; separated by thousands of miles of distance. But if one is careful and awake enough; there is a hidden common link – ‘rapid climate changes across the globe.’ Experts will agree that the root cause of all these incidents is stemming from this very common link of rapid climate changes which is perhaps the most prominent aspect of environmental issues. There is no wonder why ‘Carbon emission reduction’ was one of the hotly debated issues at the recently conducted Cancun Summit-Dec.2010 in Mexico.

The climate changes including global warming are driving force on all the fronts in developing countries like India where monsoon rains is one of the mainstays of the national economy. The slightest change in the monsoon is capable enough to send the tremors across the Indian subcontinent affecting almost 1/3rd of global population. This highlights the importance of environmental issues in our life. Understanding the cause and effect relationship of various environmental issues is a long process spanning across years and decades since no change occurs overnight. But are we individually aware of our role and responsibilities towards global environment? Are we following the environmental friendly practices? The answers are quite discouraging and reflect irresponsible stance on our part. The fast paced adverse changes on the environmental front demand swifter counter efforts to prevent the same.

On international front the awareness is increasing rapidly from last 2 decades. It is reflected by various incidents like awarding the most coveted Nobel Prize for this equally noble cause of creating global awareness regarding environmental issues jointly to Dr. Rajendra Pachauri led IPCC and Ex-Vice president of USA Al-gore recently in 2007. Acknowledging this issue the press release on the official website of Nobel Prize mentioned it as:

“The Norwegian Nobel Committee has decided that the Nobel Peace Prize for 2007 is to be shared, in two equal parts, between the Intergovernmental Panel on Climate Change (IPCC) and Albert Arnold (Al) Gore Jr. for their efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change.”

The environmental damage already inflicted due to alarming on-going population explosion, rapid movement towards urbanisation and industrialization, increasing needs of energy and fast scientific and technological advancement cannot be reversed unless there is collective thinking, will and effort. These call for public awareness and participation for bringing about an attitudinal change and finally restricting further damage to the environment. Effective implementation of environmental management and conservation programmes depends on education, awareness raising and training in the relevant areas. Without an understanding of how to conserve natural resources and the compelling need to do so, few people would be motivated to participate actively in programmes on environmental conservation, Environment education and awareness thus assume critical importance.
Environmental education is a response to risks, issues and crises and opportunities arising from the biophysical, social, economic and political components of the environment. Environmental education include varied learning processes that provide opportunities for people to develop knowledge, skills and attitudes, which enable them to act in an environmentally responsible way within their communities. It is a process aimed at developing world population that is aware of and concerned about the total environment and its associated problems and which has the knowledge, attitudes, commitments and skills to work individually and collectively towards the solution of the current problems and prevention of the new ones. It can be achieved by creating awareness about the environmental issues and insisting on conservation of environment is the ultimate way of survival in the long run rather than destroying.

**Indian Context**

In Indian context, as R. Chandrappa et.al. rightly mentioned; major environmental issues are: forest and agricultural land degradation, resource depletion (water, mineral, forest, sand, rocks etc.), environmental degradation fueled by rapid growth in population, public health, loss of biodiversity, loss of resilience in ecosystems and livelihood security for the poor.

Recognizing the looming consequences of environmental changes government of India has come up with the national environment policy in 2006. The national environment policy is intended to be a guide to action: in regulatory reform, programmes and projects for environmental conservation; and review and enactment of legislation, by agencies of the Central, State, and Local Governments. The dominant theme of this policy is that while conservation of environmental resources is necessary to secure livelihoods and well-being of all, the most secure basis for conservation is to ensure that people dependent on particular resources obtain better livelihoods from the fact of conservation, than from degradation of the resource. The policy also seeks to stimulate partnerships of different stakeholders, i.e. public agencies, local communities, academic and scientific institutions, the investment community, and international development partners, in harnessing their respective resources and strengths for environmental management.

It is not only government or statutory bodies who should work towards the environments conservation but every individual must also participate in the same. To arouse the interest the individual should have awareness about the environmental issues, the pro’s & con’s of conservation of environment. In the diverse country like India to reach to the individual poses lot of challenges. Kartikeya et al summaries these challenges as follows:

- The challenge, in a large and diverse country, to find the right blend between centralized and de-centralized efforts and approaches.
- The challenge of reaching out to large numbers cost-effectively
- The challenge of making environmental considerations relevant and meaningful to various groups.
- The challenge of putting environmental education on the agenda of educational decision makers.
- The challenge of putting sustainable development concerns high on the agenda of policy makers, and
- Finding and developing human and financial resources for environmental education.
In this situation the open & distance learning/education seems to fit in the requirement to cope up the aforesaid challenges.

Open & distance education is capable of imparting the environmental education effectively to the individuals. The terms open learning and distance education⁶ represents approaches that focus on opening access to education and training provision, freeing learners from the constraints of time and place, and offering flexible learning opportunities to individuals and groups of learners.

It embraces the philosophy of creating equal quality learning experience to the learner irrespective of place and time. With the technological breakthroughs, the open & distance learning is poised to enrich the learning experience at par with the traditional learning confined in the physical boundaries.

Distance education provides major benefits such as:

- **Expanding access:** Distance education can reach underserved populations of students who cannot attend a school that offers the educational services they desire or those who have the greatest need of education like rural communities especially groups of women or girl child, illiterate populations or even entire countries.

- **Cost reduction:** Distance education can turn production of content into a repeatable and durable learning tool that does not require as much infrastructure.

- **Adapting to new technology and environments:** Educational institutions may adopt distance education as a means to adapt to the rapid changes in technology being used in education today.

- **Flexibility for students:** Some distance learning programs allow students to tailor their individual classes and/or curriculum to meet their individual needs.

The historical evolution of distance education has been in four main phases:

1. **Correspondence systems** originated at the end of the nineteenth century, and are still the most widely used form of distance education in less developed countries.

2. **Educational television and radio systems** use various delivery technologies, terrestrial, satellite, and cable television and radio to deliver live or recorded lectures to both individual home-based learners and groups of learners in remote classrooms where some face-to-face support might be provided.

3. **Multimedia systems** encompass text, audio, video, and computer-based materials, and usually some face-to-face learner support delivered to both individuals and groups. Programmes are prepared for distribution over large numbers of learners, usually located across a whole country.

4. **Internet-based systems** in which multimedia (text, audio, video and computer-based) materials in electronic format are delivered to individuals through computers, along with access to databases and electronic libraries, and which enable teacher-student and student-student, one-to-one, one-to many, and many-to-many interactions.

Just as each previous generation of technology, i.e. correspondence, broadcast and narrowcast audio and video, and multimedia systems produced its particular form of distance learning organization, so the spread of broadband Internet communication is stimulating new
types of educational organizations and also stimulating re-thinking about the effectiveness of the older ones. With the rapid breakthrough developments on technological front, the open & distance learning is becoming more sophisticated and interactive to deal with challenges posed by learners from diverse culture, different literacy level and varied economic backgrounds.

All the above systems can be used simultaneously for environmental education in India. These systems of open & distance learning will be helpful balance the inequalities between age groups. Also it will facilitate to educate the geographically spread large audiences with speed & economy of cost and efforts. Since the learners are not required to forgo their day today activities for learning, it is expected to entice the learners more effectively.

**The Way Ahead**

Already various government-aided institutions as well non-governmental organisations & number of activists are functioning for imparting environmental education to Indian citizens. Prime focus as of now is on the school & college students since they are quick enough to understand the importance of these environmental related issues. Once properly educated & trained on different aspects of environment these students can play very vital role in educating their respective community more effectively and can adopt the open & distance learning for the same.

Today there is no dearth of environment education initiatives in India and as the matter of fact some very good success stories like saving the silent valley located in the Nilgiri Hills, Palakkad District in Kerala, are resulted from the same. But considering the required magnitude; the efforts are not sufficient. The open & distance learning can help to spread the word of mouth regarding these stand alone success stories in other communities/area to boost the morale of other habitats regarding not only getting aware about environmental issues but proactively contributing to preserve the flora & fauna.

Different entities like Centre for Environment Education (CEE)-a partnership between government and non-governmental institution are actively engaged in environmental education in the country. The thrust areas on which CEE is working are comprehensive including environmental education for children and youth, sustainable rural development, waste management, bio-diversity conservation, eco- tourism etc.

CEE is currently making more and more use of technology for educating various target groups from wide range of sectors, and geographical areas. CEE recognizes the importance of the internet as a media that can achieve a wide reach, and serve as a useful platform of learning and expression. It hosts several websites catering to different target groups and requirements. CEE has rich resources to conduct environmental education through open & distance learning mode.

Open & distance learning coupled with judicious use of information technology presents numerous opportunities for organisations working in the filed of environmental education like CEE to garner the attention of Indian citizens. It will help to create the nation wide movement regarding environmental education.

The learning’s from different IT based government funded initiatives like CARD project by government of Andhra Pradesh, SETU by government of Maharashtra and private organisation initiatives like ITC’s e-Chaupal may act as guidelines for adopting the open & distance learning mode for environmental education in India.
In spite of numerous challenges to be overcome; with the prowess of information technology, India holds good promise for embracing environmental education through open & distance learning and create new inspiring saga.
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Conference Theme:

Open and Distance Learning as a Key Growth Driver for Socio-Economic Development

Sub-Theme:

SUSTAINABLE DEVELOPMENT

EDUCATION FOR SUSTAINABLE DEVELOPMENT

The importance of learning emphasizes to enable the individual to put his potentials to optimal use is self-evident. Without education, the training of human minds is incomplete. No individual is a human being in the working world until he has been educated in the proper sense.

The guiding rules are that people must share with each other and care for the Earth. Humanity must take no more from nature than nature can replenish. This in turn means adopting lifestyles and development paths that respect and work within nature's limits. It can be done without rejecting the many benefits that modern technology has brought, provided that technology also works within those limits.

List of environmental issues that are due to human activities,

1) Climate change
2) Global warming
3) Air pollution
4) Ozone depletion
5) Fresh Water Shortages and Water Pollution
6) Forest Destruction/Deforestation
7) Shrinking Wetlands

Why Sustainable development?

This is the century of the economic boom. India itself has seen a growth rate of 9 per cent in the previous fiscal. We want our production capacity to escalate and our profits to skyrocket in the industrial sector, infrastructural sector, manufacturing sector, etc.

We want the fastest, most efficient and convenient sources of transport to facilitate our development. We want the best machines to churn out goods at the speed of sound. We require the best communication facilities, the best buildings, the best bridges.

Growth, development and profit – these are the motivational forces in today’s fast paced world

All the demands of developing and developed nations require the manipulation of natural resources. No economy can survive without coal, petroleum, electricity, wood and steel. Industries cannot run until they are fed these precious and stealthily depleting resources. It is in demanding times like the present that the world has become aware of how these resources are fast depleting. If these resources are not utilized efficiently, soon
a day will come when our future generations will not even have drinking water, let alone all the other facilities we take for granted. Fossil fuels, which satiate the hunger for resources in most economically progressing nations, are non-renewable and unsustainable. Already, their production has declined and they are moving towards exhaustion. Although fossil fuels are being generated continuously, we are using them at a rate 100,000 faster than they are renewed. Sustainable development is the only way we can keep Mother Nature, our growth hungry economies and our very demanding present generation and future lineage happy and smiling.

The principles of Sustainable development

1. The rate of depletion for renewable resources should not be greater than their rate of reproduction;
2. The emissions rates should not exceed the depuration and assimilation capacity of the environment;
3. Non-renewable resources should be depleted at a rate no greater than the creation of renewable alternatives.

What is Sustainable development?

1) Maintaining delicate balance between the human need and preserving natural Resources and ecosystems.
2) Stable relationship between human activities and the natural resources.
3) Meets the needs of the present without compromising the ability of future Generations to meet their own needs.

Education for Sustainable Development

1) Broader concept than environment education.
2) Not sustainable development education but education for sustainable development. Education to enable people to better contribute to sustainable development.
3) Education to enable people to better contribute to sustainable development.
4) It’s not a topic that can be taught in a few weeks but should be integrated in all sectors of education and at all levels in relation to relevant, already existing subjects.
5) Education for sustainable development aims to help people to develop the attitudes Skills and the knowledge to make informed decisions for the benefit of themselves and Others, now and in the future and to act upon these decisions. The aim of ESD is to integrate the idea of a form of development which is environmentally, economically and socially sustainable into education around the world.

D) Perspectives and approaches towards achieving a sustainable development,

1) Poverty Eradication and sustainable live hood

Poverty and a degraded environment are closely inter-related, especially where people depend for their livelihoods primarily on the natural resource base of their immediate environment. Restoring natural systems and improving natural resource management practices at the grassroots level are central to a strategy to eliminate poverty. The survival needs of the poor force them to continue to degrade an already degraded environment. Removal of poverty is therefore a prerequisite for the protection of the
environment. Poverty magnifies the problem of hunger and malnutrition. The problem is further compounded by the inequitable access of the poor to the food that is available. It is therefore necessary to strengthen the public distribution system to overcome this inequity. Diversion of common and marginal lands to ‘economically useful purposes’ deprives the poor of a resource base which has traditionally met many of their sustenance needs. Market forces also lead to the elimination of crops that have traditionally been integral to the diet of the poor, thereby threatening food security and nutritional status. While conventional economic development leads to the elimination of several traditional occupations, the process of sustainable development, guided by the need to protect and conserve the environment, leads to the creation of new jobs and of opportunities for the reorientation of traditional skills to new occupations.

2) Changing unsustainable patterns of consumption & production.

With increasing purchasing power, wasteful consumption linked to market driven consumerism is stressing the resource base of developing countries further. It is important to counter this through education and public awareness. In several areas, desirable limits and standards for consumption need to be established and applied through appropriate mechanisms including education, incentives and legislation. Several traditional practices that are sustainable and environment friendly continue to be a regular part of the lives of people in developing countries. These need to be encouraged rather than replaced by more ‘modern’ but unsustainable practices and technologies. Development decisions regarding technology and infrastructure are a major determinant of consumption patterns. It is therefore important to evaluate and make development decisions which structurally lead to a more sustainable society. Technologies exist through which substantial reduction in consumption of resources is possible. Efforts to identify, evaluate, introduce and use these technologies must be made. Distorting the value of a resource. All pricing mechanisms must be evaluated from a sustainable development point of view.

3) Protecting and managing the natural resources.

The integration of agriculture with land and water management, and with ecosystem conservation is essential for both environmental sustainability and agricultural production. An environmental perspective must guide the evaluation of all development projects, recognizing the role of natural resources in local livelihoods. This recognition must be informed by a comprehensive understanding of the perceptions and opinions of local people about their stakes in the resource base. To ensure the sustainability of the natural resource base, the recognition of all stakeholders in it and their roles in its protection and management is essential. There is need to establish well-defined and enforceable rights and security of tenure, and to ensure equal access to land, water and other natural and biological resources. It should be ensured that this applies, in particular, to indigenous communities, women and other disadvantaged groups living in poverty. Water governance arrangements should protect ecosystems and preserve or restore the ecological integrity of all natural water bodies and their catchments. This will maintain the wide range of ecological services that healthy ecosystems provide and the livelihoods that depend upon them. Biomass is, and will continue for a long time to be, a major source of fuel and energy, especially for the rural poor. Recognizing this fact, appropriate
mechanisms must be evolved to make such consumption of biomass sustainable, through both resource management and the promotion of efficient and minimally polluting technologies, and technologies which will progressively reduce the pressures on biomass, which cause environmental degradation.

4) Health and Sustainable development.

Human health in its broadest sense of physical, mental and spiritual wellbeing is to a great extent dependent on the access of the citizen to a healthy environment. For a healthy, productive and fulfilling life every individual should have the physical and economic access to a balanced diet, safe drinking water, clean air, sanitation, environmental hygiene, primary health care and education. Access to safe drinking water and a healthy environment should be a fundamental right of every citizen. Citizens of developing countries continue to be vulnerable to a double burden of diseases. Traditional diseases such as malaria and cholera, caused by unsafe drinking water and lack of environmental hygiene, have not yet been controlled. In addition, people are now falling prey to modern diseases such as cancer and AIDS, and stress-related disorders. Many of the widespread ailments among the poor in developing countries are occupation-related, and are contracted in the course of work done to fulfill the consumption demands of the affluent, both within the country and outside. The strong relationship between health and the state of the environment in developing countries is becoming increasingly evident. This calls for greater emphasis on preventive and social medicine, and on research in both occupational health and epidemiology.

Education for Sustainable development in National curriculum subjects.

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Subjects</th>
<th>Developing pupils knowledge and understating about</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Geography</td>
<td>Concept, interdependence, quality of life and diversity, critical inquiry &amp; ability to handle and interpret information resource use, global development.</td>
</tr>
<tr>
<td>2.</td>
<td>Science</td>
<td>Decision making on the basis of sound science, exploration of values &amp; ethics diversity &amp; interdependence.</td>
</tr>
<tr>
<td>3.</td>
<td>Design &amp; technology</td>
<td>Principles of suitable design and production systems, creative problem solving, evaluating.</td>
</tr>
<tr>
<td>4.</td>
<td>History</td>
<td>Enquiry, critical thinking, communication &amp; knowledge of how post actions &amp; values may impact on the future societies.</td>
</tr>
<tr>
<td>5.</td>
<td>ICT</td>
<td>Implications of ICT for working life, society &amp; environment.</td>
</tr>
<tr>
<td>6.</td>
<td>Physical Education</td>
<td>Healthy life style &amp; challenging environments.</td>
</tr>
</tbody>
</table>

Efforts towards sustainable development in India

1) As per report by UNEP global trends in sustainable energy investment Released on July 2010 INDIA Ranked eighth in the world in terms of Investment in sustainable energy.

2) India Placed fifth in the world for installed wind power during the year.
3) Bio-mass and waste was the second larger sector recipient of investment Generating US$0.6 billion of new financial investment of 22% of the total.
4) Ranked ninth in the tree planting roll of honor in 2009 in a campaign to plant a billion trees launched by UNEP in 2006.
5) CRISIL research expects India’s renewable energy capacity to increase to 20,000 mega watt by December 2012 from the current 15,542 MW
6) India’s first ever 3 MW solar photo voltaic power plant development by KPCL Dedicated to nation.

**Challenges to Education for Sustainable Development (ESD)**

1) Increasing awareness about ESD within the Educational community & the public is essential.
2) Structuring and placing ESD in the curriculum.
3) Linking to Existing issues: Educational Reforms and Economic Variability.
4) Facing the complexity of sustainable Development concept.
5) Building Human Capacity.
6) Developing Financial and material resources.
7) Developing a creative, innovative and Risk-taking climate.
8) Promoting sustainability in popular culture.
9) Developing an ESD programme with community participation.
10) Engaging traditional disciplines in transdisciplinary framework
11) Sharing the responsibility.

**ROLE OF SUSTANABLE DEVELOPMENT IN SOCIOECONOMIC DEVELOPMENT**
Environmental sustainability

The environment is mankind’s life support system and includes everything that we rely upon for our existence. This includes air, metals, water, rock and other living organisms. Clearly, many of man’s activities are not sustainable and work needs to be done to improve our relationship with the environment.

Economic sustainability

Sustainable development encourages people to take a more long-term view of the economy. To make the economy sustainable it has been argued that more needs to be done with less in terms of the rational use of resources. Investment needs to be increased; stability promoted; the skills of the workplace need to be improved and workers empowered and rewarded. Within this element there is considerable need for innovation, enabling products to compete on elements other than price.

Social sustainability

A strong, diverse and thriving social structure is a key element of sustainability. The goal with this element of sustainable development is a sense of social cohesion, cultural inclusion and people empowerment. This is achieved through making meaningful improvements to the places where people live and work, giving them the chance to play an effective part in shaping change for a preferable future.

Our natural environment includes all living and non living things like land, forests, minerals, water bodies, the atmosphere, etc. While some of these resources may be renewable others get depleted and ultimately exhausted with their continuous use. Even the renewable resources may get degraded or polluted. Economic development seeks increase, in the rate of increase of national income and achieving an equitable distribution of income. Increase in national income would result only from increased production of goods and services. The process of increase in output would involve greater consumption of resources such as land, forest, fuels etc, whose supply is essentially limited. The productivity of an economy thus depends considerably on the supply, quality and consumption of such natural resources. Thus reckless and thoughtless use of these resources would cause their exhaustion and degradation, thereby reduce productivity and impede economic growth. Also due to such depletion and degradation our future generations will not get enough of these resources for their use thus adversely affecting their output, income and living standards. So environmental degradation not only affects us but will also have repercussions on our future generations.

In contrast to the above view, some argue that these environmental problems will be addressed more or less automatically in the process of economic growth. However the national income or the GNP (Gross National Product) which is the commonly accepted measure of economic development of a nation fails to reflect the true cost of development. It excludes the cost of depletion of natural resources and other environmental costs. For example when we cut down trees for commercial use, its value is added to the GNP but the loss in the form of depletion of natural resources is not accounted for anywhere. So the fact remains that the more output we produce today by using greater amount of natural resources, the greater is the loss of our natural assets and
consequently lower will be the output that the future generations will be able to produce from these depleted resources. More so the pace at which we are exploiting these resources is unmatchable by any solutions that economic growth may offer.

It is in this context that the need for Sustainable Development arises. All economic activities either affect or are affected by the natural environment. Thus development based on reckless use of the natural resources is bound to result in reduced productivity of our economic system affecting the quality of life of the future inhabitants of this planet. Sustainable development therefore attempts to strike a balance between the demands of economic development and the need for protection of our natural environment. It is basically concerned with economic development in an environmentally responsible manner, keeping in mind the needs of the future generations.

Environmental considerations and pollution control are a part of sustainable development and hence they are needed to be fully integrated in our socio economic policies and programmes. Thus while formulating a development policy, a balance needs to be maintained between the requirements of the present and the needs of the future generations. We should try to replenish the stock of resources, at least to the extent that the present level of development has depleted them. For this we must make efficient use of natural resources, use non renewable resources economically while continuously trying to develop and use renewable resources. It may also be remembered that sustainable development requires strong international commitment and cooperation because ecology and environment transcend national and geographical boundaries.

**Role of ODL for achieving goals of Sustainable Development**

A well structured distance teaching using a variety of media and providing for feedback. Then it offers a method of education different from that of an orthodox school. Potentially it allows education to be extended to people who can not get to school for one reason or another.

To provide space and opportunity for refining and promoting the vision of sustainable development through all forms of learning and public awareness is one of the objective of UNESCO decade. Journey towards sustainable development involves everyone at every stage of life. It therefore takes place within a perspective of lifelong learning, engaging all possible spaces of learning – formal, non-formal and informal, from early childhood to adult life. Spaces for learning include non-formal learning, community-based organizations and local civil society, the workplace, formal education, technical and vocational training, teacher training, higher education, policy-making bodies and beyond. Open and Distance Learning has the capability of engaging all spaces of learning, more than the conventional education.

A characteristic of distance learning is that it is planned learning that normally occurs in a different place from teaching/information generation and therefore offers a higher degree of flexibility. Also, since the ODL system of learning by its very nature is much more open than the conventional learning processes, it is therefore more relevant.
for meeting the requirements of learners. It is such features of the open learning systems—flexibility, adaptability and openness—which makes ODL an excellent option for educators for SD. ODL has great potential of reaching out to some of the ‘not-reached’ groups and sectors, such as:

- Out of school as well as non-school going children;
- Communities living in areas that are remote in terms of accessibility to the conventional/face to face systems of learning and teaching; such areas are also often ecologically fragile;
- Youth who have graduated out of the higher education system and are now at a stage of setting up their own enterprises and may be have very defined and specified needs in terms of skill building, access to information so as to participate in decision making processes;
- Women groups with a big concern on ‘access’
- Educators and communicators who try to bridge the gap between the process of ‘information giving’ and ‘learning’

**Suggestions for achievement of goals of Sustainable Development**

1. Taking help of ODL in achieving universal primary education, which is basic for SD
2. Infusion of sustainable consideration in to existing profession and work places.
3. Taking participation of society for increasing awareness about SD.
4. Application of relevant research findings—scientific, social, technological as well as ecological—in educational programmes, decision making processes and other SD related efforts through ODL.
5. Use of ODL in reaching out to youth and their specific requirements with regard to higher education which is relevant and linked to their learning needs.

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ABSTRACT

For any country to become a developed one, economic development is very necessary and economic development is measured only in terms of money. At the same time other two factors such as social development and environment contributes in the development process of a country. Rather, No country can develop economically well without environmental protection and social development. Earth’s natural resources are base of every economic activity. All living beings including humans are also dependent on environment. However human beings are solely responsible for changing the environment by indiscriminate use of natural resources. Therefore the onus of protecting the environment for the present and future generations also rests with human beings alone. This is called Sustainable Development. To be able to live sustainably one needs to understand how nature functions and sustains itself. This knowledge should be used to guide individual action. So environmentally literate citizens is the need of the hour. To make environmentally literate citizens, teachers play a pivotal role. Hence it needs to be seen whether teachers are aware of this subject or not. If not, they can be given some kind training. This is possible with the help of Open and Distance Learning.

Present paper discusses about
• Awareness of teachers towards Sustainable Development.
• Use of Open and Distance Learning

To collect the data Questionnaire for Teachers was prepared. The sample was teachers teaching in different schools and colleges in Lonavla.
Introduction:

In recent years, all the efforts of government of all the countries are directed towards the one single issue i.e. sustainable development. A development which would develop a country not only economically but also will take care of its environment and societies. A development which will last longer. Development is a broad concept. It includes qualitative as well as quantitative aspects. Sustainable development refers to the development that meets the needs of present generation without compromising the ability of the future generation to meet its own needs. This concept also gave birth to the awareness among people. Education plays a pivotal role in this respect. It develops in the individual skills, builds knowledge and values required to be citizen of a particular country.

In order to develop future citizens who promote equitable and sustainable development for all sections of society and respect for all, it is necessary that they be educated through perspectives of gender equality, values for peace, and respect for rights of all. In present ecological crisis, one needs to know the harmful effects of today’s commercialized and competitive lifestyles. Teachers and children need to be educated to change their consumption pattern and the way they look at natural resources. Also teachers need to be equipped to understand these issues and incorporate them in their teaching.

(National Curriculum Framework for Teacher Education, 2009)

Need and importance of the study

Ever since the subject Environmental Education is added at primary and secondary levels of education and Education for Sustainable Development at secondary and senior secondary levels of education, it is just looked upon as a new addition to the syllabus. As there is no special teacher appointed for this subject, it is taught by any teacher or not even taught. Sometimes teachers teaching this subject have no knowledge about what is sustainable Development and how this subject is to be taught. Because teachers are not given any special training for teaching of this subject which should have been given to them, the objective behind addition of this subject cannot be fulfilled. It is not the subject which is to be taught by Environment education teacher but by all the subjects teachers of various streams like arts, commerce, science etc and that too at all levels of education. If the knowledge about sustainable Development has to be given to in-service teachers at all levels of education, then Open and Distance learning can be the best option.

Teacher education is an important area where distance education has been used extensively to provide pre-service teacher preparation, upgrading of academic qualifications, and in-service continuing professional development in particular subjects, content areas and instructional methods.

(unesco, 2002)

There are many such courses like DEP-DPEP was made a part of IGNOU. I was mandatory to help the states in providing in-service training to teachers using ODL and ICT.

(Siddiqui, 2009)

Also a research was done in Bharti Vidyapith. It was carried out to study the status of Environmental Education and also worked on methodologies of teaching them effectively. It also sought to investigate barriers in implementation of effective EE. It was found that-

- There is a lack of a holistic approach that integrates teaching of environmental concepts into real life experiences.
• There was very poor infusion of information on sustainable lifestyles and what individuals could and should do for environmental preservation through their personal daily activities.

(Dhavse R. 2003)

In present study, the researcher analyses the views of teachers about sustainable development, its teaching and whether Open and Distance Learning can be used in this respect or not.

Objectives:

1. To find out views of teachers about Sustainable Development and use of Open and Distance learning in it.
2. To find out views of teachers about Sustainable Development and use of Open and Distance learning in it at different levels of education.

Method:

Sample: Non-probability incidental sample. In all 61 teachers from different schools and colleges in Lonavla gave the responses. Numbers of teachers at different levels are:

<table>
<thead>
<tr>
<th></th>
<th>Primary</th>
<th>Secondary</th>
<th>Jr. College</th>
<th>Sr. College</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>18</td>
<td>18</td>
<td>15</td>
<td>10</td>
</tr>
</tbody>
</table>

Tool: A questionnaire prepared by the researcher was used to gather information. It consisted of questions about knowledge of sustainable development, its teaching, different activities used, training regarding the subject etc.

Results:

1) Development is QUALITATIVE / QUANTITATIVE /BOTH

<table>
<thead>
<tr>
<th></th>
<th>Qualitative</th>
<th>Quantitative</th>
<th>Both</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary (18)</td>
<td>3 (17%)</td>
<td>-</td>
<td>10 (55%)</td>
<td>5 (28%)</td>
</tr>
<tr>
<td>Secondary (18)</td>
<td>3 (17%)</td>
<td>-</td>
<td>13 (72%)</td>
<td>2 (11%)</td>
</tr>
<tr>
<td>Junior College (15)</td>
<td>3 (20%)</td>
<td>-</td>
<td>9 (60%)</td>
<td>3 (20%)</td>
</tr>
<tr>
<td>Senior College (10)</td>
<td>-</td>
<td>-</td>
<td>8 (80%)</td>
<td>2 (20%)</td>
</tr>
<tr>
<td>TOTAL (61)</td>
<td>9</td>
<td>-</td>
<td>40</td>
<td>12</td>
</tr>
<tr>
<td>Percentage</td>
<td>14.75%</td>
<td>-</td>
<td>65.57%</td>
<td>19.67%</td>
</tr>
</tbody>
</table>

*The no. in the bracket of 1st column indicates total no. of teachers at that level.
* The no. in the bracket of rest of the columns indicates percentage of teachers at that particular level.

Observations:

1. 65.57% teachers feel that development is both, qualitative and quantitative.
2. 14.75% teachers feel that development is only qualitative.
3. No teacher feels that development is only quantitative.
4. 19.67% teachers are not sure about the nature of development.
At different Levels:

**Primary:**
1. 17% teachers feel that development is only qualitative.
2. 55% teachers feel that development is both, qualitative and quantitative.
3. 28% teachers are not sure about the nature of development.

**Secondary:**
1. 17% teachers feel that development is only qualitative.
2. 72% teachers feel that development is both, qualitative and quantitative.
3. 11% teachers are not sure about the nature of development.

**Junior College:**
1. 20% teachers feel that development is only qualitative.
2. 60% teachers feel that development is both, qualitative and quantitative.
3. 20% teachers are not sure about the nature of development.

**Senior College:**
1. 80% teachers feel that development is both, qualitative and quantitative.
2. 20% teachers are not sure about the nature of development.

2) What do you mean by Sustainable Development (SaaSvat ivakasa)?

<table>
<thead>
<tr>
<th></th>
<th>Correct</th>
<th>Not correct</th>
<th>Correct to some extent</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary (18)</td>
<td>2(11%)</td>
<td>9(50%)</td>
<td>3(17%)</td>
<td>4(22%)</td>
</tr>
<tr>
<td>Secondary (18)</td>
<td>-</td>
<td>12(67%)</td>
<td>4(22%)</td>
<td>2(11%)</td>
</tr>
<tr>
<td>Junior College (15)</td>
<td>1(6%)</td>
<td>3(20%)</td>
<td>7(47%)</td>
<td>4(27%)</td>
</tr>
<tr>
<td>Senior College (10)</td>
<td>-</td>
<td>4(40%)</td>
<td>3(30%)</td>
<td>3(30%)</td>
</tr>
<tr>
<td>TOTAL (61)</td>
<td>3</td>
<td>28</td>
<td>17</td>
<td>13</td>
</tr>
</tbody>
</table>

*The no. in the bracket of 1st column indicates total no. of teachers at that level.
*The no. in the bracket of rest of the columns indicates percentage at that particular level.

**Observation:**
1. Only 4.91% teachers have correct idea about what is Sustainable development.
2. 45.95% teachers answered incorrectly.
3. 27.8% teachers answered correctly to some extent.
4. 21.3% teachers are not sure about the meaning.

At different Levels:

**Primary:**
1. Only 11% teachers have correct idea about what is Sustainable development.
2. 50% teachers answered incorrectly.
3. 17% teachers answered correctly to some extent.
4. 22% teachers are not sure about the meaning.
Secondary:

1. 0 % teachers have correct idea about what is Sustainable development.
2. 67 % teachers answered incorrectly.
3. 22 % teachers answered correctly to some extent.
4. 11 % teachers are not sure about the meaning.

Junior College:

1. Only 6 % teachers have correct idea about what is Sustainable development.
2. 20 % teachers answered incorrectly.
3. 47 % teachers answered correctly to some extent.
4. 27 % teachers are not sure about the meaning.

Senior College:

1. 0 % teachers have correct idea about what is Sustainable development.
2. 40 % teachers answered incorrectly.
3. 30 % teachers answered correctly to some extent.
4. 30 % teachers are not sure about the meaning.

3) Different methods which can be used while teaching Sustainable Development.

<table>
<thead>
<tr>
<th>Level</th>
<th>different methods</th>
<th>Lecture method</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary (18)</td>
<td>14(78%)</td>
<td>-</td>
<td>4(22%)</td>
</tr>
<tr>
<td>Secondary(18)</td>
<td>14(79%)</td>
<td>-</td>
<td>4(22%)</td>
</tr>
<tr>
<td>Junior College(15)</td>
<td>4(27%)</td>
<td>11(73%)</td>
<td>-</td>
</tr>
<tr>
<td>Senior College(10)</td>
<td>3(30%)</td>
<td>-</td>
<td>7(70%)</td>
</tr>
<tr>
<td>TOTAL (61)</td>
<td>35</td>
<td>11</td>
<td>15</td>
</tr>
<tr>
<td>Percentage</td>
<td>57.35%</td>
<td>18%</td>
<td>24.59%</td>
</tr>
</tbody>
</table>

*The no. in the bracket of 1st column indicates total no. of teachers at that level.
* The no. in the bracket of rest of the columns indicate percentage of teachers at that particular level.

Observations:

1. 57.35% teachers told about different methods for teaching of sustainable development.
2. 18% teachers told that lecture method for teaching of sustainable development.
3. 24.59% teachers are not sure about teaching method.

At different Levels:

**Primary:**

1. 78 % teachers told about different methods for teaching of sustainable development.
2. 0 % teachers told that lecture method for teaching of sustainable development.
3. 22 % teachers are not sure about teaching method.

**Secondary:**

1. 27 % teachers told about different methods for teaching of sustainable development.
2. 73 % teachers told that lecture method for teaching of sustainable development.
3. 0% teachers are not sure about teaching method.

Junior College:
1. 78% teachers told about different methods for teaching of sustainable development.
2. 0% teachers told that lecture method for teaching of sustainable development.
3. 22% teachers are not sure about teaching method.

Senior College:
1. 30% teachers told about different methods for teaching of sustainable development.
2. 0% teachers told that lecture method for teaching of sustainable development.
3. 70% teachers are not sure about teaching method.

4) Different activities to be taken

<table>
<thead>
<tr>
<th></th>
<th>ICT</th>
<th>Excursions</th>
<th>Any other</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>2(11%)</td>
<td>2(11%)</td>
<td>4(22%)</td>
<td>10(56%)</td>
</tr>
<tr>
<td>Secondary</td>
<td>6(33%)</td>
<td>2(11%)</td>
<td>4(22%)</td>
<td>6(33%)</td>
</tr>
<tr>
<td>Junior College</td>
<td>2(13%)</td>
<td>3(20%)</td>
<td>4(27%)</td>
<td>6(40%)</td>
</tr>
<tr>
<td>Senior College</td>
<td>2(20%)</td>
<td>2(20%)</td>
<td>1(10%)</td>
<td>5(50%)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>12</td>
<td>9</td>
<td>13</td>
<td>27</td>
</tr>
<tr>
<td>Percentage</td>
<td>19.67%</td>
<td>14.75%</td>
<td>21.31%</td>
<td>44.26%</td>
</tr>
</tbody>
</table>

Observations:
1. 19.67% teachers prefer activities including ICT.
2. 14.75% teachers prefer excursions, field trips.
3. 21.31% teachers wrote about different activities other than ICT and Excursions.
4. 44.26% teachers are not sure about what activities to take up for teaching of Sustainable Development.

At different Levels

Primary:
1. 11% teachers prefer activities including ICT.
2. 11% teachers prefer excursions, field trips.
3. 22% teachers wrote about different activities other than ICT and Excursions.
4. 56% teachers are not sure about what activities to take up for teaching of Sustainable Development.

Secondary:
1. 33% teachers prefer activities including ICT.
2. 11% teachers prefer excursions, field trips.
3. 22% teachers wrote about different activities other than ICT and Excursions.
4. 33% teachers are not sure about what activities to take up for teaching of Sustainable Development.

Junior College:
1. 13% teachers prefer activities including ICT.
2. 20% teachers prefer excursions, field trips.
3. 27% teachers wrote about different activities other than ICT and Excursions.
4. 40% teachers are not sure about what activities to take up for teaching of Sustainable Development.

Senior College:

1. 20% teachers prefer activities including ICT.
2. 20% teachers prefer excursions, field trips.
3. 10% teachers wrote about different activities other than ICT and Excursions.
4. 50% teachers are not sure about what activities to take up for teaching of Sustainable Development.

5) Units that can be linked with sustainable development.

<table>
<thead>
<tr>
<th></th>
<th>Units mentioned</th>
<th>Not attempted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary (18)</td>
<td>-</td>
<td>18(100%)</td>
</tr>
<tr>
<td>Secondary(18)</td>
<td>1(6%)</td>
<td>17(94%)</td>
</tr>
<tr>
<td>Junior College(15)</td>
<td>-</td>
<td>15(100%)</td>
</tr>
<tr>
<td>Senior College(10)</td>
<td>1(10%)</td>
<td>9(90%)</td>
</tr>
<tr>
<td>TOTAL (61)</td>
<td>2</td>
<td>59</td>
</tr>
<tr>
<td>Percentage</td>
<td>3.27%</td>
<td>96.72%</td>
</tr>
</tbody>
</table>

Observations:

1. Only 3.27% teachers could tell about units that can be linked with sustainable development.
2. 96.72% teachers didn’t attempt the question.

At different Levels

Primary:

1. No teacher could tell about units that can be linked with sustainable development.
2. 100% teachers didn’t attempt the question.

Secondary:

1. 6% teachers could tell about units that can be linked with sustainable development.
2. 94% teachers didn’t attempt the question.

Junior College:

1. No teacher could tell about units that can be linked with sustainable development.
2. 100% teachers didn’t attempt the question.

Senior College:

1. 10% teachers could tell about units that can be linked with sustainable development.
2. 90% teachers didn’t attempt the question.
6) Is it important to teach about sustainable development?

<table>
<thead>
<tr>
<th></th>
<th>Important</th>
<th>Not important</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary (18)</td>
<td>11(61%)</td>
<td>-</td>
<td>7(39%)</td>
</tr>
<tr>
<td>Secondary (18)</td>
<td>15(83%)</td>
<td>-</td>
<td>3(17%)</td>
</tr>
<tr>
<td>Junior College (15)</td>
<td>13(87%)</td>
<td>-</td>
<td>2(13%)</td>
</tr>
<tr>
<td>Senior College (10)</td>
<td>9(90%)</td>
<td>-</td>
<td>1(10%)</td>
</tr>
<tr>
<td>TOTAL (61)</td>
<td>48</td>
<td>-</td>
<td>13</td>
</tr>
<tr>
<td>Percentage</td>
<td>78.68%</td>
<td>-</td>
<td>21.31%</td>
</tr>
</tbody>
</table>

Observations:
1. 78.68% teachers feel that it is important to teach about sustainable Development.
2. 21.31% teachers are not sure about the answer.

At different Levels

Primary:
1. 61% teachers feel that it is important to teach about sustainable Development.
2. 39% teachers are not sure about the answer.

Secondary:
1. 83% teachers feel that it is important to teach about sustainable Development.
2. 17% teachers are not sure about the answer.

Junior college:
1. 87% teachers feel that it is important to teach about sustainable Development.
2. 13% teachers are not sure about the answer.

Senior College:
1. 90% teachers feel that it is important to teach about sustainable Development.
2. 10% teachers are not sure about the answer.

7) Upgradation of content

<table>
<thead>
<tr>
<th></th>
<th>Upgraded</th>
<th>Not upgraded</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary (18)</td>
<td>9(50%)</td>
<td>4(22%)</td>
<td>5(28%)</td>
</tr>
<tr>
<td>Secondary (18)</td>
<td>6(33%)</td>
<td>7(39%)</td>
<td>5(28%)</td>
</tr>
<tr>
<td>Junior College (15)</td>
<td>4(27%)</td>
<td>4(27%)</td>
<td>7(46%)</td>
</tr>
<tr>
<td>Senior College (10)</td>
<td>-</td>
<td>7(70%)</td>
<td>3(30%)</td>
</tr>
<tr>
<td>TOTAL (61)</td>
<td>19</td>
<td>22</td>
<td>20</td>
</tr>
<tr>
<td>Percentage</td>
<td>31.14%</td>
<td>36.06%</td>
<td>32.78%</td>
</tr>
</tbody>
</table>

Observations:
1. 31.14% teachers feel that the content is upgraded.
2. 36.06% teachers feel that the content is not upgraded.
3. 32.78% teachers are not sure of content upgradation.
At different Levels

**Primary:**
1. 50% teachers feel that the content is upgraded.
2. 22% teachers feel that the content is not upgraded.
3. 28% teachers are not sure of content upgradation.

**Secondary:**
1. 33% teachers feel that the content is upgraded.
2. 39% teachers feel that the content is not upgraded.
3. 28% teachers are not sure of content upgradation.

**Junior College:**
1. 27% teachers feel that the content is upgraded.
2. 27% teachers feel that the content is not upgraded.
3. 46% teachers are not sure of content upgradation.

**Senior College:**
1. No teacher feels that the content is upgraded.
2. 70% teachers feel that the content is not upgraded.
3. 30% teachers are not sure of content upgradation.

8) Questions having YES/NO answers.

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th></th>
<th></th>
<th></th>
<th>NO</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Training done</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>18 (100%)</td>
<td>18 (100%)</td>
<td>15 (100%)</td>
<td>10 (100%)</td>
</tr>
<tr>
<td>Training should be given</td>
<td>18 (100%)</td>
<td>18 (100%)</td>
<td>15 (100%)</td>
<td>10 (100%)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Interest in teaching of</td>
<td>18 (100%)</td>
<td>18 (100%)</td>
<td>15 (100%)</td>
<td>10 (100%)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>sustainable development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>through your subject</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Observations:**
1. No teacher at any level is trained regarding this subject.
2. All the teachers at all levels feel that training should be given.
3. All the teachers at all levels are interested to link the sustainable development with their subject.
9) Use of Open and Distance learning

<table>
<thead>
<tr>
<th></th>
<th>Awareness</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary (18)</td>
<td>13(72%)</td>
<td>5(27%)</td>
</tr>
<tr>
<td>Secondary(18)</td>
<td>15(83%)</td>
<td>3(16%)</td>
</tr>
<tr>
<td>Junior College(15)</td>
<td>14(78%)</td>
<td>1(6%)</td>
</tr>
<tr>
<td>Senior College(10)</td>
<td>6(60%)</td>
<td>4(40%)</td>
</tr>
<tr>
<td>TOTAL (61)</td>
<td>48</td>
<td>13</td>
</tr>
<tr>
<td>Percentage</td>
<td>79%</td>
<td>21%</td>
</tr>
</tbody>
</table>

Observations:
1. 79% teachers feel that awareness about sustainable development can be brought with the help of Open and Distance learning.
2. 21% teachers didn’t mention any view.

At different levels

72% primary, 83% Secondary, 78% Junior College and 60% senior college teachers feel the importance of Open and Distance learning in education of sustainable development.

Findings:

1. Majority of teachers say that Sustainable development is both Qualitative as well as Quantitative. All senior college teachers say that development is both qualitative and quantitative. A small number of teachers say that development is only Qualitative. But still there are some teachers which do not know about the concept of development and could not make choice.
2. Most of the teachers do not know about the concept of Sustainable development. A very little number of teachers know the exact meaning of the term Sustainable development. Few teachers guessed the meaning right. At primary level, half of the teachers are not aware of the concept. At secondary level, no teacher could tell the correct meaning. Large number of teachers was incorrect.

At Junior college level, only a small number of teachers could tell the answer. Those who answered correctly were teaching that subject in Environmental Education.

Almost all senior college teachers say that development is Qualitative and Quantitative but could not say exactly what it means. Some teachers answered it correctly.

3. Half of the teachers told different methods like projects, group discussions etc. which can be employed for teaching of this subject.

Primary and Secondary teachers suggest different methods but do not employ those except project and some do not have any idea about it.

Most of the Junior college teachers teach by way of lecture method. Some suggested methods like group discussions experimentation, analytic method.

At senior college level, more than half of the teachers do not have any idea about implementation of different methods. One teacher did mention about observation as a method.
4. No teacher suggested activities which they conduct. Instead they wrote about the use of ICT and excursions can be done in teaching of sustainable development. Nearly half of the teachers do not know about what activities to take up.

5. Only 3 teachers could tell units from their subjects. Most of the teachers could not tell about the units because they haven’t linked it yet.

    All primary and Secondary teachers didn’t attempt the question. At Junior and Senior college level also, most of the teachers are not aware of such units and that is why didn’t attempt the question.

6. Most of the teachers feel that teaching of sustainable development is important. Some teachers were unsure.

7. Nearly same number of teachers say that content is upgraded, not upgraded . Some teachers say that they are unaware of the content. But teachers said that it can be upgraded by making use of Internet, Magazines etc.

8. All teachers at all levels feel that training is necessary and if it is given, can link the subject through teaching of other subjects.

9. Majority of teachers feel the importance of Open and Distance Learning in bringing awareness.

**Conclusion:**

Since January 2005, at United Nation’s General Assembly, UNESCO adopted a resolution to start the decade of Education (2004-2014) for sustainable Development. The main motto is to promote education public awareness and training with special emphasis on

1. reorienting education towards sustainable development
2. increasing public awareness and
3. promoting training.

With this in mind, the small research was carried out to judge awareness and training regarding sustainable development. It was found that very less number of teachers are aware of the concept. They are not aware of the activities to be taken while teaching of this subject. As teachers do not know about the concept, they cannot link it with the topics of their subjects. So this is a very critical condition when teachers are not oriented about the subject and are expected to tell children about it.

Hence an in-service teachers training can be arranged on-line for teachers of different schools which will give them knowledge about the subject, activities to be taken and how it can be taught through teaching of other subjects. Then only by the end of 2014, we would achieve something.
References:


unesco (2002) Open and Distance Learning: Trends, Policy and strategy considerations,

http://www.unesco.org/en/esd/


www.ceeindia.org/esf/esd.asp
Sub-Theme: Sustainable Development

Title of the Paper: New Media, Digital Cultures, and Education for Sustainable Development

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ABSTRACT

Education for Sustainable Development (ESD) is a vision of education that seeks to empower people to assume responsibility for creating a sustainable future. The decade of Education for Sustainable Development (2005-2014) aims to integrate the principles, values and practices of sustainable development into all aspects of education and learning. The Bonn Declaration (2009) expresses that immediate action is necessary to strengthen and extend the outcomes of the UN DESD and to ensure longer term implementation of ESD-and ultimately find solutions to the challenges we currently face. Therefore, it is very important that more and more people have an opportunity to learn about ESD and become experienced in engaging in the reflections, discussions and actions related to the challenges. The global situation demands that researchers must look for new ways to overcome these challenges. New media can play a crucial role to foster ESD practices and pedagogies, especially empowering people for ESD. This argument is based on the fact that access to a variety of new media services is increasingly recognized as a vital factor for political, economic, social and cultural development and, increasingly, shaping digital cultures into our societies. In this backdrop, the present paper mainly raises and answers three questions: How do new media influence the ways information and knowledge are created and circulated?, What are the implications of new media and digital cultures for ESD?, and How to use new media for promoting ESD?
FULL PAPER

Background

The world continues to face various critical challenges such as: human-induced climate change, the rapid depletion of natural resources, the frequency of natural disasters, the spread of (old and new) infectious diseases, the loss of biodiversity, the violation of human rights, increased poverty, the dependency of our economic systems on continuous growth in consumerism and so forth. It is high time that more and more people must understand that creation of a sustainable world depends on fundamental changes in our socio-economic systems as a whole, supported by a critical re-orientation of our principles, values, behaviours and lifestyles (UNESCO, 2009). Kim (2009, p.7) suggests, “The pathway to sustainable development includes all stakeholders’ reflection on why current systems are not sustainable and their seeking possible solutions for current and future generations through discussions.”

There are three dimensions of Sustainable Development (SD): social development, environmental development and economic development. According to UNESCO (2009, p.07), “Sustainable social development, (people) is aimed at the development of people and their social organization, in which the realization of social cohesion, equity, justice and wellbeing plays an important role. A sustainable environmental development (planet) refers to the development of natural ecosystems in ways that maintain the carrying capacity of the Earth and respect the non-human world. Sustainable economic development (prosperity) focuses on the development of the economic infrastructure, in which the efficient management of our natural and human resources is important.” The developmental challenges demand that people must assume responsibility and take actions for creating a sustainable future. This demand for sustainable development guided the emergence of Education for Sustainable Development (ESD) that aims to enable people of all ages and from all walks of life to pursue and benefit from a sustainable future.

ESD is about - through education and learning - engaging people in sustainable development issues, developing their capacities to give meaning to sustainable development and to contribute to its development and utilizing the diversity represented by all people - including those who have been or feel marginalized - in generating innovative solutions to sustainable development problems and crises (UNESCO, 2009). Ottosson and Samuelsson (2008) call attention to the fact that purpose of ESD is to reorient education in order to contribute to a sustainable future for the common good of present and future generations’ and acknowledge that there is no “single route” to sustainable development. The Decade of Education for Sustainable Development (DESD) (2005-2014) aims to integrate the principles, values and practices of sustainable development into all aspects of education and learning. To ensure longer term implementation of ESD-and ultimately find solutions to the challenges we currently face,
The Bonn Declaration (2009) expresses that immediate action is necessary to strengthen and extend the outcomes of the UN DESD in the next five years.

Therefore, it is very important that more and more people have an opportunity to learn about ESD and become experienced in engaging in the reflections, discussions and actions related to the challenges. The other big challenge is to empower people for ESD as observed by Feinstein (2009, p.15), “It is not enough to teach people about climate change and to expect them to infer from that what they should do. If you wish to make change, you have to empower people, and the way you do that is by showing them they are capable of making a difference.” The global situation demands that researchers must look for new ways to foster ESD practices and pedagogies, especially empowering people for sustainable development. New media can play a crucial role in advancing ESD. This argument is based on the fact that access to a variety of new media services is increasingly recognized as a vital factor for educational, economical, social and cultural development. Besides, new media is also promoting digital cultures into our societies by allowing people to interact with new people at a comfortable and controllable distance. Before delving further on the issue of using new media for promoting ESD, it will be important to understand that how new media helps in creation and circulation of knowledge and information.

How do new media influence the ways information and knowledge are created and circulated?

New media is a broad term that emerged in the later part of the 20th century to encompass the amalgamation of traditional media such as film, images, music, spoken and written word, with the interactive power of computer and communications technology, computer-enabled consumer devices and most importantly the Internet (Wikipedia, 2010). The term “new media” describes media ecology where more traditional media, such as books, television, and radio, are “converging” with digital media, specifically interactive media and media for social communication. There are many promises related to the term. For example, new media holds out a possibility of on-demand access to content any time, anywhere, on any digital device, as well as interactive user feedback, creative participation and community formation around the media content. Another important promise of New Media is the “democratization” of the creation, publishing, distribution and consumption of media content (Wikipedia, 2010).

A white paper from New Media Consortium (2007, p.4) observes that online communication channels reduce the distance between people and allow interactions to happen more quickly than they might otherwise. Communication with distant colleagues, relatives and friends is shortened from weeks to minutes and can even be instant, allowing us to maintain stronger ties to a wider group of people than ever before. Talking about role of new media for learning, Siemens (2005) presents a “learning theory for the digital age” called “connectivism,” which incorporates the ideas of chaos and the unpredictability that govern today’s society; of the learning that occurs outside the formal education system (e.g., communities of practice, personal networks); of the need for
lifelong learning; of how technology use makes us change the way we think; and of the link between individual and organizational learning. Importantly, Siemens highlights that many of the processes previously handled by learning theories (especially in cognitive information processing) can now be off-loaded to, or supported by, technology.

Another aspect of new media is that it has incorporated a new culture in our society termed as digital culture. Digital culture may be described as various social phenomena that are associated with the Internet and network communications (blogs, online multiplayer gaming), whereas new media is concerned more with cultural objects and paradigms (digital to analog television, iPhones). Kempedmonds (2010) observes that technology creates digital culture by providing dynamic publishing opportunities and 24/7/365 broadcast channels. This “digital culture” is a human extension of our original relationship with tools. The internet, social media and computers are extensions of our humanity and by that very definition create digital culture. Culture is created by people's desire to interact with new people and digital culture facilitate this movement, often seamlessly executed through engagement with technologies such as cell phones, digital music players (used interchangeably with the term “MP3 players” here), social networking sites, and virtual worlds (Vasudevan, 2010). These observations lead us to think that how new media and digital cultures can play significant role in promotion of ESD.

What are the implications of new media and digital cultures for ESD?

Education is a key to shaping values and behaviour to help realize sustainable development through acquiring knowledge and skills. Quality education responds to learners’ individual needs, endowing them with their own voice and capacity to exploit their potential to its fullest (UNESCO, 2010). New media can play a crucial role to educate people to become citizens of the world, with the skills and competencies to address the climate changes as they come. This argument is based on the observation that New Media has already introduced various cultural experiences, behavioral modes and ways of life for a variety of individuals inside the community. New media is providing the critical knowledge and the analytical tools to empower people as observed by the Ito et al. (2008, p.04), “Our values and norms in education, literacy, and public participation are being challenged by a shifting landscape of media and communications in which youth are central actors.”

Haubrich, Reinfried and Schleicher (2007) indicate that possibility of online collaboration to enable virtual meetings between people all over the world adds an additional value to digital media especially in the context of intercultural learning and global learning. Similarly, Paas (2008, p.23) also suggests, “The continued expansion of networks technologies, bandwidth, and computer capacity, coupled with increasing user familiarity with the tools, social networking applications, and the acceptance of innovative pedagogical methods in the educational system offer new and exciting new possibilities for ESD.” These observations clearly establish that new media and digital cultures offer number of opportunities for people to develop understanding, skills,
attitudes and values required for sustainable behavior. The need of the hour is that we must look forward to design and implement innovative strategies to use new media for promoting ESD.

**How to use new media for promoting ESD?**

We are still lacking to prepare students for a sustainable future. The results of an international survey revealed some of the more prevalent barriers to addressing education for sustainability. According to this survey the main barriers are too few (or inadequately trained) professionals to provide inspired education for sustainable development (ESD), limited staff awareness and expertise, overcrowded curricula and lack of new teaching methods and courses, insufficient funding and inadequate national, provincial and local policy to support ESD (Gross, 2009). New media and digital cultures can play a vital role to overcome these barriers, as suggested by Makrakis (2010, p.169), “Some higher education institutions, but not many, have begun to take advantage of the potential offered by ICT to reorient their study programmes to address sustainability and cope with the barriers encountered.” Following this trend, agencies has started using new media for ESD. The current uses of ICT in ESD fall into three broad categories: Information resources, tools and portals for educators; supplements to classroom-based activities; and tools for distance/online learning (Pass, 2008).

UNESCO (2010) has suggested that Vision-building and advocacy, Consultation and ownership, Partnership and networks, Capacity-building and training, Research and innovation, and Monitoring and evaluation are main strategies for achieving the DESD goals. Open and Distance Learning (ODL) institutions are expected to play an important role to implement these strategies as they are offering variety of learning and training opportunities to masses. Different new media tools like internet or mobile phones can help ODL institutions a lot to facilitate the access and reach of programs and transforming local and global politics and social concerns about ESD. In this backdrop, ODL institutions can implement following strategies to use new media and digital cultures for promotion of ESD in our societies:

- **Mobile** is one of the most used, easily available and economically viable communication devices in the world. The other notable thing is that even functionally illiterate are also using mobile phones. ODL institutions can use this ‘affordable cost and reach to illiterate’ feature of mobile to talk and educate people about ‘what to do and what not to do’ for a sustainable future. They can send ESD messages’ to mobile users with a request to spread these messages to other people. These messages will help to create awareness about ESD in society and this awareness will ultimately help people to join ESD movement for social and global benefit.

- **Mobile companies** offer the facility of mobile alerts to their customers. Under this facility, companies alert their customers about e-mails, latest events and other useful information. ODL institutions can use this feature of mobile phones to provide regular updates about sustainable development issues and concerns among people.
ODL institutions can also use mobile services to offer tips and advise people to develop and practice sustainable habits. ODL institution can further use Mobile services to request people to share their innovative and indigenous sustainable development practices with other members of society.

- ODL institutions can use internet to provide various opportunities to people to share their expertise, wishes, concerns and demands about sustainable development by using e-mails, chat and blogs. ODL institutions can also launch ESD Portal’ to provide different kind of sustainable development information. This portal will act as a sharing platform for ESD practitioners from across the globe to come in contact with each other and share their experiences, efforts and concerns. ODL institutions can also launch social networking sites like Facebook and Orkut to promote ESD. The social interaction and exchange of views through these community sites will empower people to practice ESD for a better and secure world.

- ODL institutions can use internet to offer on line ESD program/training mainly focusing to equip people to learn sustainable habits. Internet support will help the programme providers to regularly review and update their programs according to the need and demands of the learners. ODL institutions can also use internet to offer specific guidance and counseling services related to ESD to the people. Besides, ODL institutions can also invite people to create virtual worlds that follow sustainable development principles. These virtual worlds will motivate people to adopt, practice and promote sustainable practices to ensure that this world will forever remain a real world.

- The youths are key target group for ESD efforts. They need to be guided and trained for a sustainable future. UNESCO, (2010) observes that one of the most significant manifestations of the problems of sustainable development resides in the need for responsible consumption. As more than 1,218 million people are between the ages of 15 and 24, the sustainable consumption habits that young people adopt can play a major role in efforts to change wasteful lifestyles. Video games can help a lot to guide and train this young generation about ESD as majority of them like to play online/offline videogames. ODL institutions can develop ESD based video games playable at different gaming platforms. These video games will help youngsters to acquire sustainable habits, skills, knowledge and values.

- Electronic books (e-books) on various subjects and topics are available now. Johnson et al. (2010, p.17) observe, “As the technology underlying electronic readers has improved and as more titles have become available, electronic books are quickly reaching the point where their advantages over the printed book are compelling to almost any observer. The convenience of carrying an entire library in a purse, pocket, or book bag appeals to readers who find time for a few pages in between appointments or while commuting.” Following this trend, the ODL institutions can publish and distribute interesting e-books about ESD. These books will help readers
to learn about various aspects of sustainable development in an easily accessible and approachable way.

- The ODL institutions can also develop useful Open Educational Resources (OER) for promoting ESD. According to Atkins, Seely and Hammond (2007, p.4), “OER are teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use or re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge.” The OER initiative will help the cause of ESD in two ways, firstly other institutions and people will be able to freely share, use and distribute the content and programmes, and secondly they will also feel motivated to produce useful OER about ESD.

Conclusion

In order to meet the need to take control over their lives, and to change their worlds, individuals must have embodied sense of understanding of other places, times, cultures, world views, backgrounds and values which promote SD (Ottosson and Samuelsson, 2008). Following this dictum, above proposed strategies offer a road-map for ODL institutions that how to use new media and digital cultures for promotion of ESD among masses. These strategies are intended to support ODL institutions to promote ESD by connecting different sources and forms of knowledge regarding sustainable livelihoods. The researcher has a belief that implementation of above proposed strategies by ODL institutions will pave the way for people to learn from each other and join efforts in building a sustainable future locally, regionally and globally.

References


The Development of Learning Object Design System (LODS) for Instructional Designers

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Relevant Sub-Theme – Educational Technology in ODL

Abstract

This project intended to build a platform for Instructional Designers (IDs) to analyse the content and document their inputs on the content analysis. The purpose of the system is to aid IDs in the process of content design and produce an efficient design plan for learning objects using technology, in this case Learning Object Design System (LODS). LODS is a system where the instructional designer record the findings from content analysis (learning outcome, scope of content, cognitive level of content, content structure, summary) as well as learning design attributes for the particular learning object (instructional approach, content presentation method, learning activities, assessment method). The system was initiated due to the absence of standardised procedures in the beginning phase of the learning object design which is content design. This is a case study involving interviews with experts and literature reviews to derive the attributes for the content analysis process. A set of guidelines was developed which highlighted the steps in analysing the content. These guidelines were then transformed into a Learning Object Design System (LODS). LODS enable the IDs to record, save, retrieve and print their input on the content analysis findings. The LODS is expected to aid the IDs in the decision making process as it provides step-by-step template with options. The documentation will become as easy as filling in forms as they would be automatically formatted into one standard version. LODS is expected to speed up the content production and simplify the IDs’ current work process. For further research, it is recommended to make the LODS as collaborative platform between IDs and SMEs to enhance the quality of learning objects.

Introduction

The first phase of multimedia learning object development involves the instructional designer (ID) analysing the instructional goals and needs in an attempt to understand the instructional problem, followed by selecting, sequencing, synthesising and summarising the content for instructional purposes and identifying the scope and content of the subject (Keppell, 2000). These areas represent the ‘problem space’ of the IDs. In addition, since most designers do not share a common understanding of what constitutes a learning object (LO), which leads to further problems in determining the structure, function, and the content of the Multimedia Learning Object MILO (Gibby et al., 2002; Mohan & Daniel, 2004; Lim, 2007). Current standards do not yet provide specific guidance on how to plan for or create multimedia learning objects (MILO), although some principles and guidelines available from existing literature can aid in the content
design process (Beaudrie, 2001; Centre for Learning Technologies, 2000 in Reese, 2009). This study addresses the gaps and challenges perceived by the ID from a particular institution during their content design process of a multimedia learning object (MILO). From the findings, the researcher studied and designed Learning Object Design System (LODS) pertinent to the characteristics and goals of an LO, which will assist the ID in producing the necessary content, instructional strategies, and assessments to build the MILO. It is hoped that this research will be able to offer greater insights on the instructional design of MILOs to authors and designers interested in this field, as it serves as a source of information to them on how to aggregate the content and decide on the instructional approach more systematically.

**Research Objective**

The objectives of this study are given below:

1. To develop Learning Object Design System (LODS) for instructional designers to record the content analysis findings as well as design ideas for multimedia learning objects (MILO); and
2. To assess the effectiveness of LODS to instructional designers in guiding them in process of analysing the content for learning objects.

**Literature review**

**Expert reviews on learning object design structure**

This section of literature review was used as data for the design of the LODS for multimedia learning object. The data is about the instructional components of LO which the LO author (instructional designer) need to be planned when analysing the content.

According to Chyung (2007) one of the first things to do in learning object development is to conduct a content design plan (also called as content analysis). Optimally, designers should analyse the instructional content before determining which media ought to be used to deliver the content. From a content level analysis, instructional designers are able to state specific lesson objectives, instructional strategies, and assessment methods for use in the instructional steps required in the course.

During the analysis of content before storyboarding, the specific components of the LO must be addressed. The manner in which learners will be presented with the instruction is determined (the delivery media and learning activities), and the sequencing and aggregation of content (Chyung, Treñas, 2009). These tasks must be completed by the instructional designer before proceed into storyboarding.

Merril (1983) in his component display theory has highlighted four types of content including concepts, facts, procedures, and principles. After an additional item, processes, has been added to the types of content, the five items are often referred to as CFP3 (Clark 1999), which Cisco uses in its RLO strategy (2003). Cisco (2003) applied David Merrill’s and Bloom’s taxonomy while Chyung (2007) proposed content taxonomy based on David Merrill’s and Gagne’s three types of verbal information (Table 1).

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Content Taxonomy Models for E-learning Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 categories of e-learning content</td>
<td>Type: Concept, Fact, Principle, Procedure, Process</td>
</tr>
<tr>
<td>Declarative knowledge (knowing what)</td>
<td>Concepts and facts</td>
</tr>
<tr>
<td>Procedural knowledge (knowing how)</td>
<td>Procedures and processes</td>
</tr>
<tr>
<td>Situated knowledge (knowing when and how)</td>
<td>Principles</td>
</tr>
</tbody>
</table>
It has been quite frequently argued that instructional design principles should guide the design of MILOs (Wiley, 2000). From an instructional design perspective, Gagne, Briggs, and Wager identified four basic elements that should be taken into account for lesson planning. These are:

1. “A statement of the objective of the lesson
2. A list of instructional events to be employed;
3. A list of the media, materials, and activities by which each event is to be accomplished;
4. Notes on the teacher roles and activities”

These elements of lesson planning as defined by Gagne, Briggs, and Wager (1992) are very close to the way Cisco (2003) approaches the concept of a MILO, that is, as a container of the learning objective, activities, and content. A similar approach to MILO design has been also adopted by Macromedia (Gallenson, Heins, & Heins, 2002). Finally, Plodzien, Stempoz, and Stasiecka (2006), based on a “model of effective learning,” identified four broad categories of a MILO’s structure: introduction, main content, summary, and evaluation. These categories were further used as measures for evaluating the quality of MILO (Gallenson, Heins, & Heins, 2002). The researchers concluded that the presence of such instructional components within a learning object had a positive impact on the way users evaluated its quality (Plodzien, Stempoz, and Stasiecka, 2006). Baruque and Melo (2003) proposed the following attributes to be specified for each MILO: learning outcomes, content to be covered, evaluation method, example, practice, media and instructional approach. This last item can be chosen among the following cases: presentation, demonstration, collaborative learning, learning by discovery, problem solving, instructional games, simulation, tutorial and drill-and-practice.

Ally (2004) proposed three main components which a LO should consists of. First component is a pre-learning strategy such as a learning outcome, advance organizer and overview. The second component is a presentation strategy which includes the content, materials and activities to achieve the outcome for the LO. The content includes facts, concepts, principles and procedures in the form of text, audio, graphics, pictures, videos, simulation or animation. The third component is a post-learning strategy in the form of a summary and post-assessment to check the achievement of the learning outcome.

Thompson and Yonekura (2005) have produced a structural model with the goal of producing instructionally sound MILO. Their MILOs model consists of useful and reusable digital components that: 1) state a learning objective, 2) present content, 3) provide opportunity for practice and 4) assess achievement of the objective. According to their model, all four elements must be present for a component to be considered a MILO. They have provided instructional guidelines for each of the component in the model that any author of MILOs must take into consideration. The summary of the guidelines presented in the below table:

<table>
<thead>
<tr>
<th>Element in LO</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning objective</td>
<td>Each MILO can address only one learning objective. The learning objective must address the task (what the learner will perform), conditions (under which conditions should the learner complete the objective?) and criteria ('To what degree should the learner achieve this objective?').</td>
</tr>
<tr>
<td>Content</td>
<td>Text, video, audio, images or interactive media that convey the facts, concepts, processes, procedures and/or principles of the subject</td>
</tr>
</tbody>
</table>
matter should be included. The content has to be chunked and organised into key ideas according to the high-to-low level importance.

Practice
A MILO should provide opportunities for learners to review facts, key concepts and principles through exercises, instructional games, simulations, problem solving and guided reflections.

Assessment
The assessment part in LO is to ensure whether the learner has achieved the stated learning objective. MILO authors have the choice of using traditional assessment methods such as quizzes (i.e., multiple choice, true-or-false, etc.) or non traditional methods such as games and simulations.

From the literature reviews discussed, it can be concluded that, a MILO should have 5 main attributes which are 1.) introduction, 2.) content – chunking and content display methods have to be specified 3.) learning activities / practices 4.) summary and 5.) assessment / evaluation. The extracted elements from the literature reviews were used as the data for the LODS.

Methodology
This research was segmented into two phases: One involves the gathering of the data and information to produce the guidelines, and the other involves evaluating the guidelines’ effectiveness. In this study, the participants are five instructional designers from an open and distance learning institution located in Kuala Lumpur, who are involved in the development of multimedia learning objects (MILO).

Data collection
The data collection methods used to gather information for guidelines design and evaluation of the guidelines are described in following sections.

Gathering of the data and information to produce the LODS
The data for LODS were collected via:

a. Job analysis via a focus group interview of the IDs:
   Krueger and Casey (2000) describe focus group interviews as ‘organized group discussions which are focused around a single theme’. He stressed that focus group interviews allow people with certain characteristics to provide qualitative data to help understand the topic of interest. The reflections of the respondents, who are IDs involved in MILO development, were recorded in this interview. The objective of this interview was to establish the gap occurring in the performance of the IDs in content analysis.

b. Interview of subject matter experts (SME):
   Interviews with experts, who are involved in learning objects or any web-based content development, were conducted. According to Begner and Menz (2002) in Flick (2009), the expert interview can be used for preparing the instrument in a study of other targeted groups. In this study, the findings from the expert interview were used as the guidelines (instruments) for the IDs (targeted group). The first interview was conducted with a project director of the MILO development project. The second interview was conducted with the leader of the e-content development team.
c. Review of the existing literature and best practices:
   Apart from that, the insights and information from the literature were used as context knowledge (Flick, 2009) of content development of the MILO. The findings from expert interviews were then triangulated (mapped) with the information extracted from the literature review to validate the information gathered from the experts.

Evaluation of the LODS

   Each ID was given the task of analyzing a sub-topic from a print module developed by the institution and recording the analysis findings in the content analysis document during the first session. During the second session, each ID was asked to present their content analysis findings and explain their own experience of analyzing the content. In order to determine whether LODS was useful for them or not, a focus group interview session was conducted with the IDs. This interview focused on:
   a. Their experience in conducting content analysis by using the guidelines and documenting their analysis findings.
   b. Feedback on how to improvise the guidelines.

Data analysis

   Thematic analysis was used to derive themes emerging from the interviews and literature reviews. Thematic coding was chosen because this study involved researching a particular issue or perspective of a process (Creswell, 1998) (what are steps involved in content analysis, how do particular guidelines assist IDs in conducting content analysis). Coding was flexible to allow for the emergence of any unexpected potential categories (Conover, 2008).

Findings

   The interview of the IDs during job analysis revealed that each ID analyses the content according to his or her own understanding and convenience. There is no standardization of the procedures involved in conducting content analysis. Also, there is no documentation of the IDs’ decisions on content structure, presentation, and assessment made during the content analysis.

   Interviews of two SMEs were conducted, as explained in Methodology. Before the interviews, the results from the interview of the IDs as well as the performance gap analysis findings were presented to the SMEs. Based on the findings, the SMEs suggested certain steps for conducting content analysis. The existing literature on LO structure was analyzed to extract the instructional components to be considered during the content analysis. A checklist containing all the key points regarding LODS was drawn.
   1. Identify the learning objective (Cisco, 2003; Ally, 2004; Baruque & Melo, 2004; Thompson & Yonekura, 2005; Plodzien et. al, 2006).
   2. Present the advance organizer (Ally, 2004).
   3. Present the overview or introduction (Ally, 2004; Baruque & Melo, 2004; Plodzien et al., 2006).
   4. Merrill’s content performance index and Bloom’s taxonomy to determine the cognitive level of the content (Cisco, 2003; Chyung, 2007).
   5. Present content that includes facts, concepts, process, procedures, and principles (Cisco, 2003; Ally, 2004; Baruque & Melo, 2004; Thompson & Yonekura, 2005; Plodzien et al., 2006).
   6. Choose an appropriate instructional approach from following cases: presentation, demonstration, collaborative learning, learning by discovery, problem solving, instructional games, tutorials, and drills and practices (Baruque & Melo, 2004).
7. Include practice or activities such as drills and practices, games, and problem solving (Cisco, 2003; Ally, 2004; Baruque & Melo, 2004; Thompson & Yonekura, 2005; Plodzien et al, 2006).

Later, the extracted components were mapped with the interview findings. All the information gathered through the expert interviews was also highlighted by the literature. The steps that have been mentioned in both the literature and by the SMEs were used as the content for the LODS. Based on the mapping, a content flow chart was designed to illustrate the content flow of the guidelines. The content flow chart was later approved by both SMEs. After the approval, LODS was developed. The LODS is an online database system in which the instructional designers record their findings from the content analysis (nature of content, learning outcome, cognitive level of learning outcome, summary) and document their design plan for the MILO, which includes the introduction, content presentation method, learning task, and assessment. Figure 1 shows the flow chart of the LODS.

![Flow chart of LODS](image)

**Figure 1.** Flow chart of Learning Object Design System (LODS)
1. **Introduction - Gaining Attention**

   *Type here your idea on presenting the Introduction. For eg. Use a video which shows accidents happen in working areas / Show news transcripts or which talk about accidents in workplaces.*

2. **Learning Outcomes**

   *Write the learning outcomes in the box provided*
   
   *At the end of the learning object, you should be able to:*

   Choose the level of the learning outcome according to Bloom's Taxonomy
   - Knowledge
   - Comprehension
   - Application
   - Analysis
   - Synthesis
   - Evaluation

   4. **Flow / Organisation of content** - here you determine how you organise the content of the Learning Object. Break the content into few key ideas. In each key idea, determine the specific content to present, the content presentation mode, and learning task if have.

   **Key idea**

   *Type in outline of the specific content*

   i. **Content Presentation**

   - [ ] Demonstration - Select the demonstration method(s)
     - Digital photos / graphics which show step by step
     - Animation
     - Real life video (eg. lab experiment)
     - Audio included
     - Have not decided yet

   - [ ] Simulation - Select whether you want to use 2d or 3d simulation
     - 2D animation
       - user can interact with (eg. game)
       - user can only view

     - 3D animation
       - user can interact with (eg. game)
       - user can only view

   - [ ] Diagrams (table, list, charts, graphs)
   - [ ] Visuals (photos, graphics / screen captures)
   - [ ] Video scenarios (to grab attention, use as examples)
   - [ ] Others (please specify)
Type / Nature of content according to David Merrill's Performance Content Matrix
- Concept
- Fact
- Process
- Procedure
- Principle

Provide reasons for your selection

- Multiple Choice Question
- True / False
- Fill in the blanks
- Drag and drop
- Matching pairs
- Game
- Simulation (e.g., lab, workplace environment)
- Other

Figure 2: Screen shots Learning Object Design System
This system has also enabled public sharing of the content design inputs. The user can upload his/her input on content design inputs and also can retrieve other records. Since this is an online system, external SMEs especially tutors can be also appointed to analyze content and record the findings and submit online. The findings from the analysis recorded in the system can be retrieved at any time by using search method to edit.

Evaluation of LODS

A focus group interview session was conducted with the participants in order to assess the effectiveness of the guidelines and the content analysis document. In the interview, the IDs overall indicated that the Learning Object Design System (LODS) has helped them to save the time and effort spent in deciding the instructional approaches (content presentation method, learning activities, and assessment). They also indicated that the task has become more organized and structured. One of the ID said “We have to generate as many options on our own when it comes to deciding the instructional methods. But the beauty of this system is it already draws out all the options for us. We just have to choose. For example, the content presentation methods are all displayed. We just have to choose the best for the content”.

All the participants agreed LODS has created a platform to document the ideas and decisions made during content analysis. One of the participants mentioned that the recorded findings in the content analysis document would help the IDs save time in creating a storyboard. She said, ‘We have already decided on the learning outcome, content structure, and brief ideas of the learning tasks during the content analysis. So, during storyboarding, we can focus more on finding external resources, designing the learning activities with feedback, and media programming.’ According to another ID, ‘by having the predetermined ideas of the MILO design, designing the storyboard would become easy. We just have to refer to the things that we recorded in the document.’

Conclusion

This study has highlighted the importance of planning the content design process before storyboarding. The guidelines developed had indeed helped the IDs from the particular institution. LODS was an initial step to guide the IDs before they proceeded to the detailed design of the LO (storyboarding). This system has smoothen the planning process of LO content design as it aid the decision-making processes entail selecting the type of content, presentation mode, learning activity and assessment by providing options.

References


Introduction
The importance and significance of the environmental education as one of today’s accentuated assignment is unquestionable. The environment and the society area in a process of continuous change. The earth that supports all kinds of life is slowly becoming inhospitable for human beings. While we may not feel minute changes in global temperature, personally witness the disappearance of species, or understanding how deforestation affects individual livelihoods, the degradation of the environment is real and must be addressed if we are assure our survival. In this context, Environmental education is the process of recognizing values and clarifying concepts in order to develop skills and attitude necessary to understand and appreciate the inter-relatedness among humans, their culture and their bio-physical surroundings (IUCN 1970). It is the main tool which can contribute for the sustainable development. In formal education already Environmental education has been implemented as an compulsory subject in all level of education starting from school level to university level, but the effectiveness of the program is still doubtful. So there is utmost necessary to do research to know whether these courses are beneficial to inculcate awareness towards the environmental issues. Media is also playing a key role in creating environmental awareness among masses of people. Public actions and attitudes towards environmental protection are largely shaped and influenced by the media. The radio, television, newspapers are the instruments to manipulate public opinion and overall belief systems.

Objectives:
1. To check the effectiveness of the course curriculum, content offered by various colleges and universities in this region.
2. To check the students and teachers satisfaction level regarding different areas of the program.
3. To check the various programmes organized by media houses and its effectiveness.

Methodology:
1. Scheduled questionnaire
2. Personal interview
3. Document analysis of secondary sources
4. Observation method
LITERATURE REVIEW

Environmental Education (EE) has long been considered one of the most effective measures to achieve sustainable development. Since the publication of the Brundtland Report Our Common Future (WCED 1987), the concept of sustainable development came into focus and has increasingly gained attention at international, national, local, public and private levels. Several organizations have been involved in research and development of measures and strategies to provide long-term ability for nature and human beings to survive and prosper together from that time to create sustainable environment. Although sustainable development touches all aspects of human life, in this article the discussion is restricted to the questions of education for sustainability (ES). It is recognized now a days that EE can help change the attitudes and behavior of people as consumers, producers and citizens to carry out their core ideas, including: “living within the limits”, “understanding the interconnections among environment, economy and society” and “equitable distribution of resources and opportunities” collective responsibilities and duties. In 1975, UNESCO first recognized the importance of environmental education in the Belgrade Charter. In 1997 the Intergovernmental Conference on Environmental Education, held in Tbilisi, defined the following general objectives for environmental education: raise awareness and sensitivity on environmental problems; gain knowledge and basic understanding of the environment and associated problems; change attitudes, values and motivation to actively participate in environmental protection and improvement; acquisition and development of skills to identify and solve environmental problems; participation of all social groups and business players. The Rio conference in 1992 adopted sustainability as the fundamental Principle to support the development of mankind at all levels. Chapter 36 of Agenda 21 (UNCED 1992) restated the importance of ES and the need for considering all social, economic and political aspects of sustainable development. The current and most consensual approach to sustainable development is mainly based on three dimensions: economic, ecological and social aspects of society and nature as depicted below in the fig.
Some Other problems are little doubt that EE targeting all organizations and individuals is an indispensable component of society’s efforts to realise better futures, the rationale for environmental education and its exact contribution to sustainable development is rarely presented in an explicit manner. Key questions such as what types of EE activities should be conducted in which way, how EE can impact on our life, and how it eventually contributes to measurable outcomes that support sustainable development remain unanswered. Starting action towards sustainability are directly related to the educational system. Most of the time the courses offered are limited in scope and do not reflect the interrelations between the various aspects of sustainable development. The subject of ES requires a strong commitment from society and between generations beyond any political and economic time scales (Crofton 2000; Jansen 2003). In many countries of the Asian and the Pacific Region environmental topics have been included in education courses, through integrating environmental concerns in other subjects and through specific courses for the environment. Government, NGOs, educational institutions and media have undertaken some serious efforts to meet the growing environmental challenges by promoting environmental education, information and communication in their respective countries. Activities such as green bank, green press, eco-Clubs, eco-polices, eco-farming and eco-harvesting; are emerging in the region. Special economic incentives (such as subsidy, tax-exemption and other incentives) are provided to schools in some countries where environmental education courses are offered.

**Significance of EE in different levels of organization**

1. Primary level EE: Environment education helps children to proceed from indefinite to definite ones. In this connection it may be said that the first perception and thoughts of children are vague as their first movement and the first attempt at speech, in fact an infant is not able to distinguish between colors, but as it grows it learns to discriminate among different shades. Environmental education helps in sharpening the development of these observational skills and hastens the transition of ideas in children’s mind from indefiniteness to definiteness. It helps children to proceed from the concrete to the abstract. And finally EE helps the ordering of learning experiences from the empirical to the rational.

2. Higher EE Program: EE at graduate and post graduate level has a great importance in changing the whole society. Because they are the main agent who can bring the total awareness or positive attitudes among public by research activities, awareness program, interactive program etc. In the same context, it also envisages to contribute to the balanced use of science and technology not only to solve the problems of environmental deterioration where they have already appeared but also to design appropriate preventive measures during the course of development activities.

3. EE through media and NGOs:
   Television, print news, radio broadcast, and the Internet are enlisted to help promote a “green” ethic and raise environmental awareness. Different NGOs also play a important role in delivering EE and generating pulse of positive response among people. In the rural areas where illiteracy level is high folk media is the best agent to bring changes in attitudes.
Depending upon the objectives, characteristics and restrictions of learners the learning process can be categorized in some different groups. Starting from the primary schools the course, content and curriculum varies according to the needs. The various levels of learning are as depicted in the fig. below.

**DIFFERENT LEVELS OF FORMAL ENVIRONMENTAL EDUCATION PRACTICES**

- Primary school
- Middle school level
- High school level
- Vocational school level
- Higher secondary level
- Graduate level
- Post graduate level
- ODL institutional level
- Business organization level
- Industrial level

**SD GOALS**
Social, Economic and Ecological development

Source: Developed by the Author
RESERCAH FINDINGS

Curriculum structure, content and effectiveness:
The curriculum structure of Env. Studies in the graduate level and also in the post graduate level. The ODL institutions also plays a great role in delivering knowledge. The environmental studies and disaster management course of the Krishna kanta Handiqi State Open University, Assam is taken as a ODL institution for identify the curriculum and content. The curriculum is mainly divided into eight chapters. These can be divide into mainly –concept of environment, Natural Resources, Ecosystem, Biodiversity and its conservation, Environmental pollution, Concept of Disasters, Disaster management. The chapters are made learner centric and so the language is very simple and understandable. Here, in KKHSOU the following model is used for the EE course development. It is implemented from 2010 November as a compulsory subject for the graduate level and so data regarding student’s satisfaction, difficulties, awareness level could not be able to check.
An overview of course structure of M. Sc Environmental science course
Gauhati University

<table>
<thead>
<tr>
<th>Course code</th>
<th>course Title</th>
<th>Total marks</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES-101</td>
<td>Fundamentals of Environmental Sciences</td>
<td>75</td>
<td>5</td>
</tr>
<tr>
<td>ES-102</td>
<td>Environmental Chemistry</td>
<td>75</td>
<td>6</td>
</tr>
<tr>
<td>ES-103</td>
<td>Environmental Biology</td>
<td>75</td>
<td>6</td>
</tr>
<tr>
<td>ES-104</td>
<td>Environmental Earth Science</td>
<td>75</td>
<td>6</td>
</tr>
<tr>
<td>ES-105</td>
<td>Practical - I and Field Study 100</td>
<td>100</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Practicals</td>
<td>85</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Field Study (local)</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td><strong>Semester – II</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ES-201</td>
<td>Statistical Methods for Environmental Data Analysis</td>
<td>75</td>
<td>5</td>
</tr>
<tr>
<td>ES-202</td>
<td>Environmental Pollution</td>
<td>75</td>
<td>6</td>
</tr>
<tr>
<td>ES-203</td>
<td>Ecosystem Dynamics</td>
<td>75</td>
<td>6</td>
</tr>
<tr>
<td>ES-204</td>
<td>Environmental Hazards</td>
<td>75</td>
<td>6</td>
</tr>
<tr>
<td>ES-205</td>
<td>Practical - II and Field Study 100</td>
<td>100</td>
<td>8</td>
</tr>
</tbody>
</table>
Practicals           85   8  
Field Study           15   1  
**Semester – III**  
ES-301 Environmental Remote Sensing and GIS 75  5  
ES-302 Analytical Methods for Environmental Monitoring 75  6  
ES-303 Environmental Health and Ecotoxicology 75  6  
ES-304 Eco-hydrology and Watershed Management 75  6  
ES-305 Practical - III and Dissertation Seminar 100  
Practicals           85   8  
Dissertation Seminar           15   1  
**Semester – IV**  
ES-401 Energy and Environment 75  6  
ES-402 Environmental Impact Assessment 75  6  
ES-403 Environmental Law and Management 75  6  
ES-404 Special Paper (any one of the following papers)  
(a) Environmental Pollution – Control and Mitigation 75  6  
(b) Natural Hazards in Northeast India  
ES-405 Project 100  
Dissertation 75  8  
Viva 25  
Total 1600  128  

The course structure and contents shows it is one of the very high standard curriculums among different central national and international universities where all the important aspects of the environment is added with wise flavor which can contribute to research, professional activities and creating a positive attitude towards environment and sustainable resource use. The survey conducted among students gives some result as below.  
Sample student -40, Sample teachers-10 including guest lecturers  

![Satisfaction Level of Students](chart.png)
The fig above depicts the level of satisfaction in some areas related to the program. Among the sample students 88% are satisfied with the course content, structure and information. 81% of the student are employed in reputed organizations in different fields. But the level of satisfaction regarding awareness generation was very poor only 27%. Most of the students preferred live activities, awareness campaigns and interactive programs which was totally lacking in the department. 68% were satisfied with lab facilities, internet. 42% were satisfied with teacher’s cooperation.

The above pictures depicted the percentage of teachers and their opinions on different areas of the program. 85% of the teachers were satisfied with the course structure. But they were also confused whether the course can help in creating awareness or not and only 18% responded. Regarding sustainable resource management only 27% were satisfied. 21% teachers were agree with the course delivery modes, activities. 56% teachers were satisfied with the research activities, employment opportunities of the students.

**Course curriculum of general Environmental Studies for College students:**
The UGC syllabus of the degree course of Environmental Studies is divided into seven chapters and one field report. The chapters are namely Concept of the subject, Natural resources, Ecosystems, Biodiversity and its conservation, Environmental pollution, Social Issues and the environment, Human population and the environment. In all syllabus the sustainable development concept is included. Besides, all the important aspect of the subject has been incorporated. But still it is doubtful if the course can create environmental awareness or hampering the learners as a compulsory subject.

**Role of Regional media**
2 news papers namely The Assam Tribune and Assamese Pratidin are the most popular in Assam, especially in Guwahati. The monthly analysis of the Tribune shows the publish of almost daily article on the last row of the first page. The topics cover different areas of the environmental issues with significance to Northeastern states. These are written in very attractive way to create public attention. This is one of the very positive side of the paper that it tries to motivate people and helps in developing a sincere attitude to the nature. The Assamese paper Pratidin also gives a significant importance to the regional, national environmental issues. Renowned environmental activists, researchers present
their views in their valuable articles. These also indirectly help the people to think about the different issues. The regional T.V channels like Newslive, DY365, N.ET.V. also telecast different environmental interactive issues, documentary films, meaningful advertise which show the sustainable resource management and how people can help save the natural resources. The radio channels, specially the very newly launched community radio station of KKHSOU is trying to broadcast different community based environmental educational programs for reaching the unreached people of this region. Besides some Guwahati based environmental NGOs and institutions are also trying their level best to generate environmental awareness among people by organizing different seminars, conferences, teacher training program, different school level competitions etc. But the actual level of public awareness is still doubtful.

Constrains in the program

1. **Environment as a problem** (to be avoided, to be solved) requires the development of Skills for critical investigation into the realities of our milieu and for the enlighten diagnosis of problems. It strives to make people realize that environmental problems are socio environmental issues. The development of skills in this field could strengthen the feeling that something can be done, that each one can contribute, a feeling that may in turn trigger the desire to take action.

2. **An environmental education that is limited** to set of interlinked and complimentary dimensions is incomplete and nourishes a biased vision of what is “being-in-the-world”.

3. **Environmental education** is so wide-ranging and demands in-depth changes; environmental education is indeed difficult to carry out. It calls for the involvement of the whole educational community: schools, museums, parks, municipalities, community organizations, firms, etc. It is for each actor to identify their own educational “niche” in EE, depending on the particular context of their action, the target group and the resources available to them.

4. **The main current challenge** is the prevalence of the development ideology (Rist, 1996) promoted in the proposal of “education for sustainable development”. Here education is perceived as a tool in the service of the long-term conservation of the environment, the latter being regarded as a pool of resources to be utilized for a sustained economic growth, which is itself regarded as the pre-condition for “human development” (Sauvé, Berryman and Brunelle, 2000).

5. **The ultimate challenge** is the lack of community participation, teacher’s ignorance and avoiding attitude, Government negligence, proper government policy and lack of punishment for breaking of Law.

**Recommendations:**

1. A review of the strategies for creating environmental awareness in the past could get a straight in to the approaches necessary in the future.
2. It might be useful to modernize inbuilt religious concepts relevant to environment and conservation, such as those inherent in VEDAS, Bible, Koran and message of Buddha.

3. Environmental education is a long process beginning at the infant level which should be very effective in the early ages of life to create a positive attitude towards environment from the very childhood.

4. Appropriate teacher training program and materials for their use must be started without delay in order to implement environmental education programmes in schools.

5. All sections of human society must be exposed to some form and measure of environmental education for arousing their awareness, sensitivity and perception of environmental problems.

6. Periodical seminars, workshops, conferences should be organized in the universities, academic institutions.

7. Documentaries, folk media can help in a very effective way if it is properly produced.

8. Regional and international cooperation in and information exchange on EE should be fostered by UN agencies like UNESCO, UNEP, SAP.

9. Government should take the proper policies, action plans in these area and implementation of hard law is utmost necessary to make a clean and sustainable green environment.

Conclusion:
The pursuit of sustainable development and environmental conservation policies, objectives and targets requires the public to be sufficiently sensitized about the multiple dimensions of environment and development. Awareness and understanding of environmental issues provide the basis and rationale for commitment and meaningful action towards environmentally sound and sustainable development. From the above research study it is seen that though the environmental courses are getting national and international standards but it is still doubtful whether the course can create an positive perception towards the environment or not? So proper evaluation is utmost important in every sector whether this course is really beneficial or completely vague???
The environmental educators and communicators of the region need, therefore, to be vigilant and active to ensure that government, industry and other key players in the sustainable development arena remain mindful of their international and national commitments to environmental conservation.
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ABSTRACT OF THE PAPER

Education for Sustainable Development

Education is the most important instrument to achieve the desired objectives of socio and economic development.

According to Amartya Sen, "Education is the royal road to freedom: the royal road to that fundamental freedom of the human spirit that underpins other more practical freedoms". His inspiring book Development as Freedom says that ‘Development simply means expanding the real freedoms that people enjoy.’

Sustainability is the key goal for the 21st Century. Education for Sustainable Development [ESD] is a vision that encompasses populations, animal and plant species, ecosystems, natural resources and that integrates concerns such as the fight against poverty, gender equality, human rights, education for all, health, human security, and intercultural dialogue. It means that future generations should have the same change of leading a fulfilled life as the earlier generations. At the same time, the opportunity to live a quality life must be more fairly distributed around the world today.
The United Nations Decade of Education for Sustainable Development:

In recognition of the importance of ESD, the United Nations General Assembly declared 2005-2014 the UN Decade of Education for Sustainable Development (DESD). UNESCO leads the DESD and has developed an International Implementation Scheme for the Decade.

Access and Equity: Reaching the Unreached

The answer to reaching the unreached is by applying technology to scale up learning through ‘Open Learning and Distance Education’. The UNESCO World Conference on Higher Education (Paris, 1998) underlined that ‘forms of open learning, distance learning and new information and communication technologies secure a wider access to higher education.’

With the recent improvement in modern information and communication technologies (ICTs), distance learning has emerged as an inevitable and phenomenal form of education in the history of educational developments internationally. It is now possible through ICT to adopt flexible, constructivist, learner-friendly and multi-perspective approaches to teaching-learning. It is a suitable response to learners ill-served in the mainstream system (e.g. marginalised communities, illiterates with commitments that preclude full-time attendance at institutions, conflict areas, under qualified teachers in rural areas).

Gender Parity in Education: Role of ODL

The Universal Declaration of Human Rights, UNESCO Convention Against Discrimination in Education (1999), the 1981 UN Convention on the Elimination of All Forms of Discrimination Against Women, the EFA [Education for All] 2015 goal commitment of: “eliminating gender disparities in primary and secondary education by 2005, and achieving gender equality in education by 2015, with a focus on ensuring girl’s full and equal access to and achievement in basic education of good quality” have furthered use of ODL for the female population. ODL has been identified as the panacea to the perennial educational challenges of equitable access to learning, equality of basic educational opportunities as well as providing a chance for women and girls who had never been or had once been in the system but had to dropout for one reason or another.

Using ODL for Environmental Education

Environmental perspectives cover several major themes, reflecting diverse goals and audiences, including: Water, Climate change, Biodiversity and Disaster prevention. There can be no long-term economic or social development on a depleted planet. Use of
ODL is an optimum method for educating society to behave responsibly towards the environment.

ESD thus aims to help people to develop the attitudes, skills and knowledge to make informed decisions for the benefit of themselves and others, now and in the future, and to act upon these decisions.

FULL PAPER

The present paper aims to review ‘Open and Distance Learning’ in the context of present opportunities and challenges, describe relevant concepts and contributions, state certain regional and global trends, and suggest policy and strategic considerations in this area.

Introduction

Education is the most important instrument to achieve the desired objectives of socio and economic development. According to Amartya Sen, "Education is the royal road to freedom: the royal road to that fundamental freedom of the human spirit that underpins other more practical freedoms". His inspiring book Development as Freedom says that ‘Development simply means expanding the real freedoms that people enjoy.’

Education for Sustainable Development

Sustainability is the key goal for the 21st Century.

Education for Sustainable Development is a vision that encompasses populations, animal and plant species, ecosystems, natural resources and that integrates concerns such as the fight against poverty, gender equality, human rights, education for all, health, human security, and intercultural dialogue. It means that future generations should have the same chance of leading a fulfilled life as the earlier generations. At the same time, the opportunity to live a quality life must be more fairly distributed around the world today. Education for Sustainable Development [ESD] is the
educational process of achieving human development in an inclusive, equitable and secure manner. Sustainable development (SD) is a pattern of resource use that aims to meet human needs while preserving the environment so that these needs can be met not only in the present, but also for generations to come. The term was used by the Brundtland Commission which coined what has become the most often-quoted definition of sustainable development as development that "meets the needs of the present without compromising the ability of future generations to meet their own needs." ESD is for everyone, at all stages of life and in all possible learning contexts. ESD employs a partnership approach that engages multiple sectors and stakeholders – including media agencies and the private sector – and utilizes all forms and methods of public awareness raising, education and training to promote a broad understanding of sustainable development.

ESD equally addresses all three pillars of sustainable development - society, environment and economy - with culture as an essential additional and underlying dimension. By embracing these elements in a holistic and integrated manner, ESD enables all individuals to fully develop the knowledge, perspectives, values and skills necessary to take part in decisions to improve the quality of life both locally and globally on terms which are most relevant to their daily lives.

UNESCO proposed that the vision of ESD is a world where everyone has the opportunity to benefit from quality education and learn the values, behavior and lifestyles required for a sustainable future and for positive societal transformation.

Why ESD?

The concept of sustainable development touches upon all aspects of the social and institutional fabric. In this sense sustainable development provides a way of articulating the overall social project and aim of development. Since the Earth Summit in 1992 in Rio de Janeiro, there has been increasing recognition of the critical role of education in promoting sustainable consumption and production patterns in order to change attitudes and behavior of people as individuals, including as producers and consumers, and as citizens. If other related international education initiatives look at education as a fundamental human right and focus on providing educational opportunities to everyone and reducing illiteracy, ESD focuses on the underlying principles and values conveyed through education and the content and purpose of education. Chapter 36 of Agenda 21 [UN] specifically discusses re-orienting education towards sustainable development, and encompasses all streams of education, both formal and non-formal, basic education and all the key issues related to educating for sustainable human development.

Realism requires the teaching of some determinate habits, practices and values and the appropriate commitment is not to offer some mere determinate account of it (sustainability), but to ensure the conditions within which the widest range of opportunities for thinking and living sustainability are authentically available.
Challenges of ESD:

In spite of multiple efforts to strengthen ESD, many challenges remain. In particular, there is a need:

1. to integrate sustainable science and education;
2. to strengthen coordination and collaboration between different levels of education for SD; and
3. to mitigate information and knowledge gaps between different parts of the world.

The United Nations Decade of Education for Sustainable Development:

In recognition of the importance of ESD, the United Nations [UN] General Assembly declared 2005-2014 the UN Decade of Education for Sustainable Development [DESD]. UNESCO leads the DESD and has developed an International Implementation Scheme for the Decade.

Essential Characteristics of ESD:

ESD is:

a) based on the values and principles that underline sustainable development
b) deals with the three realms of sustainability – environment, economy and society
c) is locally relevant and culturally appropriate
d) promotes life-long learning
e) is interdisciplinary
f) addresses content taking into account context, local priorities and global issues
g) engages formal, informal and non-formal education
h) accommodates the evolving nature of the concept of sustainability
i) builds civil capacity for community-based decision making, environmental stewardship and quality of life
j) uses a variety of techniques to promote higher-order thinking and learning

The final goal of ESD is to empower people with the perspectives, knowledge, and skills for helping them live in peaceful sustainable societies[ UNESCO, 2001, p. 1]
It could thus be said that ESD involves critical thinking and problem solving leading to confidence in addressing the dilemmas and challenges of sustainable development.

**Access and Equity: Reaching the Unreached**

The answer to reaching the unreached is by applying Information and Communication technologies to scale up learning through ‘Open Learning and Distance Education’. The UNESCO World Conference on Higher Education (Paris, 1998) underlined that ‘forms of open learning, distance learning and new information and communication technologies secure a wider access to higher education.’

Information and Communication technologies [ICT] is defined as a diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information. These technologies include computers, the Internet, broadcasting technologies (radio and television), and telephony.

Open and Distance learning [ODL] is defined by the Commonwealth of Learning as “a way of providing learning opportunities that is characterized by the separation of teacher and learner in time or place, or both time and place; learning that is certified in some way by an institution or agency; the use of a variety of media, including print and electronic; two-way communications that allow learners and tutors to interact; the possibility of occasional face-to-face meetings; and a specialized division of labor in the production and delivery of courses.”

Basically, there are three types of universities in the world imparting Education:

1] First, the ‘conventional universities’ which deliver full-time education through on-campus face-to-face delivery. More than three-quarters of the world’s universities fall in this category. Their students are drawn mainly from age 16 to 24 years on the average and they are mostly high school graduates who are not in any employment;

2] The second type is the ‘distance and open university’ which delivers higher education via the distance mode of instruction. Probably about ten percent of the universities in the world are in this category. Their students are often adults average age of about 35 years, usually employed or unable to undertake full-time study for a variety of reasons. Their education is not necessarily full time but part time or allowed to study the course till they graduate. These students are separated from the institutions and lecturers who provide the courses and instruction by distance. The students study at their own pace and at their own time often on their own either at home, workplace or in designated study centres. Examples of this type of
university are Symbiosis Center for Distance Learning, Pune, The United Kingdom Open University, The Open University of Hong Kong, The University of South Africa, Simon Fraser University, Canada etc. Originally it was known as correspondence because the only means to get the instructional materials to students was by post. Today, technology is playing a tremendous role in the delivery of instruction and has now changed the term from correspondence education to distance education;

3] The third type of university is that which combines’ both distance education and face to face on campus education under one management’. Such institutions are called ‘dual-mode universities.’ They offer both the distance mode and the on-campus mode of delivering instruction. Universities such as the University of Cape Coast, Ghana, is an example of this type of university.

For many countries with large population of those wishing to be educated, Open and Distance education is a convenient avenue to enroll as many as are qualified. Since such institutions usually do not require as much classroom space as conventional on-campus education, space is not necessary a problem. In addition, such universities are ‘open’ regarding the entry qualification. In fact, no set qualification is necessary to enroll. A prospective student only needs to pass a qualifying entrance examination to indicate that he or she can cope with the foundation courses to be enrolled. Hence, such universities are called ‘open universities’. Sir John Daniel has coined the term ’mega-universities’ to represent open universities with enrolment of 100,000 students and above.

Open and Distance Learning

In its historical perspective, distance education has gone through several phases beginning with exchange of letters (such as epistles by St Paul to the early Christians), correspondence courses (such as those conducted by Pitmans in shorthand), tuition for external examinations (such as for external degrees offered by the University of London), off-campus and part-time studies for existing universities (such as those conducted by the University of Nairobi) to universities devoted 100% to students who study while at a distance. Many of these students are located hundreds if not thousands of miles/kilometres from the university head
office, such as is the case in the UK Open University, University of South Africa, Symbiosis Center for Distance Learning, Indira Gandhi National Open University and many others like them.

Known differently and variously as ‘correspondence study’, ‘home study’, ‘off-campus study’, ‘independent study’, ‘distance study’, ‘telematic teaching’, ‘extra-mural system’, what we now call distance and open learning has meant the same for everyone in the world. This is the provision of education by a mode other than the conventional face to face method but whose goals are similar to, and just as noble and practical, as those of on-campus full-time, face to face education.

The history and evolution of distance education has been marked by three main issues (Gough, 1980). The first is access: to allow students who would otherwise be denied educational opportunities to gain access to courses. The second is equivalence and integrity: students taught at a distance should receive an equivalent education and an equivalent qualification with the same integrity as those earned through the conventional mode. The third is excellence: quest for excellence in quality of learning materials, teaching, support services, academic and administrative systems or professional development of staff. As the resolution of these issues continue to dominate the theory and practice of distance and open learning, many countries in the world, especially those developing, became increasingly attracted to this form of education. Distance education relies on materials, the radio, television, tape recordings, learning units, the telephone, computer, and satellite communication. Several institutions conducting their programmes through distance education organise face-to-face practicals and field trips.

Why would anyone employ this form of study? There is no simple answer since there are diverse circumstances. First the political philosophy of a nation or political party in power has a very strong influence. Secondly, availability of new methods of communication has solved problem of scattered populations such as those in Australia, the Island states and those with limited or no facilities for higher education. A previous Module describes in detail the use of technologies in higher education. The type of
technology used depends on the ability to pay for it as well as supporting infrastructures. But, research has shown that even in quite developed countries, students have depended heavily on the printed materials for reasons we do not need to go into here. This should allay fears of those who are afraid of trying distance education because they are scared of the great expenses associated with the new technologies. A third reason for resorting to distance education is its flexibility in relation to place, pace, age and time. Students do not have to be in physical contact with their teachers. They can continue earning their living while they pursue their studies i.e. they work as they learn their living while they pursue their studies i.e. they work as they learn and they learn as they work. They can take small doses over a long period or large chunks for a shorter period as circumstances dictate, unlike existing universities which expect students to move at a uniform pace.

With the recent improvement in modern information and communication technologies (ICTs), distance learning has emerged as an inevitable and phenomenal form of education in the history of educational developments internationally. It is now possible through ICT to adopt flexible, constructivist, learner-friendly and multi-perspective approaches to teaching-learning. It is a suitable response to learners ill-served in the mainstream system (e.g. marginalised communities, illiterates with commitments that preclude full-time attendance at institutions, conflict areas, under qualified teachers in rural areas).

Open Distance Learning (ODL) is considered nowadays as the most viable means for broadening educational access while improving the quality of education, advocating peer-to-peer collaboration and giving the learners a greater sense of autonomy and responsibility for learning.

- The ODL by incorporating the following enables access and equity in Education thus enabling requisite information to reach those who cannot attend regular classroom education,
- From Learning in classroom to learning anywhere,
- From teacher centric to student centric,
- From teacher as an instructor to teacher as a facilitator,
- From mainly oral instructions to technology-aided instructions,
- From fixed-time to anytime learning,
- From you learn what is offered to you learning what you want,
- From education as one-time activity to education as life-long activity

- The phenomenal development which open and distance education has undergone and is still undergoing around the world indicates its significance
in contemporary educational development. Most developing countries now use it as a potent instrument for human resource development. With the world population increasing at a fast pace and the need to educate just about everyone, several issues have resulted in the need to focus on open and distance education. They include the following:

- the need to take education to over 70 percent of the world population who live in rural and remote areas,
- a huge unmet demand for education at all levels but especially for higher education,
- the incapacity of conventional educational systems to provide access for all, or to provide a quality education to those who have access, and
- the inadequate and inequitable representation of the poorer and marginalised groups in the mainstream of education.

Traditional governments have introduced Distance Education provision to enhance and consolidate capacity, increase access to learning and training opportunity, and improve cost-effectiveness of educational resources. It could thus be concluded that the recognised current benefits are extending geographical access to education, delivering education to larger audiences, offering the combination of education with work and family life, enhancing the international dimension of education and imparting speedier education.

**Gender Parity in Education : Role of ODL**

The pursuit of gender equality is central to sustainable development where each member of society respects others and plays a role in which they can fulfill their potential. The broader goal of gender equality is a societal one to which education and all other social institutions, must contribute.

Discrimination based on sex is often structurally embedded. In many societies women bear the major burden of responsibility for food production and child-rearing, they are excluded from family and community decisions affecting them, and they have little or no access to the means of income generation. Gender issues must therefore be mainstreamed throughout educational planning – from infrastructure planning to material development
to pedagogical processes. The full and equal engagement of women is crucial to ensuring a sustainable future.

The Universal Declaration of Human Rights, UNESCO Convention Against Discrimination in Education (1999), the 1981 UN Convention on the Elimination of All Forms of Discrimination Against Women, the EFA [Education for All] 2015 goal commitment of: "eliminating gender disparities in primary and secondary education by 2005, and achieving gender equality in education by 2015, with a focus on ensuring girl’s full and equal access to and achievement in basic education of good quality’’ have furthered use of ODL for the female population. ODL has been identified as the panacea to the perennial educational challenges of equitable access to learning, equality of basic educational opportunities as well as providing a chance for women and girls who had never been or had once been in the system but had to dropout for one reason or another.

Identified Techniques for Eliminating Women Marginalization in Distance Learning:

A repertoire of techniques that can be used to reduce or eliminate the tendencies of marginalization and improve on the experiences and opportunities of women in open and distance learning (ODL) are:

1. Educating and equipping woman to contribute their useful quota to the society and eliminating all forms of illiteracy. (Azikwe, 1992)
2. Institutionalizing greater dimensions of openness and flexibility, whether in terms of access, curriculum or other element of structure.
3. Promoting cost-effective, convenient, conducive, efficient and comprehensive unstraddling of many facet of the social system. (Jegede, 2003)

Thus concrete use of ODL has enabled several women to get educated, envisioned and empowered thereby making fruitful contributions towards sustainable development.

Using ODL for Environmental Education

Environmental perspectives cover several major themes, reflecting diverse goals and audiences, including: Water, Climate change, Biodiversity and Disaster prevention. There can be no long-term economic or social development on a depleted planet. Environment is not a property but a provider of basic human needs. Citizens have the right to clean air and water, while owing responsibility to maintain a ‘fit’ environment. Concerns about the welfare of current and future generations should be committed to forms of sustainable development grounded in this concept.

Use of ODL is an optimum method for educating society to behave responsibly towards the environment. Environmental Education through use of ODL enables environment-
citizenship [responsibility towards the environment individuals live in so as to not deplete but replenish the earth and its resources they use]. These include substantive rights to life, to those basic needs that support it, to a liveable and sustainable environment, together with procedural rights, such as the right of access to environmental information, environmental justice seeking to use and extend these in ways that protect the health, livelihoods and amenities of disadvantaged communities.

Example, ESD deals with issues of ‘climate change’, by educating citizens in terms of ecological and non-ecological concerns: understanding its causes, recognizing its impacts and effects, and preparing and implementing appropriate responses. A Seminar on ‘Climate Change Through the EDS Lens’: policy and ethical issues on ‘global warming’ was organised as part of the ‘Education for Sustainable Development Day’ [14 October 2009] that the Education Sector held during the 35th UNESCO General Conference. Through presentations and discussions, the Seminar explored how education should respond to tackle global challenges like climate change effectively, and how ESD is useful towards guiding and assisting this process.

**Conclusion**

Education for Sustainable Development thus aims to help people to develop the attitudes, skills and knowledge to make informed decisions for the benefit of themselves and others, now and in the future, and to act upon these decisions.

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“OPEN AND DISTANCE LEARNING IS PATH FINDER FOR GENDER PARITY”

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Key Words- Female Literacy, Economic development, Women empowerment, Open and Distance Learning, Gender Parity.

Abstract

Without total Gender Parity we can’t say that India will become a superpower because in present period male are dominating to female in different sectors like Political, Economic, Technology and also Social. So the female have not done enough progress in physical health and intellect as the capabilities they possess. They denied education opportunities and development of themselves and their families.

With all causes mentioned above, education is the major factor that affects much the development of female. If she wants to become educate herself, she faced lots of barrier like society, male dominating culture, security, marriage and after marriage responsibilities political problem etc. These are the mainly concerned with those women who live in the rural region. So that, the Open and Distance Learning System can take one step forward to provides an education in rural area especially for women. Open and Distance Learning system empower to female and it helps to Gender Parity.

1. Introduction: -

Education is learning the process. It can be continues with human life. It works as the sunlight to remove the darkness of ignorance. It also helps to make healthy and sound person for nation who can make ideal society. Therefore education is the forth primary need of the society after food, cloth and shelter.

Ignorance, economic condition of family, government policies, time bound, policy makers, admission processes, early marriage, some social tradition are keep away people from education mainly the female from rural and tribal area are thrown away from the education. So there is imbalance in gender parity.

In present period if they get education they can build up their confidence and overcome any difficulty. So the Open and Distance Learning System would be proved great device for education.
2. Need of Study – The study enlighten the following way

- ODL can give great contribution in female education.
- ODL can expanded their work in rural region and provide some need based curriculum for those who wants to desire to take it.
- ODL can move towards to minimize gender inequaity and encourage gender equality via distance learning.
- ODL can strengthened women empowerment in the society.

3. Study area-

Ahamednagar district extends from 18° 2’ to 19° 9’ north latitudes and 73° 09’ to 75° 05’ east longitudes. It is flanked by Igatpuri, Sinner and Yeola talukas in the Nashik district in the north, Vajapur, Gangapur and Paithan talukas of Aurangabad district and Georai, Beed and Ashti taluka of Beed district in east, Bhum and Paranda taluka in Osmanabad district and Karmala taluka in Solapur district in south, Junnar, Shirur Daund and Indapur Talukas of Pune district and Murbad, Shahapur talukas of Thane districts in west. The total area of Ahahmadnagar district is 17,413 sq. km. The study region is population of 40,40,642 in 2001 census. According to 2001 census 80.11 percent population lives in rural area and 19.89 percent in urban area. The population growth is + 21.20 percent in 2001 and the average density of population is 232 persons per sq. km.

4. Discussion-

a) Literacy

In Ahmednagar district of Maharashtra state, with the reference census 2001, we see that the total literacy is 75.3 percent but when we see the male (85.7 %) and female (64.4%) literacy, the male literacy is 21.3% higher than female literacy. We also compare it in rural area same thing happen here, the total literacy is 72.0 percent but the male literacy is 84.2 percent and female literacy is 61.1 percent, here also the mail literacy is 24.1 percent higher than female literacy. The urban area has also same situation male literacy (91.4%) is higher than female literacy (77.3%). There is big gap in male female literacy.

In 1961 only 13.03 percent female and 39.39 percent male are literate so the male literacy is triple than female. In 1971 female literacy is 22.91 and male is 48.97 percent and here is also big gap. In 1981 the male literacy is 30 percent high than female literacy and on 2001 it is 21 percent high than female literacy. Above figures shows that in fore decades periods the female literacy never reach to male literacy.

Graph-1 shows the literacy
b) Sex Ratio-
An Ahmednagar district form 1961 district the sex ratio is 962 female per 1000 person. In 1971 it is 956 and 1981 it is 959 here only 3 female grow in one decade. In 1991 it decline with 10 and decade it also goes down towards 940 female per 1000 person. It shows that the society has accept new technology. But they could not accept social equality that’s why there is big gap between male and female with quantity and quality. In future it is big problem for society.

Graph-2 shows the Sex Ratio

c) Migrant labour-
People move from one place to another place for different reasons. They earn something and loose something and most important thing they loose is the children’s education and their stability. The most affected of this problem are bricks makers, sugar cane cutter workers.

In Ahmednagar district migrant workers who are engaged in primary activities the 671 male and 971 female who are illiterate. In these hard work activities the rate of illiterate female is greater than male. The 290 males and 96 female are engaged in same activities who have completed primary education. There are 187 male 58 female who are SSC passed, 38 male and 7 female are HSC passed and 6 male with 2 female are graduates. Above facts shows that illiterate female are higher.

Graph -3 shows that illiterate women are engaged in this hard work higher than male
Graphs 1, 2 & 3 indicate the present status about women education. When we think about gender imbalance, it is harmful and dangerous for society and nation. Through this study, the researcher suggests a new educational programme especially for women in rural regions. This E-Open and Distance Learning System course is easily accessible with low cost anytime and anywhere.

5. **Paradigm of course –**

![Diagram showing the paradigm of the course](attachment:course_paradigm.png)
6. Structure of course Paradigm of course –

7 Rational of course-

During the hunt of review of the Ahamadnagar district there is a paucity of courses for women. The present study introduced the E Open and Distance Learning System course for rural region. It will be applicable not only in Ahamadnagar district but it can run other rural area where women population is more. This course can be implemented with modification as per the social background. For example sugar cane cutter workers, bricks maker, jaggarry production etc and also for tribal and backward people where there is much participation of women.
8 Conclusion-

E Open and Distance Learning System course employing the women of all ages to overcome age old barriers. It will contributed in extended learning process. Such programs have made educational opportunity much more available to women living in areas at some distance from educational institution and literally made educational advancement possible for millions who would not have had such opportunities.

Prof. SHIVAJI PACHARANE
Education for Sustainable Development

Education in the 21st Century will be faced with a project based curriculum for life aimed at engaging student in addressing real world problems, issues important to humanity, and questions that matter. We call this age as ‘age of stress and strain’ so how will it possible to achieve sustainable development for the society?

It is, undoubtedly, even relevant for achieving the goal ‘Education’ or for construction of a real a sustainable culture of Education especially under the democratic system of government. In this context its relevance and importance of its role can never be underrated. It should be applied in wider perspective.

The need of the day is to take up; adopt and understand balanced self Renewal Competency Approach and functional intelligence utilization according to time and space and to put it into practice in the process of education the world over. Indeed it is the demand of the time.

What is a sustainable Development?

According to world environmental Development Commissions (1987) sustainable development means “Sustainable as meeting the needs of present without compromising the ability of future generation to meet their own needs”.

The publication of this report has been followed by several attempts at defining Sustainable Development. It is defined as “a Pattern of social and structured economic transformations (i.e. Development) that optimizes the economic and societal benefits available in the present, without jeopardizing the likely potential for similar benefits in the future”. A primary goal of sustainable development is to achieve a reasonable and equitably distributed level of economic well being that can be perpetuated continually for many human generations. It also implies using renewable natural resources in a manner that does not eliminate or degrade them or otherwise diminish their usefulness for future generations. Sustainable development also requires depleting non-renewable energy resources at a slow enough rate so as ensure the high probability of an orderly. Society transition to renewable energy sources.
The term ‘Sustainable Development’ was coined for the first time by the International Union for the conservation of Nature (IUCN) in the year 1980 in its’ World Conservation Strategy’.

The Stockholm Conference (1972) “Declaration of Human Environment” was approved and to implement the same ‘action plan’ was also accepted. In 1982 when U. N. General Assembly started taking stock of the situation it was convinced that the aims with which entire exercise was done so far had not been realized and pollution had increased world-wide, in this background the world commission on Environment and Development or the Brundtland Commission was set up in 1984.

Some definitions of sustainable development are as follows:

2) Sustainable development is using, conserving and enhancing the community resources so that ecological process on which life depends are maintained and total quality of life now and in the future, can be increased. For development to be sustainable, it must take account of social and ecological factors as well as economic ones, of the living and non-living resource base and of the long and short term advantage and disadvantages of alternative action. (Word Conservation Strategy, 1980)

3) Sustainable Development of is a pattern of resource use that aims to meet the environment so that needs can be met not only in the present but also for future generation (Google search).

Education for Sustainable Development:

Education for Sustainable Development aims to help people to develop the attitudes, skills and knowledge to make informed decisions for the benefit of themselves and others, now and in the future and to act upon their decision.

History of Sustainable Development

Education for Sustainable Development (ESD) has its roots in the United Nations and international history of the environmental commission, 1987, was the first historic document endorsing Sustainable Development. The role of education in attending Sustainable Development gained worldwide momentum with the Agenda 21 of the UN Conference on Environment and Development, the Earth Summit in 1992, Johannesburg. World summit of sustainable affirmed the educational objectives of the Millennium Development Goals and the education for All Dakar Framework for Action. The United National General Assemble in its 57th Session in December 2002, proclaimed the Decade of Education for Sustainable
Development is an intergenerational responsibility and emphasizes on improving the Quality of human life, while protecting the earth capacity for regeneration.

**The Importance of Education Sustainable Development (ESD)**

For humans to all live sustainable, we must all learn the principles of Sustainable Development a process which involves not only learning new information but also thinking differently about our lives, actions, needs, environments and how all these elements interrelate. For this reason ESD requires a great deal of consideration and effort which is why UNSECO has dedicated an entire decade to promotion of Education Sustainable Development.

**United Nations decade of Education Sustainable Development (ESD)**

**Goal**
The overall goal of the UN decide of Education Sustainable Development (2004-2015) is to integrate the values inherent in Sustainable Development into all aspects of learning to encourage in behaviour that allow for a more sustainable and just society for all.

**Vision**
The basic vision of the decade is, world where everyone has the opportunity to benefit from education and lifestyles required for sustainable future and for positive social transformation.

**The UNESCO Action plan for the Decade**

1. Promoting and improving the basic education, including literacy and lifelong learning for Sustainable Development.
2. Reorienting existing education programmes at all levels, so that it promote the social, environmental, cultural and economic knowledge, skills, perspectives and values inherent to sustainability.
3. Building public awareness of the need for and understanding of, the Principles of Sustainable Development.
4. Developing training programmes to ensure that all sectors of society have the skills necessary to perform their work in a sustainable manner.

**Objectives of Education Sustainable Development**

(1) To create an awareness among the students about various aspects of Sustainable Development.
(2) To prevent environment law.
(3) To develop the attitude of the students towards water and energy conservation.
(4) To know the environment and its interrelationship with human being.
(5) To provide opportunities to acquire the knowledge, understanding and skills to engage effectively with the environmental issues.
(6) To think differently about our leaves, actions, needs and environments.

Skill for Education Sustainable Development

The following skills which are essential for Education Sustainable Development to be developed by education in the learners, preparing them for living in tomorrow’s world and contributing in creation of the knowledge society they want-

• **Envisioning** - being able to imagine a better future. The premise is that if we know where we want to go, we will be better able to work out how to get there.

• **Critical thinking and reflection** learning to question our current belief systems and to recognize the assumptions underlying our knowledge, perspective and opinions, critical thinking skills, help people learn to examine economic, environmental, social and cultural structures in the context of sustainable development.

• **Systematic thinking** - acknowledging complexities and looking for links and synergies when trying to find solutions to problems.

• **Building partnerships** - Promoting dialogue and negotiation, learning to work together.

• **Participation in decision-making** - empowering people.

Why Education for Sustainable Development

The founding value of Education Sustainable Development is respect: respect for others and respect for the planet and what is provides us with (resources, tauna & flora) Education Sustainable Development wants to challenge us all to adapt new behaviours and practices to secure our future. Education for Sustainable Development is necessary for Indian because Education Sustainable Development breaks down the traditional educational scheme and promotes:

1. Interdisciplinary and holistic learning rather than subject-based learning.
3. Critical thinking rather than memorizing.
4. Multi-method approaches: world, art, drama, debate, etc.
5. Participatory decision- making.
6. Locally relevant information, rather than national.
The need of Education for Sustainable Development with Reference to Indian Scenario:

1. **Sustainable Urbanization**: Cities have moved to the forefront of global socio-economic change. Globalization and democratization have increased their importance in relation to sustainable development. Half of the world's population is now living in urban areas and the other half is increasingly dependent upon cities for economic, social and political progress.

   Urban areas undeniably pose potential threats to sustainable development with responsible decision-making, however, cities also hold promising opportunities for social and economic advancement and for environmental improvements at local, national, and global levels.

2. **Sustainable Consumption**: Our choices as consumers today will impact the way people live tomorrow. Sustainable consumption means consuming goods and services without harming the environment or society. Living a sustainable lifestyle is essential to overcoming poverty and conserving and protecting the natural resource base for all forms of life. ESD promotes responsible citizenship and fights against the social and resource impacts of unsustainable lifestyle consumption habits.

3. **Peace and Human Security**: Peace and security are fundamental to human dignity and development the sustainable development of any culture is always endangered insecurity and conflict. Human tragedies result in overwhelmed health systems, the destruction of homes, schools and often whole communities, and increased numbers of displaced people and refugees. Education for sustainable development plays a key role in promoting values for peace.

4. **Rural Development**: In spite of rapid urbanization, 80% people of the population in developing countries, and half of the world population, still live in rural areas. Education and training are essential in addressing rural poverty and ensuring sustainable development in these parts of the world.

5. **Cultural Diversity**: Education must respect diversity. The values, knowledge, languages and world view associated with culture predetermine the way issues of education for sustainable development are dealt with in specific national contexts. ESD aims at promoting teaching which respects indigenous and traditional knowledge, and encourages the use of indigenous languages in education and the
integration of worldviews and perspectives on sustainability into education programmes at all levels.

The preservation of cultures is linked to economic development. Tourism and cultural industries can run the risk of co-modifying culture for outsiders. Cultures must be respected as the living and dynamic contexts within which human beings find their values and identity.

Local knowledge and languages are repositories of diversity and key resources in understanding the environment and in using it to the best advantage. They foster and promote local cultural specificities, customs and values. Indigenous knowledge is also important for the social and economic dimensions of sustainability.

6) **Cultural Diversity**: Issues of development, environment and health are closely entwined—ill-health hampers economic and social development. Hunger, malnutrition, malaria, water-borne diseases, drug and alcohol abuse, violence and injury, unplanned pregnancy, HIV and AIDS and other sexually transmitted infections are just some of the problems that have enormous implications for health. Education and basic medical information are powerful ways to drive behavioural change. The school environment itself must be safe and healthy. Schools should act not only as centres for academic learning, but also as supportive venues for the provision of essential health education and services, in collaboration with parents and the community.

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Education for Sustainable Socio-Economic Development

In the context of ever-changing social and economic demands, education is now accepted as a critical force in contributing towards human capital development. In India, the increasing demand for higher education is attached with number of educational reforms. It has resulted in the establishment of several open and distance learning (ODL) institutions. Through ODL, higher education is expected to reach new advancements with the collective aim of increasing the capacity for human capital development.

Peace, poverty alleviation and cultural diversity are three pillars which develop education as a means of forging economic progress in the era of globalization. Now-a-days, it has been experienced that ODL institutions have made great efforts in contributing towards regional and global human capital development. Education, the symbol of progress and prosperity, when given the right focus and appropriate policies by the government, will certainly eradicate poverty and improve quality of life of the society. In this context, ODL is playing a very significant role in reaching to the masses. It enhances the ability of people to recognize the ethical way of sustainable development. It also creates awareness about the necessity of collective social development.

One of the pillars of socio-economic development of any society is its human capital development. Higher education is closely related with human capital development. It is critical in providing the necessary human intellectual input to transform into knowledge-based and innovation-led society. ODL has become a viable alternative to the traditional mode of learning and hence it is necessary to practice good governance of these institutes.

This paper provides a picture about how higher education and ODL will shape and influence the ability of nation to compete at a global level. This paper also discusses need of good governance of ODL and their role as a key growth driver for socio-economic development.

Key words: Open & Distance Learning (ODL), Sustainable Development, Good Governance
Education for Sustainable Socio-Economic Development

1. Introduction

Higher education institutions contribute to sustainable environmental development in the regions in many ways, like by:

a) Generating human capital in the region through their learning and further education programmes in areas of sustainable development.

b) Acting as a source of expertise through research, consultancy and demonstration.

c) Bringing together diverse regional actors and elements of capacity to the sustainability process.

d) Demonstrating good practice through on-campus management and development activities, strategic planning, building design, waste minimisation and resource management practices.

e) Offering recognition and reward incentives for staff to be involved in sustainable development initiatives.

Open and Distance Learning (ODL) techniques can be utilised effectively and at large scale to provide education to distributed communities in a cost effective and efficient way. Similarly, there are clear contributions that can be made by ODL in educating communities about hygiene and health, in matters of agricultural practice, sustainable environmental development practices and disease prevention and treatment. By using ODL approaches the number of teachers and health practitioners, agricultural and environmental experts can be educated and trained. ODL can ramp up the numbers of trained professionals in areas of need without the need for expensive investment.

2. Sustainability through Higher Education

The triple bottom line structure of sustainability (economic, environmental and social performance) is applicable not only to manufacturing or trading organizations, but also to other organisations, like higher education institutions. Firstly, higher education institutions have considerable direct and indirect economic impacts in the local and regional economies: their staff and students increase consumer demand, the use of services and tax income in the region. The provision of locally relevant skills and knowledge contributes to regional business innovation and employment. Economically responsible higher education institutions also carry out their operations in a cost efficient way.

Secondly, the social responsibility of higher education institutions refers to the wellbeing of staff and students, and good relations with stakeholders. Investing in people brings benefits in terms of employee loyalty and productivity. Flexible reward policies may enhance staff motivation to take on new entrepreneurial activities, such as knowledge transfer and regional engagement. Student support services and work-based learning opportunities may improve learning outcomes, enhance learning experience and reduce the dropout rates. Close collaboration with local stakeholders helps the institutes in diversifying their funding sources, providing research themes and work based learning opportunities.
Thirdly, higher education institutions are not only consumers of negative impacts, but also sources of technological and organisational expertise to tackle these challenges (positive impacts). Technology based research bring benefits to regions. In addition, embedding environmental sustainability into the learning experience can have long-term impact on the working life as students and graduates.

3. Concept of Open and Distance Learning

Generally, open and distance learning education courses are made up of a number of course components or learning materials which can include any of the instruments like, teaching texts, study guides, course guides, readers or anthologies, assignments (with or without an accompanying tutor guide), television broadcasts or videotapes, radio broadcasts or audiotapes, software or online information and data, CD-ROMS, textbooks and laboratory materials. Tuition materials are sent with questions to be answered, it could be recorded electronic materials and the students do this at their spare time. In addition, some students support may be provided, either through personal communication at local universities or through online student tutors. Both the media used for open and distance learning and the student support arrangements affect the possible level of interaction in open and distance learning courses.

The emergence of the system of ODL is an inevitable and phenomenal evolution in the history of educational development throughout the world. Unlike the formal system of education which has its inherent limitations with regards to expansion, provision of access, equity and cost-effectiveness, the growth of open and distance mode of education has now made education to be flexible, learner-friendly and multi perspective in approaches to teaching and learning. This has helped to enhance creativity, leadership and integrated development of human personality. Open and Distance learning is a type of learning whereby opportunity is given to people (young and elderly) who have passed the ages of admission into regular universities to continue their education. It is also directed at youngsters beyond school age, who qualified and desire to earn a university degree. It enables people who are disadvantaged in various ways, some have part time employment, and some have disabilities, while some others are homeless to be educated.

4. Challenges before Open and Distance Learning

Unlike the formal system of education which has its inherent limitations with regards to expansion, provision of access and equity and cost effectiveness. The growth of information and communication technologies has facilitated the expansion of open and distance mode of education. It is now possible to adopt flexible, learner-friendly and multi perspective approaches of teaching and learning. This has helped to enhance creativity, leadership and integrated development of human personality. However, the following challenges can frustrate the entire programme:

1. Interrupted or unavailability of power may prevent the use of audiovisual materials and increase overhead cost if the use of generator has been employed.
2. The printing of course materials require may be expensive task.
3. Acceptability of the certificate by industries and business world may be questioned because of suspicion and fear of quality compromise.
4. The unemployed and the lowly paid students may not be able to afford the cost of ODL education.

5. Future of Open and Distance Learning

Scalability and sustainability are critical issues of any ODL initiatives. ODL can provide a realistic strategy for addressing issues of education, capacity building, and health care but it is not the only solution and will not address the challenges on its own. Distance Learning can be an ideal educational approach in situations where practitioners are committed to existing heavy workloads, live in geographically distributed areas and are unable to travel to study centers or take time off work to attend training courses. There are real advantages that can accrue from embedding learning in the workplace whether it’s for in-service training or practitioners or the initial education and training of health care and education professionals. Designers of open learning have serious responsibility for curriculum design that recognises the realities of situations in which learners are living and working and the urgency of the need for training in what matters now.

The strength of the human spirit and will to improve the human condition should not be neglected. Open and Distance Learning approaches can provide clear direction and strategies that can be deployed to deliver the education and training which will empower people to improve their condition. Social policies of the Government play a critical role in the eradication of poverty. There is need to maintain the pressure on governments to act, to implement policies of social investment that support greater access, to strengthen education in changing contexts and to support more training and education in areas of need. But mere increase in investment is not sufficient. It should be ensured that there is improvement in quality of performance of teaching, health care and all forms of professional practice across the society. All pockets of exclusion must be eradicated.

6. ODL in India

Open and distance learning in India dates back to the 1960s. By the 1980s there were 34 universities offering correspondence education through departments designed for that purpose. The first single mode Open University was established in Andhra Pradesh in 1982, followed by the Indira Gandhi National Open University (IGNOU), and subsequently in Bihar, Rajasthan, Maharashtra, Madhya Pradesh, Gujarat, Karnataka, West Bengal, and Uttar Pradesh (established throughout the 1980s and 1990s). The establishment of these single mode distance education universities was stimulated by the government’s intention to democratize education and make it lifelong. The initiative did not discourage the expansion at the same time of correspondence programmes in dual mode universities.

The year 1995 witnessed the enrollment of 200,000 students in open and distance learning, accounting for 3% of total higher education enrollment. Most open and distance learning universities in India follow the model of the UK Open University. These open universities co-ordinate communication and collaboration through the Distance Education Council (DEC), founded in 1992. DEC is responsible for the promotion, co-ordination, and the maintenance of quality and standards.
7. Objectives of the Study

The study is undertaken to assess the impact of the ODL facilities by comparing knowledge, skill and job performance between participants and non-participants of ODL. In this view the present study was undertaken with the following specific objectives.

1. To assess the general perception of the participants of ODL towards the usefulness of the course contents in terms of knowledge and skill gained.
2. To find out the level of knowledge and skill among the beneficiaries of the ODL course.
3. To know the difference in knowledge and skill between participants and non-participants of the ODL programme.

8. Methodology

The design frame consisted of one experimental and one control group. Out of the 100 candidates who had enrolled in ODL courses, 30 of them who responded to the questionnaire were formed as the experimental group (Table 1). Among the non-participants of the ODL programme, 30 candidates working under similar conditions formed the control group for the study. The respondents were from Sangli, Satara and Kolhapur districts of Maharashtra State. The data were collected from among 60 respondents using a well structured and pre-tested questionnaire.

Table 1: Distribution of respondents

<table>
<thead>
<tr>
<th>Batch No.</th>
<th>ODL Program Duration</th>
<th>Candidates</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Registered</td>
<td>Responded</td>
</tr>
<tr>
<td>1</td>
<td>January to June, 2010</td>
<td>50</td>
<td>16</td>
</tr>
<tr>
<td>2</td>
<td>July to December, 2010</td>
<td>50</td>
<td>14</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>100</strong></td>
<td><strong>30</strong></td>
</tr>
</tbody>
</table>

The list of candidates who have not enrolled in the ODL programme and who belonged to the three districts of Maharashtra State namely Sangli, Satara and Kolhapur was prepared. From the list of non-participants a sample size of 30 equal to that of experimental group for the study was selected by simple random method to form the control group. A sample size of 60 respondents was thus fixed for the study. Out of the 60, 30 were from the experimental group and remaining 30 from the control group.

8.1. Perception towards Sustainable Development

The perception of ODL with reference to sustainable development was measured using a four point continuum as ‘strongly agree’, ‘partially agree’, ‘not sure’ and ‘disagree’.

<table>
<thead>
<tr>
<th>Response</th>
<th>Strongly Agree</th>
<th>Partially Agree</th>
<th>Not Sure</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>
The mean score of responses towards sustainable development was worked out. Based on the mean score of each response, the ODL impacts were arranged in the descending order to identify their individual position as perceived by the participants.

8.2. Perception towards Skills Perceived

The skill level was measured by using self perception test. The competence of respondents was measured by using the opinions expressed by them. The responses for effectiveness of distance course contents with reference to skill was measured using a four point continuum as ‘strongly agree’, ‘partially agree’, ‘not sure’ and ‘disagree’. The mean score of responses towards skills perceived was estimated.

8.3. Instrument for Measurement of Skill

Skill is usually learnt to perform an action. A list of 20 questions was prepared to measure the improvement in the skill due to ODL. These 20 items were subjected to the opinion of the respondents to indicate the relative merit of the questions to be included in the final skill test. Accordingly 10 items were finally selected and included in the final test.

<table>
<thead>
<tr>
<th>Response Score</th>
<th>Most Frequently</th>
<th>Frequently</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

The score obtained by the individual for each item was summed up to arrive at the total score. Thus a maximum score one could obtain was 40 and minimum was zero.

9. Results and Discussion

Different results can be deduced from this study. Some of them are discussed below.

9.1. ODL and Sustainable Development

Perception of respondents towards the usefulness of ODL programme on increasing sustainable development level was analyzed and presented in Table 2 below.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Development Criteria</th>
<th>Strongly Agree (3)</th>
<th>Partially Agree (2)</th>
<th>Not Sure (1)</th>
<th>Disagree (0)</th>
<th>Score Total</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Financial Growth</td>
<td>17(51)</td>
<td>09(18)</td>
<td>3(03)</td>
<td>1</td>
<td>72</td>
<td>3.40</td>
</tr>
<tr>
<td>2</td>
<td>Improved Status</td>
<td>14(42)</td>
<td>08(16)</td>
<td>6(06)</td>
<td>2</td>
<td>64</td>
<td>2.13</td>
</tr>
<tr>
<td>3</td>
<td>Gain in Competency</td>
<td>15(45)</td>
<td>07(14)</td>
<td>3(03)</td>
<td>5</td>
<td>62</td>
<td>2.07</td>
</tr>
<tr>
<td>4</td>
<td>Confidence Building</td>
<td>08(24)</td>
<td>11(22)</td>
<td>7(07)</td>
<td>4</td>
<td>53</td>
<td>1.77</td>
</tr>
<tr>
<td>5</td>
<td>Better Career</td>
<td>08(24)</td>
<td>10(20)</td>
<td>6(06)</td>
<td>6</td>
<td>50</td>
<td>1.67</td>
</tr>
</tbody>
</table>

Source: Field Survey
(Note: Figures in bracket shows percentage value).
Majority of respondents expressed that they were experienced sustainable development in terms of financial growth through participation in ODL. They ranked status improvement, gain in competency, confidence building and better career opportunities as other components of sustainable development available through ODL.

9.2. ODL and Skill Enhancement

Opinions of respondents regarding impact of ODL on enhancement of different skills were recorded and presented in Table 3.

Table 3: ODL and Skill Enhancement

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Skill Component</th>
<th>Strongly Agree (3)</th>
<th>Partially Agree (2)</th>
<th>Not Sure (1)</th>
<th>Disagree (0)</th>
<th>Total</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Learning Ability</td>
<td>20(60)</td>
<td>09(18)</td>
<td>1(01)</td>
<td>0</td>
<td>79</td>
<td>2.63</td>
</tr>
<tr>
<td>2</td>
<td>Confidence Retainment</td>
<td>16(48)</td>
<td>08(16)</td>
<td>5(05)</td>
<td>1</td>
<td>69</td>
<td>2.03</td>
</tr>
<tr>
<td>3</td>
<td>Expression Power</td>
<td>15(45)</td>
<td>05(10)</td>
<td>5(05)</td>
<td>5</td>
<td>60</td>
<td>2.00</td>
</tr>
<tr>
<td>4</td>
<td>Understanding</td>
<td>08(24)</td>
<td>10(20)</td>
<td>6(06)</td>
<td>6</td>
<td>50</td>
<td>1.67</td>
</tr>
<tr>
<td>5</td>
<td>Practical Exposure</td>
<td>07(21)</td>
<td>08(16)</td>
<td>9(09)</td>
<td>6</td>
<td>46</td>
<td>1.49</td>
</tr>
</tbody>
</table>

Source: Field Survey
(Note: Figures in bracket shows percentage value).
It can be observed from the above table that skills related with learning, confidence retention and expression power have scored 2.00 or more. It indicates that ODL initiatives were useful for respondents in these skills. The skills associated with understanding and ability to connect knowledge with practical exposure had received less mean score. These readings had ensured positive co-relationship between ODL and skill enhancement.

**9.3. Difference in Development Level between the Participants and Non-Participants**

In Table 4 the readings about the difference in development of participants and non-participants are recorded.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Development Level</th>
<th>Participants (30)</th>
<th>Non participants (30)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>% (Approx)</td>
<td>Number</td>
</tr>
<tr>
<td>1</td>
<td>High</td>
<td>10</td>
<td>33</td>
</tr>
<tr>
<td>2</td>
<td>Medium</td>
<td>14</td>
<td>47</td>
</tr>
<tr>
<td>3</td>
<td>Low</td>
<td>06</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>30</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Field Survey

From the Table 4 it could be observed that majority of participants (80 %) had medium to high development level whereas majority of the non-participants (93 %) held low to medium level of development. The rest 20 per cent of participants had low and 7 per cent of non-participants had high level of development respectively.

The results show that most of the participants had received medium to high level of development compared to non-participants. This might be attributed to their exposure to ODL programme. This indicates that the ODL programme was proved to be effective in terms of development of the participants.

**9.4. Difference in Skill Level between the Participants and Non-Participants**

The distribution of respondents according to their skill level is presented in Table 5.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Development Level</th>
<th>Participants (30)</th>
<th>Non participants (30)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>% (Approx)</td>
<td>Number</td>
</tr>
<tr>
<td>1</td>
<td>High</td>
<td>06</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>Medium</td>
<td>21</td>
<td>70</td>
</tr>
<tr>
<td>3</td>
<td>Low</td>
<td>03</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>30</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Field Survey

As per the Table 5 it could be observed that most of the participants (90 per cent) had medium to high level of skill whereas majority of the non-participants (83 per cent) had low to
medium level of improved skill. The rest 10 per cent in case of participants had low and 17 per cent non-participants had high level of skill respectively. Further, the results show that most of the participants were of the opinion that they have improved the skill after association with the ODL programs. The improved skill of participants compared to non-participants might be due to the fact that the objective of the ODL programme and the way in which it was presented to the participants made them more skillful in their job situation than the non-participants.

10. Conclusions

The concept, open learning and distance education represent approaches that focus on opening access to education and training provision, learners from the constraints of time and place, and offering flexible learning opportunities to individuals and groups of learners. Open and distance learning is one of the most rapidly growing fields of education, and its potential impact on all education delivery systems has been greatly highlighted through the development of Internet-based information technologies.

The open and distance learning means increased access and flexibility as well as the combination of work and education. It may also mean a more learner-centered approach, enrichment, higher quality and new ways of interaction. It offers high quality and usually cost effective professional development in the workplace. It allows upgrading of skills, increased productivity and development of a new learning culture. In addition, it means sharing of costs, of training time and increased mobility of training.

There is significant positive correlation between education and sustainable development of the participants associated with ODL mechanism.

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Symbiosis International conference on Open and Distance Learning (ODL), February 2011

Sub-Theme: Sustainable Development

Title of the Paper: Reaching the Unreached: Role of ODL

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ABSTRACT OF THE PAPER

Distance education has become an accepted and indispensable part of our educational system. Technological revolution and increasing need for skill up-gradation & retraining are the major reasons behind the unprecedented growth of distance education. As compared to traditional face-to-face classes, open and distance education offers more flexibility, freedom and easy access to students. Moreover, the conventional stream of education cannot accommodate the entire student community making distance education programs more necessary. Moreover, within the student community, number of adult, female, and minority learners is increasing. Distance education brings knowledge to these types of learners who have not been served by traditional classroom setting. So open and distance education has a crucial role in the process of sustainable development. By realizing the potential of ODL, more and more traditional universities are transforming themselves to dual mode universities. Rapid developments in the field of ICT have created challenges as well as new opportunities for the design and delivery of education through the distance mode.
The full paper focuses on the Indian scenario of education and provides an overview of the role ODL in providing education to the under privileged sections of the society.

FULL PAPER

Reaching the Unreached: Role of ODL

Human resource development is a key factor to the socio-economic progress of any nation. Education is a hallmark of a nation’s development and prosperity. Expansion of education increases opportunities available to ordinary people, empowers deprived sections of the society, results in alleviation of poverty and stimulates economic activities. Even today, illiteracy is one of the most important obstacles in the socio-economic advancement of developing countries. Lack of education makes the nation less competitive, less resourceful, and ill-equipped to assert itself in the global community. In order to realize a nation’s potentials, educational facilities must be increased considerably.

India presents a great paradox in its educational scenario. On the one hand, we have abundant educational infrastructure in urban areas. There are several pockets of excellence in education which are capable of supplying highly qualified and well-trained manpower all over the world. On the other hand, in spite of our efforts and achievements in the post-independent era, even one third of our adult population is illiterate. Majority of rural people do not attend any formal schools. Dropout percentage is also very high in these areas. Only around 12% of our school children complete tenth standard and only 10% of university-eligible age group children get enrolled in the colleges (Pillai, 2008). However, in developed countries literacy rate is well above 95% with high female literacy. Completion of school education of the school-eligible age children in these nations is near universal.

The illiterates often belong to underprivileged sections of the society who were deprived of education due to various reasons of caste, creed, gender, religion and geographical barriers. Population explosion aggravates the problem of inequality of opportunities further. What is more distressing is the fact that, in spite of a steady rise in the literacy rate in our country, the actual number of illiterates is also increasing simultaneously. This inequality in opportunity ultimately proves detrimental in the overall growth and development of the country. Only by appropriate and innovative strategies we can address the challenge of scaling up of educational opportunities.

The ultimate outcome of lack of education is the abundant supply of unqualified and unskilled workforce. With the emergence of new knowledge-based and service-oriented economy, radical changes have occurred in work organization and skill requirements. New jobs demand higher levels of skills. Majority of labour force in developing countries lack skills necessary for available jobs. Education is essential for imparting necessary skills to the labour force and for raising labour productivity.

UN’s Millennium Development Goals aims at education of all. It is a well recognized fact that conventional mode of education has the capacity to meet the requirements of only a meager
proportion of educational aspirants (Kishore, 1999). This is particularly true in highly populated developing countries. In these nations demand for education is increasing more than proportionately to increase in investment. Moreover, the scope of expansion of face-to-face education system is limited as it requires huge investments (Ansari, 1994). In addition to all these, as private funding in higher education is inspired by profit motive, it is negligible in rural areas. The conventional system is full of rigidities regarding age, attendance, syllabi, timings, evaluation, course of study etc. resulting in the alienation of learners from the system. Thus, conventional educational systems fail to cater to the common people’s needs of knowledge and skill acquisition. In this context, Open and Distance Learning (ODL) can be considered as an alternative approach to reach to the masses.

**Reaching the common people**

ODL has been identified as a panacea for many of the problems related to education in developing countries. It makes education accessible to those who are unable to study full-time due to their social responsibilities and commitments. ODL alone can reach out to the special segments of the population not yet reached by education through the old system. ODL provide the marginalised sections of the society an opportunity to learn and develop. Key features like freedom, flexibility, individualized study, multimedia approach etc. associated with ODL mechanism make it best fitted for providing education and appropriate skills to all. Now, it has become an accepted and indispensable part of the mainstream of education system both in developed and developing counties. ODL provide a unique opportunity to those who can not afford formal school education due to their socio-economic, socio-cultural and demographic conditions.

A sizeable number of India’s population constitutes socially, economically as well as culturally ‘underprivileged’ people. They include Scheduled castes, scheduled tribes and other backward communities, people living in hilly areas, deserts or isolated places, physically challenged, religious minorities, landless farm laborers, small and marginal farmers, rural artisans, fishermen, shepherds, casual and unorganized laborers in urban areas, slum dwellers, prostitutes, roadside vendors etc. Educational backwardness of deprived groups has ever been a matter of great challenge for the planners and policy makers in the field of human resource development. People who benefited the most from distance education include people with physical disabilities, women who were not allowed to enroll in educational institutions due to various reasons, people who had jobs during normal school hours, Scheduled castes, Scheduled tribes, jail inmates and those who lived in remote regions where schools did not exist. Female education is an area where distance learning has a major contribution because as mothers women have greater role in moulding the character of future generations.

In many developing countries distance learning has grown at an accelerating pace in the last two decades. These countries also have a tradition of dual-mode institutions that combine distance teaching with campus instructions. The recent developments in distance learning have a tremendous impact on access all over the world. In India, distance learning accounts for 24% of university students and the government policy aims to raise this to 40% in the coming years (Pillai, 2008).
Advantages of ODL

Distance learning adds on and substitutes face-to-face education. It offers flexibility, freedom and easy access. Through distance mode of education we can overcome individual, geographic constraints and inability to build infrastructure. It is an economic and cost effective alternative. Distance learning is learner-centred and offers wide range of choices to all age groups. Often, distance learning helps to acquire communication and work related skills which results in increased productivity. Moreover, it enables to update, refresh and enrich existing knowledge. It has the potential to deliver education and skills to a large number of aspirants. Through distance mode special classes and courses can be easily offered for special target groups. Moreover, distance mode of education is particularly suitable to emerging and interdisciplinary areas. It offers opportunity to learn during work and family life.

Since most of the neo-literates cannot go back to the formal school being over-aged or economically underprivileged, ODL programmes have assumed great importance as a means of furthering and strengthening the continuing education programme. As a result of scarcity of sufficient infrastructure, training and institutions, rural people find it difficult to acquire education and training in comparison with their urban counterparts. Therefore, distance mode of education is more suitable to fulfill educational aspirations of rural people. Developments in Information and Communication Technologies (ICT) serve both opportunities and challenges for distance education.

Suggestions

Certain strategies should be followed to extend the ODL system to reach the disadvantaged sections of the society.

New initiatives are required to increase access to education. Detailed studies should be undertaken to identify the access barriers. These barriers may be different for different categories of the society. Identification of these barriers enables us to design suitable programmes and delivery mechanism. Moreover, for each category of disadvantaged groups the most appropriate course must be identified and necessary funds must be earmarked to develop courses for underprivileged sections.

Deficiencies of existing delivery and evaluation systems must be identified. NGOs and panchayat raj institutions should also be involved in the effective delivery of distance learning programmes. Fee concessions must be provided to the disadvantaged sections of the society. More programmes are required for capacity building among women. Creation of awareness about various programmes and courses available through the distance mode is essential. We have to seek the services of teachers, social activists and other better informed people to create awareness among people about the utility of various courses. The success stories of learners from underprivileged groups should be widely disseminated through visuals so as to induce and involve people of similar background. Distance education that relies on internet technology may not be the most appropriate way in the immediate future in rural areas in expanding access to learners.
When right focus is given and appropriate policies are formulated by the government, ODL will certainly enable us to alleviate poverty and uplift the quality of life in any society.

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Enabling Environment Education through Distance learning: Challenges and Achievements

Abstract: Enabling Environment Education through Distance learning: Challenges and Achievements

There is dependence of all living beings including human beings on the environment which is essential for all life forms on the planet earth. By the indiscriminate use of the natural resources man has abused the environment leading to a change in the environment and crisis. Thus environment education is required to protect, conserve and develop a responsible attitude towards the environment. This will ensure a good quality of life on earth for all living beings by spreading awareness and educating mankind in sustainable development and environmental problems.

By using formal and non formal channels of education teachers can empower and inculcate attitude, values and skills in the learner. Conventional and open learning systems can be used to meet this challenge. Today both research and practice show tremendous opportunities in education offered by open and distance learning. Online courses on environment education with emphasis on practical, skill and value development User friendly, multi media courseware on environment problems and awareness can be developed for the teachers, educators and administrators. This can be facilitated by electronic and computer networks to connect globally to acquire information and expertise on the latest developments in the area of environment education and training.

The achievements certainly outnumber the challenges in environment education through distance learning. Success and expansion of environment education through open and distance learning has been made possible because of the multiple entry points for learning and training opportunities, provision of increased opportunity for updating, retraining and personal enrichment and cost effectiveness. There are challenges in the form of maintaining sustained quality. The core curriculum that includes practicum needs to be effectively, properly, systematically and efficiently supervised and monitored to maintain and bring about high standards in training environment education teachers.
Symbiosis International Conference on Open and Distance Learning

Sub theme: Sustainable Development

Enabling Environment Education through Distance learning: Challenges and Achievements

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Introduction

There is dependence of all living beings including human beings on the environment which is essential for all life forms on the planet earth. By the indiscriminate use of the natural resources man has damaged and abused the environment leading to a change in the environment and crisis. This damage is sometimes global, as in the case of the depletion of the ozone layer and of the increase in greenhouse gas emissions. Often the damage is regional, as with pest degradation of native forests, or the erosion of river catchments. More often the damage is local as well. Pollution from motor vehicles, contamination of soil by chemicals, sewage discharges; these and hundreds of other human activities stress the environment.

Environmental education, together with sound legislation, sustainable management, and responsible actions by individuals and communities, is an important component of an effective policy framework for protecting and managing the environment. Thus environment education is required to protect, conserve and develop a responsible attitude towards the environment. This will ensure a good quality of life on earth for all living beings by spreading awareness and educating mankind in sustainable development and environmental problems.

Environmental Education is a new focus for education. It is a way of helping individuals and societies to resolve fundamental issues relating to the current and future use of the world's resources. However, simply raising awareness of these issues is insufficient to bring about change. Environmental Education must strongly promote the need for personal initiatives and social participation to achieve sustainability. Conventional and open learning systems can be used to meet this challenge. Today both research and practice show tremendous opportunities in education offered by open and distance learning.
Rationale

Sustainable development is seeking to meet the needs of the present without compromising those of future generations. We have to learn to find a path out of the current social and environmental problems and learn to bring about sustainable development.

Sustainable development is a vision of development that encompasses populations, animal and plant species, ecosystems, natural resources and that integrates concerns such as the fight against poverty, gender equality, human rights, education for all, health, human security and intercultural dialogue.

Education for sustainable development aims to help people to develop the attitudes, skills and knowledge to make informed decisions for the benefit of themselves and others, now and in the future, and to act upon these decisions.

The United Nations Decade of Education for Sustainable Development (2005-2014), for which UNESCO is the lead agency, seeks to integrate the principles, values, and practices of sustainable development into all aspects of education and learning, in order to address the social, economic, cultural and environmental problems we face in the 21st century.

The Declaration of the period 2005-2014 as the United Nation’s Decade of Education for Sustainable Development (DESD), has given the much required global recognition to Education as an important part of environment and development strategies. Education has been recognized as a critical tool for achieving sustainable development and the Millennium Development Goals (MDGs).

Environmental studies were introduced in India in the early seventies. The necessity and concept of environment education was first outlined by the National Council of Educational Research and Training (NCERT). This led to the introduction of Environmental studies or EVS as it was then called. The Supreme Court of India in its directive in 2003 has made Environment Education (EE) compulsory at all levels of schooling. Thus it was necessary to train teachers especially at the in service level to impart EE.

The teachers have limited access to teaching aids, tremendous workload of teaching the traditional subjects and no time to enhance their skills to teach EE.

Open and distant learning (ODL) will enable teachers to be trained while in service to effectively take up environmental concerns and issues in the classrooms so as to engage the student’s in practical action oriented EE activities and projects. ODL thus provides a means to enable teachers to be trained in EE through open and distance mode for sustainable development.
Education for sustainable development

Sustainable development is about empowering; it is about enabling critical thinking, developing analytical and problem solving skills. Education for sustainable development (ESD) is a life-long learning process that leads to an informed and involved citizens which have creative problem-solving skills, scientific and social literacy and commitment to engage in responsible and cooperative actions. This is what quality education is all about as well. Education for Sustainable Development thus:

**Focuses on learning rather than teaching and enables knowledge creation:** Sustainable development requires ability of being able to contextualize, thus ESD needs to support learning rather than teaching. Knowledge is constructed and hence every individual carries a unique set of knowledge and competency to learn. It is therefore important that a good learning process is open enough to allow multiple role-playing at different points of time such that all learners can be the teacher as well, thereby creating new knowledge in that field.

**Builds learners’ ability of critical thinking:**

Since development situations may not have a ‘right or wrong’ answer, it is required that individuals are able to think critically in a given context to arrive at the most logical and relevant action.

**Based upon multidisciplinary approach to learning:**

Environment is all encompassing. Learning for environment and development thus requires an approach which does not compartmentalize various disciplines. It should instead encourage exploring linkages between ecological, social, economic, political, cultural, scientific and technological aspects of development.

**Is multi-sourced and accessed:**

It is necessary that any learning process derives knowledge and information from a variety of sources, instead of the conventional process of having only one source of information and knowledge.

**Is continuous and life-long:**

Environment and development are in a continuous state of change hence it requires that every experience is taken as a learning experience irrespective of how old or young we are. Professionals also need to continuously update and develop their understanding in this area. Thus continued education is thus critical to sustainable development:
Leads to empowerment

Since ESD requires ingenuity and innovativeness, it is therefore very important that learners are empowered to take appropriate actions in a given situation. Such ability can be developed in the learners only when the learning process is not only learner-centered but also learner controlled.

Open and distance learning

The features of quality education and ESD imply that the focus of education needs to be ‘learning’. Learning is for everyone at every stage of life. There is also a need to utilize all spaces of learning especially beyond the formal education system alone. Open and Distance Learning (ODL) has the capability of engaging all spaces of learning.

Key features of ODL include:

Open and Inclusive

Unlike the conventional education system, ODL provides adequate flexibility in terms of ‘entry’ and ‘exit’ points to a learner. Thus irrespective of age and occupation, one could pursue a learning course of one’s own choice and requirement. This feature of ODL supports the ‘life-long and continuous’ learning need of ESD so well.

Accessibility and Affordability

This is especially valid for in-service, continued and life-long learning. Professionals can learn at their own pace and at their own convenient time and not necessarily be classroom bound at a given time. Further, the open system of learning has made the basic educational system also accessible and inclusive. High quality education does not necessarily mean ‘expensive’ education. Though highly inclusive, ODL is affordable.

Adaptability and flexibility

ODL has enabled flexibility in education by making it suitable for multi-end use in a variety of situations. ESD also demands that learning be multi-sourced. ESD requires that learning be ‘contextual’ and flexibility in ODL allows contextualizing of learning. These features of ODL have enabled learners to create knowledge.

Resource-effectiveness

Since ODL is open, flexible and accessible, it makes the process of learning much more resource-effective, in terms of knowledge creation. It is not just the teacher, but the learner also contributes in making the process much richer and better in terms of pace, time (learners can learn at their desired time and pace) and in the use of conventional and new media.
Open and Distance Learning and its contribution to Teacher Training and Environment Education

Teachers can play a pivotal role in transmitting and creating awareness about the environment and help to tackle the local and global issues. They should be motivated and committed to the cause of realizing the goals of environment education and should take initiatives in designing a program for EE. To succeed in this enterprise of spreading environmental awareness it is important for educational institutions to provide suitable conditions and skills to impart training to the learners. It is essential that teachers should be properly trained on environmental concepts. They should be well equipped with the methodology and teaching learning material to inculcate the correct attitude and towards environment in the learners. Using technology in the form of Open and Distance learning can play a vital role in creating a workforce and community of environmentally aware and concerned citizens.

Open and distance education has emerged as a non-formal, learner centric, cost effective, alternative method across the world. The instructional gap is bridged between the teacher and learner who are removed from direct, immediate and face to face contact.

ODL employs a multimedia approach to instruction that involves a judicious blend of print and non print media. Research studies reveal that technology has a positive impact on teaching learning and there has been a positive attitudinal change among learners. Teaching has become more dynamic and students as well as teachers have become enthusiastic to use technology. Thus open and distance learning can be used for promoting EE for sustainable development.

Environment Education for Sustainable Development and Open and Distance Learning

We cannot overlook the reality and concerns with regard to pre-service and in-service teacher training in India. These include inadequate resources or facilities for EE, limited access to teaching aids, tremendous workload on teachers and the fact that teachers cannot take off long periods of time for enhancing skills or professional development.

Given that India is large in terms not only of size and population, but also tremendously diverse in terms of language, culture and educational systems, several organizations like Centre for Environment Education(CEE), Non Governmental Organizations (NGO) and universities for open and distant learning(IGNOU) have always looked for strategies and partnerships to address the diversity as well as to maximize its reach.

The innovative course design of Green Teacher program of the CEE is based on the principles of ESD and quality education, was developed keeping in view the ODL approach. CEE, with support from, and in partnership with, the Commonwealth of Learning, Vancouver Canada, undertook an experiment in the form of an ODL teacher training programme in EE, called The Green Teacher. The period of 2002-2004 was the development phase of the Green Teacher program, with the pilot program offered during
July 05-June 06. This program was the outcome of India’s National Policy of Education (NPE, 1986)

Green Teacher is designed as an in-service training program with the objective to enable teacher-learners to effectively take up environmental concerns and issues in the classroom, and engage their students in practical, action-oriented EE activities and projects. Their objective is to enable teacher-learners to effectively take up environmental concerns and issues in the classroom and engage their students in practical, action-oriented EE activities and projects.

The Indira Gandhi National Open University (IGNOU) has also launched courses of study in Environmental Education and a Post graduate Diploma in environment and Sustainable Development.

Other media supported programs of the Centre of Science and Environment, New Delhi, conduct training programs in EE that include interactive sessions, film presentations and several modules on how EE can be implemented effectively in schools. Thus all these programs and activities suggest that there is immense potential for enabling environment education for sustainable development using Open and Distance Learning mode.

**Achievements in enabling Environment Education through Open and Distance Learning**

To achieve a good quality of life on earth for all living beings, it is essential to spread awareness and educate people in sustainable development and environmental problems. As discussed earlier this is feasible by enabling Environment Education through Open and Distance Learning

The achievements certainly outnumber the challenges in environment education through distance learning. Success and expansion of environment education through open and distance learning has been made possible because:

- It has multiple entry points for learning and training opportunities,
- There is provision of increased opportunity for updating, retraining and personal enrichment and cost effectiveness.
- It is adaptable, flexible and multidisciplinary
- It is suitable for the heterogeneity of learners
- Openness allows for learner controlled learning
- It has supported the accelerated demand for training teachers in EE
- It has provided freedom of learning at one’s own convenience and style.
Challenges in enabling Environment Education through Open and Distance Learning.

Despite the achievements there are several challenges in enabling Environment Education for sustainable development through Open and Distance Learning. The challenge of maintaining sustained quality to support meaningful learning in the distance mode is a major challenge of supporting learning processes which are open, flexible and customized can be enumerated as follows:

• The core curriculum that includes practicum needs to be effectively, properly, systematically and efficiently supervised and monitored to maintain and bring about high standards in training environment education teachers.
• ODL for sustainable development should be able to draw-up a unique framework of reference (towards facilitating learning) for each of the participating individuals.
• Regular contact support and provision of accessible and different Study Centres
• Provision of additional relevant material, besides the course modules which could include teachers’ manuals in environmental education, a text book on sustainable development, and an interactive CD on the subject of environmental education.
• Facilities to access of good libraries
• Proper assessment and evaluation of the ODL enabled EE program to ensure quality.
• Dissemination of information regarding the availability of ODL enabled courses in EE

Conclusion

The ecology of the planet earth has to be preserved from mindless destruction and ruthless exploitation for not only the present generation but the future generations as well. Environment Education through Open and Distance Learning for sustainable development is no longer a far fetched idea. Despite the challenges and shortcomings this will certainly be possible by combining EE and ODL in a judicious manner in our endeavor towards sustainable development.

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ABSTRACT OF THE PAPER

Equality of Sexes’ has been emphasized in all the education policies be it NPE 1986, of 2000, and even the special features of NCF 2005 reiterate so. One of the special features, ‘Learning and Knowledge’ of the NCF 2005 emphasizes that gender, class and creed should not be the constrains for the child. In the feature ‘Curricular areas, school stages and assessment’, it is said that gender justice and sensitivity to issue of tribal and socially deprived group and minorities should be taken care of.

But do these recommendations get truly translated in the real and practical field of education? Does the execution of these policies have difference as related to traditional, regular classroom teaching and that of open distance learning? If yes, then to what extent and in which aspects? If education is considered to be the backbone of successful economy and development, then is education as a whole truly capable of bringing about this change? Taking note of the rising population, insufficient resources, increasing demands of the society, is the regular classroom teaching truly sufficient for achieving the overall development of the child? If not, then can ODL be used as an effective medium of not only overcoming the gender disparity but also achieving sustainable development?

The present research is a very small step taken in the quest for answers to the above questions. A study aimed at different aspects of ODL, the role it can play in bringing about development, in the light of gender parity.
I. Introduction:

Education in its real meaning implies many different things, and the most important being ‘Freedom’. Freedom to everyone to get education of their own choice, in the manner that he/she wants, to the extent that they want and through the medium of their choice. Researcher truly believes that the open and distance learning is the best possible way of not only ‘Expanding’ the avenue’s of education to people far and wide but also the most suitable and sustainable way of ‘Including’ people for education. As a force contributing to social and economic development, open and distance learning is fast becoming and accepted and indispensable part of the mainstream of educational systems in both developed and developing countries, with particular emphasis for the later. This growth has been stimulated in part by the interest among educators and trainers in the use of new, Internet based and multimedia technologies, and also by the recognition that the traditional ways of organizing education needs to be reinforced by innovative methods, if the fundamental right of all people to learning is to be realized. The following quotation rightly reaffirms the importance of open and distance education.

*Distance learning and broadband access to the world wide web of knowledge and information is the great equalizer. Maybe some day it will even move us towards world peace, environmental balance, and personal fulfillment.*

- Gordon P. Hanson, IT Management Consultant, DOA TEACH.

Every coin has got two sides. On one hand distance education is gaining importance, but one really needs to understand whether the other side is also bright in the same manner. The traditional education system has seen gender inequality right from the beginning, so now, is the avenue of distance learning free from the viles of gender disparity has to be checked. This certainly is the demand of the present situation!!

II. Discussion of the present situation:

Since the past ages women have borne the yoke of many things, be it being deprivation from education, unequal parenting or social and cultural injustice. This injustice is seen in all levels of the society – lower, middle and upper class. The era of industrialization witnessed the genesis of the labour class, after which the era of information and technology flourished. Along with these the cultural world of our nation also witnessed many trends. The analysis of the present situation suggests the study of the new problems that may be cropping up in various fields and especially in the field of education.

Right from Wood’s dispatch that lead the filed of education in India to the latest National Curriculum Framework 2005, Sustainable development has been emphasized. Many efforts and reforms have been aimed to bring about this development, and we have been quite successful in achieving many of the goals that were set. But the instances of gender bias, injustice against women in so many avenues, female foeticide, stagnation and drop out rates of female students still reiterate the question of gender disparity and gender inequality.

The review of related literature also emphasizes this gender disparity in the field of open and distance education, be it gender bias in online chat, computer use, distance learning and adult education as well. Thus, in order to analyze the present situation, especially in regards to distance education, the researcher undertook the present study.
III. Need of the Present Research:

The pace of today’s world is just out of reach of the common man. We live in a techno-savy world, whose face is changing day by day. As regards to our nation, the extent in diversity is far too great. Be it in regards to the culture, socio-economic status, use of technology or in simple words the extent of modernization that every individual has imbibed.

There would be hardly anyone who would deny the importance of good education, but everyone does not get an opportunity to fulfill their desire to get the education of their choice, also remains a fact. The demands of this fast paced world, lays many responsibilities on people, who have to enter into the rat race in order to survive. Then do such people have no chance of getting good education? Would these people always remain underprivileged? Do only women have to sacrifice their aspirations or are there some men also? If the statistics show such a great gender disparity in regular and traditional education, then would the picture be same for open and distance learning as well? In order to find answers to these questions, the researcher took up the present study and tried to find out answers to some of these questions.

IV. Title:

A study of Gender Parity in ODL with special reference to some study centers in Pune.

4.1 Operational Definitions:

- **Gender:** Gender is a set of characteristics distinguishing between male and female, particularly in the cases of men and women. Gender refers to the socially constructed roles, behaviour, activities and attributes that a particular society considers appropriate for men and women.

- **Parity:** Parity refers to equality, similarity or equivalence, here in terms of enrollment and opportunity for various courses in distance learning.

- **ODL:** Open and Distance Learning.

4.2 Objectives:

1. To find out any significant % of occurrences of gender disparity in the learning material developed for the said courses by the given study center.
2. To find out the ratio of gender disparity as regards to:
   a) % of enrollment.
   b) Passing out rate.

4.3 Method:

Researcher has used Survey method though not so rigorous.

4.4 Sample:

Two study centers in Pune of two different universities.
4.5 Procedure:

1. Review of related literature.
2. Collection of data.
3. Analysis of data.

4.6 Tools:

1. The researcher used the interview technique for data collection, as well as some informal discussions with the concerned authorities.
2. The researcher also studies the learning material provided to the students by the said university study centers.

4.7 Analysis of data:

1. Analysis with the help of graphs.
2. Qualitative analysis of the collected data.

4.8 Scope and Limitations:

- **Scope:**
  1. The present study is based on the responses procured from the concerned authorities and the study material that was made available.

- **Limitations:**
  1. The figures indicated in the study are up to the last academic year i.e. 2009-2010.
  2. The conclusions are limited only to the two selected study centers in Pune.

V. Analysis of Data

a) Instances of gender disparity in the study material developed for the said courses: Negligible.

b) % Of enrollment:

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Name of the Study Center</th>
<th>No. of enrollments per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>SNDT</td>
<td>800</td>
</tr>
<tr>
<td>2.</td>
<td>YCMOU</td>
<td>Differs as per the course</td>
</tr>
</tbody>
</table>

c) % of men vs. women:

i. **SNDT:**
   Being a women’s university only girl students are admitted, and there % differs as per the course selected.
d) % of passing out:

i. **SNDT**: As compared to the enrollment the passing out rate comes down to almost 50%, due to many reasons.

ii. **YCMOU**: Till 2008-09 almost 20 lakh students have passed out from the university from different courses. Per year around four to five thousand students pass out on an average, from all the courses offered.

VI. Other observations:

- Conscious efforts are being taken to include modern technology in the study material. For example, YCMOU offers Virtual Learning Centers and also have their own audio – video laboratory.
- Appropriate guidance, experienced faculties are appointed for each of the said courses in both of the study centers.
- The authors appointed for the development of the content for the said courses are selected as per the norms of UGC, NCTE and AICTE as well.
- The number of male authors is more than female authors, but not much significant. In many cases, the number is almost equal.
VII. Conclusions of the Study:

1. No significant instances of gender bias were observed in the study material provided by the university. Infact, due care has been taken to incorporate all the up-to-date information regarding the syllabus, with appropriate illustrations.
2. The % of admission is quite high, and rise is seen in the % of women opting for distance education.
3. The passing out rate is also quite appreciable, although instances of drop out are many. Ratio of drop out is more in women than in men and the reasons being lack of support from family, health problems, financial difficulties etc.

VIII. Discussion on the Conclusions:

1. Lot of awareness is seen in regards to education. Many men as well as women are opting for distance education as a better option for professional development as well as higher education.
2. Distance education is gaining positive response day by day, especially amongst the people of older age, who could not complete or take education due to any reasons.
3. Apart from the conventional and traditional courses and streams of education, the avenue of distance and open learning is offering a very wide variety of courses, which is attracting people of all ages.

IX. Recommendations:

1. The learning material can be made more interactive, which will increase the response of the students all the more.
2. Education has many aspects to it, and distance learning is definitely becoming an integral part of it. This awareness needs to be spread through regular teaching-learning as well.

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Sustainable Development

GENDER PARITY IN EDUCATION: Role of Open and Distance Learning.

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SUB THEME: SUSTAINABLE DEVELOPMENT

GENDER PARITY IN EDUCATION: Role of ODL.

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Hypothesis

ODL does ensure gender parity in education.

Research Methodology

Empirical research and secondary sources.

Analysis

The fairer sex has almost always had it unfair. Women are a valuable but less valued human resource. At the outset we must mention that we read and we think most of us do read into this topic as one of disparity against women. The life and times of women have been tough for centuries. This is especially so in countries like India, Pakistan, Bangladesh, African and gulf countries. This is an open secret. Yet, over the years there is a feeling of recognizing and empathizing with women’s issues.

The human development report for 1995 declares that “If human development is not engendered, it is endangered.” Goal Number Three of the Millennium Development Goals is to promote gender equality and women empowerment.

In recent times, it has been increasingly felt that “an educated woman means an educated home”. This translates to a better quality of life for the entire family. In smaller towns and villages, the opportunities to venture out of the home and learn are few, if not rare. In cities and metros we find women and girls rubbing shoulders with their male counterparts in education and jobs and more often doing extremely well (I avoid the term “doing better than their male colleagues”).

Here, we wish to point out that there is a basic difference between learning and education. Learning is day-to-day and informal. Life itself teaches us lessons. We may have learnt well without ever touching a book in our life. Education encompasses formal as well as informal teaching. We all learn from various situations and our diverse backgrounds. But we also learn from books, magazines, the internet and other formal sources like classrooms and teachers. It is this learning which women have lacked for ages. Hence we need modes of learning which are “gender sensitive” (read pro-women).

We are uncomfortable with the word “gender”. This term itself means some kind of separation or constraint or block between man and woman. However, to be gender sensitive, we need to meet the requirements of the female sex (or in rare cases the male sex). “Open and Distance learning” can be one way to do so.
The world needs a more balanced approach to this problem. While on the one hand Australia lacks male role models because of low number of male teachers, Kenya worries about too many male teachers and hence their girls lack female role models. This problem is more pronounced in developing countries and underdeveloped nations, but it is not totally missing in advanced counties.

Statistics reveal that nearly 2/3rd of the illiterate people in the world are women. The enrolment ratio for girls is 80% that of boys. Women mostly have attained only lower levels of formal education compared to their male counterparts. Why? There are many socio-economic reasons for this which are beyond the scope of this paper. The United Nations Millennium Development Goal is to “eliminate gender disparity” in all levels of education by 2015.

What is ODL? Online courses, e-mail tests and tutorials, television based classes and computer based lessons are distance learning. Open and Distance learning can simply be defined as an educational program that is both OPEN and offered at a DISTANCE.

ODL are learning techniques meant for those who cannot join a formal classroom for what-ever reasons. It may be non-availability of a particular course in their village or town or city or it could be space crunch or time shortage or finances. ODL can give us the choice of course, time, place, method and technique. But unfortunately access to this is also not always universal. In most cases it becomes a deeper blockage like social or cultural reasons. Many women do not have access to a computer or a cyber café in their towns. Many girls are not permitted out of their homes to access one. In a hilarious report it was said that girls in Africa cannot access the net because they “cannot run” which meant the boys in their class ran faster and hence they could run and occupy all the available computers.

According to us ODL can play the following role to eliminate/cover the existing gender disparity:

1. Information Technology or any other kind of technology does not distinguish between a man and a woman (it is gender neutral). ICT or Information and Communications Technology is indifferent whether it is a boy giving a presentation or an examination or a project. It also does not discriminate between the old and young.
2. ICT can enable a woman/girl to educate herself from the home turf. This would be a boon in a place like Kashmir where people fear venturing out, leave alone allowing their daughters to do so.
3. But if the woman is illiterate, how does she face the written or printed matter? Since the use of computers or other technology tools require computer literacy, non-print delivery methods like television, radio and video will help. This is especially helpful in places where women cannot “travel” to a cyber-café because of societal or cultural taboos or values.
4. To generalize ICT, teachers need to guard that the graphics or illustrations in their lessons include women and girls and not just men. This will remove the erroneous belief that women and technology do not go hand in hand. Cultural and Social attitudes are often unfavorable to women’s participation in the fields of Science and Technology, which limits their opportunities in the area of ICT.

5. The contents of educational programs for both male and female also matters. We also need distance education programs in critical fields like science and technology for women, besides the most frequently run modules on “softer subjects” like humanities.

6. There is a deep-rooted link between poverty and literacy. Open and Distance learning comes to the rescue of women here, as the male child has priority-claim to class-room education.

7. All socio-economic reasons for women remaining out of the class-room can be eliminated when ODL provides a unique opportunity to impart education to large numbers at one time.

8. For all this, we need to recognize that gender disparity can exist even in ODL. More Government policies and programs need to target open and distance learning. We need to extend the skills of gender experts to ODL. Our Education and Human Resource Ministry needs to update and upgrade itself.

9. Awareness has to be created on a societal level and speedy translation of policies into action is needed. The world needs to look upon women’s issues, especially education and literacy as an issue that requires urgent and prompt action.

10. International analysis has revealed that female students who enroll in distance learning perform as well as their male counterparts.

11. The main assumption of this paper is that the conventional method of education of classroom teaching and distances to be travelled for the same has imposed natural limitations on women’s desire to acquire education. ODL eliminates these restrictions. Distance barrier has now become redundant. In olden times societal roles were clearly divided between the man being the bread winner and the woman being the home-maker. In today’s times when women are required to leave the security of this role, ODL gives her the confidence that she can. Here, we must add that gender disparity can also be against men in which case the issues, reasons and solutions can become another topic of research. However the conclusions of this paper can be extended to cover any person who cannot avail formal education.

12. Open and distance learning will be more successful than conventional modes of teaching because it can reach more learners with better quality teaching at lower cost. Hence these modes are being increasingly used in the poor and underdeveloped African countries.

13. Whether on the side of men or women, parity stands for equality of opportunity, participation, learning and this further leads to job opportunities which is facilitated by ODL.
**Conclusion**

Therefore Open and Distance Learning is playing a crucial role in gender parity, equality and empowering women. Sustainable development is all about continuity, progress, opportunities and their application in the process of human resource development.

Lastly,

“We need to remember that education leads to emancipation, liberation, freedom of thought and action.”

Thank you.

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E-LEARNING – THE URBAN-RURAL DIVIDE

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This paper discusses the disparity in the prevalence of e-learning systems between the urban and rural sectors of India. The promise of E-learning has been noted by the Government as well as the private entities. However, there exists a difference in this context.

In the Indian scenario, most of the funds allocated to e-learning are from the private sector. Being profit-oriented, the enterprises that belong to this sector focus almost exclusively on the urban market. Urban areas offer better infrastructure to such companies. Moreover, the levels of awareness of the existence of e-learning systems are higher in cities than in smaller towns and rural areas. All these factors make it lucrative for the private sector to focus on the urban areas.

On the other hand, the rural areas suffer on account of neglect. The governmental agencies that are concerned with the establishment of e-learning institutions for rural areas fail to offer the requisite amount of funds and interest. Consequently, there exists an awareness deficit, particularly in the semi-urban and rural areas.

KEYWORDS

INTRODUCTION

Education is simply the soul of a society as it passes from one generation to another.-G. K. Chesterson

The usage of electronic means such as telecommunication and technologies to disseminate knowledge has resulted in many positive developments. It is now possible to study in a virtual classroom with students and teachers from various parts of the planet. The barriers that physical distance had posed in the past are now surmountable due to the emergence of E-learning. Moreover, E-learning has the potential to ensure that it is possible for students at
any geographical location to access the courses and educational resources provided by the 
best Universities in the world. It provides solutions that can’t be delivered through the 
traditional mode of classroom-based education.

With the emergence of the Internet and other telecommunication technologies, E-learning is 
poised to take over from the system of correspondence courses. The lacunae that 
correspondence courses present can easily be filled by the more engaging and interactive 
concept of e-learning. In fact, a sensible blend of both modes can ensure that everybody has 
access to the best resources of the top seats of learning the world over.

For the reasons mentioned above, the field of E-learning is of immense significance to India. 
There are several E-learning programs that are offered by Indian Universities and companies. 
However, its growth in the country is hindered by the imparity in its prevalence in urban 
areas and that in rural areas. While cities provide better infrastructure to institutions that 
create e-learning solutions, villages often do not have the requisite basics for the same. 
Moreover, the urban population is better aware of the existence of e-learning than is the rural 
population, encouraging the private sector to implement programs. On the other hand, the 
rural population lacks this awareness. Moreover, many rural areas of the country lack the 
financial resources required to set up and maintain e-learning systems.

Research Problem: This paper examines the differences that exist between the rural and urban 
areas as regards e-learning and suggests measures to overcome it. We also make use of the 
hypothetical Kanpur Line famously known as ‘Kanpur Line of Disparity’. The regions on the 
West of the Kanpur line exhibit higher rates of growth and human development than the ones 
on the Western side. Incorporated in this paper are the results of three surveys.

Objective: 1) Examining the Government’s Role in the implementation of plans. 

2) Understanding the role of Private Sector.

3) Rural-Urban Divide.

4) Kanpur Line and the Rural-Urban divide.

REVIEW OF LITERATURE

E-learning refers to the use of internet communication technologies (ICTs) and other 
electronic modes to deliver educational content. There are different types of E-learning 
programs – the synchronous mode in which the faculty and students simultaneously interact, 
the asynchronous mode in which the faculty and students do not interact at the same time and 
the independent, collaborative and facilitated modes that deal with the nature of the 
interactions of the student with his/her teachers and fellow students (The Herridge Group - E-
learning – A definition)

There are many e-learning initiatives in India. Some of the best known examples are the 
National Programme for Technologically Advanced Learning, the MBA programs offered by 
the IIMs and IIFT, IGNOU’s e-gyankosh and BITS Pilani’s virtual university.. However, 
there are many impediments that e-learning faces in India i.e. poor processes, lack of
individuals and organizations that have the expertise necessary to set up E-learning solutions, difficulties faced by prospective buyers while evaluating the technology offered by e-learning companies, disruption of governmental support and a general lack of faculties and institutions that can provide quality content to e-learning systems. A successful endeavour to provide e-learning solutions combines good processes, technology and content with sustainability. (Manjul Sahay - *E-Learning for Indian Higher Education: The “Complete Solution” Approach*).

In India, the government and its political policies must play a key role in the promotion of e-learning. Unfortunately, the government does not have a set of policies for e-learning. Instead, the political policies of the Government influence the setting up and maintenance of the E-learning programs in India. (Sanjaya Mishra - *The E-Learning Bandwagon: Politics, Policies and Pedagogy (2007)*).

According to the 2001 census, 72.2% of India’s population lives in rural areas. Therefore, it’s important that E-learning be given an impetus in villages and small towns. The Internet-2, an advanced form of the internet that supports a greater bandwidth than that of the present-day internet, will be able to provide cutting-edge multimedia services. The development of Natural Language technologies and automatic translation systems would help rural students interact with e-learning systems in their own languages. This would be a great advantage for those who are not familiar with the usage of English. Moreover, this process of parallel learning can be employed to raise the literacy rates in rural areas. (Nilay Yajnik, *E-Learning Technologies for Rural India*).

E-learning technologies can be implemented to help rural children achieve better cognitive, linguistic and motor skills. The use of multimedia can help present topics in a lively and interactive manner, thus ensuring that the child learns well. However, there are problems that must be solved before e-learning can be truly implemented in rural areas – illiteracy, unavailability of electricity, finances and technologies, low bandwidths and costs of training teachers. (Lect. Naik and Dr. N.V. Kalyankar, *E-Learning Technology For Rural Child Development*).

**EDUCATION AND THE FIVE YEAR PLANS**

In the tenth and eleventh five year plans, the Government has described the roles of distance learning and e-learning for the promotion of the social objectives of raising the levels of literacy and providing primary, secondary and tertiary education.

- **ELEVENTH FIVE YEAR PLAN**
  With respect to distance education, The eleventh five year plan primarily focuses on methods to extend the facilities of e-learning to wider sections of society.

- **REVIEW OF THE LAST FIVE-YEAR PERIOD**
  The eleventh Five Year plan reviews the progress of the last five-year period notes that as many as 16 programmes were introduced by IGNOU in 2006 –2007 and that the Sakshat e-learning portal was launched in 2006 to provide free-of-cost knowledge to over 50 crore people. It encompasses a ‘virtual class that comprises animations, simulations, notes etc.
**OBJECTIVES OF THE ELEVENTH FIVE YEAR PLAN**
The eleventh five year plans comprises a plan to support IGNOU and set up more State Open Universities. The consortium of Educational Communication (CEC) plans to launch a network to provide mass higher education through satellite and telecommunication technologies. This project involves three aspects:

1. Vyas (a 24-hour educational channel) for one-way communication
2. EDUSAT for two-way communication
3. Internet for ‘anytime – anywhere’ communication

In addition, the Five Year Plans includes one to set up media centers and upgrade existing ones. Moreover, it intends to creating videos and other e-learning resources and use the platform provided by the CEC and media centers into a virtual university

**TENTH FIVE YEAR PLAN**
With respect to distance education, the tenth five-year outlines the following projects:

1. IGNOU shall open universities in the states that require open-learning facilities and widen its presence to include backward and north-eastern regions.
2. It seeks to increase the activities of Gyandarshan and Gyanvani

There will be efforts to ensure (through continuous and distance education) that the newly-literate do not become illiterate again

**DISTANCE EDUCATION AND E-LEARNING**

Distance learning and e-learning are related concepts. Both involve the transmission of knowledge over distances. However, traditional distance learning does not involve the use of Internet Communication Technologies (ICTs) or electronic devices while E-learning does. Asynchronous E-learning is comparatively more self-paced than synchronous e-learning (which involves the simultaneous interaction of the faculty with the students). Both forms involve students at various geographical locations who may or may not interact and/or collaborate with one another.

Traditional distance education can be blended with e-learning. For example, IGNOU blends its traditional distance learning programs with e-learning methodologies. It has a schedule of course-related shows that are telecast on Gyandarshan, an educational television channel. The student can watch the show related to the course he or she is pursuing and interact with the faculty featured.

E-learning and distance learning benefits both parties i.e. the learner and the provider. The student is able to access quality knowledge resources no matter how far he/she is from the provider’s location. Also the fee structure of a distance/e-learning course is considerably lower than that of a regular course delivered through classroom-based systems. The student is able to learn and understand things at a faster rate through innovative multimedia-based techniques such as animations and interactive methods (i.e. the system responds to the user’s actions). Distance education and e-learning (particularly the asynchronous modes) are self-paced – the student can study the course material at his/her
own convenience and take the prescribed examinations.

In semi-urban and rural areas, the modes of e-learning can be used to impart vocational training for the creation of livelihoods. Through distance and e-learning, the provider can expand its geographical reach and student base without having to invest large amounts of money in infrastructure. It can either set up study centres or use extant facilities to provide its courses. From the social (particularly rural) perspective, e-learning is highly beneficial. It provides villages with an incentive to install technological infrastructure and internet facilities which could be used for other purposes in the future. The government could use the facilities to interact with the rural population in order to provide e-governance.

However, these departures from traditional education are not without their limitations. There is a widespread notion that the pedagogies of the courses offered through distance learning, e-learning and hybrid modes are somehow inferior to the traditional institute-based courses. This misgiving is intensified by the fact that there are unaccredited institutions that offer fake degrees.

In semi-urban and rural areas, the infrastructure and internet facilities required to implement distance or e-learning are either nonexistent or limited. This poses a serious problem for an institution that seeks to implement such modes of delivering education. The cost of training personnel for the maintenance of e-learning facilities can be beyond the means of certain bodies of civic administration. This may deter them from considering the prospect of installing E-learning technologies. On the whole, open learning is a promising method for the delivery of affordable education to all regions and strata of society. The problems in its implementation can be resolved by governmental support through the Distance Education Council, IGNOU and the policies of the Ministry of Human Resource Development.

### DISTANCE EDUCATION PROGRAMMES AND UNIVERSITIES

We have collected and summarized data from 12 Universities that provide programmes through modes of Distance Education. The Universities are as listed below:

1. Nalanda Open University: The Nalanda Open University is the only University in the State of Bihar meant for imparting learning exclusively through the system of distance education. The university was established in March, 1987. It provides a total of 63 distance education courses including 15 PhD courses. It provides education mainly through study materials.

<table>
<thead>
<tr>
<th>Name Of The University</th>
<th>Number Of Courses</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nalanda Open University</td>
<td>63</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ph.D</td>
<td></td>
</tr>
<tr>
<td>--------------------------</td>
<td>------</td>
<td>----------</td>
</tr>
<tr>
<td></td>
<td>Degree</td>
<td>Diploma/Certificate</td>
</tr>
<tr>
<td>Nalanda Open University</td>
<td>15</td>
<td>23</td>
</tr>
<tr>
<td>Sikkim Manipal University</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Indira Gandhi National Open University</td>
<td>3</td>
<td>27</td>
</tr>
<tr>
<td>Kuvempu University</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>Symbiosis Centre for Distance Learning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yashwantrao Chavan Maharashtra Open University</td>
<td>28</td>
<td>4</td>
</tr>
<tr>
<td>Gitam University</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Netaji Subhash Open University</td>
<td>15</td>
<td>13</td>
</tr>
<tr>
<td>Tamil Nadu Open University</td>
<td>17</td>
<td>3</td>
</tr>
<tr>
<td>Babasaheb Ambedkar Open University</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>National Law School of India University</td>
<td>11</td>
<td>25</td>
</tr>
<tr>
<td>Vardhaman Mahaveer Open University</td>
<td>7</td>
<td>23</td>
</tr>
</tbody>
</table>

**TABLE 1: UNIVERSITIES – Names and courses (SOURCES: Websites of respective universities)**
2. Sikkim Manipal University: The Sikkim Manipal University of Health, Medical and Technological Sciences were established in 1995. It is the first government-private initiative in the region. It provides a total of 35 courses. It imparts education through study materials, study centers and an online study portal known as Edunxt.

3. Indira Gandhi National Open University (IGNOU): It is the largest Open University in the world. Established vide an Act of Parliament on September 20, 1985. Its main objective is to promote distance education and act as a regulatory body for the creation and maintenance of national distance education standards. It provides the largest number of distance education courses in the country (a total of 114 courses). It provides education through study centers, study materials, contact classes, telecommunication technologies such as television and radio channels. In addition it operates an online learning portal known as e-flexi learn.

4. Symbiosis Centre for Distance Learning: It is a constituent body of Symbiosis International (Deemed) University (Pune). It has offices in Bangalore, Noida, Pune and Nashik. It provides a total of 12 PG diploma and 2 certificate courses. It provides education through study materials and an ‘e’ communication center which handles student queries.

5. Yashwantrao Chavan Maharashtra Open University: The Yashwantrao Chavan Maharashtra Open University was established in July 1989 by act XX-(1989) of the Maharashtra State Legislature. It is the 5th Open University in the country. It provides support to its learners through study centers which are spread all over the state of Maharashtra. It provides a total of 75 courses in various fields.

6. Netaji Subhash Open University: It started functioning with effect from July 1998, only with the Bachelor's Degree Programme in Arts & Commerce to provide an opportunity of higher education in the vernacular medium to various disadvantaged groups of aspiring learners. It is the tenth Open University of the country and the ninth State Open University. It functions with 191 study centers. At present it offers a total of 55 courses including 15 PhD courses.

7. Tamil Nadu Open University: It was established in 2002 by an act of the Government of Tamil Nadu to provide education to the weaker section of society. It provides education through study materials.

<table>
<thead>
<tr>
<th>University</th>
<th>Mode of Delivery of Programme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nalanda Open University</td>
<td>Study Materials</td>
</tr>
<tr>
<td>Sikkim Manipal University</td>
<td>Study Materials, Study Centres And Edunxt An Online Portal</td>
</tr>
<tr>
<td>Indira Gandhi National Open University</td>
<td>study centers, study materials, contact classes, telecommunication technologies, online portal (e-flexilearn)</td>
</tr>
<tr>
<td>Kuvempu University</td>
<td>Study Centres</td>
</tr>
<tr>
<td>Symbiosis Centre for Distance Learning</td>
<td>Study Materials And An ‘e’ Communication Centre</td>
</tr>
<tr>
<td>Yashwantrao Chavan Maharashtra Open</td>
<td>Study Centres</td>
</tr>
</tbody>
</table>
FINDINGS

THE URBAN SCENE

We administered a questionnaire to 150 respondents. Their responses have been summarized and interpreted here.

FAMILY SIZES

<table>
<thead>
<tr>
<th>Family size</th>
<th>Number of respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>3-6</td>
<td>123</td>
<td>82</td>
</tr>
<tr>
<td>6-9</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>More than 9</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

Awareness Levels

Unlike the terribly low awareness levels of the rural respondents (refer to the Rural Scene for the details), that of the urban respondents is pretty high. Of the 150 persons who completed the questionnaire, 120 knew about the existence of e-learning/distance education – a very healthy 80%. (Note that 50 of these respondents intend to take e-learning/distance education courses in the future). Thus, it can be inferred that a good proportion of the sample knows that there are modes of education other than the traditional classroom-based mode.

The respondents also knew of certain distance education providers – the best known universities in the sample were the Indira Gandhi National Open University (IGNOU), Symbiosis Centre for Distance Learning (SCDL), Symbiosis Institute of Business Management, Sikkim Manipal University, Annamalai University, English Language Teaching institute of Symbiosis (ELTIS) etc.

Involvement Levels
When asked if they or their families were taking courses through distance education/e-learning, the response was overwhelmingly negative. Only 10 respondents answered in the affirmative. Their responses have been tabulated here:

**RESPONSES**

<table>
<thead>
<tr>
<th>SELF ONLY</th>
<th>FAMILY MEMBERS ONLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 (40%)</td>
<td>6 (60%)</td>
</tr>
</tbody>
</table>

**THE NUMBER OF PEOPLE WHO ARE STUDYING OR HAVE STUDIED THROUGH DISTANCE EDUCATION/E-LEARNING:**

**FAMILY ONLY**

<table>
<thead>
<tr>
<th>No. of family members</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>More than 3</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

**INDIVIDUAL ONLY – 4 results**

Total Participants: 9 + 4 = 13 participants

**PROFESSIONAL AND PERSONAL INTERESTS**

The following personal and professional interests were recorded.

<table>
<thead>
<tr>
<th>Personal areas</th>
<th>Professional Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Movies, Reading, Travelling, Languages, Sports, Cooking, Drawing, Riding,</td>
<td>Accounts and finance, Marketing Consultancy, Real estate and Banking, Advertising,</td>
</tr>
<tr>
<td>Trekking, Singing, Swimming, Quizzing, Football, Blogging, Poetry, Photography,</td>
<td>HR, Painting, Event Manager, Corporate management, Marketing and logistics, Law,</td>
</tr>
<tr>
<td>Politics, Dancing, Film-Making, Cooking, Computer games,</td>
<td>International Business, Finance, Agriculture, Politics, Media, Hospitality,</td>
</tr>
<tr>
<td></td>
<td>Aviation, Reading, Human Resources and Aviation, Consulting, Mentoring, Writing,</td>
</tr>
<tr>
<td></td>
<td>Entrepreneurship,</td>
</tr>
</tbody>
</table>

**THE SEMI-URBAN SCENE**

The semi-urban survey received 45 responses. The following results were noted:
FAMILY SIZES

<table>
<thead>
<tr>
<th>Family size</th>
<th>Number of respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>4</td>
<td>9.09</td>
</tr>
<tr>
<td>3-6</td>
<td>25</td>
<td>54.55</td>
</tr>
<tr>
<td>6-9</td>
<td>8</td>
<td>18.18</td>
</tr>
<tr>
<td>More than 9</td>
<td>8</td>
<td>18.18</td>
</tr>
</tbody>
</table>

The literacy levels of their families are as listed under

<table>
<thead>
<tr>
<th>Percentage of literacy in the family</th>
<th>Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 25</td>
<td>8</td>
<td>17.8</td>
</tr>
<tr>
<td>25-50</td>
<td>4</td>
<td>8.9</td>
</tr>
<tr>
<td>50-75</td>
<td>29</td>
<td>64.4</td>
</tr>
<tr>
<td>75-100</td>
<td>4</td>
<td>8.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>45</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Each respondent lives in an electrified area.

21 of the respondents said that they wouldn’t mind paying up to Rs.1000 per month to take an educational course. On the other hand, 16 of the respondents said that they wouldn’t pay more than Rs. 500 per month. 4 said that they would pay up to Rs. 2000 for a course. The remaining four said that they would be able to pay more than Rs. 2000. The awareness levels of e-learning and distance learning are abysmal in semi-urban areas. Only 25 of the 45 respondents were aware of the concepts of distance learning and/or e-learning.

Upon our explaining the concepts to those who didn’t know about it, they appeared enthused to take a course through e-learning/distance education. All 45 said that they would like to pursue educations through e-learning or distance education.

None of the respondents has family members who are pursuing an education through distance or e-learning.

When asked what courses they would like to pursue through distance education or e-learning, 21 said that they would take courses in English. Almost all the respondents said that they hadn’t heard of IGNOU or YCMOU, two of the most prominent institutes of distance education and e-learning in India. Most of them wanted to pursue courses in the Hindi medium.

THE RURAL SCENE

As part of the research, 50 people from rural areas were administered questionnaires (daily wage workers working at a construction site). Their responses have been summarized here. Of the 50 people, 46 people belonged to the eastern side of the Kanpur line and the rest were from the western side.
Note that the regions on the West of the Kanpur line exhibit higher rates of growth and human development than the ones on the Western side.

Out of these 50 people, 48 were married and 46 of them had children who belonged to the age range of 4 yrs to 28 yrs. The most important factor of education was seen imparted to each and every child.

The awareness deficit still seems to be present because of the fact that only 2 people knew about the existence of e-learning/distance education courses. They came to know of these courses from their sons who have just completed B.Com and are currently taking a course in computers.
THE KANPUR LINE OF DISPARITY
THE KANPUR LINE OF DISPARITY

The Kanpur Line of Disparity passes through the city of Kanpur in Uttar Pradesh and divides India into two sections on the basis of human resource and infrastructural development. The regions on the western side (Punjab, Haryana, Gujarat, Himachal Pradesh, Uttarakhand, Delhi, Goa, Karnataka, Kerala, North-western Uttar Pradesh, have better rates of the factors mentioned above while those on the eastern side (Notably the North-eastern states, Telangana and the Naxal-affected areas) do not fare as well. On the eastern side, there are regions that are rich in minerals and other natural resources. However, most of the areas on that side have large tribal populations that have suffered sustained neglect and oppression. The resultant resentment gave rise to the Naxal insurgency, retarding the already slow development levels of the region.

CONCLUSION

URBAN AREAS

Unlike the rural areas, the awareness levels of the urban areas are good. However, the participation levels are poor. A possible reason for this is that traditional education is considered superior to distance and e-learning. The former has regular classes and activities while the latter is largely self-paced with contact classes and examinations. Thus, the fact that traditional education is more rigorous than distance education is an important factor that influences the participation levels of the urban population in e-learning programs.

There may also be a notion that online courses are usually unaccredited. These fears are not unfounded; there are ‘diploma/degree mills’ that masquerade as universities to ‘sell’ unaccredited degrees. The existence of such scams undermines the value of e-learning.

Most members of the urban population have experienced traditional education. However, their knowledge of e-learning may be nonexistent or vague. Therefore, they would be reluctant to pay for e-learning courses due to their doubts about their contents and quality. Therefore, a different sort of awareness needs to be created in urban areas. E-learning must be promoted as a mode of education whose quality and recognition are at par with that of traditional education. The Indira Gandhi National Open University must formulate a special set of standards for e-learning and ensure that the universities that intend to provide programs through this mode adhere to the standards.

SEMI-URBAN AREAS

It can be inferred from the data mentioned above that E-learning holds promise in semi-urban India. Being in proximity to the urban areas, the semi-urban areas have access to the infrastructural resources that the urban areas enjoy. Moreover, these areas are electrified – the most important prerequisite for the setting up of e-learning systems. In this regard, such areas are better off than the rural areas where the lack of electricity hinders the implementation of e-learning solutions.
It has also been observed that illiteracy is a problem in semi-urban areas. Not everybody in the average family is literate. The advent of e-learning solutions in such areas could enable the illiterate proportion of the population to study at their own pace. This could prove particularly useful to labourers and industrial workers who have no time to attend a regular course at a University. Affordability is a major factor to be considered here. Those who live in semi-urban areas generally have lower incomes than those who live in urban areas. This necessitates the usage of low-cost hardware and software. The Sakshat Tablet and the Simputer are two options in this regard.

One of the foremost advantages of e-learning is its dynamism. The contents of an e-learning course can be modified quickly and with relative ease. The use of open-source software will facilitate this for such software may be modified with minimal or no restrictions. The initiatives in this direction are heartening. NASSCOM has taken steps to provide training in IT through the Nasscom Knowledge Network (NKN). The NKN even offers courses in animation. The semi-urban population often does not have the resources to prepare for competitive examinations like the IIT-JEE or the Common Proficiency Test of the Institute of Chartered Accountants of India. Although there are private entities that offer coaching and mentoring online, they charge fees that are beyond the financial capabilities of the semi-urban population. The Government must provide online coaching facilities at subsidized rates for students who live in semi-urban areas. However, the greatest challenge in the semi-urban sector is the lack of awareness of the existence of e-learning. The state-sponsored Universities must popularize their e-learning initiatives through information sessions in semi-urban areas.

Thus, it can be concluded that semi-urban India needs inexpensive and effective e-learning solutions.

RURAL AREAS

E-learning must be promoted in a major way amongst the rural population. Considering the fact that the rural per capita income in India is about USD $240 to $360 per annum, it is imperative that the solutions be affordable to the population of the rural areas. Rural schools (or the gram panchayats of the areas in which they function) may enter into collaborations with urban schools to receive lectures from the latter through videoconferencing. Through such agreements, students in rural areas would be able to study subjects that aren’t available in their rural schools (e.g.: English, Environmental Studies etc.).

Additionally, the technology installed for this purpose in rural schools may be used by universities to deliver courses and lectures through videoconferencing. Thus, the extant infrastructure is put to multiple uses – the school building doubles as an e-learning study centre for universities.

E-learning can bring top-notch educational pedagogies to rural areas. The lectures and classes of the best universities can be attended either real-time or asynchronously through e-learning. Thus, it can ensure that the rural candidate is at par with his or her urban counterpart while applying for a job (particularly in the private sector which places immense emphasis on the candidate’s knowledge of English and soft skills.)
Adult education is possible through e-learning. As India’s economy is agrarian in nature, the channels of e-learning can be used to provide information on farming practices, tools, implements etc. The pedagogy for this sort of education can be created by institutes such as the Indian Council for Agricultural Research, Delhi. Moreover, it could be used to deliver knowledge on various practices that could augment the incomes of farmers, a few examples being sericulture, pisciculture, dairy practices, poultry farming and apiculture.

E-learning can be used to impart vocational skills. Training in trades such as masonry, carpentry, plumbing, welding and fitting can be provided through a combination of e-learning and traditional techniques. Besides, e-learning can help tradesmen refresh their skills and stay up to date with the latest developments in their respective trades. However, there are infrastructural problems that must be overcome in order to launch e-learning systems in rural areas. Computer illiteracy is a major problem in villages. Gram Panchayats may be unwilling or reluctant to install e-learning systems due to their financial constraints. It’s also important to deliver e-learning solutions in local languages as the rural population is largely unfamiliar with the use of English. It may be difficult to set up and maintain an e-learning system in naxal-hit areas such as Chattisgarh and the district of Gadchiroli in Maharashtra. The Naxalite movement is known for its propensity to cause infrastructural damage.

However, there can be a solution to the problem that Jammu and Kashmir faces in this regard. The Army Goodwill Public Schools, which are operated by the Indian Army in the state, can be used as hubs of e-learning. The Army can provide bus services on a regular basis to those who wish to take courses through e-learning modes. The education providers may offer diploma, undergraduate, postgraduate, certificate and vocational programmes.

The government’s role in the provision of e-learning opportunities is of paramount importance. It must play the lead role through IGNOU, its flagship provider of distance education. It could offer incentives to universities (particularly private bodies) that agree to offer courses through Internet Communication Technologies (ICTs) and other modes. By developing indigenous hardware and software, it can reduce the cost incurred on e-learning by a large margin.

**FURTHER SCOPE**

The surveys detailed above could be conducted in multiple states. It may be conducted on both sides of the Kanpur line. The results of such a study would be more conclusive than the surveys presented here. Additionally, enrolment figures could be obtained from the offices of Open Universities in order to obtain a truer picture of the geographical distribution of the students who are taking courses through distance education and/or e-learning modes.
REFERENCES

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2. Government of India (2007), eleventh five year Plan


Role of Women in ensuring Sustainable Development through Education

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When women thrive, all of society benefits, and succeeding generations are given a better start in life.
-- Kofi Annan

Women have an important role to play in the Sustainable Development. Today when we talk about the sustainable development the role of Education is unquestionable. Education becomes important as it develops the attitudes, skills and knowledge which help in taking fruitful decisions and moreover implementing them. 2005 – 2014 has been declared as “United Nations Decade of Education for Sustainable Development” and it has been very well realized that this is possible only through Education & Learning. The major issues that face the Sustainability are: a) Increase in Population & b) Resource Utilization.

These issues are proving to be threat to the sustainable future and this can be handled only through Education and especially educating the women. As educating a woman will bring awareness in her about issues faced by the world today and this will lead to decrease in the Fertility rate and will take care of reducing the growth rate of Population. With the fall in the rate of Population it will take care of the Resource Consumption which will automatically come down.

Educating Women will not only take care of these issues but will have another important Role to play which is of inculcating proper values and habits in the future generation as mother is the first teacher of the child if such qualities and values are imbibed on the mind of the children from the very beginning it will be of great help in the future to come .After all, Educated Women beget Educated Children also.

"Educate a man and you educate an individual. Educate a woman and you educate a family."
-- A.Cripps
Sustainable development is a difficult concept to be specifically defined as there is continuous development in it. Brundtland commission has describe it as, “Sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (World commission on Environment and Development, 1987, p 43).

Basically there are three accepted components of sustainable development which need to be taken care of, they are: Environment, Society and Economy. Though they are considered to be separate components yet they are in a way or the other they are posited in Juxtaposition. They are so intermingled that talking about one of them is not possible without the mention of the other. As talking about Environment leads it to talk about its effect on society and the economy. When the discussion is about society and sustainability one finds that environment and economy are also being discussed and so on. All three components can be taken care of to a great extent through Education. Education will help people to understand the importance of sustainable development for the progress of society, environmental sustainability and appropriate growth of economy to withstand the changing paradigm.

In 1987 when Sustainable Development was first formally approved at the UN General Assembly, at the same time it was realized that it is possible only through the spread of education. Education has an important role to play in achieving sustainability. Today what we see around makes it further clear that there is lack of awareness among the people about the importance of the maintenance of the ecological balance and the resources. This is the result of nothing else but the lack of education. It was clearly realized that education is the key to sustainability. The relationship shared by education and sustainability is a bit complex as it is not merely in increasing the basic literacy rate that sustainability can be achieved. It can be achieved only if the focused efforts are made for it with set goals. The complete focus should be on encouraging skills, basic values and insight. There needs to be active involvement of the public in understanding and analyzing the situation and this is possible only with a critical thinking ability to organize and correctly interpret the information. To achieve this level among the people there arises the need to reorient the basic education.

Internationally it has been realized that to achieve the sustainability there is no other way but to reorient the basic and secondary education. The reorientation of the education should be done in such a way that it includes the basic knowledge of natural sciences, social sciences and
humanities which will be of help in understanding the basic principles of sustainable development, the ways to implement it etc.

The Rio Declaration of Environment and Development in its eighteen principles of sustainability clearly mentions about the role of the women in achieving sustainability. One of the principles stated says that, “The full participation of women is essential to achieve sustainable Development………….” Inclusion of this principle itself states very clearly the role a women needs to play in achieving the goal of ‘sustainability’.

American author Rachel Carson in her book “Silent Spring” alerted the world to the dangers of pesticides which are poisoning the soil. Since years women have been expressing their opinions and struggling to improve the standards of living and protection of the environment. Though the efforts of the women for the sustainability have been noticed but this is a very small group of women who have come forward with their views as a majority of women who form nearly half the portion of the world population are illiterate and poor. In most of the countries of the world the major responsibilities like child care, nutrition and managing the household things have been taken care by the women and many a times even the bread winning tasks for the family like that of farming, animal rearing etc are under taken by the women. Yet, they are not involved in decision making process and in many societies even today educating a women is not considered to be important.

Educating women is actually the primary need of the society today as the role a women can play in sustainability is beyond question. A. Cripps has rightly said, “Educate a man and you educate an individual. Educate a woman and you educate a family.” This statement is very true as it is a woman who takes up the responsibility of bringing up the child and if she is educated she will be aware of the burning issues faced by the world today and this awareness will definitely guide and help her to make efforts to solve them and making everybody in the family aware of the issues.

The major issues that that are faced by the sustainability today are: a) Rapidly increasing population and b) Resource utilization. Education makes women aware of the problems and it even gives her the capacity to think and make efforts from her side to find some solution to it. Education can help her in understanding the problem of increasing population, poor health of her own and the children in the family will make her think and understand the role that she can play
in finding a solution for it. This awareness can result in her taking proper measures and having a say in limiting the number of children in the family. Awareness in the women does not only limit itself to the Planned Parenthood but it even concerns about the child health and survival. Literacy will help women to bring up their children properly and carry out the responsibility of motherhood.

Once the issue of population control is understood and taken care of it will automatically decrease the burden of usage of the resources. The resource consumption will automatically come down. Educated Women can play an active role in educating the people about the environmental balance and ethics and recycling of the resources and controlling the excess consumption and taking care about minimizing the waste. As it is rightly said, “Hands that rock the cradle, rule the world” women if educated and given a chance can make landmarks. As in U.K. in 1989 the women’s Environmental Network (WEN) launched “Wrapping is a Rip off!” campaign on food packaging and persuaded the super markets to reduce, reuse and recycle packaging. There are many more incidents which have proved that women if educated can play a leading role in sustainability. So, there is a definite need for the women to be empowered through education and to be included in policy making and decision making roles.

It is not that women are the sole victims of environmental imbalance but they are about half of the population who play a major role in bringing up the children who are the future of the country. So, her equal participation in decision making at all levels of sustainable development planning is inevitable.

To conclude it needs to be realized that the Empowerment of women is the need of today and including her in all the capacities for the betterment of the society and sustainability is one of the ways to ensure the success.
Women and Development:

There are shifts in the perspectives on development. The development is no more measured only in terms of economic gains. It is said that the development should have the ‘human face’. It simply means that the development should reach to different underprivileged groups and their needs in terms of development should be considered. The more emphasis is given to the development of the underprivileged or marginalized groups. The schedules castes, scheduled tribes and women constitute the major marginalized groups in India. The women constitute nearly 50% of population and without their development it is not possible to achieve overall development. Further the UNDP also has defined development as ‘enlarging people’s choices’. It means the people should have multiple choices to improve their life conditions. Further there should be favourable atmosphere to make efforts for own development.

It is said that one way of development is the empowerment of the underprivileged groups. One of the Millennium Development Goals is to promote gender equality and empower women [HDR, 2003] .

Empowerment can be defined in variety of ways. One way of defining empowerment is access to resources and knowledge. Education and training can be said as on the tools for empowerment.

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There is enough research evidence to show positive correlation between women’s education and different indicators of development. It is found that maternal mortality, child mortality etc decreases as women’s education level increases. It is also observed that children’s immunization rate goes up with the literacy levels of mothers.

**Women and education**

It is said that the Education is the gateway for development of people. Though it is very effective tool for empowerment all do not have equal access to education. The women, the scheduled caste and scheduled tribes have less access to education.

Women’s limited access to education can be analyzed from different angles. Indian society is patriarchal in nature. Different gender roles are defined by society for men and women. Traditionally it is considered that the women’s life is limited to the family and their spheres are limited to reproduction of children and rearing of children. It is considered that for these roles no specific education is required.

The women constitute as a major workforce in the country. But their contribution in income generation is often neglected. It mainly happens as the women are involved mostly in unskilled jobs and they are concentrated in unorganized sector. The professional or technical education would help women to get more skilled jobs.

Further, the women are not perceived as the support of old age thus when it comes to their education the preference is given to the boys’ education. Due to their gender roles the women are not in decision making and they also do not have access to the family resources. The patriarchal families do not find spending on women’s education as an investment. Hence women’s access to education becomes limited.

As a result of the gendered bias attitude towards women’s education it is observed that women are taken out of the education and thus there is high dropout rate for women at different levels of education.

<table>
<thead>
<tr>
<th>Table 1</th>
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<tr>
<td><strong>Drop out rates at primary, elementary and secondary stages 2005-2006</strong></td>
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<table>
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<th>All categories</th>
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<tbody>
<tr>
<td>Primary – I-V</td>
<td>Male</td>
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<tr>
<td>28.7</td>
<td>21.8</td>
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<tr>
<td>Elementary I-VII</td>
<td>Male</td>
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<tr>
<td>48.7</td>
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<tr>
<td>Secondary I-X</td>
<td>Male</td>
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<tr>
<td>60.1</td>
<td>63.6</td>
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</table>
It is clear from the above data that there is high drop out of women at different levels of education. Besides above discussed reasons related to attitude towards women there are other reasons as well. At primary level in many villages the schools may not be available and there is need to go for further education at some other place. The girls are not allowed to go at some other place than their own village and there is dropout. At elementary level onset of puberty in case of girls is the major reason for dropout and they are not allowed to go to schools. At secondary level the girls drop out as it is considered as the age of marriage. Though official age of marriage for girls is 18 years, nearly 45% marriages in India are child marriages. Thus initiation of family life forces girls to drop out and higher education is not possible for them.

Thus the women are deprived of education at various stages due to varied reasons. There is need of a system which will allow the women to continue their education at various stages of their life. Further the system should provide the flexibility is required in case of women who will allow them to fulfill their other roles and still take some education.

**What is distance education?**

The distance education has very wider perspective and scope. The term open and distance learning represents approaches that focus on opening access to education and training provision, freeing learner from constraints of the time, place and offering flexible learning opportunities to individuals and the groups of the learners [Talesra, 2004]. Thus distance learning is any type of education that occurs while location, time or both separate the participants. In distance learning, the teacher, through use of technology delivers instruction to a student at a separate location [Siddiqui, H.M., 2004]. Thus the proximity of the teaching place and teacher and the student is not required. There are also no strict limits in terms of time especially on the part of learner.

Distance education serves the persons living in the isolated areas with inadequate facilities of formal education system [Rai N.A. 2000] distance education has taken systematic teaching –learning process to persons living in isolated areas where facilities for the traditional form of class room teaching can not be developed.

Distance education also serves the dropouts, older students and disadvantaged groups. The open universities have also increased access for other disadvantaged groups including older students who may be geographically isolated or excluded from regular classes because of shift patterns, seasonal or other kind of work and family and community commitments [S. Manjulika, Reddy V.V. 2000].
The distance education is unique in terms of pedagogy. Distance education system of education utilizes printed material and non-print media support. Distance education is the form of indirect instruction. It is imparted by technical media such as correspondence, printed material, teaching and leaning aids, audiovisual aids, radio, television and computers [Rao K.V. 2003]

**Women and distance education:**

The above discussion about the distance education shows that it is suitable for women in variety of ways. Firstly, it allows flexibility in terms of time. It is helpful for the women to join the programmes which give time flexibility as they will get freedom to have this kind of education when there is no blockage in fulfilling their other roles and hence there will be less resistance for admission to such courses.

The age is not the constraint under distance education schemes. It helps women to join the education after considerable gap as well.

The women who have dropped out of school at various stages can avail the distance education programmes as the admission criteria are different and there is provision of giving entrance examination and acquiring minimum requirement.

Proximity to the teaching place is not required under distance education programme. Regular attendance may be difficult in case of women but distance mode of learning will not expect the attendance, in fact in many courses attendance is not required and whole system motivates and supports for self study.

Due to extensive use of technology in distance education it helps to reach the remote areas also. One may say that the women may not have access to technology, but there is use of print material as well which will help women from any corner of the country to join the distance education programme.

Under distance education there is lot of scope to choose the courses. It not only focuses on knowledge building but allows skill development as well. The women can have skill building through the nearby centers created for the purpose. It is observed that under distance education programmes known universities create tie-up with local organizations to impart skill development.
Women and distance education- present scenario:

The above discussion makes it clear that distance education provides lot of flexibility. It helps to overcome most of the hurdles which women normally face in continuation of their learning. It does not impose the constraints in terms of time, space and age.

But the question is how many women have accessed distance mode of learning for enhancing their educational status. UGC Annual Report 1990-91 shows that the enrolment of women in distance learning was just 37.06 %. In 1998 the enrolment of women in Indira Gandhi National Open University [IGNOU] was 28.4 %. Though IGNOU is one of the well known universities for distance education the enrollment of women in IGNOU is considerably lower than the national average.

It means that still women are not accessing the distance learning facilities.

Further, it is necessary to analyze what kind of courses is adopted by the women. An analysis shows that women continue to enroll in courses which fall in the domain of women’s work and extending home skills. The women enrollment in science, technology and vocational courses such as B.Sc. B.A. M.C.A. and M.B. A. offered by distance learning is below 30%. It means that the women are not coming out of their stereotyped gender roles and the preference is still given to the skill development for traditional roles.

The distance education has lot of scope to offer variety of courses which will impart technical knowledge and help women to acquire new skills. These skills will also help the women to get jobs in organized sector and more well paid jobs.

Conclusion:

The Indian women for variety of reasons are denied access to education. There is high dropout of women at various levels of education. Education is one of the important tools for women’s empowerment. The distance learning facilities allow the women to overcome the barriers in continuing their education as it provides lot of flexibility in terms of time and place.

But the data show that comparatively less number of women is opting for distance learning facilities. One reason may be that there is need of awareness about the distance learning facilities and especially the flexibilities it offer. Secondly the women have limited access to economic resources, thus there is need to make distance
learning facilities cheaper. There is also need to spread awareness that the learning under distance mode can be done through local languages.

The rigorous efforts at various levels to motivate women to opt for distance learning are required. No doubt that such effort will be reflected through large number of women getting empowered by acquiring knowledge and skills.

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Theme: SUSTAINABLE DEVELOPMENT
Sub Theme - ACCESS & EQUITY: REACHING THE UNREACHED

Title: Role of Technology as an Initiative for Providing Access to Education to the Unreached

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Abstract
‘What food is to a body, Education is to a soul.’

Need
Every human being needs food for the nourishment of his body and so does he need education to nourish his mind. According to Article 26 of the Universal Declaration of Human Rights – ‘Everyone has the right to education’. To ensure that no one is deprived of education, it is necessary that education must be made free and compulsory to all. India has already taken this step. Attempts have also been made to ensure that there should be no discrimination what so ever on the basis of gender, ethnicity, language, religion, opinion, disability, or social and economic status.

Background
According to the National Sample Survey Office (NSSO) in June 2008, the literacy rate among the population with age 7 and above was 72% whereas the adult population (age15 and above) had a literacy rate of 66%. In India we find that a number of reforms have been and are taking place and although there has been greater than five fold improvement, the level is still well below the world average literacy rate of 84%,and India currently has the largest illiterate population of any nation on earth.

Initiatives
There have been large scale efforts to reach those still beyond the periphery of literacy. In today’s age of technology, innovative means of delivering education to the doorstep of school going children in remote villages are being undertaken.

The study focuses on the role played by technology in achieving access and equity for the unreached rural and distant population of the country.
Introduction

In 1987, the United Nations released the Brundtland Report, which defines sustainable development as 'development which meets the needs of the present without compromising the ability of future generations to meet their own needs.' (Our Common Future, Chapter 2: Towards Sustainable Development)


There have been numerous definitions offered by various Organizations around the world. In common parlance, we may simply state that Development which does not compromise the welfare of future generations and is long lasting is ‘Sustainable Development’.

In the context of this theme there are three aspects under consideration - Sustainable Development, Providing Education to those who are geographically, socially, economically or culturally beyond the reach of the traditional education system and Ensuring even this development of providing access to the masses is sustainable in nature.

Development may be Economic, Social, Cultural, Scientific or Technology based – The column on which all development is based is Education. Every human being needs food for the nourishment of his body and so does he need education to nourish his mind. To ensure that no one is deprived of education, it is necessary that education must be made free and compulsory to all. India has already taken this step. Attempts have also been made to ensure that there should be no discrimination what so ever on the basis of gender, ethnicity, language, religion, opinion, disability, or social and economic status. To ensure all development is sustainable, we must endeavour to provide education to people by use of sustainable means.

Our experience has taught us that past developments have led to depletion of resources and many an environmental issues. Hence while overcoming the hurdle of taking education to the unreached we must device a strategy that this is done in a sustainable manner too.

As per the report of the National Sample Survey in 2008, the literacy rate among children aged 7 was 72% while among those above 15 years of age the literacy rate was 66%. In India although there have been many reforms and the development is more than five folds since Independence, this has not been enough to achieve 100% literacy rate that we so much desire to achieve. The literacy level is still well below the world average literacy rate of 84%. India currently has the largest illiterate population of any nation on earth.

One of the main reasons for the inability to achieve the 100% literacy target has been the geographical inaccessibility of some of the regions. People in hilly regions, forest areas or remote places have been left out of the main stream education system.
This paper seeks to delve into the role played by ICT in this process of reaching those who are geographically and/or economically Unreached and providing them education. Besides the resources required for providing education through ICT, in the long run, help to reduce the cost of providing education in these areas. Therefore ICT has emerged as a convenient alternative to the traditional modes of education as to a great extent it helps to overcome the costs and the time constraints.

There have been large scale efforts to reach those still beyond the periphery of literacy. In today’s age of technology, innovative means of delivering education to the doorstep of school going children in remote villages are being undertaken. Harnessing ICT to fill the gap in our literacy program will also help us to do so efficiently.

The study attempts to throw light on the initiatives undertaken by Government and Non Government agencies in providing education to the unreached with the help of ICT. Such initiatives have been numerous Here a brief acquaintance is made with the widely, as also the less known initiatives.

An attempt is also made to suggest new modes of imparting education effectively through ICT to various segments of the population

**Government initiatives:**

**EDUSAT:**

EDUSAT is the first Indian satellite built exclusively to serve the educational sector. It is mainly intended to meet the demand for an interactive satellite-based distance education system for the country.

Edusat is a collaborative project of ISRO, the Union ministry of human resource development, state departments of education and the Indira Gandhi National Open University. It is the first exclusive satellite for serving the educational sector in India. Growing demand for an interactive satellite based distance education system through audio-visual medium, employing Direct To Home quality broadcast prompted the government to launch it.

The satellite has multiple regional beams covering different parts of India -- five Ku-band transponders with spot beams covering northern, north-eastern, eastern, southern and western regions of the country, a Ku-band transponder with its footprint covering the Indian mainland region and six C-band transponders with their footprints covering the entire country.
Kerala became the first state to launch virtual classes through Edusat in elementary education.

**The National Knowledge Commission (NKC)**

Constituted on 13th June 2005, it is a high level advisory body to the Prime Minister of India. The National Knowledge Commission has been given a mandate to guide policy and direct reforms, focusing on certain key areas such as education, science and technology, agriculture, industry, e-governance etc.

Easy access to knowledge, creation and preservation of knowledge systems, dissemination of knowledge and better knowledge services are core concerns of the commission.

**Sarva Shiksha Abhiyan (SSA)**

Sarva Shiksha Abhiyan (SSA) has been conceived as a government of India national educational movement to achieve the target of universalization of primary education among all children.

This ambitious programme has been supported by several international and national funding agencies and success stories are coming up from different states. Distance education with the advent of digital technologies, has become an alternate or supplement to the conventional education.

Policy makers and academicians have recognized the fact that technology can be used to make learning interactive and therefore have naturally selected it as an important strategy for the implementation of Sarva Shiksha Abhiyan.

**Virtual Classroom: Brihaspati**

The development of Brihaspati, a virtual classroom; is an endeavor by the Indian Institute of Technology, Kanpur. Brihaspati One of the most vital ICT initiatives is a web-based e-learning program, which enables instructors to enhance on campus learning by sharing course materials, having class discussions, and making assessments on the web. It can also be used to deploy e-learning content for off campus self as well as mentored learning. This tool is open source software and can be used by any university.

**Online NCERT Textbooks for Classes I to XII**

Students and teachers can now download NCERT textbooks for all subjects from class I to XII and have to no longer wait for the availability of the latest issue in the market or buy a new one if they have mistakenly lost it. The chapters have been uploaded subject
The UGC INFONET, e-Journal Consortia and e-content development programs have been put in to operation with access to 4400 e-Journals and 100 universities have been covered under the UGC INFONET. UGC INFONET is a vehicle for distance learning to facilitate spread of quality education all over the country.

Private initiatives in providing education to the Unreached through ICTs:

The Private sector too has been contributing to this effort of social out reach. A number of NGOs are working at the grass root level to bring the advantages of the ICTs to the rural people and train them in use of the technologies for their economic, and social betterment. The NGOs include MSSRF, Byrraju Foundation, Drishti, BAIF India, Datamation Foundation, Premji Foundation, Digital Empowerment Foundation etc.

Some of the known private initiatives are by:

Intel: As part of its sustained global commitment, the Intel® Education Initiative in India has been working with government and other decision making bodies at the central, state and local levels since 1999 to improve teaching and learning in both formal and informal educational environments through the effective use of technology; inspire and expand students’ knowledge and enthusiasm for science and math; and bring cutting-edge technology expertise to universities.

Espire’s ICT Initiatives:

Espire has been in the industry for 16 years providing solutions in E-learning. Combining its technology expertise and school & higher education know how and experience to deliver all-encompassing solutions that empower the Indian schools to deliver their best to the masses is the forte of Espire.

Espire’s Contribution to the Ministry of HRD’s ICT Initiative

Espire works in close coordination with several central & state government agencies, the HRD Ministry and the IT Ministry to effectuate a practical and cost efficient ICT strategy that will eventually help millions of pupils receive world-class education. Espire’s vision is to make quality education available to the pupils across the length and breadth of the nation.

Lesser Known but high impact initiatives

NIIT:

Minimally Invasive Education (MIE) is one such endeavour. The first MIE experiment (in 1999, in Kalkaji, Delhi) was initiated with the objective to understand if economically disadvantaged children were able to operate computers without any instructions and also whether it was possible to operate computers placed outdoors. The plan was to encourage children to learn on their own, with minimal, or no intervention. Children are provided with free access to computers in an open outdoor location. The informal
environment enables children to acquire computer literacy, enhance their academic levels and imbibe other life skills. This project is an illustration of a public-private partnership between the Government of NCT of Delhi and NIIT Ltd (India’s leading private sector corporation offering IT education, training and global IT learning solutions) to overcome digital illiteracy.

**VIIT:** The Vidya Prathishthan’s Institute for Information and Technology at Baramati in Maharashtra conceived the ‘The Baramati Initiative’ and implemented it in rural region of Baramati about 100 Kms from Pune and approximately 200 Kms from Mumbai, the capital city of the state of Maharashtra, India. The initiative began with its opening conference in 2001 and over five years it has established itself as a networking platform for people, institutions and organizations across the world to showcase and share knowledge in the field of ICT for development.

VIIT has also initiated computer learning project in June 2004 to empower the rural poor. The institute is providing basic computer skills to the primary school students of rural Baramati. Along with the World Bank, VIIT runs a mobile education programme through its mobile bus fully equipped with the computer lab. Each bus has 18 computers installed which goes once in a week to each 53 schools of the chosen 40 villages catering to 6300 students. Each bus has four teachers, trained by VIIT itself. Depending on the total numbers of the students in a school, two groups at a maximum of 36 students each are formed. Each group takes their theory and practical classes one after another. Each computer is shared by two students. The best part of this project is that it helped in changing the mindset of the students and the parents towards learning as the attendance of the schools shoots up after the implementation of the project. Projects such as this really help in bridging the digital divide.

**Suggestions:**

**Kiosks:** The idea is already taking roots but the full potential is yet to be realized. Kiosk, like information centers, can be used as classrooms. With a single PC and Internet connection in a gram panchayat office or a phone booth kind of space A kiosk may be run by a qualified teacher from the same village. The System can be used not only to provide Virtual Classes to school going children, but to adults as well. It can be also used to give education related to agriculture, Health and Hygiene and for counseling on various issues. A network of Kiosks thus established at specific distances can help to provide connectivity and access over a wider geographical area.

**Mobile Bus:** Extending the idea adopted by VIIT (Baramati), the mobile bus can be used not only to provide education in ICT to school children but to provide all round education to children in remote areas through computers and Internet.

**Telecommunication: Land Line and Mobiles:** Telephonic counseling at fixed hours may be provided by subject experts to students in remote areas in much the same way as it is provided over radio or internet through group discussion.
Conclusion

The Role of ICT is providing education to the Unreached is multi dimensional. It can be used to address various age groups, cultural groups, occupational groups, economic groups and groups of people with special needs. Inspite of all the advantages listed herein above, there are several challenges that we need to overcome with some concentrated effort.

Infrastructure remains a key bottleneck in most parts of India.

There has to be efforts towards developing content and applications and using the potential of ICT as a tool to strengthen the teaching learning process

It is important that policies developed by government are translated into actionable plans and followed up with necessary financial or infrastructural support. A time to time feedback and evaluation of these policies is equally important. Redundant policies must be given up and new initiatives introduced from time to time.

It is necessary to develop the understanding of the masses towards the potential of use of ICT and remove the biases among the population towards using the technology. These biases are hugely due to language barrier and ignorance about the scope of the use of technology. Policy makers need to address the issue simultaneously while designing and implementing the ICT based Education initiatives in far flung areas.

A greater involvement of stakeholders, particularly primary school teachers while preparing any material or training package with the help of experts from technology, media and concerned subject areas would ensure that education is relevant and meaningful.

Existing Open and distance education systems use different technology options for delivering content- EduSAT, other TV and Radio channels

A coherence of sorts is required to be maintained for the understanding of the common populace

Quality should be given precedence over Quantity and Greater focus on content development and application should be given to ensure improvement in quality of education.

Since there is a relatively higher radio, TV and mobile phone penetration indicates innovative content may be developed and delivered through these media

There is need to coordinate the plethora of initiatives using ICT for Education under a clear framework and guidelines.
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Sub Theme: Sustainable Development

Topic: Education for Sustainable Development

Title of the paper: Excelling in Education with Enshrining Environment

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Abstract

Man gets education at various stages in his life. We can classify the education as formal, non-formal, distance etc. Without knowing the aim of it a student grabs information one after another. Generally in education system it is taken for granted that a student wishes to learn which is not true always. Every student has different expectations from education like getting a degree, for earning bread & butter, for social status etc. but the real aim of education is development of society. Teaching can be one sided but without the involvement of students learning cannot be completed. In the globalised era, with the explosion of information students are one step ahead. Gone are those days when students used to depend on teachers for knowledge. Today there is a need of making students aware of application of knowledge. They can get the knowledge but without proper guidance they can not utilize it in real sense. They should also know that while applying any new technique how it will influence the environment.

Sustainable development is a pattern of resource use that aims to meet human needs while preserving the environment so that these needs can be met not only in the present, but also for generations to come. Sustainable Development indicates development without sacrificing well-being of next generations. Today in all the sectors on large scale process of development is taking place but it lacks this sustainable approach. The world is developing but polluting also, stock of natural resources are vanishing and individual prosperity is dominating wellbeing of the entire globe. Role of education is significant because it deals with molding the attitude of new generations. The current education system needs change. At all the levels of education this sustainable approach should be included.

This research paper is an effort to find the new avenues in education which will lead this world towards sustainable development.
Sub Theme: Sustainable Development

Topic: Education for Sustainable Development

Title of the paper: Excelling in Education with Enshrining Environment

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Swami Vivekananda defined ‘Education is the manifestation of the perfection already in man’. As time changed we find changes in definition as well as types of education. Long back, in ancient India, there was Gurukul System where people used to live with their Gurus – teachers. Guru used to decide where the course is completed or not. Unless and until knowledge and skills are acquired by a student, teacher never declared him as snatak-graduate. During those days, even examination system was different which was known as Shalaka pariksha. Teacher used to put one straw in the book, open up that page and read the first line and student had to recite the remaining part of the book. Examination was practical based. Choices of branches were available. Specialization was also there. At the beginning, considering the liking and inborn qualities of a child, parents and teachers unitedly took the decision regarding his specialization. While teaching various subjects, teachers used to make students aware about environment. Eco-friendly approach was imbibed. The concept of Panchamahabhutas (The Earth, Water, Fire, Air, and Sky), vanadevata, and vrukshadevata highlights the same. In Atharvaveda few ruches are addressed to various herbs (Vanaspati) considering them as Devata. In Varaha puran it is clearly mentioned that

“Yavad bhumandalam dhatte sashaila vankananam
Tavat tishtathi medinyam santati putrapurtriki”

This means generations of human being will survive till the survival of forests, mountains etc. It indicates the thought of sustainable development. If an individual wants to do something new he should always think about coming generations.
Even in Koutilya’s age special Department was working to protect forests. Cutting trees was a punishable offence. The ancient education system was so sound that nature friendly approach was blended in it.

But as time changed a significant change was observed in man’s approach towards nature, especially after industrial revolution, man became greedy in grabbing the advantages of natural resources.

It is said that this Mother Earth is sufficient enough to satisfy need of man but not the greed. As man became crazy to maximize his profit, natural resources started vanishing. With the exploitation of nature, environmental balance was shattered. It was the beginning of tragedy.

According to World development Report 1992, environmental problems can undermine the goals of Development in 2 ways, “First, environmental Quality—water that is safe and plentiful and air that is healthy—is itself part of the improvement in welfare that development attempts to bring. If the benefits from rising incomes are offset by the costs imposed on health and the quality of life by pollution, this cannot be called development. Second, environmental damage can undermine future productivity. Soils that are degraded, aquifers that are depleted, and ecosystems that are destroyed in the name of raising incomes today can jeopardize the prospects for earning income tomorrow.”

E. J. Mishan rightly said, “As the carpet of increased choice is being unrolled before us by the foot, it is simultaneously being rolled up behind us by the yard.”

Major causes of environmental issues that are due to human activities are:

- **Anoxic waters** — Anoxic event • Hypoxia • Ocean deoxygenation • Dead zone
- **Climate change** — Global warming • Global dimming • Fossil fuels • Sea level rise • Greenhouse gas • Ocean acidification • Shutdown of thermohaline circulation
- **Conservation** — Species extinction • Pollinator decline • Coral bleaching • Holocene extinction • Invasive species • Poaching • Endangered species
- **Energy** — Energy conservation • Renewable energy • Efficient energy use • Renewable energy commercialization
- **Environmental degradation** — Eutrophication • Habitat destruction • Invasive species
- **Environmental health** — Air quality • Asthma • Electromagnetic fields • Electromagnetic radiation and health • Indoor air quality • Lead poisoning • Sick Building Syndrome
- **Genetic engineering** — Genetic pollution • Genetically modified food controversies
- **Intensive farming** — Overgrazing • Irrigation • Monoculture • Environmental effects of meat production • Slash and burn • Pesticide drift • Plasticulture
- **Land degradation** — Land pollution • Desertification
- **Soil** — Soil conservation • Soil erosion • Soil contamination • Soil salination
- **Land use** — Urban sprawl • Habitat fragmentation • Habitat destruction
- **Nanotechnology** — Nan toxicology • Nan pollution
• Nuclear issues — Nuclear fallout • Nuclear meltdown • Nuclear power • Nuclear weapons • Nuclear and radiation accidents • Nuclear safety • High-level radioactive waste management.
• Overpopulation — Burial • Water crisis • Overpopulation in companion animals • Tragedy of the commons
• Ozone depletion — CFC
• Pollution — Light pollution • Noise pollution • Visual pollution • Nonpoint source pollution • Point source pollution
• Water pollution — Acid rain • Eutrophication • Marine pollution • Ocean dumping • Oil spills • Thermal pollution • Urban runoff • Water crisis • Marine debris • Micro plastics • Ocean acidification • Ship pollution • Wastewater • Fish kill • Algal bloom • Mercury in fish
• Air pollution — Smog • Troposphere ozone • Indoor air quality • Volatile organic compound • Particulate matter • Sulphure oxide
• Reservoirs — Environmental impacts of reservoirs
• Resource depletion — Exploitation of natural resources • Overdrafting
• Consumerism — Consumer capitalism • Planned obsolescence • Over-consumption
• Fishing — Blast fishing • Bottom trawling • Cyanide fishing • Ghost nets • Illegal, unreported and unregulated fishing • Overfishing • Shark Finning • Whaling
• Logging — Clear cutting • Deforestation • Illegal logging
• Mining — Acid mine drainage • Mountaintop removal mining • Slurry impoundments
• Toxins — Chlorofluorocarbons • DDT • Endocrine disruptors • Dioxin • Toxic heavy metals • Herbicides • Pesticides • Toxic waste • PCB • Bioaccumulation • Bio magnification
• Waste — E-waste • Litter • Waste disposal incidents • Marine debris • Medical waste • Landfill • Leachate • Recycling • Incineration • Great Pacific Garbage Patch

The entire list highlights the severity of this problem. Why it happened? Because the Nature-friendly approach was forgotten by man. In the quest of pleasure and luxuries he conveniently failed to remember the compensation which he is supposed to pay in future. It is said that ‘As you saw so shall you reap’ but in this case unfortunately one sows but other has to reap. Sustainable development can be achieved only if the environment is conserved otherwise future generations will be affected for no reason. But still there is a ray of hope. If we can imbibe eco-friendly approach in our life at least we can lessen the thrones on the red carpet of future. Fortunately, we have a spacious window to escape.

Education is the powerful weapon in the conflict of sustainable development. Unless and until people realize the significance of sustainable development, all the efforts taken for rapid economic, technological development are in vain.

There is a close relationship between Environment and Human Rights. Environmental rights are also part and parcel of Human Rights Declaration (clause16:3) where Protection, balance and environment education are mentioned. Polluted Environment is also one of the obstacles in personality development. Every individual has right to good
health, but polluted environment violates this right. Therefore, Environmental education is the need of an hour. Environment can be classified three categories.

1. Natural
2. Social
3. Cultural

Today unfortunately all three environments are polluted because of greedy and selfish ideas of so called development.

There is a danger of socio-economic damage of the world due to climatic change. Problem of poverty becomes more severe as the effects of climatic change include food security, water scarcity, ill health, migration, loss of biodiversity and an increase in the frequency and severity of extreme weather events. Problem of seasonal unemployment at the same time threatens the community along with problems of ill health. People who are living in slums are the most vulnerable. As they cannot afford nutritious food their resistance capacity is less and risk of sickness enhances. If we go on forgetting the significance of direct impact of climate change on the society we are inviting our own end. At present syllabus of environment includes one topic ‘global warming’ for few marks in written test but no actual implementation of solutions. Practical must be included in examination for few marks like actual tree plantation etc.

Social environment is polluted because of endangered relations along with its root causes that is stress. Long back when there was joint family system and there was no problem of tension as it used to get divided along with the responsibilities. Unfortunately there is no pressure valve in nuclear families and therefore we find in and around our society number of psychosomatic even psychological diseases. At the every step each one has to fight in the battle of this life. Frequent visits to psychologists are not the indicators of real development. Therefore meditation, Yoga should be included in the curriculum.

Same case with the cultural pollution. All the countries in this globe are blindly following the western culture only because they are so called developed countries. It is actually a wrong trend because every culture has its own identity and only under blind faith it is never to be destroyed. Culture should be flexible to accept new favorable changes but should be rigid regarding immortal human values. When one culture vanishes, the world loses its asset. If we could survive our own Indian culture we can save environment as it thinks about Nisargadwata (God of Nature). Therefore, Studies of various cultures should be encouraged.

If we are designing practical based curriculum for environment and make the new generation aware about its significance future of this globe will be definitely different. That will be the golden Moment when we will achieve Excellence in Education with Enshrining Environment.
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   ii. Prof. G.P. Dhonde, Deptt. Of Geography, Bytco College, Nashik Road
   iii. Dr. S.N. Kulkarni, Retd. Principal, Mahila Mahavidyalaya, Nashik Road
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ABSTRACT OF THE PAPER

The emergence of information technology has opened numerous avenues for Open and Distance learning. Environmental education through the use of IT and ODL is the best way to have a formal and professional education on the most sensitive issue discussed among almost all environment-lovers now-a-days. It is needless to say that environment education through ODL certainly has brighter prospects in the nearest future as it has the ability to reach the unreachable. The ODL has the power to provide huge bank of knowledge regarding the environment and Mother Earth in very sophisticated and easiest way. This will surely lead in empowering the minds and thought process to understand the staunch need to save our environment and planet.

This paper will discuss the advantages of Environment Education through ODL.

Keywords:

1) ODL – Open and Distance Learning
2) IT – Information Technology

Introduction:
India has become one of the countries in the world to give lessons about our environment from a very early stage of education. The information technology and invention of high speed Internet have added glory to this crucial topic discussed all over the world. Open
and Distance Learning is a widely known term which provides a great opportunity to people who wish to continue their education but can not go to institutes, attend sessions and take formal full-time education. Nowadays, the citizens of this country are being aware of the newly advanced way of pursuing education. Pune is popularly known as the Oxford of East where several prominent institutions are doing a Nobel job of providing quality education. [1]

There are several institutes and universities all over the world who provide Open and Distance Education to the aspiring students in very much constructive way. There is a need to spread awareness about this particular concept to save our Earth Planet and save our Environment.

**Importance of Study:**

**Global warming** is the increase in the average temperature of Earth's near-surface air and oceans since the mid-20th century and its projected continuation. According to the 2007 Fourth Assessment Report by the Intergovernmental Panel on Climate Change (IPCC), global surface temperature increased $0.74 \pm 0.18 \, ^\circ C (1.33 \pm 0.32 \, ^\circ F)$ during the 20th century. [2][A] Most of the observed temperature increase since the middle of the 20th century has been caused by increasing concentrations of greenhouse gases, which result from human activity such as the burning of fossil fuel and deforestation. [3] Global dimming, a result of increasing concentrations of atmospheric aerosols that block sunlight from reaching the surface, has partially countered the effects of warming induced by greenhouse gases.

![Global Temperatures](image)

Fig. Source : 1880-2009 global mean surface temperature change relative to the 1961–1990 average. (Website Courtesy: NASA GISS)

Climate model projections summarized in the latest IPCC report indicate that the global surface temperature is likely to rise a further 1.1 to 6.4 °C (2.0 to 11.5 °F) during the 21st
The uncertainty in this estimate arises from the use of models with differing sensitivity to greenhouse gas concentrations and the use of differing estimates of future greenhouse gas emissions. An increase in global temperature will cause sea levels to rise and will change the amount and pattern of precipitation, probably including expansion of subtropical deserts. Warming is expected to be strongest in the Arctic and would be associated with continuing retreat of glaciers, permafrost and sea ice. Other likely effects include changes in the frequency and intensity of extreme weather events, species extinctions, and changes in agricultural yields. Warming and related changes will vary from region to region around the globe, though the nature of these regional variations is uncertain. As a result of contemporary increases in atmospheric carbon dioxide, the oceans have become more acidic, a result that is predicted to continue. The scientific consensus is that anthropogenic global warming is occurring. Nevertheless, political and public debate continues. The Kyoto Protocol is aimed at stabilizing greenhouse gas concentration to prevent a "dangerous anthropogenic interference". As of November 2009, 187 states had signed and ratified the protocol. Proposed responses to climate change include mitigation to reduce emissions, adaptation to the effects of global warming, and geo-engineering to remove greenhouse gases from the atmosphere or block incoming sunlight.

Objectives of Study:

1. To find out awareness level of ODL among Indian citizens.
2. To promote Environmental Education through ODL.
3. To educate the unreachable.
4. To help ODL institutions in spreading the social cause.

Hypothesis:

H01: Indian citizens are hesitant to opt for education through Open and Distance Learning.
H02: Indian citizens are unaware about the environmental issues.
H03: Open and Distance learning is the best way to reach the unreachable.

Research Methodology:

The flow of Research was carried out in the following manner:

a) Sampling Plan
b) Questionnaire Design
c) Data Collection

Sampling Plan

To conduct the research, multistage cluster sampling technique was adopted:

i) Cluster Sampling: Pune, being a metropolitan city, a certain geographical area was selected. A survey was carried out in the junior and senior colleges within Bhosari, Chinchwad, Deccan Gymkhana, Erandawane, Hadapsar, Koregaon Park, Kothrud,
ii) **Stratified Random Sampling**: In this technique the sample of student respondents was classified on the basis of age groups. Few amongst them were randomly selected from these groups as part of the survey.

A combination of these methods helped to fulfill the objectives of the research. A total of 579 samples were taken from 23 colleges and 11 IT-Companies.

**Questionnaire Design:**
The questionnaire was designed keeping in mind all the economic, social and general issues while a person wishes to continue his/her education while working and pursuing full-time courses. The reliability and validity of the questionnaire was also tested properly.

**Data Collection:**
The method of data collection was primary.
As mentioned earlier, a total number of 579 respondents were considered for the study from various IT-Companies and colleges.

**Limitations:**
For this research purpose only 14 factors which were prominent were considered. Since, the respondents were interviewed along with the questionnaire in both English and Marathi, language was not at all a barrier. The results of the research had been taken for a certain area and thus this result may not be applicable to all other cities in India.

**Significance:**
This study will put insight to the pattern of people opting for continuation of education, specifically environmental education. It elaborates more on the perception of students about the existing education system.
It will be a value addition to the existing universities and institutions that opt for a conventional education system who can analyze their system for upgradation to Open and Distance Learning.

**Data Analysis:**
Tabulating the entire data collected in Microsoft Excel and using the weighted mean method it was possible to find out the effect of each factor and the level of awareness among the citizens.

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<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
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<tbody>
<tr>
<td>Respondents (Gender wise)</td>
<td>344</td>
<td>235</td>
<td>579</td>
</tr>
</tbody>
</table>
2) Awareness level of open and Distance Learning

<table>
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<td>23</td>
<td>45</td>
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<td>1</td>
<td>57</td>
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<td>3</td>
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<td>4</td>
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<td>5</td>
<td>61</td>
<td>49</td>
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**Testing of Hypothesis:**
All three hypothesis tested significantly and we have following interpretations based on this testing.
Interpretation and Findings:
Most of the citizens opting for Open and Distance Learning are working professionals.
1) Apart from working professionals other citizens prefer formal education (irrespective of the course they are willing to opt).
2) Only 14% of citizens who are regular students wish to pursue a parallel degree from ODL.
3) Around 59% citizens are aware of the environmental issues.
4) Approximately 78% citizens positively responded when asked to pursue environmental education through ODL.
5) Around 64% citizens asked to regularize the fees for environmental courses through ODL.

Suggestions:
• Awareness level of ODL among citizens is average so Government must look after the promotion of it.
• Government must keep a watch over rising in the fees and help economically backward class.
• ODL Institutions should provide quality recourses and opportunities to pursue environmental education to the citizens with optimum updated knowledge.

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A: Increase is for years 1905 to 2005. Global surface temperature is defined in the IPCC Fourth Assessment Report as the average of near-surface air temperature over land and sea surface temperature. These error bounds are constructed with a 90% confidence interval.

B: The 2001 joint statement was signed by the national academies of science of Australia, Belgium, Brazil, Canada, the Caribbean, the People's Republic of China, France, Germany, India, Indonesia, Ireland, Italy, Malaysia, New Zealand, Sweden, and the UK. The 2005 statement added Japan, Russia, and the U.S. The 2007 statement added Mexico and South Africa. The Network of African Science Academies, and the Polish Academy of Sciences have issued separate statements. Professional scientific societies.
Role of Educational Pedagogies in Targeting Sustainable Development of SAARC Countries

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Abstract

This paper analyses how exponential growth of open and distance learning has created profound impact on universalization of education, facilitating greater ‘reach’ and ‘richness’ of the learning experience, enabling knowledge sharing and transforming education into lifelong-learning process. Education is increasingly being recognised as an important determinant of economic growth at country level carrying with it a promise of fundamental social transformation. At an individual level, a strong relationship has been repeatedly documented between educational attainment and earnings and greater access to good quality education is a key poverty-reduction strategy advocated throughout the developing world. It is considered as an essential ingredient for ‘nation building’ or even the main catalyst for the transition to effective democracy and for sustained economic growth. Education in this era of globalized liberalized educational setup is emerging as a new entrepreneurial venture tapping new markets with immense potential to facilitate sustained economic development. The revolution in information and communications technology (ICT), growth of World Wide Web, and concomitant rise in virtual learning environment has transformed the age old concept of education into a profit-oriented venture-capital escalating its economic and business significance. Introduction of open and distance learning as educational pedagogy is expected to positively contribute to the economic growth of developing economies in many ways that include cheaper acquisition of human capital, technology transfer, rise in productivity, and increasing social cohesion. This paper makes an endeavour to analyse the scope of open and distance learning strategies and pedagogies of teaching in ensuring universalization of education and its consequent impact on sustainable development of the developing economies with particular reference to SAARC nations.

1. Introduction

Sustainable Development, an integration of economic development with environmental protection and social equity[3], is a key objective of South Asian developing nations. Given a huge human capital endowment with sharp differences at disaggregated levels (such as between the rural and urban population, skilled and unskilled workers etc)[1], past evidence of high correlation between educational levels and rates of socio-economic development necessitates broadening educational opportunity as basic human capital ‘investment’ in South Asia, besides alleviating poverty, promoting social well-being and reducing income disparity, in an era where ‘efficiency’ becomes most critical for improving overall well-being and equitable nation-building.

Education for Sustainable Development is a process of learning how to make decisions that consider long-term future of the economy, ecology and equity of all communities [3]. Education is not a ‘magic
Role of Educational Pedagogies in targeting Sustainable development of SAARC countries

bullet’ in approaching socio-economic sustainability but without co-ordinated educational interventions, even the best thought through technical policies will fail. Within contemporary conditions, differences in access to education and thus knowledge constitute the principal sources of inequity, injustice, inequality and social exclusion. Education plays a crucial role for people, both young and old, to optimize their opportunities and to bridge divides.

Two parallel global developments have revolutionized the provisioning of education in SAARC economies: growth of Internet and ICT and consequently, e-education. With rapid advances in ICT creating a new revolution in discovery and learning, Open Distance Learning (ODL) system is projected as the educational pedagogy of the future, liberalizing education system from social, demographic and cultural bottlenecks, reducing constraints of time, space and administration, enabling learners to achieve their potential and build an educational workforce empowered to change.

The following segment analyses the gamut of opportunities created by ODL in universalizing education to meet the challenges of sustainability in SAARC countries.

2. Re-orienting education to attain sustainability among SAARC nations

2.1 Socio-Economic status of SAARC

SAARC socio-economic structure with illiteracy rate, population growth rate, infant and maternal mortality rate highest in the world, poverty ratio more than one third of the region’s total population and human development index indicating low profile quality of life, bears testimony of the oppression under colonial domination. ‘The downward-filtration theory’ of British colonialism deprived the masses from higher education[2], adversely affecting the rural-urban ‘learning-gap’ and overall productivity. Comprising almost 23% of world population but sharing only 2.5% of the world’s gross national income, Bangladesh, Pakistan, Afghanistan, Sri Lanka, Bhutan, India, Nepal and Afghanistan still remains backward in terms of provisioning material benefits to more than 1.5 billion inhabitants. The confrontation with formidable challenges posed by poverty, unemployment, low levels of production and pressures of huge workforce with very low standard of living called for deepening of pro-poor orientation of growth process, through enhanced investment in human capital and infrastructure, increasing budgetary allocations and improved delivery of services in science, technology and higher education to reinforce sustainable development. South Asian Association for Regional Cooperation (SAARC), formed in 1985, focused on formulating principles and policies promoting welfare, collective self-reliance and mutual assistance in accelerating economic, social, cultural, technical and scientific development and improving quality of life of member nations.

2.2 Educational status of SAARC

Knowledge is the key to sustainable development and improvements in human well-being[14]. The externalities and increasing returns to human capital implies that while returns to financial capital tend to equalize between regions and across countries with relatively low capital-labour ratio, the returns to human capital are much higher where there are more skilled people[12] playing a major role in alleviating poverty, reducing unemployment and promoting social equity. With development of knowledge societies in SAARC economies, quality education, and not just education per se, is recognized as most crucial in nation-building (reproducing a nation’s shared interpretation of history and cultural values across generations) and economic growth at country level. Given a strong relationship between educational attainment and earnings, greater access to good quality education positively impacts the social formation, entry to employment and human development index at individual level[3]. Figure-1 reveals that in-spite of increasing trend in literacy rate, illiteracy still remains a major cause impeding the vast human resource development of SAARC, contributing to the region’s economic backwardness and social imbalance[16].
Schooling, openness, adult literacy rate, higher and professional education and training opportunities, government spending and relative contribution of capital accumulation to growth being much lower in these economies and inability of formal education system to meet industry’s needs for trained human resources in the age of increasingly rapid skills obsolescence[1], SAARC identified the importance of mutual recognition of educational institutions in improving productivity and achieving socio-economic ramification.

2.3 ODL: Reorienting Education for Sustainable development in SAARC

Realizing the dependence of economic competitiveness on skill and educational attainment, SAARC aimed at ‘Education for Sustainable Development” that increases human freedom in many dimensions, the preconditions being a massive increase in human learning. It refers to a combination of formal, non-formal and informal models of education at all levels[3]. Thus SAARC prioritized a synergy of collective, well-planned and focused initiatives for achieving ‘universalization’ of education conceived as a systematic process of increasing access, opportunities to higher education and the multiplication and extension of knowledge as a vehicle for cultural development, citizens' education, technical training, all linked to the objectives of equity and social justice proposed by our society[5] through intra-country exchange of information among universities, policymakers, students and teachers.

However prioritised development of inter-related education to encourage regional cooperation in SAARC suffers from the twin problem of lack of access and excellence. The conventional system is severely constrained with very low rates of literacy and enrolment at primary, secondary and tertiary level and high levels of dropout. Further, growth of internet and ICT, and concomitant rise in virtual learning
environment has transformed the SAARC labour market dynamics with workers increasingly requiring higher levels of skills and training, escalating the need for accessibility and affordability of education and skill. Education has thus become both “front-loaded” (i.e. concentrated study prior to employment) and ‘lifelong learning’ (i.e. where an individual returns to higher education at various points to update skills/switch careers). While use of ICT would give the power of connectivity, ODL helps to synchronize ICT with local economic and socio-cultural conditions to advance development and fight against illiteracy and poverty.

ODL has massive outreach capacity for delivering dynamic, accessible, flexible and cost-efficient (and even pedagogically superior) education at different levels- from awareness to highly specialized advanced degree levels. Considering ODL as an intervening strategy central to fashioning democratic education systems fit-for-purpose in the 21st century affecting personal and community life of individuals, ‘SAARC Consortium on Open and Distance Learning’ was recommended to harness the best talents and knowledge across institutions and regions for course development and delivery and strengthen cooperation in joint development of educational programmes, credit transfers, and promotion of equal opportunities and access to knowledge. An enlarged SAARC Scholarship Scheme in ICT and related areas was proposed to be instituted to improve intra-regional connectivity, particularly physical, economic and people-to-people connectivity coupled with smooth flow of goods, services, peoples, technologies, knowledge, capital, culture and ideas in the region[15,16].

The next segment discusses the objectives of SAARC and attempts to study the scope of ODL as educational pedagogy for achieving sustainable development in these countries.

3. ODL in targeting sustainable growth in SAARC nations

Sustainability is defined by the three-legged stool concept- economic leg, the environmental leg, the equity-people leg[3]. The following segment tries to analyze how ODL integrates considerations about economic factors (viz. jobs, GDP, trade and Fiscal assistance), environmental factors (including the health of the planet and humans) and social factors (health, equity, culture) in targeting sustainable development of SAARC nations.

3.1 ODL in Economic dynamics of sustainability

The increased access to education, training and transfer of technology and resources through ODL is a key instrument in building human capital pivotal in promoting accelerated economic development of the transitioning SAARC economies, branding education as an entrepreneurial activity. ODL investments can improve economic development in two ways: by direct job creation and services to support ODL deployment; and indirectly, by developing a better educated workforce. As jobs become increasingly insecure, mid-life career changes more frequent and as acquiring specialized degrees is directly related to better jobs[9], ‘opportunity costs’ of re-engineering e-education owing to its fast deployment, flexibility of timing and instant availability and related cost savings at tertiary level and the ‘productivity effects’ of upgrading the workforce through in-service training positively affects GDP. ODL with its relatively less capital investment in physical plant and relatively low cost of the required technical infrastructure creates economies of scale leading to almost 60% cost savings compared to standard classroom training[6].

SAARC’s trade account records an increase in export of services to $96 billion in 2007 with almost two-thirds in computer, information, and communications services[7,10]. To generate mutually beneficial economic gains, intra-country trade linkages must be strengthened. Table-1 shows SAARC members’ (except Nepal and Sri Lanka) progressively increasing trade with East Asia, while stagnating or even declining share of intra-SAARC trade over time.
TABLE 1: Direction of Trade for South Asia

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Note ASEAN+3 = SAARC+ China, Japan, and the Republic of Korea;

SAARC can probably emerge as strong trading block en-route trade in e-education resources. E-twinning of institutions and intra-country exchange programs leading to sharing of their infrastructure, knowledge and technical expertise will help achieve the target.

Most SAARC countries heavily depend on external assistance and foreign aid. Figure-2 shows that financing of South Asia from various private sources has increased drastically between 2006 and 2007.

![Figure 2: External Assistance to South Asia](Source: WDI 2009)

The net portfolio equity receipts increased by 3.5 times, net bond issuances more than doubled from $4.3 billion in 2006 to $9.5 billion in 2007, remittances increased by 32% reaching $52 billion in 2007 and FDI net inflows increased significantly reaching $30 billion in 2007. Net commercial bank and other private borrowing also increased from $4 billion in 2005 to $18 billion in 2007[13].
With globalization expanding the market of off-shore students, ODL emerged as a promising venture capital attracting more FDI to this service sector through technology transfer. This expectedly would reduce burden of external debt and the released tied-up capital could be optimally channelized to support the growing needs of ICT.

3.2 ODL in Environmental Aspects of Sustainability

One major concern of SAARC is the environmental crisis and conflicts arising from political turmoil, endemic poverty, and the egotistic projection of military power. The increased global average temperatures will result in major changes in “ecosystem structure and function,” leading to “negative consequences for biodiversity and ecosystem goods and services e.g. water and food supply” reducing crop yields in South Asia by 30% due to climate change associated with global warming by mid-21st century and This will increase the intensity and extent of already existing food crisis and poverty[7]. The health of the ecosystem is also crucial in determining environmental sustainability. SAARC countries generally afford increasing risk of extinction 20–30 percent of plants and animal species making the ecosystem more fragile and therefore more susceptible to exogenous shocks. In facing these contemporary challenges, SAARC economies would bring a new consciousness into the global-market mechanism within the framework of knowledge and harmony with nature by seeking relationship between humans, nature, knowledge and economic growth.
Any effort to look at the reciprocal relationship between the environmental restructuring for achieving environmental sustainability and education calls for vastly expanded access to the information and education, including ‘environmental awareness education’. Expansion of educational opportunities to adopt ODL to impart such awareness programmes would assist the overall human resource development of a larger section of the society, promoting environmental quality and sustainable development in these nations.

3.3 ODL and social aspects of sustainability

In SAARC countries, human ‘knowledge’ resource development through initial and continuing education has far-reaching social impact in influencing the birth rate, increasing the independence of women, and improving the rural environment[11]. The health conditions with over 40% of children underweight, second highest maternal mortality rate (500/100,000 live births in 2005), high incidence of HIV/AIDS, measles and other such fatal diseases with immunization rates remaining one of the lowest are grave. Figure-3 clearly indicates that this region records the largest number of undernourished children in the world around 2007[8,13].

![Figure 3](Source: WDI2009)

ODL overcomes the constraints of formal education system to supply schooling to those most at risk and the need for huge numbers of teachers and other education-related personnel in supporting large-scale
health awareness campaigns and ‘youth-specific HIV/AIDS education’ necessary to develop the life skills required to reduce risk and vulnerability to these infections.

Given the dependence of societal values and attitudes on education, ODL with its capability to transform the vast human resource into educated and trained workforce is expected to contribute to SAARC challenges of 21st century for promotion of multi-ethnic democracy, human rights, and a culture of peace in the light of recent conflicts, and geopolitical and social transformation in the SAARC countries which lack to varying degrees, a democratic tradition and are involved in open hostilities[10].

ODL’s significant contribution in teacher training has a direct bearing on cultural development as these countries can draw on teachers with superior knowledge from advanced countries for enhancing the quality of education at less governmental expense and convenient pace of the recipients of both formal and non-formal academic courses for meeting educational targets, thus resolving the ‘bootstrapping’ problem which hinders transitional economies in becoming ‘knowledge leaders’ and adding to capacity building.[4,6].

ODL offer democratic educational opportunities as a fundamental road to social inclusion to those citizens (particularly women and unprivileged, ethnic and linguistic minorities and slum dwellers) who are confined away from formal education due to family obligations, social challenges, and financial constraints. It helps close the gap in higher education demand through access to higher levels of education and retraining and development of professionals unable to advance their education, skills and careers while living in rural and remote places, increasing productivity and earning capability, reducing rural-urban disparity, softening rural-urban migration and thereby advance towards higher goals of ‘equity and social justice’.

The last segment tries to propose some strategies and policies in using ODL as educational pedagogies to target sustainability of SAARC nations.

4. Policy and Pedagogic Recommendations

Acknowledging ODL as educational pedagogy capable of positively contributing to the socio-economic sustainability, increasing social cohesion and ensuring universalization of education at all levels in SAARC nations, some strategies and pedagogic recommendations are left as the thought of the paper.

1. Target improvement in health and nutrition, protection from diseases, knowledge and practice of family planning, priority to children’s education, status of women in family and community and their participation in economic activities outside home, information and knowledge of government services through a network of locally integrated and comprehensive total awareness ODL education programmes involving a combination non-formal basic environment and health education for adolescents, youth and adults.

2. Develop Specialized and Directly Targeted Incentive-scheme-Based ODL Projects/Campaigns in remote areas to tackle gender disparity, combat adult illiteracy and develop sustainable and functional literacy skills of the ethnic and linguistic minorities, slum dwellers and the ultrapoor that respond to needs of individual fulfilment and social and economic development

3. Framing ODL Governance framework for setting standardized measurable benchmarks to track progress and efficiency, harmonizing financing, implementing and monitoring activities

4. Training personnel to conduct Media Empowered on-job demand Vocational workshops with various media tools and ICT to upgrade skills of daily/piecemeal wage earners and industry workers.

5. Formulating advanced ODL Agricultural Entrepreneurship programmes for agricultural and primary sector workers focusing on income-related skill generation to promote self employment or increase capacity of mid career professionals should be devised for achieving ‘agricultural urbanization’ and tackling rural-urban migration creating negative externalities of concentration in SAARC economies.
6. SAARC might develop **Intra-government-donor-global community-enterprise partnership** framework to support projects of expanding ICT access to rural areas targeting generation of assistance from international community, such as UN, multilateral, and bi-lateral agencies and particularly non-resident community.

7. Establish a network of *subsidized national competitive network operators* to serve underprivileged communities or granting low interest operator loans and microcredit to tele-center owners can help reap ODL benefits in rural areas. A wind-up computer machine with a wi-fi internet connection, might reach learners in remote locations with poor electric supply.

8. Frame special policies for creating **Intra-SAARC Public-Private Partnership** program with interested institutional, public and private agencies in venturing content, program and business development aspects of ODL for outsourcing to boost invisible trade account helping in reducing dependence on foreign investments.

9. Develop a standalone computer network system effectively operational in remote environment, cutting power costs, using cheaper alternative sources like solar, wind, and cable and **digital subscriber line (DSL)** infrastructure by utilizing novels, wireless or mesh technologies whereby routers connect the computes on a grid would be effective in overcoming the infrastructural bottlenecks.

10. **Establish a National continuous learning system (NCLS)** including macroeconomic policies to convert knowledge into products and provide the right kind of incentives to encourage firms to take the necessary risks in setting up supplementary non formal institutions and generate the benefits from developing skills.

5. **Conclusion**

Focused initiatives in assessing outcomes and efficiency/effectiveness of ODL which still remains at lower level of sophistication because of the inability to examine these issues at a more complex level owing to the limitations in both the nature of the delivery system, lack of organized data and managerial inadequacies shall play a crucial role for SAARC economies in becoming forerunners in sustainable development.

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Education for sustainable development

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Abstract: Education for sustainable development (ESD) provides the society a new learning incentive in a way that they become capable of developing and applying alternative visions to achieve a sustainable future, and to work together towards the achievement of visions to improve and develop education and training programs.

Introduction: Education for Sustainable Development is an educational vision that seeks to find balance between human and economic welfare, cultural traditions and the sustainability of natural and environmental resources, in order to ensure a better life for both individuals and society at present and, for future generations as well. The implementation of education for sustainable development principles requires the adoption of several educational approaches with multi purposes and teaching methods, to ensure lifelong moral learning to all social groups and areas, promote the dignity of human needs, which is in line with sustainable and balanced use of natural resources and the preservation of these resources, for the sake of humanity at present and in the future.

Meaning and scope of Education for sustainable development: Many scholars agree at the point that education for Sustainable Development is an extension of environmental education that would promote a sense of responsibility and active learner’s participation in resolving environmental problems. Education for Sustainable Development is an emerging but dynamic concept that encompasses a new vision of education that seeks to empower people of all ages to assume responsibility for creating a sustainable future. ESD means a lifelong learning process that leads to an informed and involved citizenry having the creative problem solving skill, scientific and social literacy, and commitment to engage in responsible individual and cooperative actions. These actions will help ensure an environmentally sound and economically prosperous future.
Strategic Perspectives on Sustainable Development: Human rights is at the heart of sustainable development. Education about sustainable development must enable people to assert their right to live in a sustainable environment. Peace and human security; the fragile processes of sustainable development are undermined by insecurities and conflicts which cause suffering, pressurize health systems, destroy homes, schools and whole communities, and lead to the large-scale displacement of people. Gender equality; each member of society must respect others and be able to fulfill their potential. Men and women must see each other as equals, recognizing their shared responsibilities and individual roles as caretakers of the environment in which they live and, more broadly, the world around them. Cultural diversity and intercultural understanding opportunities for education and development are damaged by a lack of tolerance. Peace is founded on intercultural understanding. Health is closely bound with environment and development issues. Poor health hampers economic and social development, triggering a vicious cycle that contributes to unsustainable resource use and environmental degradation. We must protect the world’s natural resources, which are essential for human development and survival humanity depends upon goods and services provided by ecosystems. Climate change involves the entire world, and is bound up with issues of poverty, economic development and population growth. Cities have moved to the forefront of global socio-economic change, with half the world’s population living in them, and the other half increasingly dependent upon them for their economic, social and political progress. Cities pose threats to sustainable development, but also hold opportunities for economic and social advancement and environmental improvements. Disaster prevention and mitigation: sustainable development is undermined where communities suffer or are threatened by disasters. Education for disaster risk reduction can reduce vulnerability and improve self-help strategies. Poverty reduction: this is the central issue of the economic element of sustainable development, and the overarching concept guiding internationally agreed upon goals and commitment to world development. The economic power and political influence of large multi-lateral corporations indicates a huge potential contribution to, and effect on, sustainable development. Market economy: the current global market economy poses challenges to the environment that can promote exploitive activities, placing populations in precarious economic conditions.

The core strands of education for Sustainable Development: Education for Sustainable Development is considerably broader in scope and complements the adjectival educations. Education for Sustainable Development is a new model of education that builds on the existing good practices. It puts emphasis on practical skills that are good for self-employment and are increasingly sought by employers. It involves learner until their behaviors are changed and new values and ethics, formed. It goes beyond knowledge, skills and attitudes and blends them together. It is context-oriented and puts emphasis on learning, action, reflection and action research to respond to the local issues.
The different vision of sustainable development: Sustainable development, a constantly evolving concept, is thus the will to improve everyone’s quality of life, including that of future generations, by reconciling economic growth, social development and environmental protection. Illustrate, improving the quality of life takes on a different aspect from one continent to another, from one region to another, and from one country to the next. No single continent, government, institution or individual, however, can attain this alone because the nature of the challenges to overcome requires a global, collective, and individual commitment. Improving the quality of our life implies a change in our learning and education is a motor for changing. Education for sustainable development is an approach to teaching and learning based on the ideals and principles that underlie sustainability human rights, poverty reduction, sustainable livelihoods, peace, environmental protection, democracy, health, biological and landscape diversity, climate change, gender equality, and protection of indigenous cultures. In these and many other dimensions, education for sustainable development is analogous with the vision and goals of Human’s society.

The goal of Education for Sustainable Development: The goal education for sustainable development is simple: to prepare responsible and caring citizens for a rapidly changing society. It empowers the student to fuse a sense of connection, purpose, relevance and meaning across academic disciplines as well as ability to think critically. It seeks to find out collaborative solutions to complex issues. ESD supports the integration of these skills, knowledge, and values. From the reviews of works and definition of ESD, it can be said that ESD is a new way (lifelong learning process) of looking at the issue in which the individual and community learn the three “Es” and their connectivity - along with the traditional three “R’s”; explain the understanding of their connectivity and use this knowledge as resource to improve the quality of the present and future generations. ESD is an innovative and constructivist approach to education (or teaching and learning). It is not the subject, or discipline of its own rights. Nor can the teaching be relegated to a single course. Its themes must come to permeate all subject areas at all educational levels. All of us in the world are seeking life satisfaction one way or another, all along the life time. The level of our appreciation of our lives depends on the level of acknowledging satisfying responses from managing our knowledge to administer our life right towards fulfilling our expectations. Substantially, in terms of intellectual investment in the life cycle i.e., rational expectations and accurate knowledge management must be right to have the everlasting right appreciations. There are many policies, strategies and procedures to achieve high life satisfaction. Technology is not the main problem anymore considering the advancing research enterprises, tools and techniques. Certainly, lack of demand-led, partnership and efficient research and appropriate way of helping clientele to get the right image form the exposed research findings is our major problematic issue in development process. Accordingly, development has not that much to do with the research in general today, but definitely has lots of things to do with providing and introducing an efficient extension system in particular. Human development is a literacy driven phenomenon, trickled down in to the community in a great part, if not all, as the result of literal liberalization and democratization. That is, a participatory-partnership, compatible extension system compacted with globalization, internationalization, regionalization, marketization, demand-driven, privatization, specialization and the like. It should be contemplated that extension is not the magic stick to bring about the whole change in to the world of agriculture overnight, especially whilst public extension, unfortunately, suffering
from majority of incompetent change agents with almost no knowledge and education in extension sciences. Certainly, we are facing big challenges dealing with extension inefficiency in different parts of the world today, tracing back to the absence of appropriate and, above all, responsive to the global warnings extension system. Although the impact of extension on economic growth is out of question everywhere in the world, the bottom line of extension paradigm which is human capital development through agricultural literacy is major concern in extension paradigm, the unique extension stature that lamentably has not ever been

**Conclusion:** Sustainable development is a scientific and technological endeavor that seeks to enhance the contribution of knowledge to environmentally sustainable human development around the world.
SHARED LEADERSHIP IN AN OPEN & DISTANCE LEARNING INSTITUTION: FACULTY & STAFF PERCEPTIONS

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Abstract

Sub-Theme: Good Governance of ODL Institutes

Higher education is by nature a knowledge production engine room that requires the knowledge, skills and abilities of more than one person if it is to be successful. In particular, Open and Distance Learning (ODL) is emerging as a driving force to address the fundamental issue of access to quality higher education to enhance human capabilities and achieving the vision of knowledge economy across the globe. Additionally, ODL environment which is characterised by students and campuses or regional centres in far apart locations require creativity, autonomy and interdependence that can only be achieved by the utilisation of different types of technologies. This cannot be achieved through the leadership of a single individual; it requires team or shared leadership that will provide exceptional and excellent organisational governance.

This study explores the staff and faculty perception on (a) the need/ desire for shared leadership in a university; and (b) their perception of college leadership as being inclusive. To achieve this, a survey was conducted among all University of South Africa College of Economic and Management Sciences (CEMS) faculty and staff. A Shared Leadership Perception Index was constructed. This methodology supports an organisation’s approach towards identifying relatively lower rating variables and to focus on these variables in support of corrective actions. Furthermore, the index method also supports longitudinal analysis whereby changes in performance ratings could be monitored over time. Such an approach is also ideal to measure the effect of corrective actions following from previous measurement periods.

The results revealed that about 60% on the average index expressed the desire for shared leadership and participation in decision making and about 62% considers the college leadership to be inclusive. The study recommends communication efficiency and the retention of high quality employees to ensure optimal shared leadership. It is recommended that further studies be conducted to establish the appropriate interventions to ensure there is shared leadership in ODL institutions.

Introduction

Open and Distance Learning (ODL) is emerging as a driving force to address the fundamental issue of access to quality higher education to enhance human capabilities and achieve the vision of knowledge economy across the globe. Ajadi (2009) describes the distance learning as the state of separation or remoteness in relationship between distance learners and distance teachers and Fitzpatrick (in Ajadi, 2009) highlights that the distance learning is the type of education that reaches a broader society of student audience and better addresses students’ needs, is cost effective and incorporates technology. In countries like South Africa where there is high level of illiteracy and unemployment, this mode of education is pivotal in addressing these injustices brought about by the legacy of apartheid. The study by Siaciwena (2006) indicates that distance learning contribute to the development of human resources, meet the educational needs of many capable adults who missed the opportunity to benefit
from conventional university education and widens the access to university education to
many who for various reasons cannot attend the university full-time.

To ensure relevance, institutions need to realise the complexities of governance that will be
needed to be able to meet the challenges of the ODL system. In support of system of
governance that is inclusive, research highlights the benefits and therefore the need to have
an inclusive and shared form of leadership in governing Higher Education Institutes (HEIs)
(Kulati, 2000; Glatter and Kydd, 2003; Möller, 2006; Boland, 2005; Coughlan, Divala,
Enslin, Kissack and Mathebula, 2007; Menon, 2005; Kovac, Ledic and Rafajac, 2003;
Lumby, 2003).

Governance within the HEI attracts increasing attention, and yet participation of faculty &
staff is not featuring prominently. The evidence of employee (both staff and faculty)
inclusion is very weak (Kovac et al. 2003). Employee participation in shared leadership and
governance of HEI’s deserves greater attention, both in practice and principle. This study
explores the perceptions of employees towards the HEI and their jobs, and their attitudes
towards being involved in decision making and teamwork as an indication of their desire for
shared governance.

Literature review
This section reviews literature on HEI’s, both challenges and factors for success. This is
followed with a presentation on the importance of leadership in organisations, governance of
HEI and how to improve participation of all the stakeholders involved. The last section
concludes with employee participation in shared governance as the gap to be addressed
through this study.

Challenges facing the Higher Education
The key developmental agenda that is facing South African higher education is that of
transformation and addressing the inequalities left by the apartheid legacy. Nearly two
decades in the democratic dispensation, the same challenges identified by the White Paper
(Anonymous, 1996 and Fielden, 2008) on higher education are still prevalent to date. These
include the need for:

- **Increasing and broadening participation**: It is argued that a successful policy must
  overcome a historically determined pattern of fragmentation, inequality and
  inefficiency. It needs to increase access for historically designate groups, and generate
  new curricula and flexible models of learning and teaching, including modes of
  delivery, to accommodate a larger and more diverse student population. To this end,
  ODLs are rightfully suited to meaningfully broaden the access, and increase the
  participation of historically designate groups in reducing the skills gap.

- **Responding to societal interests and needs**: by restructuring the higher education
  system and its institutions to meet the needs of an increasingly technologically-
  oriented economy. The policy needs to also deliver the requisite research and the
  knowledge to equip a developing society with the capacity to address national needs
  and to participate in a rapidly changing and competitive global marketplace.

- **Encouraging cooperation and partnerships in governance**: in that, successful
  policy must re-conceptualise the relationship between higher education and both its
  internal and external stakeholders. It must also create an enabling institutional culture
  that is sensitive to values that affirms diversity and promotes reconciliation.
In addition, the Higher Education South Africa (2010) highlights that other challenges entails shared responsibility amongst variety of stakeholders and issues relating to power for institutional autonomy. As a matter of fact, addressing these challenges not only requires a mindset shift but also a system of governance that is accommodative and leadership that is inclusive and shared in its approach.

**The importance of leadership in university governance**

The concepts of leadership and governance are almost used synonymously within the context of Higher Education, however, we intend having a distinctive approach of the two otherwise closely related concepts. We are of the view that governance does not happen in a vacuum, it is driven by leadership. For the purpose of our discussion leadership needs to be understood in three ways, as a “role” that is carried out by post-holders, as a function that can be performed, formally and informally at different level of the institution, and as a process of social influence that guides individuals towards particular goals” (Middlehurst, 1999).

HEIs are highly complex talent machines with complex governance structure that need to stay in touch with realities of today while developing leaders and visions for tomorrow. The leadership that can realise and exploit the benefits of shared governance as discussed below is the one described by Ngambi (2010) as cooperative, team-oriented, collaborative, transparent, fair and contextual. This is the leadership that aim to achieve optimum worker productivity, combine risk taking and innovation, foster participation of employees and empower the work force (Beaty, 2007), promotes “learning” (Van der Heide, 2007), bolster leadership development in their organisations (Charan, 2005), excel in tapping into the needs and fears of faculty and staff (Buckingham, 2005), is sensitive, and recognise and reward talent (Dicocoo, 2007). This is the leadership that is operationally aware and active, but is not micro managing, the leadership that sets the vision, and motivate everyone to rally behind that vision, the leadership that creates organisational ownership amongst faculty and staff, the leadership that value morals and integrity and respect cultural differences. This is the leadership that is committed to the process of shared responsibilities, is consciously distributed throughout an organisation, spanning levels and flowing both up and down hierarchies (Lumby, 2003) and ensures that governance is shared and embraced.

**Governance and leadership of HEI’s**

The term ‘governance’ is approached and used differently by various countries and scholars. Governance as defined by the University of Oxford (2006); Moses (2006); Simplicio (2006); Gayle, Tewarie and White Jr (2004); Larsen, Maassen and Stensaker (2009) is the processes of decision-making within an institution which enables an institution to set its policies and objectives, to achieve them, and to monitor its progress towards their achievement. It also refers to the mechanisms whereby those who have been given the responsibility and authority to pursue those policies and objectives are held to account. Governance on its own is a very broad concept and Middlehurst (1999) classify the following three dimensions of governance as is referred to in the higher education context:

a. The constitutional and legal framework which regulates the relationship between universities and state government - ‘the governance of higher education’, this definition is supported by Coughlan *et al.* (2007); Anonymous (1996); and Fielden (2008).
b. The overall structure and process of internal co-ordination and control in an institution, ‘university governance’.

c. The specific role and activities of an institution’s most senior, strategic committee or board, ‘the governing body’ (Baird, 2006).

Gayle et al. (2004), however, argue that effective governance is not a smooth ride. They highlight that there are number of challenges to effective governance which include; too many constituencies at the academic table with conflicting agendas; differing philosophical views on the extent of inclusiveness and depth of consultation with employees and differences in perspectives between students, faculty, trustees and administration. To overcome these challenges it is critical for HEIs to adopt a shared system of governance, where all the stakeholders can have a ‘guaranteed voice in decision-making’ (AFT Higher Education, 2010; Olson, 2009) but not ultimate authority, ‘share responsibilities’ (Pam, 1999), ‘capitalize on collective intelligence’ (UASGRC, 2008), ‘strengthen the democratic principle’ (Miller and Pope, 2000; Wood 1993) at work, and be ‘more responsive, more effective and more efficient’ (Larsen et al. 2009). It can be argued then that this form of governance will enable the institutions to be both relevant and remain competitive.

Shared governance aims to ensure that there is a balance between faculty and staff participation in planning and decision making and an administrative accountability (Olson, 2009; Darden, 2009). These authors also emphasise that “shared” means everyone has a role, however, it does not mean that every constituency gets to participate at every stage, but certain constituencies are given primary responsibility over decision making in certain areas. In addition, Simplicio (2006) argue that in shared governance no one group can claim dominance and that all groups are equally critical to the success of the institution.

Miller, McCormack and Pope (2000) argue that shared governance has proven to be both creative and beneficial in that, it leads to greater personal investment by faculty; promotes greater organizational commitment; wider selection of options can be developed; leads to creative communication among all stakeholders and enhances stronger dedication to the workplace. These benefits can then be translated into the best practices, namely, creating an atmosphere that fosters trust; developing a collaborative attitude and participatory process; enhancing an extensive communication channels; encouraging informed participation and training; focusing on effective and efficient processes and subjects and allowing for flexibility in shared governance structures (UASGRC, 2008). And finally, it can be viewed as decision-making “culture and tool” (Miller and Pope, 2000).

Employee participation in HEI governance

While there are studies (Boland, 2005; Menon, 2005; Menon, 2003) which indicate that there is student involved in shared governance in HEIs though limited to a degree, faculty and staff involvement to issues of governance remain elusive. One study by Kovac et al. (2003) highlight that staff and faculty involvement in decision making process at the university broad, strategic issues was non-existent and that employees’ involvement was only confined to the departmental level, without any influence at the strategic university level. This study confirms the findings of Miller (2001) which found that college presidents regarded shared governance as a system of checks and balances and not an integral part of institutional decision-making, and moreover do not ‘blindly’ support the faculty involvement in issues of governance. The same feeling is echoed by faculty members in Mok (2010) and report that
they feel less emancipated and empowered. It is in light of these disempowering findings that this study intends to establish the perceptions of faculty and staff with regard to their role in college governance and how they perceive the college leadership at large.

**Research design**

University of South Africa (Unisa)’s College of Economic and Management Sciences (CEMS) is the largest in Africa with a student compliment of over 200,000. A census was conducted among all 604 CEMS permanent staff to measure the perception of both the college and the job ratings pertaining to shared leadership, among other things. A self-administered web-based survey approach was used to collect information among all staff members. The research questionnaire for the study was designed by the Bureau of Market Research (BMR), University of South Africa (Unisa) with inputs from the CEMS Executive Dean. The questionnaire was uploaded on the Lime Survey Software Programme and pilot tested prior to being implemented.

A list containing the e-mail addresses of all CEMS staff members was provided by the Office of the Executive Dean and Unisa Human Resources Department. These lists were merged and used to invite all CEMS staff to complete and return the staff governance questionnaire within one week of receiving the e-mail invitation to participate. The e-mail invitation was accompanied by a letter of motivation from the Executive Dean to support and participate in the survey. The initial invitation to participate was supplemented by two solicitations to encourage late or non-respondents to participate.

**Research Focus**

The questions in the CEMS shared leadership perception questionnaire largely used a 5-point closed-ended rating approach to capture staff’s confidence levels regarding the staff perception of aspects their job and CEMS rating. The questionnaire concluded with an open-ended response option to allow staff to finally comment on aspects most liked and valued about CEMS (which they regarded as strong pillars of the college) and to identify future challenges to be addressed by CEMS, and finally identify perceived method(s) of attending to such challenges.

**Research instrument design**

The questionnaire designed for the staff governance survey included job and college performance ratings. More specifically, the Likert scale measurement method was used to measure satisfaction and performance used the following scale anchors:

*Performance ratings*  
*Very poor, poor, average, good and excellent*

The Likert format lends itself to a basic method of index construction. Since identical response categories were used for several items measuring performance, each item was scored in a uniform manner. To illustrate the way in which the index method was used to construct index scores for each relevant research variable it should be noted, for example, that all ‘very poor’ ratings were allotted a weight of 0, while poor, average, good and excellent ratings were weighted by 25, 50, 75 and 100. The end-result returned an average index score for each variable where scores closer to 100 indicate higher performance rating while scores closer to zero indicate lower performance rating. This explanation also reflects
the value of the index method when making relative comparisons between a set of selected variables. Regardless of whether all research variables return low or high staff governance index scores, some variables will always reflect relatively higher or lower performance rating when compared collectively. This methodology also supports a business approach towards identifying relatively lower performance rating index variables and to focus on these variables in support of corrective actions and higher staff productivity. Finally, the index method also supports longitudinal analysis whereby changes in performance ratings could be monitored over time. Such an approach is also ideal to measure the effect of corrective actions following from previous measurement periods. With no repetitive studies conducted to date in the South African context, the baseline findings of this study will largely serve as a benchmark for future studies.

Pilot study and ethical clearance
A total of 15 staff members were used to pilot test the research instrument and methodology used. The pre-test showed positive findings in terms of the research approach and participation of respondents, and featured very promising prospects in terms of study focus, relevance and accuracy. As the study involved engagement with humans, the research project was also ethically cleared by the CEMS Ethics Committee.

Data Editing, Capturing and Storing
The web-based survey approach permitted the electronic capturing of data on submission of the survey. Senior BMR staff edited, verified and cleaned the captured data prior to storing and analysis. The analysis is presented in detail in the next section. The data presentation and analysis, section also elaborates in more detail on the participation rate of CEMS staff, which indirectly reflects on the engagement of people currently employed at CEMS.

DATA PRESENTATION AND ANALYSIS
This section presents the outcome of the CEMS staff governance survey reflecting on the commitment, expectations and service evaluation of 254 staff members regarding 24 service performance areas of CEMS. More specifically, the section focuses on the following research focus areas:

- Job ratings of staff within CEMS
- Staffs ratings of CEMS as a place to work

Each of the above-mentioned aspects is discussed in detail in separate sections. The discussions are presented according to selected research constructs including tenure, gender, designation and age. Prior to these detailed discussions, we will like to commence with an overview of the profile of staff who participated in the study. These profiles support the aim to better contextualise the outcome of the study.

Sample
A total of 254 staff members out of the total number of 604 participated in the CEMS staff governance survey. This consisted of permanent staff members from all the three schools (namely, School of Accounting Sciences, School of Economic Science and School of Management Sciences) and centres and bureaux. The response rate was 42.1 % which is
regarded as exceptional for a web-based survey, which usually results in a response rate of below 20%.

Of the total number of CEMS staff participants who indicated their gender, 42.1% are male while 57.9% are female. Of those staff members who indicated their population group, 63.8% fall into the non-designated (white) group. A third (35.1%) of participants fall into the age group 21 to 34 years, while approximately a quarter are in the 35-to-44 (26.8%) group and a further quarter in the 45-to-54 (26.0%) age group.

Results
Due to varying response rates, it was decided that the most value could be gained from reporting the survey findings according to the following constructs. Tenure (years employed at Unisa by selected category); gender; population designation classified as non-designated (White employees) and designated (African, Asian and Coloured employees); and age (years by selected age category). Findings according to each of these constructs will be discussed in sections below. Tables 1 show the outcomes of the survey findings by stated construct and according to the research variables investigated in the study. Figure 1 illustrates the overall index, and the overall perception index is 61.39.

Survey analysis
The results revealed that staff members who responded to the job rating questionnaire allocated low rating scores to three specific focus areas: opportunities for advancement (55.81) and receiving feedback (57.47). It is also evident that staff members who had been working at CEMS for two years; female employees; non-designate group or those less than 35 years of age have higher perceptions in general.
Table 1: Shared Leadership Perception survey results

<table>
<thead>
<tr>
<th>Research focus area</th>
<th>Tenure 2 years or less</th>
<th>Gender 10 years or more</th>
<th>Designation Non-designated</th>
<th>Age 21-34 years</th>
<th>Age 35-44 years</th>
<th>Age 45-54 years</th>
<th>Age 55 years or older</th>
<th>Total Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job ratings</td>
<td>Mean</td>
<td>Mean</td>
<td>Mean</td>
<td>Mean</td>
<td>Mean</td>
<td>Mean</td>
<td>Mean</td>
<td>Mean</td>
</tr>
<tr>
<td>Ability to have an impact</td>
<td>62.38</td>
<td>56.49</td>
<td>57.72</td>
<td>63.46</td>
<td>57.37</td>
<td>59.68</td>
<td>63.95</td>
<td>57.65</td>
</tr>
<tr>
<td>Having what you need to do your job</td>
<td>70.79</td>
<td>57.14</td>
<td>64.2</td>
<td>63.46</td>
<td>66.91</td>
<td>67.08</td>
<td>65.12</td>
<td>67.65</td>
</tr>
<tr>
<td>On the job training</td>
<td>66.82</td>
<td>56.49</td>
<td>63.58</td>
<td>65.14</td>
<td>61.87</td>
<td>65.67</td>
<td>61.34</td>
<td>63.53</td>
</tr>
<tr>
<td>Opportunities for advancement</td>
<td>61.45</td>
<td>52.6</td>
<td>48.15</td>
<td>53.13</td>
<td>58.27</td>
<td>54.4</td>
<td>58.14</td>
<td>59.71</td>
</tr>
<tr>
<td>Opportunities for personal development</td>
<td>70.56</td>
<td>65.26</td>
<td>64.81</td>
<td>68.03</td>
<td>67.45</td>
<td>70.77</td>
<td>64.24</td>
<td>70.88</td>
</tr>
<tr>
<td>Receive feedback</td>
<td>62.15</td>
<td>52.27</td>
<td>54.94</td>
<td>58.17</td>
<td>57.37</td>
<td>59.68</td>
<td>57.27</td>
<td>60.88</td>
</tr>
<tr>
<td>Receive supervision</td>
<td>66.12</td>
<td>54.22</td>
<td>61.42</td>
<td>62.5</td>
<td>61.15</td>
<td>64.08</td>
<td>59.88</td>
<td>63.82</td>
</tr>
<tr>
<td>Teamwork within CEMS</td>
<td>60.98</td>
<td>52.27</td>
<td>57.72</td>
<td>57.69</td>
<td>59.35</td>
<td>60.39</td>
<td>58.14</td>
<td>60</td>
</tr>
<tr>
<td>Teamwork within department</td>
<td>63.79</td>
<td>56.17</td>
<td>64.2</td>
<td>65.38</td>
<td>60.25</td>
<td>66.2</td>
<td>58.72</td>
<td>62.35</td>
</tr>
<tr>
<td>---------------------------</td>
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<td>-------</td>
<td>-------</td>
<td>------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>Average</td>
<td><strong>65.00</strong></td>
<td>55.88</td>
<td>59.64</td>
<td>61.88</td>
<td>61.11</td>
<td><strong>63.11</strong></td>
<td>60.76</td>
<td>62.94</td>
</tr>
</tbody>
</table>
The next section reflects on those aspects that CEMS staff members are most appreciative of and which may not be included in the perception statements but were obtained through open-ended questions.

**MOST-LIKED ASPECTS ABOUT CEMS**

This section highlights what the staff values about CEMS. The research findings are based on the outcome of the open-ended response format used to record staff likes about CEMS. The findings are summarised to allow for specific analysis and interpretation:

- Opportunities for growth and development
- Contributing to bridging the skills gap in South Africa
- Inspiring leadership
- Caring staff members
- Diversity and togetherness

**FUTURE CHALLENGES**

Besides citing the aspects liked most about CEMS, college staff were also encouraged to list future challenges for CEMS during the next 12 months. Some of these perceived challenges are listed below:

- Lack of mentoring and succession planning
- Remuneration not matching workload
- Poor communication & lack of departmental integration
PERCEIVED INTERVENTION

Finally, the survey allowed CEMS staff to provide any additional comments related to the intervention strategies they believe CEMS should prioritise in the next twelve months. Some of the common additional comments are listed below:

- Training and development
- Improve communication
- Market related salaries

Discussion of results

The aim of the study was to explore staff perception regarding the inclusivity of CEMS leadership so that appropriate strategies could be developed and implemented in promoting the culture of shared leadership. Furthermore, the study sought to assess the effectiveness of the initiatives introduced by the new college leadership in ensuring that there is shared leadership in the institution. The results do reveal the importance of leadership behaviours and direct supervision to employee perceptions on shared decision making. The outcome of the study reflects high levels of appreciation and respect for the leadership, inspiration, and trustworthiness of the CEMS executive dean in including employees in decision making. Based on the comments given in the open-ended questions above, family values of caring and work enjoyment advocated by the CEMS executive dean and new college management seem to have improved staff confidence and positive perception of the value of their involvement.

The results reveal with regard to tenure and age, that staff members who have been with the institution for more than ten years and those over 45 mostly perceive the college leadership to be less inclusive. This could be attributed to the fact that new leadership are introducing new methods of inclusion including technologically driven methods that might be difficult for older employees. It may also be that these less positive perception of inclusivity has more to do with possible resistance to change and used to being in respective comfort zones. This notion is further supported by the contradiction provided by the high ratings from the same grouping on the question regarding opportunities for personal development. These results are in line with Pam (1999) view, stating that any attempt to introducing shared leadership and governance to community colleges lead to distrust and resistance to change.

All the groupings also scored high on an ability to have an impact in the college, which indicates the desire for employees and willingness of leadership to share power and allow all in the college to contribute, a concept supported by AFT Higher Education (2010) and Olson (2009). In addition it is of interest to note that this is the only area where employees who have been with the college for two years or less, scored relatively low, which is partly understandable because ‘making an impact’, is usually a process that takes more than two years and are probably keen on the new leadership.

Overall, it can be noted that even though the leadership is keen and is intending to promote shared leadership and shared governance principle, not all areas of leadership are shared; this is also noted and confirmed by studies like Olson (2009) and Miller (2001).
The staff generally perceives that the leadership of the college is inclusive, and they feel like part of the college and contribute in matters of leadership and governance, the similar conclusion is echoed by Miller and Pope (2000), Wood (1993) and Miller et al. (2000).

**Recommendations and conclusion**

The outcome of the study reflects high levels of appreciation and respect for the inspiration and trustworthiness of the college leadership. Family values and work enjoyment advocated by the CEMS executive dean seem to have improved staff perception towards inclusivity and caring. This suggests that the approach leadership takes in responding to changes in an institution can have far-reaching effects including improved staff morale, more especially to those employee who seem to score low. This notion is supported by studies including Dye and Garman, (2006), Johnsrud (1996), Plata (1966), Turner and Myers (2000), Connell, Ferres and Travaglione (2003), Corbitt and Martz (2003), Costa (2003), Dirks and Ferrin (2002) and Kerlin and Dunlap (1993).

The results of this study have revealed that there is a need to pay attention to differences in age, tenure and race in developing strategies to address issues of governance and leadership. A “one size fits all” strategy might not be effective. This study has provided a much-needed information as to how leadership can improve on its engagement with staff and is supported by the literature (Bowers and Cooper, 2009; Dye and Garman, 2006) regarding the importance of first conducting employee surveys before developing strategies that affect them.

Higher education institutions (HEIs) should be proactive in addressing issues of governance and leadership by first conducting a survey to determine the issues that affect staff perception on leadership before developing institutional action strategies.

Furthermore, it is recommended that higher education institutions pay attention to the leadership skills and competencies when appointing managers who in most cases would have been academic experts but lack managerial experience. This implies that appropriate training and development should be offered to staff in higher education institutions to equip them with the requisite leadership skills, so as to participate meaningfully as part of distributed leadership. HEIs should be alert to external factors that might affect employee engagement. They could also provide a platform to allow staff an opportunity to voice their concerns and provide inputs for management such as having a portal where they can anonymously give their input. Creative ways of recognising and compensating ‘good’ work and staff carrying extra workload, as well as paying market-related salaries should be explored. HEIs should be alert to differences in age, tenure and race when developing morale- and performance-related strategies, which may require different approaches. It is recommended that further studies be conducted to establish the appropriate interventions to ensure there is shared leadership in HEIs, especially the ODL institutions.
**Limitation of the study**
Since this was a baseline study using a unique research design based on an index methodology, implemented in the higher education environment in a South African college of economic and management sciences for the first time, it largely disallows any comparisons. Despite this shortcoming, the research model presented a constructive design to identify constructs affecting staff leadership perception relatively more or less than others. Internally the model also suited comparative analysis of staff leadership perception across different sub-units within and across colleges. This approach allowed for a more confined approach to identifying both sub-units and constructs affecting staff leadership perception within the economic and management sciences field in higher education in South Africa. Furthermore, the study provides information that can be utilised for decision making and strategy formulation at other universities.

**References**

Title of the Paper:

“Moral and Spiritual Dimension of Education for Sustainable Development”

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“Time is short. We must seize this historic moment to act responsibly and decisively for the common good.” (Bani Ki-moon, United Nations, 2008)

ABSTRACT OF THE PAPER

The Project makes references to the UN call to promote educational programmes on sustainable development world-wide. It examines the need to include moral and spiritual dimension in such programmes as indeed moral and spiritual values are well embedded in the documents and international agreements related to sustainable development. Without these values the impact of developmental undertakings will become superficial, temporary and even harmful. The Project throws light on several references from a number of such documents and international agreements including the report of the World Commission on Environment and Development (1987) called “Our Common Future”, which is considered to be the starting point of international efforts for sustainable development, Agenda 21, the Rio Declaration, Copenhagen Declaration on Social Development, a number of other UN resolutions, and recognized works on sustainable development by international scholars and agencies. It shares the experiences of development workers at international, national and grass root levels about the need for
adhering to moral and spiritual values when delivering sustainable development. A number of spiritual indicators for development are discussed; among them are gender equality, unity in diversity, independent investigation of truth, equity and justice, and moral leadership.

Despite the fact that moral and spiritual dimension of development has been repeatedly mentioned in several UN statements and other works, they have not had an adequate influence on the way development has been implemented and received at local level, hence the need for education on sustainable development. Indeed the general masses are not only unaware of their indispensable role in sustainable development, but even they lack the vocabulary to express their needs and cultural values. It is appropriate then to attend to this crucial theme, design and implement innovative educational programmes at various levels to enhance moral leadership in sustainable development and promote its value-based implementation.

The Project ends with a set of positive suggestions to boost the impact of education for sustainable development through the contributions that moral and spiritual factors can make to this process.

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**Research questions:**

1. How far has education for sustainable development been urged by the UN?
2. Are moral values an integral part of sustainable development?
3. What are some of moral and spiritual indicators for sustainable development?
4. Is it necessary and practical to include moral and spiritual dimension in education for sustainable development?
5. What are some possible components and methodology for an educational programme on sustainable development?
Introduction

‘Agenda 21’ (UN Dept. of Economic and Social Affairs, Division for Sustainable Development, 2009) states that “individuals should be allowed to develop their full potential, including healthy physical, mental, and spiritual development.” The signatories to the Copenhagen Declaration (World Summit for Social Development, 1995) have emphasized both material and spiritual aspects of the life of man:

“Our societies must respond more effectively to the material and spiritual needs of individuals, their families, and the communities in which they live … not only as a matter of urgency but also as a matter of sustained and unshakable commitment through the years ahead.”

Furthermore in ‘Habitat Agenda’ (United Nations Conference on Human Settlement: Habitat II, 1996), the participants committed themselves to “achieving a world of greater stability and peace, built on ethical and spiritual vision.” Hence the call is for a development that is at the same time “social, economic, and spiritual’ and that man’s real development, happiness and his healthy relationship with each other and with the nature can take place when material, moral and spiritual aspects of his life are well connected and mutually coordinated, and when spiritual principles influence development thinking.

Q 1: How far has education for sustainable development been urged by the UN?

According to World Commission on Environment and Development, 1987, it is crucial to globally develop human resources that are both technically capable and value oriented:

“Human resource development is a crucial requirement not only to build up technical knowledge and capabilities, but also to create new values to help individuals and nations cope with rapidly changing social, environmental, and development realities. Knowledge shared globally would assure greater mutual understanding and create greater willingness to share global resources equitably.” (World Commission on Environment and Development, 1987, p.11)

The Commission calls for ‘a vast campaign of education, debate and public participation’ to create such attitude changes that are urgently required to address the sustainable development goals. The Commission says:

“First and foremost, this Commission has been concerned with people - of all countries and all walks of life. And it is to people that we address our report. The changes in human attitudes that we call for depend on a vast campaign of education, debate, and public participation. This campaign must start now if sustainable human progress is to be achieved.” (ibid, p.23)

Let’s note how unambiguous the Commission is by saying that sustainable progress requires changes in human attitudes that in turn depend on an educational campaign to be undertaken now, said in 1987. Attitude is the outcome of one’s upbringing and, at deeper level it depends on
The document concludes by highlighting its own experience about the values and attitudes that made it possible for the Commission to produce a unanimous report:

“The Commission has completed its work. We call for a common endeavour and for new norms of behaviour at all levels and in the interests of all. The changes in attitudes, in social values, and in aspirations that the report urges will depend on vast campaigns of education, debate and public participation...The process that produced this unanimous report proven that it is possible to join forces, to identify common goals, and to agree on common action. Each one of the Commissioners would have chosen different words if writing the report alone. Still, we managed to agree on the analysis, the broad remedies, and the recommendations for a sustainable course of development. In the final analysis, this is what it amounts to: furthering the common understanding and common spirit of responsibility so clearly needed in a divided world. … Gro Harlem Brundtland, Oslo, 20 March 1987” (ibid, pp. xiv-xv)

Q 2: Are moral values an integral part of sustainable development?

Note: The author has underlined the moral values, principles, and attitudes in order to add emphasis.

Formulating "A global agenda for change” was the aim for which the World Commission on Environment and Development was created. The starting pages of its famous report “Our Common Future” refers to numerous moral ‘values’ and ‘attitudes’. It mentions that it was an urgent call by the General Assembly of the United Nations to

“… recommend ways concern for the environment may be translated into greater co-operation among developing countries and between countries at different stages of economical and social development and lead to the achievement of common and mutually supportive objectives that take account of the interrelationships between people, resources, environment, and development.”(1987, p. ix)

The attitudes that made such an achievement possible included the attitude of ‘responsibility’ and ‘active support’ by all the Commission members. (ibid) Furthermore to become successful the Chairman had a critical task in selecting the membership of the Commission in such a way that the Commission would be a ‘truly independent’ Commission.(ibid, p.xii) Another distinctive attitude implanted in this documents is the attitude of ‘commitment’. (ibid, p. 21) The document also talks about the role of the international community to adhere to the ‘value’ of ‘fairer sharing’ of responsibilities and burdens between both debtors and lenders. (ibid, p.18) In the same context the document acknowledges the unfair situation that although the risks are shared by all but the privilege to participate in decision making has not been extended to all the stakeholders:

“Many of the risks stemming from our productive activity and the technologies we use cross national boundaries; many are global. Though the activities that give rise to these dangers tend to be concentrated in a few countries, the risks are shared by all, rich and poor, those who benefit from them and those who do not. Most who share in the risks have little influence on the decision processes that regulate these activities” (ibid, p. 35)
Another angle to the nature of inequality and injustice that is currently happening is expressed by Elliot Lorraine:

“The nature of inequity and injustice in the global politics of the environment is perhaps best captured in two related ideas, displacement and transnational harm (such as ecological deficit and disproportionate consumption of resources and waste production.). These ideas enable us to understand environmental degradation is an ethical problem as well as an ecological one.” (2004, pp. 138-139)

The right to preserve cultural identity of all the stakeholders is yet another aspect of ‘equality and justice’. (Aristides, Katoppo, 1985). The Rio Declaration advocates a ‘new and equitable global partnership’ (UNCED, 1992a) and stresses the right of the indigenous people to receive support for their identity, culture and interests:

“Indigenous people and their communities and other local communities, have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognise and dully support their identity, culture and interests and enable their effective participation in the achievement of sustainable development.” (International Development Research Centre, 2009, accessed 23 June 2009)

‘Equitable opportunity for all’, a requirement of sustainability, that is closely related to the above values is sanctioned by ‘Our Common Future’. (p.44) It recognizes the importance of ‘social justice within and amongst nations’ (ibid, p.47) and states that we have a ‘moral obligation to other living being and future generations’ (ibid, p.37). Inequality in access to resources is a major cause of problem in implementing sustainable development: “Many problems arise from inequalities in access to resources,” says ‘Our Common Future’ (p. 48) It is said that unity and cooperation result into development, where as disunity and separation imply death.

“… it is fundamental that the transition to sustainable development be managed jointly by all nations. The unity of human needs requires a functioning multilateral system that respects the democratic principle of consent and accepts that not only the Earth but also the world is one.”(ibid, p. 41)

Highlighting justice, equality and sincerity, the Commission confirms that a root cause of poverty is inequality. According to ‘Our Common Future’ “Within countries, poverty has been exacerbated by the unequal distribution of land and other assets.”(ibid, p. 29)

Agenda 21 speaks of the benefits of “equitable, secure, non-discriminatory and predictable multilateral trading system” that “is of benefit to all trading partners.” (UN Dept. of Economic and Social Affairs, Division for Sustainable Development, 2009) The following moral values are referred to in ‘Agenda 21’ to be the requirement for sustainable development to succeed:

Equitable world economy, interdependence of the community of nations, overcoming confrontation and fostering a climate of genuine cooperation and solidarity, multinational cooperation (UN Dept. of Economic and Social Affairs, Division for Sustainable Development, 2009)
Although ‘Cooperation’ repeats itself in almost all the documents we need to remember that cooperation is dependent upon other values such as love and the attitude of compassion (Rees William, 2002.) ‘Contentment’ is another value that relates to our lifestyle and thus success of the sustainable development. ‘Our Common Future’ states:

“...sustainable development requires the promotion of values that encourage consumption standards that are within the bounds of the ecological possibility and to which all can reasonably aspire.” (World Commission on Environment and Development, 1987, p. 44)

As Mahatma Gandhiji has emphatically reminded us "There is enough in this world for everybody’s need, but not enough for certain peoples’ greed" (Mahatma Gandhi in Goodreads Inc, 2010)

Q 3: What are some of moral and spiritual indicators for sustainable development?

The Bahá’í International Community (BIC), an international non-governmental organization, has been both directly and indirectly engaged in a number of developmental activities in all the continents for several decades. Having consultative status with the UNO, it has actively taken part in the non-political discussions, summits and activities of the United Nations Organization including the conferences and summits on sustainable development. According to the statement issued by the office of the BIC at the UN Headquarters:

“If, indeed, spirituality is as crucial to sustainable development as these global action plans have avowed, then it is time to move beyond generalities, to explore, in depth, the spiritual principles at the heart of development and to consider fully their ramifications for all stages of the development process.” (BIC, 2000, accessed 10 April 2010)

In that context it is essential that the educational programmes aiming to promote sustainable development should go beyond generalities of moral and spiritual values and should rather be more action oriented and application based. They should integrate such norms and indicators that recognize and respond “to inequities in the global politics of the environment (and development) and, second, the nature of rights, duties and obligations” of all the stakeholders. (Elliot, Lorraine, 2004, p. 137) Among these norms and indicators are the following:

1. Social justice and equality
   “The physical, social, economic, legal and political designs of our communities must serve all members of society, not just the privileged.”(BIC, 1996, accessed 10 April 2010)

2. Interdependence:
   “A truly just and equitable society will require a citizenry which understands that the interests of the individual and of the community are inextricably linked;”(ibid)

3. Human dignity and human rights:
   “…the advancement of human rights requires full commitment to the corresponding responsibilities;” (ibid)
4. Gender equality:
   “… when women are welcomed into full partnership with men in all fields of human endeavor, families, communities and nations will prosper and advance....” (ibid)

5. Participatory approach:
   “Top-down model of community can no longer adequately respond to modern day needs and aspirations. The world community must move toward more participatory, knowledge-based and values-driven systems of governance in which people can assume responsibility for the processes and institutions that affect their lives. These systems need to be democratic in spirit and method, and must emerge on all levels of world society, including the global level. Consultation-- the operating expression of justice in human affairs -- should become their primary mode of decision making.” (ibid)

And ‘Our Common Future’ further states:
   “... the rapid population growth that has so profound an impact on the environment and on development in many regions is driven partly by such factors as the status of women in society and other cultural values. …new approaches must involve programmes of social development, particularly to improve the position of women in society, to protect vulnerable groups, and to promote local participation in decision making.”(World Commission on Environment and Development, 1987, p. 38)

Q 4: Is it necessary and practical to include moral and spiritual dimension in education for sustainable development?

Thinking of the necessity and practicality of including moral and spiritual values in the efforts to promote and implement sustainable development the experience of the World Commission on Environment and Development in order to make the Commission a success is an eye opener. The first thing it found out was that it was necessary to create unity of purpose, vision and thought among the Commissioners and that was possible only when Commission began to put into practice some human values and principles in its day-to-day operation. The Chairman highlights the role of human values and attitudes in his introductory remarks to ‘Our Common Future’:

“The differences of perspective seemed at the outset to be unbridgeable, and they required a lot of thought and willingness to communicate across the divides of cultures, religions, and regions. … The fact that we all became wiser, learnt to look across cultural and historical barriers, was essential.... We joined the Commission with different views and perspectives, different values and beliefs, and very different experiences and insights. After these three years of working together, travelling, listening, and discussing, we present a unanimous report. I am deeply grateful to all the Commissioners for their dedication, their foresight and personal commitment to our common endeavour. It has been a truly wonderful team. The spirit of friendship and open communication, the meeting of minds and the process of learning and sharing, have provided an experience of optimism, something of great value to all of us, and, I believe, to the report and its message. We hope to share with others our learning process, and all that we have experienced together. It is something that many others will have to experience if global
sustainable development is to be achieved.” (Emphasis has been added by underlining.)
(World Commission on Environment and Development, 1987, p. xiii)

As stated above the Chairman says that many others also should experience what they
experienced at the Commission so that the goals of sustainable development could be achieved. Therefore any attempt to foster education for sustainable development should empower the
stakeholders to overcome the cultural and other barriers and promote reaching unity of purpose,
vision and thought. This requires that such human values and attitudes should become part of any
educational programme on sustainable development. The Chairman expresses the conviction that
to follow human values is practical and not a wishful thinking and that it is possible to harmonize
human affairs with the ‘natural laws’, the basis of human values:

“We have the power to reconcile human affairs with natural laws and to thrive in the
process. In this our cultural and spiritual heritages can reinforce our economic interests
and survival imperatives.” (ibid, p.1)

Speaking of economic growth Dresner Simon comments that economic growth without equality
breeds poverty (2003, p. 69). He concludes by saying:

“Hence, our inability to promote the common interest in sustainable development is often
a product of the relative neglect of economic and social justice within and amongst
nations.”(ibid, p.49)

Therefore those who learn about sustainable development must necessarily develop the
capabilities of translating the principles of equality and social justice into practical steps and
action plans. ‘Sincerity’ is another fundamental value to ensure fulfilling the goals of sustainable
development.” (World Commission on Environment and Development, 1987, p.65)

The author has been discussing the question of human values and sustainable development with a
number of development grass root workers, academicians, implementers and policy makers. All
have commented that including moral and spiritual values in development thinking and process
is practical, essential and beneficial to achieve the goals of sustainability. They have observed
that paying attention only to people’s material development does not take care of many other
basic human needs and aspirations. Unfortunately despite the fact that most people believe that
they are not just material beings, when it comes to development thinking and implementation,
they forget about moral and spiritual values. It is a well known fact that without moral guidance
and practice of uprightness corruption creeps in, self-interest overtakes public interest, and
development project fails. When principles of justice and equity are practiced the stakeholders at
the grass root participate fully and a stronger sense of community life that is required to bring
about the sustainable development goals at the local level is created, said those with whom the
author has been discussing the theme of this paper.
Q 5: What are some possible components and methodology for an educational programme on sustainable development?

Moral leadership in sustainable development and promoting its value-based implementation can be a worthwhile objective of an educational programme on sustainable development. For example an approach to development has experienced that if people are empowered to consult with spirit of unity about their needs they are able to uncover the course of their action and find capacity they possess for development. Therefore the people’s material needs and the human values cannot be separated from each other artificially and education must take note of this. To learn making principle-based decisions is equally important as the benefits and the results of such decisions.

Some of the distinguishing features of this developmental approach happening in different parts of the world are ‘the integration of the moral and the practical, a unity of conception that allows for great flexibility of application and, above all, the ability to arouse and maintain motivation.’ (BIC, 1989 Feb 09). These can form some of the components of an educational programme on sustainable development.

Agenda 21 speaks of the need for value based management at all levels of sustainable development. It says:

“2.32. Good management that fosters the association of effective, efficient, honest, equitable and accountable public administration with individual rights and opportunities is an essential element for sustainable, broadly based development and sound economic performance at all development levels. All countries should increase their efforts to eradicate mismanagement of public and private affairs, including corruption, taking into account the factors responsible for, and agents involved in, this phenomenon.... 2.37... (b) Promote transparency in administration and decision-making;” ((UN Dept. of Economic and Social Affairs, Division for Sustainable Development, 2009)

Hence training in value-based management for sustainable development can become another aspect of an educational programme on sustainable development. Some other aspects of such a programme may include understanding the mutual inclusiveness of social, economic, environmental and spiritual development, developing community level vision for sustainable development, changes required in man’s attitude and behaviour, cooperative and collaborative learning and working together and capacity building for developmental leadership in local communities.

Conclusion and positive suggestions

Initiating an educational campaign of sustainable development is long overdue. Such a campaign should use all the means at its disposal-- formal programmes using both face-to-face and distance modes, debates, awareness programmes, etc.-- to reach to all the stakeholders at various levels of the society. Its focus should go beyond conveying the technical know-how
about sustainable development but ensure that both material and spiritual aspects of human life are addressed.

Among the spiritual aspects are the universal human values and the value-based attitudes that are essential if sustainable development should succeed. These values have been stated in various documents and literature of sustainable development. These principles should be placed at the heart of development and their ramifications be fully considered for all stages of the development process. Hence the educational campaign should not limit itself to merely pronouncing those values but empower the stakeholders with necessary abilities and approaches to practice them in all the stages of sustainable development, be it planning, implementation or evaluation. To succeed in this endeavour the objectives of such campaign should include building capabilities by clarifying essential concepts, developing related skills, enhancing right attitudes and spiritual qualities as well as providing access to crucial information.
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ABSTRACT

The University of South Africa (Unisa) is an open distance learning (ODL) institution that provides students with easy access to higher education. Many public servants work full time and can only study part time; this means that Unisa is their university of choice. Public Administration education at Unisa can help to build human capacity in the public service. Building human capacity in the public service can, in turn, help to improve service delivery and was a point raised at the ANC conference at Polokwane. It also forms part of the Human Resources Development Strategic Framework for the Public Service: Vision 2015. The purpose of this article is therefore to determine if Unisa’s ODL policy can be used to teach Public Administration and thus improve human capacity in the South African public service.

INTRODUCTION

Building human capacity in the South African public service is of great importance to transform the government and improve service delivery to citizens. The University of South Africa (Unisa) that makes use of an open distance learning (ODL) policy can assist in building this much needed human capacity. One of the subjects that the university provides to students by making use of ODL is Public Administration. Public Administration as a subject can play an important role in building human capacity, skills and knowledge in the South African government. The need to provide some form of professional education and training in Public Administration to improve government functions has been recognised as far back as the eighteenth century; since then the education of public servants has developed through many phases, to the point where Public Administration is a distinct academic subjects. (Adedeji & Baker, 1974:119). Today, the need for educated public servants has become even more important, since South Africa, has a definite need for skilled, educated and trained public servants. Many universities in South Africa, including Unisa, teach Public Administration. However Unisa is a comprehensive higher
education institution that provides a combination of the philosophies and programmes offered by the former technikons and traditional universities. Nearly a third of all students studying in South Africa are registered at Unisa (Unisa HEQC, 2008:3). Unisa has a specific social mandate to provide open access to its students – especially working, poor, rural and under-prepared students (Unisa HEQC, 2008:3). The use of ODL forms an integral part of the way that Unisa functions, communicates and provides higher education to students in South Africa, Africa and the rest of the world.

The purpose of this paper is, firstly, to explain the need for building human capacity in the public service. Secondly, this paper will determine how teaching Public Administration at Unisa, which uses ODL, can help to build human capacity in the public service. This article will also examine the advantages and benefits of using ODL to teach Public Administration.

This paper is based on a review of the most recent scholarship on the development, use and advantages of ODL. Information about Unisa, Public Administration education, and the capacity needs of the public service was collected from literature, the internet, and official documents (e.g. policy papers, Acts and bills).

**THE NEED TO BUILD HUMAN CAPACITY IN THE PUBLIC SERVICE**

In South Africa, the public service is the supplier or provider of particular products or services that South African citizens might need. It therefore goes without saying that, in order to be able to provide these services, the South African public service is in need of educated, trained and professional public servants. One of the important prerequisites of the *Constitution of the Republic of South Africa, 1996*, is the maintenance of a public service that is efficient, effective and career oriented (Constitution of South Africa 1996: 107-111). The previous South African Minister of Public Service and Administration, Geraldine Fraser-Moleketi, stated in the Budget vote speech of 2002 that government spent an estimated R3 billion per annum on Information and Communication Technology (ICT) goods and services, but that only 20 percent of public servants are computer literate. The need to train public servants extends to each state department at both national and provincial level and each individual civil servant. Geraldine Fraser-Moleketi also stated that the public service was in need of new skills (Fraser-Moleketi 2002).

More recently, in 2004, the need for more skilled public officials was illustrated by a statement by Fraser-Moleketi that the government would be recruiting new skilled personnel and that this recruitment would take place primarily from African countries, India and Iran (with whom South Africa has bilateral agreements). From 14 to 17 November 2005, the Minister of Public Service and Administration led a delegation to India with the specific purpose of reaching agreement between the two countries on the Indian public service being willing to help South Africa through the transfer of Indian public servants, as well as training interventions and mentorship programmes for South African public servants. According to Fraser-Moleketi, this would help the South African public service to bridge the skills gap within the public service and thus provide better service delivery. (Fraser-Moleketi, 2005: online.) In 2007, in a speech to the South African Local Government Association (SALGA), Fraser-Moleketi stated that the public service was required to continue with its mandate of providing services, but that the government found it hard to attract and retain people with the required skills. Government is currently
considering various options in order to expand its existing skills base by looking, for example, at foreign skills exchange programmes.

In May 2008, during the launch of the Human Resources Development Strategic Framework for the Public Service: Vision 2015, the Minister of Public Service and Administration stated that “one of the handicaps in improving service delivery and ensuring a better life for all is the lack of suitable skills by functionaries of the state”. The Public Service has approximately 1 056 244 employees, which represents about 9% of the total employment in South Africa. (Fraser-Moleketi 2008: online.). As the major employer in most jurisdictions, and as a sector with significant economic impact, the Public Service must compete for the nation’s skills. This constitutes a major challenge for public organisations as they seek to maintain an adequate skills base, especially in occupations and areas where skills are scarce. The government is therefore moving towards a system of self-development. The responsibility for developing the capacity to enhance job performance in the public service should be an individual’s responsibility. The intention in the public service is to move towards a system where people can improve and develop themselves so that their performance can be improved on an ongoing basis. Education and training can be seen as an important aspect of this, one that can help people to improve and develop themselves. Training and education also holds some advantages for building much needed human capacity.

ADVANTAGES OF TRAINING AND EDUCATION IN BUILDING HUMAN CAPACITY

According to Kroukamp (2003:7), education and training can help the public service to develop the professional capacity of public servants and to promote institutional change. Training also helps to equip public servants with the knowledge, skills and competencies they need to carry out their jobs effectively. According to the White Paper on Public Service Training and Education (1998:19), training and education in the public service can:

- help to equip public servants, whether workers or managers, with the necessary knowledge, skills and competencies to carry out their jobs effectively in pursuit of the vision and mission of the public service;
- enable public servants to deal effectively and proactively with change and the challenges of a dynamic working and external environment;
- enable public servants to acquire a new development oriented professionalism;
- help to address issues of diversity, while also promoting a common organisational culture to support unity at the workplace and the ethos of a single public service;
- be a powerful instrument for anticipating, as well as facilitating, the introduction of institutional changes within the public service; and
- assist public servants in developing a better understanding of the needs of the communities which they are serving, as well as the capacity to respond to these needs.

Apart from the public service’s need to build human capacity and the advantages of training and education for those working in the public service, Unisa offers students the opportunity to work full time (e.g. in the public service) and study part time. Education at Unisa takes place through distance learning.
Unisa was founded in 1873, in Cape Town, as the University of the Cape of Good Hope. Until 1916, the university served as an examining body for Victoria College, Stellenbosch and the University of Cape Town. In 1916, through a decree, the University of the Cape of Good Hope was incorporated into a federal University of South Africa. The structure of the university was radically amended. Control was vested in a Council and Senate, upon which seven constituent colleges were represented. These colleges later became independent universities. In 1918, the university moved from Cape Town to Pretoria. The federal university did not teach private students; it merely examined them. Even before the disappearance of the University of the Cape of Good Hope, tutorial classes and correspondence colleges had been founded in South Africa to cater for the needs of students examined by the university. The Higher Education Amendment Act of 1946 enabled the university to undertake the tuition and guidance of the candidates for its examinations. In 1946, the University of South Africa became the first public university in the world to teach exclusively by means of distance education. Prior to the 2004 merger, the university incorporated two distance education teacher training colleges, when the decision was made for all teacher education to be moved to universities. The university underwent different “generations” of distance education – from being a correspondence institution, to the incorporation of multimedia (radio, tapes, videos, videoconferencing), to introducing a tutor system and, finally, to developing its own online learning management system (LMS). Students Online (SOL) was finally used to develop the university’s own online learning management system (LMS). By making use of Students Online (SOL), students could do administrative tasks such as check results, change addresses and submit assignments or access their study material and, of course, chat online with other students. At the time of the merger, the university had 1,239 academic employees, 2,046 administrative and professional staff and 145,043 students, plus a nationwide regional infrastructure that included contact tutorials for students. The university was accredited by the Distance Education and Training Council (DETC) in Washington DC in 2002 and the merged institution in 2004. During 2007, student enrolment increased to 226,269, thus confirming Unisa as the university of choice for many students. (Unisa HEQC, 2008:4-12.)

Unisa currently plays a crucial role in South African and African affairs and has an essential social mandate in that it serves people who would otherwise not have access to tertiary education – either for financial reasons, or because they are in full-time employment, or because they live in remote areas, or because they suffer from some form of disability. These categories also include public servants who are working full time; if they are to improve their skills and knowledge, these people need easy, open access to university education and a flexible study programme. Because it is an ODL institution, Unisa has the potential to offer this to all its students.

OPEN DISTANCE LEARNING (ODL) AT UNISA

According to the United Nations Education, Scientific and Cultural Organization (UNESCO, 2002: online), the terms “open learning” and “distance learning” represent approaches that focus on open access to education and training provision, thus freeing learners from the constraints of time and place and offering flexible learning opportunities to individuals and groups of learners.
Open distance learning means increased access and flexibility and the ability to combine work and education. In addition, open distance learning means a more learner-centred approach and new ways of interacting with students. Open distance learning reflects the fact that all or most of the teaching is conducted by someone removed in time and space from the learner. The aim of open distance learning is to include greater dimensions of openness and flexibility, whether in terms of access, curriculum or other elements of structure. UNESCO states that open and distance learning is one of the most rapidly growing fields of education in the world. Open distance learning therefore plays a decisive role in, especially, the creation of a global knowledge society (UNESCO, 2002: online).

According to Pityana (2004:4), “open” in distance education usually signifies that entrance requirements are simplified or judged on the basis of the individual candidate’s readiness to undertake tertiary studies. “Open” also implies an ability to face up to the learning future and adapt and develop as circumstances dictate. “Distance” suggests that the learner and the educator undertake the transmission and learning tasks without being mediated by time and/or space (Pityana 2004:4).

The definition of open distance learning used by Unisa (Unisa, 2008: online) includes the following: Open distance learning is a multi-dimensional system aimed at bridging the time, geographical and transactional distance between: student and institution, student and lecturers/tutors, students and courseware, and students and peers. An important point to understand about ODL at Unisa is that all systems – the strategy, what the university does, how the university does it (processes), what the university does it with (infrastructure: technological, human and financial) – have to be integrated to support the academic enterprise and the student. The open learning movement focuses on lowering entry requirements and then supporting students in their attempts to reach the desired outcomes. Open learning is an approach that embraces student-centredness in the following ways (Unisa HEQC, 2008:4-12):

- lifelong learning
- flexibility of learning provision
- removal of barriers to access learning
- recognition of prior learning
- provision of student support
- construction of learning programmes with the expectation that students can succeed

Unisa follows a written policy on ODL that states its intent on developing and using ODL. The policy has a strong focus on South African society’s needs in that it

- provides quality general academic and career-focused learning opportunities underpinned by principles of lifelong learning, flexibility, and student-centredness;
- undertakes research and knowledge development guided by integrity, quality and rigour;
- participates in community development by utilising its resources and capacities for the upliftment of the disadvantaged;
- is accessible to all learners, specifically those on the African continent, and
the marginalised, because it provides a barrier-free environment and, at the same time, responds to the needs of the global market;
• addresses the needs of a diverse student profile by offering relevant learner support, facilitated by appropriate information and communication technology;
• cultivates and promotes an institutional ethos, intellectual culture and educational experience that is conducive to critical discourse, intellectual curiosity, tolerance and a diversity of views;
• contributes to the establishment of a good and responsible society by graduating individuals of sound character and versatile ability; and
• meets the needs of a global, competitive society by nurturing collaborative relationships with its stakeholders and other partners (Unisa, 2008b: online).

Through the use of ODL, Unisa is providing quality distance education to significantly more students than would previously have had access to higher education. Some of the other benefits and opportunities of ODL include the following:

Advantages, benefits and opportunities of ODL

• Open and distance learning provides students with easy access, ideas and opportunities to study. Apart from giving access to lifelong learning, ODL offers study opportunities to students from different backgrounds, age groups and geographical areas. Other advantages of ODL include the following (UNESCO, 2002: online):
  • increased access to learning and training opportunities,
  • increased opportunities for updating, retaining and personal enrichment,
  • improved cost effectiveness of educational resources,
  • improved quality and variety of exciting education opportunities,
  • enhanced and consolidated capacity.

Apart from the advantages of ODL, ODL also offers some of the following benefits and opportunities to the university and students (UNESCO, 2002: online)

• balancing inequalities between age groups,
• extending geographical access to education,
• delivering education to large audiences,
• expanding the capacity for education in new and multidisciplinary subject areas,
• offering the combination of education with work and family life,
• developing multiple competencies through recurrent and continuing education,
• enhancing the international dimension of educational experiences, and
• improving the quality of existing educational services.

ODL has given more students the opportunity to study at UnisaODL also provides an opportunity for public servants to study at Unisa and improve their skills and knowledge; in so doing, these people can help to build human capacity in the public sector.
THE TEACHING OF PUBLIC ADMINISTRATION AT UNISA

At Unisa, the Department of Public Administration and Management is responsible for providing Public Administration education. The syllabus in the Department is relevant to the challenges facing South Africa at national, provincial and local government level. The course content is designed to equip students with knowledge, and with both practical and academic skills. The mission of the Department of Public Administration and Management is “to be of service to all stakeholders and role-players in public administration as well as the subject Public Administration by means of teaching, research and community service, with a view to making a positive contribution to the quality of life of all people, particularly those of Southern Africa”. In this Department, Public Administration is the subject that studies the nature and practice of government. More specifically, Public Administration is a subject that (Unisa 2008a: online):

- is fulfilling, topical and dynamic,
- provides an understanding of how Public Administration (the nature and practice of government) works,
- explains the dynamics of activities in the public sector,
- educates people for a career in government,
- links knowledge learned to specific employers at all spheres of government,
- allows for comparisons with other government systems, and
- equips students with professional, managerial, administrative and thinking skills.

The Department provides a variety of courses at both undergraduate and postgraduate level. Public Administration is offered through various three-year bachelor’s degree programmes (e.g. BAdmin, BA & BCom), honours degree programmes (e.g. BAdmin Honours, BA Honours & BCom Honours), a master’s degree in Public Administration (MPA consisting of course work as well as a dissertation of limited scope), a research master’s degree (MAdmin, MA & MCom) and research doctorates (DAdmin, DLitt et Phil & DCom). The vocational education currently consists of a three-year National Diploma in Public Management and another one in Local Government Finance, a one-year BTech degree in Public Management and another in Local Government Finance, a MTech degree consisting of course work and a mini-dissertation, and a research MTech degree.

An assessment of the undergraduate learning programmes and degrees that can be used to educate and train public servants shows that these fall into three categories or streams. The first stream consists of the BA degree with Public Administration as a major subject. The purpose and function of the BA degree can be explained as follows:

- The primary purpose of the BA degree is to provide BA graduates with the knowledge, specific skills and applied competence in a number of fields traditionally associated with the Humanities, thus providing them with opportunities for continued personal intellectual growth, gainful economic activity and enabling them to make a valuable contribution to society.
- A second purpose of the qualification is to provide South Africa (and other countries) with graduates in a number of learning fields in order to ensure that innovative and knowledge-based economic and scholarly activity is widened.
• A third purpose of the qualification is to provide South Africa (and other countries) with people who can understand the constructive role they need to play in their society and who are empowered to play that role. (Unisa, 2006a: Online)

A characteristic of the BA degree is the emphasis on personal intellectual growth, making a valuable contribution to society, and the widening of innovative and knowledge-based economic and scholarly activity. This degree falls within the category of providing “a general education for all students or society in general, because it is good to be educated”(Unisa, 2006a: Online).

Another degree that can be offered with Public Administration as a major subject, at Unisa, is the BAdmin degree. The purpose and function of the BAdmin degree can be explain as follows:

• The primary purpose of the BAdmin degree is to provide BAdmin graduates with the knowledge, specific skills, applied competence and the attitudes they need in the fields of development and public administration to make them lifelong learners, employable workers/entrepreneurs, and contributors to development and public administration in various public and civic contexts.
• A second purpose of the qualification is to provide South Africa (and other countries) with graduates in development and public administration to widen the leadership base of innovative and knowledge-based economic and scholarly activity.
• A further purpose of the qualification is to provide South Africa (and other countries) with people who can understand the constructive role they need to play as change agents in the field of development and public administration. (Unisa, 2006b: Online)

The major difference between the BA and BAdmin degrees is the scope of study. The BA degree focuses on society in general, while the BAdmin degree focuses on the field of public administration and development studies. The National Diploma and BTech fall within the vocational category. The purpose of the National Diploma in Public Management is “to train and educate learners to master current and future managerial and development skills for the public service, which includes all spheres of government” (Peninsula Technikon, 2006a: Online). The purpose of the BTech in Public Management is “to provide learners with a normative and philosophical base for research and public sector vocation so as to prepare them to eventually assume management positions” (Peninsula Technikon, 2006b: Online).

The subjects within the Department include: education, health, protection, housing and environmental studies. Management principles form an important part of the curriculum. The curriculum mainly addresses the challenges facing South Africa in various spheres of government (Finweek, 2007: online). However, UNISA has started a recurruculation process of qualifications that will be implemented in 2012. The National Diploma in Public Management will change to a Diploma in Public Administration and Management and the National Diploma in Local Government Finance will change to a Diploma in Local Government Finance. The new Diploma in Public Administration and Management will still include all the knowledge and information that a student will need to function effectively in the public service (UNISA College of Economic and Management Science’s Undergraduate PQM and Teach Out Plan 2009-2015: 110-113.)
The Department of Public Administration and Management also has a Centre for Public Administration and Management (CePAM) that provides informal training courses (e.g. certificate courses). The Centre offers various short learning programmes, courses, workshops and seminars to local, provincial and national government sphere role-players, non-governmental organisations (NGOs), community-based organisations (CBOs), communities and other interested clients. Training is done through distance and contact sessions (Unisa, 2008c: online).

From the above, it is clear that the Department of Public Administration and Management at Unisa provides a public servant with all his or her educational needs. Through the Department of Public Administration and Management, a public servant can enrol for a short certificate course, a diploma or a degree. By making use of ODL the department offers flexibility by offering all its courses through distance education, thus giving students the opportunity to work full time and study at any location where they work or stay. More than 16 000 students on average are taught during each administration period by the department, making the Department of Public Administration and Management the largest of its kind at any South African university (Finweek, 2007: online). The university’s ODL policy makes it possible for the Department of Public Administration and Management to reach and teach a large number of students, and gives these students the opportunity to study Public Administration and improve their skills and knowledge that contributes to the building of human capacity in the country.

CONCLUSION

This paper demonstrated the need for building human capacity in the public service. Education and training can help to build human capacity. Many public servants work full time and therefore do not have time to enrol for a diploma or a degree. However, Unisa’s ODL policy gives students easy access to tertiary education and the flexibility of studying while working full time. This article also indicated that Public Administration education at Unisa can contribute to human capacity building in the public service. The course content of Public Administration at Unisa is designed to equip students with knowledge, and both practical and academic skills.

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Goonasagree was born in South Africa (SA). She pursued her studies at the University of KwaZulu Natal (B.Bibl and honours and MA degrees in Public Administration), University of Edinburgh (MBA), University of Pretoria and Gonzaga University-Washington State (PhD. in Public Affairs). In 1991, she was employed by the Department of Education. She joined the SA Public Service in 1994 whereby she was actively involved in the transformation of government departments. She was also actively involved with various projects in SA, India, France, UK and the US. In 1998, she was employed as a trade executive for African Affairs by the DTI in the UK. In 2002, she was employed as a lecturer at the University of Pretoria. In 2004, she was employed as a lecturer at the University of Cape Town. She is currently employed as a Professor by the University of South Africa where she is also the Head of the Department for Public Administration and Management. She was nominated to chair various committees in SA. In 2002, she was invited to participate in the UN Economic Forum focusing on development
issues. In 2002, she was invited to participate on a global seminar on ICT hosted by Michigan University. In 2005, she was invited to participate in the ‘Africa Public Service Day’ forum. Since 2005, she has been invited to participate in various academic projects both nationally and internationally. She has widely published and presented papers internationally. She has been awarded numerous awards and scholarships.

**LIZA CECIEL VAN JAARSVELDT**

Liza Ceciel van Jaarsveldt received a BA degree from the University of Pretoria, in South Africa in 1996 and obtained a BA (Hons) in Public Administration at the same University in 1997. In 2000 she received a Diploma from the Erasmus University in the Netherlands and the Pretoria Technikon for completing a course in Safer and Healthier Cities. In 2003 she obtained a MA Degree in Public Administration also from the University of Pretoria. The title of her dissertation was: "Web-based training in Public Administration in South Africa: Principles and considerations". Liza is currently enrolled for a DLitt et Phil: Public Administration degree at the University of South Africa (UNISA). The title of her thesis is: "The acquisition of practical skills such as Information Technology competence through undergraduate Public Administration curricula" At present Liza is a senior lecturer at the Department of Public Administration and Management at the University of South Africa (UNISA). Prior to joining UNISA, she was employed at the Central University of Technology in the Free State (from September 2003 until December 2005). Her academic career started in 1999 at the School of Public Management and Administration at the University of Pretoria in South Africa.
LEARNING TO KNOW FOR A PEACEFUL AND SUSTAINABLE FUTURE: AN ESD SOURCEBOOK FOR EDUCATORS AND LEARNERS

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Introduction

We need a new concept of Sustainable Development, one that is holistic, appropriate, balanced, harmonious and human-centered, one that will improve the quality of life for all. Sustainable development is for all. It requires the efforts of all to save the Earth for present and future generations.

The UNESCO-Asia Pacific Network for International Education and Values Education (APNIEVE) APNIEVE is a UNESCO-affiliated non-profit organization of individuals and institutions, both government and non-government, committed to and involved in the promotion of peace, human rights, democracy, sustainable development and intercultural understanding in the Asia Pacific Region. Recognizing the crucial role of teachers, APNIEVE focuses on the preparation of teaching-learning materials and the training of teachers from all levels to use these materials and adapt them to their own classes, particularly for sustainable development.

Education for Sustainable Development

APNIEVE’s humble contribution to sustainable is in the area of Education for Sustainable Development (ESD) which is the education which addresses the four pillars of SD as interdependent and interconnected dimensions—society, culture, environment and economy—to bring about the improvement of the quality of life for all.

APNIEVE has identified content areas and core values under each of the four interrelated dimensions of sustainable development which can guide us to re-orient, reform and repackage our curriculum. For the social dimension, the core areas are human rights, peace and human security, gender equity, holistic health, and good governance. The core value is peace and non-violence. For the cultural dimension, the content areas are cultural and linguistic diversity, intercultural and interfaith understanding, cultural heritage, tangible and intangible, cultural goods and services, and indigenous knowledge. The core value under the cultural dimension is tolerance of diversity. Under the environmental dimension are the content areas of natural heritage and resources—water, energy, agriculture, biodiversity, climate change, rural development, sustainable urbanization, and disaster prevention and mitigation. The core
value is care and protection of the environment. The content areas of the economic dimension are poverty reduction, corporate responsibility and accountability, and market economy. Equitable sharing of resources is the core value.

**Holistic and Integrated Approach to Quality ESD**

Educating for peace and sustainable future societies requires a new approach, moving away from traditional, rigid, content-oriented methodologies to more holistic, integrated, innovative and creative strategies. There is a need for a human-centered, future-oriented paradigm and a holistic approach to teaching and learning.

Such a holistic concept requires a holistic approach to quality education which aims to develop the faculties of the human person: cognitive, affective, active. Knowledge alone has not and cannot solve the problems of humanity.

A holistic approach to teaching and learning challenges individuals to go beyond gathering and mastering facts, concepts and theories about sustainable development. It calls for values integration across disciplines, into each subject in the curriculum, into our daily life and behavior. Education for Sustainable Development (ESD) which employs the integrated approach to education prepares learners to become advocates for a sustainable future.

UNESCO-APNIEVE proposes a model of holistic and integrated learning. It is a four-step process (Figure 2) which does not necessarily follow a prescribed sequence, but may be modified according to the situation, the needs of the learner and the creativity of the facilitator (UNESCO-APNIEVE, 2004).

**Step One: Cognitive Level – KNOWING.** This first step addresses and nurtures the intellectual faculties of the learner. It introduces specific facts and concepts, information on social issues and problems, background data on culture, history, geography, new technologies, economy, government, religion, and the natural environment of one’s own country and those of others that are to be looked into and examined. How these affect the self and others, our values and behaviors, are suggested for the learners to consider. It develops the person to think critically and creatively. Knowing, however, is still within the parameters of facts and concepts. This level should therefore move into deeper understanding and insight.

**Step Two: Conceptual Level – UNDERSTANDING.** In the cycle, distinction is made between knowledge and wisdom. Knowledge without understanding may lead to insult, but knowledge with understanding leads to insight. This is why the conceptual level is divided as two separate steps. Knowledge could be easily explained by the educator and in turn quickly memorized by the learners. For the learners however to understand and thereby gain insight requires wisdom. Concepts that are made concrete for the learners could be grasped more fully and easily by them. These steps are expected to result in social awareness and consciousness, and social insight.

**Step Three: Affective Level – VALUING.** The third step allows the educators to enter into the affective realm of the learner. Educators must not underestimate the importance of the emotional and psychological dimension of the learners. Seldom, however, do educators ask the learners what they feel. Often, the questions are limited to what they should know.
How a learner reacts affectively to experiences is an essential dimension to examine and from which to learn. Oftentimes, the affective part provides the motivation which leads to the actualization of a value in behavior and daily life.

This third step ensures that knowledge and understanding are filtered through one’s experiences and reflections and are eventually affirmed affectively, cherished and appreciated and embraced as motivations for behavior and as life goals and ideals, resulting to social concern and commitment.

**Cognitive Level**

**KNOWING**
- about oneself and others;
- one’s personal values and those of others;
- one’s community and those of others;
- environmental, economic, social and cultural factors involved in sustainable development (facts, information, etc.)

**Active Level**

**ACTING**
- application in one’s life and work the community
- decision-making and implementation communication skills, teamwork, violent conflict-resolution, etc.
- simplifying one’s lifestyle, practicing the 5’Rs (action and practice)

**Conceptual Level**

**UNDERSTANDING**
- one’s self and others individually and in concepts, key issues, processes, underlying factors and how these interrelate with one another to improve non-violent conflict-resolution, etc.
- the quality of life of the present and future generations (insight, awareness, realization)

**Affective Level**

**VALUING**
- reflecting, accepting, respecting
- appreciating one’s own and other’s values, personal and social goals and
- the core values of each dimension of sustainable development (internalized as part of one’s value system)

**Figure 1  The Teaching-Learning Cycle**

**Step Four: Active Level – ACTING.** The concepts and values that are internalized ultimately lead to action. Whether the action is expressed in improved communication skills, better decision-making, non-violent conflict resolution, etc., the value concepts find their way into our behaviors. The learners are thereby challenged to see through the spontaneous flow of the concept and affective dimension into behavioral manifestations. Sometimes, this flows
naturally. Other times, it involves further skills enhancement in the particular area. This develops the ability to practice one’s values in daily life.

The holistic and integrated approach to the teaching-learning process can develop the cognitive, affective and active powers of the learner towards the attainment of more integrated learning outcomes: knowledge and understanding, insights and realizations, values, attitudes, and convictions; skills, competencies and patterns of behavior. Learning outcomes cannot be compartmentalized. In fact, they are closely interrelated and interconnected; hence, the need for a well-rounded educator who can use innovative, holistic and integrated approaches to develop the powers and faculties of the learner to the fullest (Quisumbing, 2005, p.42).

**Sources and Strategies**

The holistic approach necessitates a shift from the traditional mode of teaching, which focuses on the teacher as sole purveyor of knowledge or as a perfect example, to learning which is student-centered. It calls for sources aside from the textbook and uses such teaching-learning materials as references on the social, cultural, economic and environmental dimensions of sustainable development, Universal Declarations, official documents and reports, multimedia, the Internet, current issues, TV and newspaper clips, etc. It selects strategies which are more evocative, experiential, reflective, interactive and participative.

The use of the following techniques, among others, are suggested:

1. **Music** , lyrics and melody, as a powerful medium can elicit insights and values on ESD.
2. **Poetry** and **quotations** from famous authors are effective motivators.
3. **Cartoons** and **newspaper clippings** allow learners to keep in touch with relevant matters and issues.
4. **Evaluative techniques** like rating scales can motivate learners to assess their feelings, values and actions.
5. **Expressing agreement or disagreement** helps learners examine the strength of their feelings about a given value or issue.
6. **Visualization and meditation exercises** lead learners to get in touch their thoughts, feelings and insights.
7. **Values ranking** challenges learners to thoughtfully consider decisions among alternatives and clarify priorities.
8. The **values continuum** provides learners with a greater range of choices on ESD issues.
9. **Unfinished sentences** surface some indicators of learners’ values as manifested in their attitudes, plans, interests, goals.
10. **Poster and slogan making** allows learners to creatively and concretely express their ideas, feelings and plans.
11. **Role playing** allows learners to experience putting themselves into the situation of others.
12. **Story telling** may be favored by younger learners.

The holistic and integrated approach to teaching and learning challenges individuals to go beyond gathering and mastering facts, concepts and theories about sustainable development. It envisions developing persons who have a genuine care and deep concern for nature and the environment, for the social institutions and the cultural legacy of a people— their physical,
economic, moral and spiritual well-being; in order to improve the quality of life of the present and future generations, thus contributing to the building of a peaceful and sustainable future.

APNIEVE has conducted training workshops using a holistic approach through the 4-step teaching-learning cycle for more than 150 teachers from more than 30 countries in the Asia Pacific and for the ASEAN countries of Brunei, Indonesia, Malaysia and the Philippines.

The APNIEVE Sourcebook

UNESCO-APNIEVE with the assistance of UNESCO-Asia Pacific Centre of Education for International Understanding (APCEIU), presents a sourcebook for educators and learners, Learning To Know for A Peaceful and Sustainable Future.

The Sourcebook is inspired by the philosophy of lifelong learning, founded on the "four pillars of education." Learning to Know, Learning to Do, Learning to Be and Learning to Live Together, described in Learning: The Treasure Within (Delors, 1996, pp. 22-24). The International Commission on Education for the Twenty First Century clearly supports a holistic approach to teaching and learning when it stresses the fundamental principle that education "must contribute to the all-round development of each individual—mind and body, intelligence, sensitivity, aesthetic sense, personal responsibility and spiritual values" (Delors, 1996, p. 94).

The Sourcebook contains the main issues and concepts, content areas and values, aims and strategies of ESD, plus 30 modules using the 4-step teaching-learning cycle in integrating ESD into the curriculum, particularly the secondary school. A companion APNIEVE Music Book, The Rainbow of Peace: Learning to Sing for a Peaceful and Sustainable Future utilizes music as an innovative and powerful tool to teach values, especially to the youth of today.

From 2006 to 2009, in collaboration with Department of Education (DepEd) and Fund for Assistance to Private Education (FAPE), APNIEVE-Philippines has successfully conducted ESD and values integration workshops for more than 3,500 secondary school principals throughout the country, using the two mentioned publications. In 2010, APNIEVE conducted similar workshops to educational associations, universities and colleges.

Modules in Learning to Know for a Peaceful and Sustainable Future

The modules serve as prototype lessons to help the educator gain competence and confidence in facilitating the valuing process. Each module consists of a listing of the core value and the related value, with the module title, objectives, content and a step-by-step presentation of learning activities involved in the teaching-learning cycle.

These modules are intended as examples and as guides, to be adapted to local needs and specific conditions. Each module takes approximately 90 to 100 minutes to conduct. The educator should feel free to introduce modifications and variations, such as indigenous content and alternative learning modes, in diverse cultural settings, as the need may arise. Once competent in using the valuing process, the educator will be able to apply it to any content and in any area of education and training.
Module on Creation Spirituality, “Sometimes I Wonder Why”

This module relates to the core value of Care and Protection of the Environment which involves adopting behaviors to protect the world’s natural resources which are essential for human development and survival. The module is also concerned with the related value of Creation Spirituality which celebrates life as sacred and interconnected. It aims to deepen awareness of the destruction caused by irresponsible human action on urban and rural environments.

Objectives

• To enable one to recognize the divine presence in nature and in culture
• To arouse awe and reverence for the sacredness of creation, and for cultural heritage
• To deepen awareness of the destruction caused by irresponsible human action on rural and urban environments

Content

• The State of the Environment in Asia and the Pacific. ESCAP Report 2005
• “Sometimes I Wonder Why,” a meditative song

Procedure/Learning Activities

Conceptual Level: Knowing and Understanding

1. The facilitator (F) presents a brief lecturette on the state of the environment in the Asia-Pacific Region, and in the country, calling attention to the growing threats to environmental, economic, social and cultural survival.

OR

1a. F invites Ps to share their views about the state of the environment in the Asia Pacific Region and the country; the dangers and threats posed by human action. F elicits responses and writes them on the board.

Affective Level: Valuing

2. F leads Ps to a reflection of the above state of the environment in the rural areas and in big cities; the problems and dangers, the challenges and possible solutions, through a visualization exercise.

3. F invites Ps to go through the visualization exercise by playing the music, “Sometimes I Wonder Why” and showing its lyrics.

Sometimes I Wonder Why

I found You
In the wonders of the world
In the splendor of the city
In the monuments of history.

I saw You smile
At the glory of Your sunsets
At the majesty of the sea
At the infinity of the sky.

I felt you
In the freshness of the dawn
In the magic of the moonlight
In the power of the wind.

But now, I see Your cry
At the violence and oppression
At the planet’s exploitation
At the sufferings of the poor.

Refrain 1:

Sometimes I wonder why
We want to conquer all the world
When we have not even learned
To gain conquest of ourselves.

Let’s banish pride and prejudice
Cast out fears and injustices
Give up greed and selfishness

Let hatreds go!
Let hatreds go!

Refrain 2:

Sometimes I wonder why
We want to conquer outer space
When we have not even found
The inner spaces of our souls.

Oh, let us look within our hearts
Learn to love and to understand
To respect and lend a hand
Let peace prevail!

Let peace prevail

4. F requests Ps to share their experience by answering the following questions:

a. What images, thoughts or ideas came to your mind?
b. What struck you most?
c. What feelings were evoked? or What feelings came to you?
d. What messages did the song convey to you?
e. What insights did you gain?

5. After a few minutes, F allows Ps to share their answers with a partner.
6. F invites dyads to share with the big group.

7. F summarizes responses and makes a brief synthesis of salient points and learnings.

**Active Level: Acting**

8. F asks Ps to write a paragraph or two with regards to how the module has influenced or touched them, especially in their view of nature and spirituality.

9. F leads the Ps to complete the following unfinished sentences:
   a. Now that I realize more deeply the sacredness of nature, I will . . .
   b. To improve my relationship with others, I will . . .
   c. To grow in my spirituality, I will . . .
   d. To show my respect and reverence for nature, I will . . .

10. To close the module, F may play again the song and show a Powerpoint presentation with images based on the lyrics of the song.

**Conclusion**

APNIEVE will persevere in its advocacy and training to assist teachers in their crucial role of developing the whole human person, the responsible worker, the committed citizen, and the creator of a peaceful and sustainable society.

However, APNIEVE needs the support of everyone interested in promoting education for sustainable development in the Asia-Pacific Region and in the world.

**References**


http://portal.unesco.org/education/en/ev.php-
ABSTRACT OF THE PAPER

The full paper is going to focus on the view of student teacher about ODL

FULL PAPER

Introduction - Distance learning in India becomes so common and implemented through various modes. In developing countries such as India, huge and costly technologies are not implemented for distance education due to lack of resources and security. When considering the future of distance learning, it is useful to consider the various types of learners who will be motivated to take advantages of these opportunities. However, more young people are becoming aware of the opportunities provided by the online model in terms of enrichment, advanced matriculation and full alternatives to the traditional model. Distance education is beneficial for students who wish to fulfill their education and also those who want to understand the educational information without any burden and time bounding.
Online or distance education has become an advantageous option for people whose personal and professional responsibilities make it difficult for them to attend classes in a traditional classroom setting. This paper highlighted the student’s insight about distance learning and their experiences with online classes while exploring the challenges they’ve faced and what they’ve learned from the experience.

**Need of the study** - The study provides information to students those have ability to succeed in an online environment. The present study will important for independent learners. They know about the distance learning status through the student view. hey have gained confidence in the distance learning. The study is also useful for student teacher who participated in distance mode learning of education.

**Methodology of the study**
For the present study 100 student teachers were selected as random selection method of sampling.

**Rational for the selection of sample** - In the M.Ed syllabus of Teacher Education, there were special unit on the topic of ‘Distance Education’ are given. Student teachers have the basic knowledge about ODL and its procedure.

**Objectives of the study**
1. To study the student teacher view about ODL
2. To analyze the student teachers view about the aspect of ODL

   In the study aspects for ODL like. Learner centric, Open acess, Heterogenety, expense and extended learning etc are covered.

**Tools** - A questionnaire was prepared to know the student teacher view about the ODL with respect to its aspect.

A survey research design was adopted for the study.

**Procedure of the study** - A prepared questionnaire was administered on the study sample group. A questionnaire was based on selected aspect of ODL. 25 questions were included. Student teacher fills up the questionnaire.

Data was analyzed by using statistical techniques percentage, and graphical analysis.

<table>
<thead>
<tr>
<th>S, No.</th>
<th>ODL aspects</th>
<th>Percentages</th>
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<tbody>
<tr>
<td>1</td>
<td>Learner centric</td>
<td>90%</td>
</tr>
<tr>
<td>2</td>
<td>Open acess</td>
<td>80%</td>
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<td></td>
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<tr>
<td>3</td>
<td>Heterogenety</td>
<td>75%</td>
</tr>
<tr>
<td>4</td>
<td>Expence</td>
<td>80%</td>
</tr>
<tr>
<td>5</td>
<td>Extended Learning</td>
<td>90%</td>
</tr>
</tbody>
</table>

**Observation and Interpretation**

Table indicates the percentage obtained as per student responses about ODL regarding its aspects. It shows positive responses about ODL

- **Learner centric** - Table shows the student teacher were agreed that the ODL for teacher education was learner centric. It allows for learning go for beyond. Many students found the method of instruction available via distance education preferable. It is because they can set their own pace.

- **Open access** – Distance education also offers learners access to an incredible wealth of information. Students can use library resources. They can take advantage of experts in the educational field. They enjoy the lectures given by experts in virtual classroom. Today the teacher education is important subject in education. Students can take benefit and experience about the educational innovation in related field.

- **Heterogeneity** – One special learning opportunity provided by distance education is the diverse group of ‘classmates’ often enrolled in a course. In a traditional classroom, there is a great deal of classroom homogeneity but in distance education heterogeneity is more common. For the teacher training course it helps to interact with different peer group and get variety of experience. Teacher can be maintained his dynamic personality.

- **Expense**-Distance education can be cheaper than traditional education
  
  1. Students throughout the world can enroll in the course.
  2. Most students can take the course from home or from other computer sites.

- **Extended Learning**- Extended learning students are usually older than the typical college students. In the part time courses student teacher give her/ his commitment to a given profession or occupation. Extended learning students have limited time to
devote to studying in class. Most student need to have the majority of the course content covered in class.

**Challenges Faced By Students**

- Time management—participating in the student teaching process online differed from traditional classrooms. Classes happen on a strict timetable, tests are scheduled and semesters or terms begin and end in predictable ways. None of this is necessarily so in distance education.

- Distance education is not everyone because the locus of responsibility shifts to the pupil from the teacher. Students who work independently, who are excellent time managers, who are comfortable with the technology and who do not feel a strongest need for face to face interaction with instructors or fellow students can prosper in distance education. Students who find themselves needing those sorts of things are well advised to move to distance education.

- At the current time, especially in rural region, incorporating video into webpage is not generally advisable. Sometime it takes too much time for students to upload and quality is not so high.

- Peer interaction is important part in teacher training course. In traditional classroom teachers monitor what is happening as instruction progresses, teacher see faces, nodding, they quickly determine who is participating and who is bored, they see, at a glance, who is engaged in class work and who is not. These nonverbal cues disappear in many forms of distance education.

- Asking questions, probing responses and interacting with students are skills required for teacher that do not find completely natural in distance education.

- In teacher training course taking to someone one-on-one, hearing voice, experiencing tactile sense a good discussion between teacher and student are prime important for better teacher but in distance education can not provide this because there is minimal face to face interaction between student and teacher.
**Role of the teacher**

- Encouraging students to express abstract concepts
- Motivating students to learn actively.
- Encouraging the mastery of generic skills, critical thinking and inferential thinking.
- Finding materials to use in improving skill required for job.

**Conclusion**

Considering the future of distance education learning, it is useful to consider the various types of learners who will be motivated to take advantage of these opportunities. Distance learning in India become so common and implemented through various modes .In developing countries such as huge and costly technologies are not implemented for distance education due to lack of resourses and security.
Role of Education in managing North Eastern Region in a sustainable way for a brighter future with particular reference to Assam.

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Introduction

We all know that North Eastern Region (NER) of India is a biodiversity hotspot of the world with numerous flora and fauna yet to be discovered and named. Besides being a hotspot, a study has revealed that this region has got the potential to be the future powerhouse of the nation. The area is marked with numerous rivers and tributaries, which are the potential storehouse of generation of hydropower. To minimize environmental impact that is so much pronounced in the coal and oil sectors of the region especially Assam, some renewable measures are to be undertaken to stall the further damage to the already threatened ecology. To name some instances, water pollution and water scarcity, air pollution, problems related to solid and hazardous wastes, soil degradation, deforestation, loss of biodiversity and atmospheric changes besides annual recurring flood and erosion plays havoc on the people besides inflicting heavy damage to the flora and fauna of the region.

To control and minimise these dangers, the environmental public policy should be routinely reviewed so that it covers all the environmental concerns and threats that is afflicting our society at large. Environmental public policy includes all of a society’s laws and agency, enforced regulations that deal with that society’s interaction with the environment.

Two types of environmental issues are included in environmental public policy: the prevention or reduction of the pollution in any medium; and the use of natural resources such as forests, fisheries, oil, land etc.

Study and findings

The time is running shorter if we do not think about some solutions to deal with the present crisis. To deal with the rising human population, the need for greater agricultural production is the need of the hour. To feed the population, forest areas are cleared out to give way for paddy and other agricultural crops thereby increasing the level of deforestation and loss of biodiversity. Day by day, the rate of using chemical fertilisers, pesticides and insecticides are degrading the soil due to acidification process and alkalinity in some other. It is reducing the fertility of the soil, the basic component on which the overall food generation depends. Rapid industrialization of the area is one of the major factors of increasing water, land and air pollution through release of toxic and harmful effluents. Solid and hazardous wastes are one of the main out products of the rapidly expanding urban life. These environmental problems have shown serious impact on health and productivity in poor environment management areas, so much prevalent in the developing nations including NER of India.
frequent occurrence of cholera, malaria, diarrhoea and other water borne diseases in the state and dwindling fisheries, edible water shortages in many parts of the state are due to water pollution in surface as well as ground water. The coal mining area of Upper Assam is a grave concern where open cast mining is still practiced in some parts resulting in many acute and chronic health illnesses. The smoke spewing industries and vehicles adds up considerable amount of pollutants in the air. With spread of urban areas in new and virgin areas, the problem of solid and hazardous wastes has reached a very critical stage in India. The effects can be noticed through diseases spread by rotting garbage and blocked drains and pollution of ground water resources. Solid and hazardous wastes inflicts a deep impact in the form of reduced nutrition for poor farmers on depleted soils and greater susceptibility to drought. Though it has not reached the critical stage in Assam unlike other parts of the country, the time has come to monitor the soil through periodic use of soil and water monitoring systems in the block level. Assam, the land of the blue hills has gradually been transformed to the land of floods due to rampant earth cutting and depletion of forests for agricultural and industrial purposes to meet the reeds of the ever-growing human population. The ill effects due to deforestation are localised flooding, leading to death and disease. Likewise, many of our natural resources besides forests, like wetlands, rivers and tributaries are affected by the rampant pollution caused by human disturbances to the environment.

Solutions

For realising the dream of achieving a greener Northeastern Region, challenges to the environment can be tackled through some of the noble and innovative ways, such as,

- Effective waste management system to control the solid waste generated in the urban areas by turning the garbage to compost. We can effectively manage the waste generated in our cities and towns like it has been done in Suryapet in the state of Andhra Pradesh where we can find a very efficient method of waste disposal management. In Guwahati, the State Government has taken initiative in this regard.

- The power generated by oil can be controlled in a sustainable way through reduction in the plying of personal motor vehicles by levying taxes on those persons who have more than one car. The soft loans and easy instalments for purchase of vehicles should be reviewed. The motto, One drop of oil saved, one drop of oil produced should be strictly followed.

- Using renewable energies like solar and thermal, the generation of power can be hiked without hampering the environment. Assam Energy Development Agency (AEDA) with the help of Ministry of New and Renewable Energy, Govt. of India is taking initiative in providing solar lights and electrification in remote rural places of the state of Assam.

- Wetlands serve as major water reserves. Deepor Beel, situated near Guwahati is a major wetland for floodwater besides it being a Ramsar site and a wetland of national importance. Desiltation should be continued here till the lost area of the Beel is reclaimed.

- Atmospheric changes in the form of pollutants are increasing the global warming and effect on Ozone holes etc. To minimize this crisis, we will have to reduce our Carbon dioxide emissions. The only feasible way to reduce
Carbon dioxide emissions is by reducing our dependence on fossil fuels and giving way to renewable energy sources.

- **NER with huge potential of water can generate hydropower by construction of eco-friendly structures and micro-hydel projects to meet the local specific needs. In addition, Meghalaya having lots of radioactive materials, we can construct latest nuclear plants, one of the safest and greener technologies for generation of power.**

- **Bio-fuels though in a controlled manner can be used to replace the fossil fuel that is so much in demand in this energy deficit country. The fuel should be grown in wastelands and not disturbing the fertile regions of the country so that food crisis does not emerge. One of the potential bio-fuels yielding plant is Jatropha.**

- **With the biofertilisers and biopesticides as well as genetically modified plants (upto a certain extent), we can restore the soil fertility and reduce the dependence on chemical fertilisers. Economically, it is viable, as demand for organics is on the rise in the International level. Vermicompost can play an important role in this regard for the state of Assam as the soil quality is most suitable for production of vermicompost.**

The most crucial aspect of this moment is environmentally sustainable development. The two most important factors for building a greener Assam including NER is,

1. Effective Government policies.
2. Involvement of the citizens through
   - Involvement in local environmental problems.
   - Volunteer to work for environment friendly projects.
   - Become a member of environmental NGO that informs its constituencies of environmental concerns around the country.
   - Stay informed on environmental affairs, only when the public is informed is it likely that grass root support will be maintained and public environmental policy will really reflect public opinion.

**Role of Education for Sustainable Development**

Education plays a very vital role for sustainable development of environment. Education is defined as the process of development, which is concerned with teaching, learning, training and instruction. Education focuses on all round development of the organism as well as it can change and improve the quality of man’s environment for desirable modification of behaviour.

Education is the creature as well as creator of the society and it moulds the structure of the society. The structure of the society again depends on environment. Thus education is the most powerful tool for social change and social control. The social changes are essential to utilise the natural resources of the environment; thereby the relation between education and environment is seen to be very close and cannot be separated.

Education and training for sustainable development is not just education of the environment, but more about values and ethics. The function of education in sustainable development is mainly to develop human capital and encourage technical progress, as well as fostering the cultural conditions favouring social and economic change.
Environmental education is a new area of study, which has evolved under the discipline of education. The urgent need of environmental education have been recognised by most of the people today. Considering the urgent need of environmental education, United Nations has declared 2005-14 as the Decade of Education for Sustainable Development (DESD) under the leadership of UNESCO. The main objective of DESD is to integrate the principles, values and practices of sustainable development into all aspects of education and learning. This effort will bring changes in behaviour, which will create a more sustainable future in relation to environmental integrity, economic viability and a green society for present and future generations.

The objectives cited by UN can be implemented only by education for sustainable development for a better world. The following suggestions can be implemented for achieving the goal of sustainable development,

1. Interdisciplinary and holistic learning rather than subject based learning
2. Value based learning
3. Critical thinking rather than memorising
4. Multi method approaches: word, art, drama and debate etc
5. Participatory decision making
6. Locally relevant information rather than National
7. Make environment and development education available to people of all ages through formal and non formal education
8. Involve school children in local and regional studies on environmental health, including safe drinking water, sanitation, food and environmental and economic impacts of resource use
9. Set up training programmes for school and university graduates to help them achieve sustainable livelihood
10. Encourage all sectors of society, including industry, universities, governments, non-governmental organizations and community organizations, to train people in environmental management through sensitisation cum awareness programmes.

**Important Suggestions for Open and Distance Learning to realise Sustainable Development**

Though we have some effective Government Policies and plans to remove illiteracy from all the sectors, through formal education, we are still lacking behind in encompassing all the strata of the society. Development in real sense can only be accomplished when cent percent literacy can be achieved. When a person becomes literate, he/she can appreciate the importance of the environment around including natural resources and utilization of the later in a sustainable way. Since independence, the policy makers are trying their best to impart quality teaching through formal education but it has been observed that some lacunae still exist in realising the total education in a holistic approach. To eradicate these gaps, open and distance learning has become a quite effective tool to disseminate the much-needed knowledge of sustainable development amongst the common masses. The Open and Distance institutions are doing commendable work in imparting the knowledge among all the levels of society, be it a layman or a scholar.

We have some solutions for a greener North East, through application of ODL in a crucial and most effective manner. The involvement of people is the key factor in increasing the utilization of natural resources in a sustainable manner, be it physical or
biological. For an effective and goal orientated sustainable development, some important points or factors are to be kept in mind when formulating the ODL mechanism. Some of them are, a). the structure of the content, b). Delivery procedure, c). methods for effective implementation of the ODL, d). Result generated and creation of database for all the beneficiaries and e). Periodic assessment process involving quality control and effectiveness.

Some suggestions are enumerated here to make ODL much more effective in dealing with sustainable development.

1. The need for Partnerships: Involvement of reputed NGOs/ Research Institutes/ Academic Institutions with Govt. policies at various levels in order to improve and ensure the quality of ODL programmes. Different disciplines and specialities of diverse areas are to be incorporated to develop the content and management of delivery mechanisms.

2. The importance of flexibility: One should always be dynamic rather than static. Interactive processes through various electronic & print media should be incorporated to make the tool more user friendly so that the common men gets the real knowledge through interactive as well as other relevant processes.

3. To enhance Participation: Various Govt. subsidies, easy loans, quota for the downtrodden and poor peoples should be generated to enhance the level of participation.

4. Maintaining Quality: Effective partnerships with experts, periodic assessment of the content and structure thereby its effectiveness can be improved.

5. Importance of the structure of the content: The first and foremost thing we should keep in mind while formulating the structure of the content is to analyse the local specific problems of the particular area besides the general content in relation to the use of natural resources. The life style of the inhabitants and their economic livelihood should also be emphasised while dealing with the preparation of the content besides indigenous knowledge of the various communities who have undertaken sustainable initiatives should be given due importance.

6. The effectiveness of delivery process: Various electronic and print media with ample source of vernacular languages should be given importance when we design the content so that it can reach the people of the grass root level. Various managerial techniques as well as sensitisation cum awareness programmes will make ODL a successful instrument in dealing with the current sustainable development issues in a positive way.

7. Implementation Strategy: Before undertaking the delivery process amongst the common people, some pilot projects should be done to test the effectiveness of that ODL course so that any loopholes if present can be eradicated beforehand.

8. Result generated and creation of Database: A programme can be classified an effective one if the target group has been benefited in innumerable ways. The ODL course should be strictly monitored to see the generation of positive results amongst the target group. Various results thus generated from numerous zones should be collected and collated to form a database, so that it becomes easier for the beneficiaries for future policy formulation and delivery methods.

9. The value of assessment process: Periodic assessment should be done to check the quality and effectiveness of the ODL courses, for maintaining the standard
at par with the international level. This will only help in delivering the most competitive and effective ODL course to the target group so that the later can handle the use of natural resources in a realistic sustainable manner.

10. Encouragement of hands-on-activities: A mere correspondence type science based ODL course will not benefit the target group in a realistic way. As such some collaboration should be formed between the academic and research institutions so that the learners can get ample scope of hands-on-activities. The inclusion of such type of activities will definitely go a long way in accomplishing the real goal of sustainable development through ODL.

In North Eastern Region including Assam, various Centres of Open Learning conducted by IGNOU, SMU, MKU, KKHSOU et al are doing very commendable jobs. The quality education conferred by these institutions through various ODL courses is quite admirable. Ranging from environmental issues, to child care and sanitation etc, these institutions are slowly helping in accomplishing the much needed educational awareness in the region, be it a layman or an expert in any field.

**Conclusion**

The environmental sustainability is very much linked with the human ethos. The closeness of human and nature and the intimate link and interaction is always cherished in the human history. The sacred groves are associated with the concept of a ‘presiding deity.’ In India, it is scattered in all parts of the country and referred to by different local names. Around 14,000 sacred groves have been reported from all over India, which act as reservoirs of rare fauna, and more often rare flora, amid rural and urban settings. Experts believe that the total number of sacred groves could be as high as 1,00,000. Estimation reveals that around 1000 Sq. Km of unexplored land is inside sacred groves. Some of the famous groves are the Kavus of Kerala, which are located in the Western Ghats and have enormous biodiversity; and the law kytanggs of Meghalaya – Sacred Groves associated with every village (two large groves being in Mawphlang and Mausmai) to appease the forest spirit. One of the most important traditional uses of sacred groves was that it acted as a repository of various ayurvedic medicines. The groves are often associated with ponds and streams, and meet water requirements of local communities. Sacred groves have become biodiversity hotspots as various species seek refuge in the areas due to progressive habitat destruction and hunting. Sacred groves often contain plant and animal species that have become extinct in neighbouring areas. Beside this sacred groves in urban landscapes act as lungs to the city as well, providing us much needed vegetation cover.

Nature worship is in practice since time immemorial in Indian tradition, many citing from Vedas and Upanishads reveals the human inclination towards the various natural phenomena like lightning, wind, thunder, water, fire etc., by giving them names like Indra, Vayu, Rudra, Varuna, Agnideva etc. Upanishads also shows numerous references and records on the eagerness of the human mind to frame a sustainable society like observed in the verse 6/3/6 of Brihadaranyaka Upanishad.

*Madhuvata ritayate*

*Madhu kshyaranti sindhava*
Mardhwina santosadhi
Madhunakta mutososho madhumat parthibam rajaha
Madhu dyorostu naha pita
Madhumanno vanaspati madhumam astu suryaha
Mardhirgavo bhavant naha

The essence of this beautiful verse is to make way for an environment sweeter like honey. Lastly the importance of education is very decisive for imparting environmental education in our country. The directive of the Supreme Court in making environmental education compulsory is a laudable one. The National Green Corps, a programme initiated by the Ministry of Environment & Forests, Govt. of India is really an incredible one to inculcate the seed of love towards nature amongst the children of our society, the future responsible citizens of this great nation.

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Initiatives for Reaching to Unreached
At Secondary Level of Education in Madhya Pradesh

Manju Narula

1. The Context
Elementary education in India is Constitutional commitment. Article 45 of the Indian Constitution guarantees to provide education to all the children up to the age of 14. To achieve the target many projects, schemes, projects and programmes (Operation Blackboard Scheme, Shiksha Karmi Project, Bihar Education Project, District Primary Education Project, U.P. Basic Education, Sarve Shiksha Abhiyan etc.) were initiated*. All these programmes led to massive increase in the enrolment up to elementary education. In 2009 the ‘Right To Education’ also become an Act. All these developments started laying pressure on secondary education. In India, secondary education is a state subject. The state is the main provider and financier of secondary education. Here question arises- Is secondary education sector ready to face these challenges, as children who completes, elementary level of education started knocking the doors of secondary education.? If more and more children join secondary education does this sector have enough schools, teachers, and infrastructure facilities? To meet the challenges GOI during 11th Five Year Plan initiated the Centrally Sponsored Scheme ‘Rashtriya Madhyamik Shiksha Abhiyan’ (RMSA) for increasing access and improvement of quality of education at the secondary and senior secondary levels. In spite of the scheme, ultimately states have to face the challenges created by elementary education. Therefore it has become essential to search other alternatives or measures to accommodate children at these levels of education.

The paper primarily deals with the growth of secondary education in Madhya Pradesh. The objective of this paper is to examine the initiatives taken by the public and private sector to mainstream children up to the secondary level of education and role of Distance and Open Learning for reaching to un-reached at this level of education. The paper presents an overview of the basic facts of the state including access and demand of education. It takes account of management wise schools and enrolment. Subsequently, performance at the secondary level in the state is examined, focusing first on the physical facilities and then on outcome and process indicators (e.g. completion rate, retention rates, drop-out rates, transition rates) at the secondary and senior secondary levels. Finally the paper briefly discusses that in spite of expansion of education facilities; all the youth in the concerned age group are not able to take advantage of formal schooling. Hence it is necessary to design, create and establish alternative educational provisions for such learners.

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2. Demographic Profile
The state of Madhya Pradesh is the 2nd largest state in terms of geographical area (about 308 thousand sq.kms and it accounts about 9.4 per cent of the total geographical area of India) and the 7th largest state in terms of population in India. The bifurcation of population at the secondary and senior secondary levels (14-17 year age) was about 5.2 million consisting of 8.6 per cent of the total population in the state in 2001 (Census 2001). Separately for the secondary school age group (14-15) and higher secondary school age group (16-17), the population size was 2.7 and 2.4 million respectively in 2001.

3. Educational Profile of Madhya Pradesh

3.1 Structures
School education in Madhya Pradesh primarily organized in two stages: Elementary (I to VIII) and Secondary (IX to XII). Each of these two stages sub-divided in to two sub-stages where elementary consists of primary (I to V) and upper primary or middle (VI to VIII), and the secondary comprises of lower secondary (IX and X) and higher secondary (XI and XII). In this structure, the number of schools available in the state varies with the level of schooling. For primary classes there are about 99382 schools in the state and the number of schools declines with higher level of schooling.

Table 1: Number of Schools, Habitation and Enrolment in Madhya Pradesh (2008-09)

<table>
<thead>
<tr>
<th>School</th>
<th>No. of Schools</th>
<th>Habitation Covered (in %)</th>
<th>Ratio</th>
<th>Enrollment (in Lakhs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary (1-V)</td>
<td>99382</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UP (VI-VIII)</td>
<td>47500</td>
<td>90</td>
<td>2.5:1 PS to UPS</td>
<td>46.80</td>
</tr>
<tr>
<td>Secondary (IX-X)</td>
<td>8988</td>
<td>56</td>
<td>5:1 UPS to Sec</td>
<td>12.5</td>
</tr>
<tr>
<td>Hr. Sec. (XI-XII)</td>
<td>3246</td>
<td>45</td>
<td>3.4:1 Sec to H.S</td>
<td>7.72</td>
</tr>
</tbody>
</table>

Source: Directorate of Public Instruction. M.P.

3.2 Gross Enrolment Ratio at the Secondary Level in Madhya Pradesh
The Gross enrolment ratio (GER) of secondary classes includes both over age and under age children in the secondary classes. Out of the 3.04 million population about 1.25 million children were enrolled during 2007-08 for the secondary (IX and X) classes in Madhya Pradesh, consisting 41.1 percent of GRE. By social groups, the GER at secondary level for ST, SC, OBC and Others communities in Madhya Pradesh was respectively 25.2, 44.7, 43.3, 51.3 per cent. It indicates that the lowest and highest GER was observed for the ST and Other’s children respectively (see Table 2).

Table 2: Gross Enrolment Ratio (GER) at Secondary Classes (IX and X) by Social Groups in Madhya Pradesh, 2007-08

<table>
<thead>
<tr>
<th>Details</th>
<th>Source</th>
<th>Year</th>
<th>ST</th>
<th>SC</th>
<th>OBC</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>14-15 Age Population</td>
<td>Estimation</td>
<td>2007</td>
<td>598990</td>
<td>454510</td>
<td>1327410</td>
<td>629090</td>
<td>3048000</td>
</tr>
</tbody>
</table>
3.3 Enrolment by the School Management

The Table 3 indicates that when we distribute the enrolment in the secondary classes, government schools account a major share, i.e. about 59.4 per cent of the total enrolment and the private aided schools contribute 4.1 per cent and the rest 36.4 per cent was the contribution of private unaided schools. Similar was the case of enrolment in the higher secondary schools wherein the major contribution was of government schools (59.1 per cent) and private aided schools share was 6.1 per cent and the rest was the contribution of private unaided schools (34.8 per cent). There was a locational difference in terms of the distribution of enrolment in the secondary and higher secondary classes by the management of schools. The Table also indicates that in urban localities, private sector was the major contributor and in the rural areas it was the public sector.

Table 3: Distribution (%) of Enrolment in the Secondary and Higher Secondary Classes by Management of School in Madhya Pradesh, 2007-08

<table>
<thead>
<tr>
<th>Management</th>
<th>Secondary</th>
<th>Sex Ratio</th>
<th>Higher Secondary</th>
<th>Sex Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RU</td>
<td>R</td>
<td>U</td>
<td>RU</td>
</tr>
<tr>
<td>Government</td>
<td>59.4</td>
<td>73.7</td>
<td>42.5</td>
<td>786</td>
</tr>
<tr>
<td>Private</td>
<td>40.5</td>
<td>26.1</td>
<td>57.5</td>
<td>540</td>
</tr>
<tr>
<td>Aided</td>
<td>4.1</td>
<td>2.5</td>
<td>5.9</td>
<td>511</td>
</tr>
<tr>
<td>Unaided</td>
<td>36.4</td>
<td>23.6</td>
<td>51.6</td>
<td>544</td>
</tr>
<tr>
<td>All</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>678</td>
</tr>
</tbody>
</table>

Note: 1. Sex ratio is female children enrolment per 1000 male children enrolment in each type of management.

Source: SEMIS, 2007-08.

Moreover, there was a gender divide in the enrolment of secondary and higher secondary schools differentiated by the management. Though the sex ratio of enrolment in both the secondary and higher secondary classes was against the female children across the schools distinguished by management, the sex ratio was relatively better in government schools when compared to private ones. It indirectly indicates the parents’ choice/preference between the government/public and private schools was different for son and daughter’s schooling. In other words, government/public schools were preferred for the daughter’s schooling and private schools were preferred for son’s schooling. This phenomenon clearly requires a policy response in the form of expansion and strengthening of government schools and also ‘Open and Distance Learning’ for the development of education in general and girl’s education in particular.
3.4 Performance of Secondary Education in Madhya Pradesh
The demand of education to a large extent depends upon the quality of education. The quality of education can be measured by the completion rates as well as repetition and dropout rates.

3.5 Secondary Completion Rates (grade 10 and 12)
The completion rate is defined as the ratio of number of the secondary level graduates to the secondary graduation age population. According to NSS 61st (2004-05) round survey estimations, the secondary completion rate in the 17-18 years age cohort in Madhya Pradesh was 25.2 per cent during 2004-05 and it was well below (16 position) the national average. In case of the higher secondary completion rate for the age group 19-20, it was 14.5 per cent.

3.6 Repetition and Dropout rates
The Table 4 reveals that the repetition rate at the secondary level was 19.2 and 22.6 per cent for the class IX and X during 2007-08. It indicates that the repetition rate was higher in the class X than that of class IX. In the higher secondary classes, the repetition rate found to be lower than that of secondary level in the state. But as it was observed that at the secondary level, the repetition rate was higher in the final grade (class XII) of higher secondary level when compared to the first grade (class XI).

Table 4: Repetition Rates in the Secondary and Higher Secondary Class in Madhya Pradesh, 2007-08

<table>
<thead>
<tr>
<th>Social Groups</th>
<th>IX</th>
<th>X</th>
<th>IX-X</th>
<th>XI</th>
<th>XII</th>
<th>XI-XII</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>19.2</td>
<td>22.6</td>
<td>19.8</td>
<td>6.9</td>
<td>11.7</td>
<td>17.6</td>
</tr>
<tr>
<td>Male</td>
<td>19.1</td>
<td>22.8</td>
<td>20.5</td>
<td>7.7</td>
<td>13.3</td>
<td>18.5</td>
</tr>
<tr>
<td>Female</td>
<td>19.4</td>
<td>22.2</td>
<td>18.6</td>
<td>5.7</td>
<td>9.0</td>
<td>16.3</td>
</tr>
<tr>
<td>SC</td>
<td>20.8</td>
<td>25.6</td>
<td>21.5</td>
<td>8.7</td>
<td>14.3</td>
<td>20.4</td>
</tr>
<tr>
<td>ST</td>
<td>29.4</td>
<td>29.6</td>
<td>26.9</td>
<td>9.1</td>
<td>13.0</td>
<td>23.4</td>
</tr>
<tr>
<td>OBC</td>
<td>18.8</td>
<td>22.3</td>
<td>19.4</td>
<td>7.1</td>
<td>11.8</td>
<td>17.7</td>
</tr>
<tr>
<td>Others</td>
<td>13.7</td>
<td>19.0</td>
<td>16.0</td>
<td>5.5</td>
<td>10.4</td>
<td>14.4</td>
</tr>
</tbody>
</table>

Source: SEMIS (2007-08) data.

The dropout rate for secondary classes in Madhya Pradesh was 24.8 per cent in the class IX and 31.5 per cent in class X. Between class IX and X it was relatively higher in the final grade of secondary level schooling. Between the male and female children in terms of dropout rate in secondary classes, there was marginal difference observed in the state where dropout rate among the female children of secondary classes was marginally lower than their male counterparts. However, there were significant differences across social groups where the most backward social groups particularly children belonging to SC/ST communities were higher dropout rate than their counterparts in the other communities (see Table 5).
Table 5: Dropout Rates in the Secondary and Higher Secondary Class in Madhya Pradesh, 2007-08

<table>
<thead>
<tr>
<th>Social Groups</th>
<th>IX (%)</th>
<th>X (%)</th>
<th>IX-X (%)</th>
<th>XI (%)</th>
<th>XII (%)</th>
<th>XI-XII (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 All</td>
<td>24.8</td>
<td>31.5</td>
<td>27.7</td>
<td>15.3</td>
<td>51.5</td>
<td>24.8</td>
</tr>
<tr>
<td>2 Male</td>
<td>25.2</td>
<td>32.1</td>
<td>28.2</td>
<td>15.9</td>
<td>50.1</td>
<td>25.4</td>
</tr>
<tr>
<td>3 Female</td>
<td>24.2</td>
<td>30.5</td>
<td>26.9</td>
<td>14.4</td>
<td>53.8</td>
<td>23.9</td>
</tr>
<tr>
<td>4 SC</td>
<td>29.2</td>
<td>32.4</td>
<td>30.6</td>
<td>17.2</td>
<td>54.0</td>
<td>26.1</td>
</tr>
<tr>
<td>5 ST</td>
<td>34.2</td>
<td>31.1</td>
<td>33.2</td>
<td>16.0</td>
<td>62.6</td>
<td>26.3</td>
</tr>
<tr>
<td>6 OBC</td>
<td>26.8</td>
<td>33.2</td>
<td>29.6</td>
<td>14.8</td>
<td>53.5</td>
<td>26.0</td>
</tr>
<tr>
<td>7 Others</td>
<td>14.0</td>
<td>28.7</td>
<td>20.9</td>
<td>14.9</td>
<td>43.1</td>
<td>22.3</td>
</tr>
</tbody>
</table>

Source: SEMIS (2007-08) data.

Similar to the pattern of repetition rate, the dropout rate in the higher secondary classes found to be lower than that of secondary level in the state. Also the pattern of gender difference in the dropout rate in the higher secondary classes where female children were found to be having relatively lower retention rate than their male counter parts. The social group pattern with respect to dropout rate in the higher secondary level was similar to that of secondary level schooling.

3.7 Transition Rate and Survival rate

The promotion rate at the secondary level is 57.2 per cent for the class IX and 46 per cent for the class X during 2007-08 in Madhya Pradesh. It indicates that the promotion rate between class IX and X was relatively higher than that of between class X and XI. Moreover, the promotion rate was relatively higher between the higher secondary classes (i.e. class XI and XII) when compared to that of between the secondary classes. Between the male and female children in terms of promotion rate in secondary classes, there were differences observed in the state where promotion rate among the female children of secondary classes was marginally higher than their male counterparts. Across social groups where the most backward social groups particularly children belonging to SC/ST communities were having lower promotion rate than their counter parts in the other communities.

The Box number 1 depicts in brief: at the secondary level GRE was only 41 percent, out of it 59 percent were in government schools and 40 percent were in private secondary schools. Second promotion rate was only 57 percent and 46 percent from VIII to IX & IX to X respectively. This shows that large percentages of children who reach up to secondary level dropout of the system without completing secondary level of education. The third private secondary schools are generally established in urban areas. For people livings in rural areas are left with government schools, which do not have enough physical, human and financial resources to impart quality education.
Box 1

1. The secondary school age group (14-15) and higher secondary school age group (16-17), the population size was 2.7 and 2.4 million respectively in 2001.
2. GER of secondary schooling in the state is about 41.1 per cent during 2007-08
3. Enrolment in Government Schools is 59.5%
4. Enrolment in Private schools is 40.5%
5. Completion rate 25.2% at secondary level (2004-05)
6. Repetition rate in the secondary level was 19.2% and 22.6% for the class IX and X and for senior secondary level was 6.9% and 11.7% for the class XI & XII during 2007-08.
7. Dropout rate for secondary classes in Madhya Pradesh is 24.8 per cent in the class IX and 31.5 per cent in class X.
8. Promotion rate at the secondary level is 57.2 per cent for the class IX and 46 per cent for the class X during 2007-08

Hear question arises what strategies can be adopted to mainstream all the children up to secondary and senior secondary level. These strategies call for an alternative framework for schooling. What kind of alternative framework do we design? How to increase access facilities and reduce the dropout rate? However alternative method needs to be of less cost and effective, so that all the sections of society readily accept it. At this juncture it is open learning which has the potential to provide a wider canvas for learning experiences, and making it a life-long process to be able to actively participate in the social reconstruction.

4. Open and Distance Learning

*Open and distance learning* is fast becoming an accepted and indispensable part of the mainstream of educational systems. It provides many opportunities for the realization of education system-wide goals. The system enables school-age children and youth that are unable to attend the education system. The children are provided with personalized lessons which they work on in their own time and in accordance with their own pace of development. Open and Distance mode is primarily based on:

- Specifically prepared print materials
- Face to face teaching by the teacher

The lessons or material of study that are supplied to the children are of self instructional type. The main characteristic of the mode of operation followed in the Open and Distance Mode is that children are taught how to write answers or find solutions to the different questions or problems set in the lessons so that they can work out the lessons by themselves without the help of the teacher in their own time and according to their own pace of learning. At the study centres the teacher adopts various procedures to explain the content of the lesson and teaches the child how to answer the questions or solve the problems set in the lesson.
4.1 Madhya Pradesh State Open School
The Open and Distance Learning in Madhya Pradesh is governed by State Open School, Bhopal. Admissions are very flexible. At the secondary level any one who has completed 14 years of age and has acquired education up to class VIII standard, either formally or by self-learning, can seek admission. There is no age limit. The course offers a choice of two languages and nine other subjects’ minimum of five subjects, including one language that is compulsory. However, a student is free to choose as many subjects as he/she desires to learn, may be one or all the subjects. But if a student desires equivalence he/she has to clear all the stipulated compulsory subjects by the Madhya Pradesh Board of Secondary Education (MPBSE). The students can complete the course in five years and get 9 chances to appear in the open examination.

4.1.1 Senior Secondary Certificate Courses
At the senior secondary level, students who have passed secondary examination are eligible for admission to any study centre recognized by M.P. State Open School. Like Secondary certificate courses, a student is free to offer any number of subjects according to his/her choice, but if a student desires equivalence, he/she will have to clear the compulsory and minimum number of elective subjects as stipulated for the senior secondary examination under MPBSE. It means passing with two language subjects and three optional subjects, then only a student become eligible for the issue of Higher Secondary Certificates.

4.1.2 Admission Procedure
At the secondary and senior secondary levels, admissions are made twice a year, first in May-June and then in July-October at the Study Centres. At present there are 298 study centres spread all over state. The Table shows that enrolment is increasing at a fast rate in the open and distance learning education at the secondary and senior secondary stage. During 1996 at the secondary stage enrolment was 8820 and at the senior secondary stage was 1318, which increased to 149257 and 78654 respectively in 2009. The enrolment has increased 17 times for secondary level and 60 times for senior secondary level. It shows great demand for secondary education from the children who are not able to join formal schooling (see Table 6).

<table>
<thead>
<tr>
<th>Year</th>
<th>Sessions</th>
<th>Enrolment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Secondary</td>
</tr>
<tr>
<td>1996</td>
<td>May</td>
<td>6189</td>
</tr>
<tr>
<td></td>
<td>October</td>
<td>2631</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>8820</td>
</tr>
<tr>
<td>2000</td>
<td>May</td>
<td>9622</td>
</tr>
<tr>
<td></td>
<td>October</td>
<td>23758</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>33380</td>
</tr>
<tr>
<td>2005</td>
<td>May</td>
<td>15782</td>
</tr>
<tr>
<td></td>
<td>October</td>
<td>43304</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>59086</td>
</tr>
<tr>
<td>2007</td>
<td>May</td>
<td>14739</td>
</tr>
<tr>
<td></td>
<td>October</td>
<td>55517</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>70256</td>
</tr>
</tbody>
</table>
5. Conclusion
The backdrop suggests that in spite of expansion of education facilities at the secondary level, the participation of children at secondary level is less than 50%. Further analysis by social groups especially participation of ST shows that their participation is only one forth percent (25.2). It illustrates that all the youth in the concerned age group are not able to take advantage of schooling. Hence it is necessary to promote or develop alternative educational provisions for all the sections of society.

However it is true that from more than two decades in M.P the State Open School is making all the efforts to enroll more and more students. Moreover the basic philosophy of ‘Open and Distance Learning’ is to promote ‘inclusion’. The aspect of ‘Openness’ ensures a place and space for all irrespective of caste, creed, religion, socio-economic status, boundaries of space and time. It is ideal for all those who have been left out from the educational mainstream and also “Reaching the Unreached” sections of the society. The “mainstreaming” of sizeable population through open schooling will ensure that all of them become valuable human resources, making fruitful contribution in the growth of economy and emergence of a justifiable and equitable society in the coming years.

6. Suggestions
The M.P. government has taken several initiatives for reaching to unreach through formal and non-formal schooling. However, one of the effective methods to reach all the sections of society is open and distance learning. The state open school in M.P. has taken several measures to improve the Open and Distance Learning, still need is to take few more measures to improve the system

- The open school network has to be expanded to ensure state specific open schooling facility through regional languages.
- The existing open schools depend upon the print material which often varies in quality. Hence it is necessary to enhance quality open schooling through a variety of measures, particularly the counseling and tutorial services. These services can be provided through EDUSAT, by installing Satellite Interactive Technology (SIT) facilities. The DTH delivery of education can also be expedited.
- The issue of credit accumulation and credit transfer, equivalence between open and formal learning systems across Boards in different states need to be explored.
Vocational Education through ODL – A Case Study of Tamil Nadu Open University

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Abstract

Tamil Nadu Open University is one of the largest Open and Distance Learning (ODL) University in India with more than 100 Academic Programmes of study and on-roll student strength of more than three lakhs.

There are more than 175 Universities in India with about 6000 colleges affiliated to these Universities offering Higher education. There are nearly 500 Polytechnic Colleges with intake of about 65000 students per year and 4274 Industrial Training Institutes (ITI) with intake of 6,28,000 students per year. In spite of the available infrastructure and facilities, skill development and training in the country is highly inadequate.

Every year 5.5 million students pass out of Class X, of which 3.3 million go to Class XI, leaving 2.2 million out of the education stream. There are, besides, those who drop out after Class VIII, who number 19 million. These are the people who look for vocational training and self-employment avenues. Therefore, attention has to be paid to this 21 million-target group. As against this, available formal training capacity of the country is only 2.3 million students, which leaves a gap of 18.7 million. There is an urgent need to cater to the Class VIII pass-outs whose numbers will swell with success of the Universalisation of Elementary Education. 100% of India’s population needs Primary and Secondary education while 90% need to get into some sort of Vocational Education & Training after High School. Everyone cannot become an Engineer, MBBS, MBA, Accountant or a Lawyer. In the manufacturing and service sectors there are hundreds of skills and vocations for which there is a world wide shortage. For example, TV, electrical appliance repair & service, Automobile & Motorcycle repair & service, Hospitality, Tourism, Retailing, Construction, Telecommunications, Electronics, Agriculture, General Engineering, Teaching, etc. The list is very large. Thus Vocational Education has gained momentum and great importance.

This Paper elaborates about the successful conduction of Vocational Education Programmes in 16 trades of study through Open and Distance Learning by Tamil Nadu Open University.

Sub Theme: Access and Equity – Reaching the Unreached
Introduction

Vocational education consists basically of practical components through which one gains skills and experience directly linked to a career in future. It helps students to be skilled and in turn, offers better employment opportunities. The Indian economy is growing at a faster rate and the Country’s transition to a knowledge-based economy requires a new generation of educated and skilled people. A knowledge economy requires India to develop workers – knowledge workers and knowledge technologists - who are flexible and analytical and who can be the driving force for innovation and growth.

To achieve this India needs a flexible education system: basic education to provide the foundation for learning; secondary and tertiary education to develop core capabilities and core technical skills; and further means of achieving lifelong learning. India’s ability to deal with these changing realities is constrained as in few other places. While its population growth rate has declined over the years the labour force is still projected to grow by close to 2 percent or some 7 million or more a year over the next few years.

Vocational Education

During the past few decades a mismatch has been evident in India between the skills imparted by the national education system and those demanded by the workplace. This mismatch has been exacerbated in recent years with the integration of new technologies in almost every sphere of professional activity. Narrowing the gap between education and the world of work is thus a priority for the Government because of the potential economic and social benefits to be derived from increasing the proportion of the population that is engaged in productive livelihoods. Vocational Education is widely accepted as a powerful and effective method of helping to bridge the gap between education and the world of work, as well as between school and society. It is a means of assisting young people to make appropriate and judicious educational choices that will enable them to develop their potential and to have access to work opportunities that are compatible with their interests and abilities. It can also help to instil confidence and positive attitudes, to derive fulfilment from their chosen areas of learning and work and, most importantly, to inculcate an eagerness for lifelong learning.

According to a National Sample Survey Organization report vocational training is received by only 10% of persons aged between 15-29 years. Out of this only 2% receive formal training, while non-formal training constitutes the remaining 8%. Out of the formal training received by that particular age group only 3% are employed. Most sought after field of training is computer related training. Only 20% of formal vocational training is received from ITI/ITCs.

In 1999, at the Second International Congress on Technical and Vocational Education held in Seoul has stressed on the Special efforts were needed to reach marginalized groups and programmes should be designed to facilitate entry into the mainstream.

Every year 5.5 million students pass out of Class X, of which 3.3 million go to Class XI, leaving 2.2 million out of the education stream. There are, besides, those who drop out after Class VIII,
who number 19 million. A total of 21.2 million people are to be targeted and the current Vocational training offered through ITI/ITCs and formal Vocational Stream in Class XI and XII are to be revamped. To address to a large sector of people Open and Distance Learning is a powerful tool. Tamil Nadu Open University in the State of Tamil Nadu has felt the need for imparting Vocational Education to this target group and started up with six trades of Vocational Education Programme in the year 2004.

**Tamil Nadu Open University**

Tamil Nadu Open University which was established by the end of 2002 by an act of Legislature. It started functioning from the year 2003 as a 10th State Open University of India. It offers more than 100 Academic Programmes at various levels from certificate, Diploma, Post-graduate Diploma, Advanced Diploma, Under Graduate Degree to Post Graduate Degree Programmes with 11 Schools of Study and 6 Operational Divisions.

The University offers its Programme of Study by a three tier system with Head Quarters in Chennai as the nodal point of operation. In the next tier is the 11 University Coordinating Centres located at different districts of the State and providing support services to the Learning Resource Centres/ Programme Study Centres and Community Colleges which are in the third tier of the system. This can be schematically represented as follows:

![Diagram](http://example.com/tng.png)

The Learning Resource Centres are established by the University to offer the Bachelor and Master Degree Programme in Arts and Science, whereas the Programme Study Centres are established to run the Computer Programmes, specific Management Programmes, B.Ed. Programmes, Counselling & Psychotherapy Programmes of the University. At present the Community Colleges are established exclusively to offer the Vocational Education Programmes of the University.

The University started approving Community Colleges in India for offering Tamil Nadu Open University Vocational Education Programmes in 2004 and has recognized so far 141 Community Colleges in Tamil Nadu and 1 Community Colleges in other State (At Vishakapattnam in Andhra Pradesh). The Community College in the context of Tamil Nadu Open University is an alternative system of education, which is aimed at the empowerment of the disadvantaged and the underprivileged through appropriate skills.
development leading to gainful employment in collaboration with local industry and local community and also achieve skills for employment/self employability of the above sections of people. The acquiring of skills is achieved by undergoing the Vocational Education Programme of TNOU. Vocational Education Programmes have been designed in such a way as to enhance the skills and knowledge of the learners, including school dropouts for immediate employment. Initially the University started with six trades of Vocational Education and currently offers 20 trades of Vocational Education Programmes. They are:

- Diploma in House Electrician (DHE)
- Diploma in Refrigeration and Air-Conditioning Technician (DRAT)
- Diploma in Four Wheeler Mechanism (DFWM)
- Diploma in Health Assistant (DHA)
- Diploma in Early Childhood Care & Education (Kindergarten) (DECE)
- Diploma in Fashion Design and Garment Making (DFGM)
- Diploma in DTP Operator (DDTP)
- Diploma in Plumbing Technician (DPT)
- Diploma in Catering Assistant (DCA)
- Diploma in Beautician (DIB)
- Diploma in Applied Music (DAM)
- Diploma in Computer Applications (DCAS)
- Diploma in Computer Hardware Servicing (DCHS)
- Diploma in Animation (DIA)
- Diploma in Multimedia Systems (DMS)
- Diploma in Mobile Phone Servicing (DMPS)
- Diploma in Home Appliances Repair & Servicing (DHRS)
- Diploma in Apparel & Fashion Design (DAFD)
- Advanced Diploma in Apparel & Fashion Design (ADAFD)
- B.Sc. Apparel & Fashion Design (BAFD)

Most of these Vocational Programmes are offered through vernacular language (Tamil), some Programmes are offered in both English and Tamil medium. Print Materials in Self Instructional Format (SIM) has been developed for the Vocational Education Programmes in English and Tamil Medium. All the Vocational Education Programmes has
Practical Components and CDs are also prepared for it. Tamil Nadu Open University not only imparts technical knowledge to the learners but adds to its content the value courses like communication skills and Life coping skills as compulsory course for all Vocational Educational Programme.

The Life Coping Skills teaches about the ways of handling life situations and tackling problems in related to a circumstance it teaches how to face life and make it to a success path. The Communications skills train them to increase their verbal capability and to improve their Communication Knowledge. These all effectively take these learners to the front row of their fellow competitors. Most of the Diploma Programmes are 44 Credit Programme which includes 20 credits for the Life Coping Skills anf Communication Skills. The Vocational Education Programmes are offered through the Community Colleges recognized by TNOU which are renowned Polytechnic Colleges, Industrial Training Institutes (ITI’s), Education Colleges, Teacher Training Institutes, Hotels and Voluntary Organizations having the sufficient infra-structure.

Role of the Community College

The Community College after getting recognition from the University will have to perform the following functions.

1. **Pre Admission:** All the Community Colleges undertake the responsibility of pre admission like advertisements, press release, issuing of pamphlets and leaflets mentioning the Tamil Nadu Open University admission details and the programme details.

2. **Admission:** Tamil Nadu Open University normally issues advertisements in the leading local dailies for admission and starts issuing the Application Form for admission. The Community Colleges collect the Application Form either from the University Coordinating Centre or from the Director, Tamil Nadu Open University, Materials Distribution Division. The Cost of Application at present for Vocational Programme is Rs.100/-. They may distribute it to interested students by collecting Rs.100/- and request them to fill and return to the Community College with Programme Fee and relevant Xerox copies of Certificates attested by Gazzeted Officer. The collected application form may be deposited to the University Coordinating Centre on or before the last date given by the University. The University Coordination Centre will complete the admission process and make arrangements for supply of materials for admitted students.

3. **Counselling/Practical:** The main function of the Community College is to organize Counselling and Practical Sessions. As soon as the admission data, ID card and Materials are received by them, the Counselling and Practical Sessions Schedule are prepared and communicated to all students individually by marking a copy to the University.

4. **Spot Assignment:** The spot assignments carry 25 Marks in each course. Students must sit for Spot Assignments for successful completion of each Course in Tamil Nadu Open University. One copy of Question Paper for each course for the Spot
Assignments will be dispatched to the Community College and same will also be uploaded in the TNOU Website. The date for conducting spot assignments may be decided by the Community Colleges as per their convenience. The Community Colleges prepare the Spot Assignments Schedule mentioning date, venue, time and communicate to all students individually and the copy of the Schedule will also be communicated to the University. After completion of the Spot Assignments, the Counselors evaluate the papers and submit the Spot Assignments marks in the prescribed proforma duly signed by the Evaluator and the Coordinator along with evaluated Spot Assignments written by each student.

5. **Conduct of Theory and Practical Examination:** The theory and practical examinations are conducted at the Community College or any other Colleges/Institutions identified by the University.

6. **Enrolment:** The Community College will have to admit a minimum student strength of twenty (20) and a maximum strength of fifty (50) in the given Programme. In case if the enrollment is exceeds 50 the next batch may be admitted by getting approval from the University.

7. **Funding:** Programme Fee collected from the students will be shared between the Community College and the University i.e. **42.5 % to the University and 57.5% to the Community College.**

### Student Strength of Vocational Education Programme of TNOU

<table>
<thead>
<tr>
<th>Prog. Code</th>
<th>Year of Enrolment</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAFD</td>
<td></td>
</tr>
<tr>
<td>DAM</td>
<td></td>
</tr>
<tr>
<td>DCA</td>
<td>129</td>
</tr>
<tr>
<td>DCAS</td>
<td></td>
</tr>
<tr>
<td>DECE</td>
<td></td>
</tr>
<tr>
<td>DFWM</td>
<td>198</td>
</tr>
<tr>
<td>DHA</td>
<td>2303</td>
</tr>
<tr>
<td>DHE</td>
<td>288</td>
</tr>
<tr>
<td>DHRS</td>
<td></td>
</tr>
<tr>
<td>DIA</td>
<td></td>
</tr>
<tr>
<td>DIB</td>
<td></td>
</tr>
<tr>
<td>DPTT</td>
<td>9755</td>
</tr>
<tr>
<td>DCHS</td>
<td></td>
</tr>
<tr>
<td>DMPS</td>
<td></td>
</tr>
<tr>
<td>DMS</td>
<td></td>
</tr>
<tr>
<td>DPT</td>
<td>21</td>
</tr>
<tr>
<td>DRAT</td>
<td>195</td>
</tr>
<tr>
<td>DTP</td>
<td>886</td>
</tr>
</tbody>
</table>

**Grand Total** 42921
Around 60% of the 42,921 students have successfully completed their Diploma Programmes and 85% of the students are placed in the relevant industries with a salary range of Rs.3000/- to Rs.10,000/- The remaining students are self employed/ become entrepreneurs.

**Conclusion**

From the above it could be stated that Open and Distance Learning is not only a powerful tool to cater to the mass education or providing Higher Education to all the unreached people but can also be utilized to provide Work skills and Life skills to the untrained worker groups and the youth in the world where there is a great shortage for manpower in specific skill oriented fields. This model of Community College System has been given recognition and acknowledgement by the Government of Tamil Nadu and had been studied by the Government of Gujart and Rajasthan for implementation in their own State.

Reference:

Document of World Bank – South Asia Region, 2006

Report of National Sample Survey Organisation, India
The Study on the relationship between the Mental Health and Religious Beliefs: Control Source and Optimism of Payame Noor University Students

Ziba Barghi Irani
Dr. Mohammad Oraki
Shohreh Bayat

Abstract

In the past several decades, a great intellectual and spiritual crisis has been brought about in modern world and a paradigmatic change has been created in considering the role of factors and principles of religious beliefs in life. Psychologists are looking for a theoretical and comprehensive pattern which is based on the recognition of factors effective and harmful to psychological health. The present research aims to study the relationship between the psychological health and religious beliefs, control source and optimism of Payame Noor University students. So, 200 testees were selected by random cluster sampling from amongst the students of Payame Noor University and then they filled out the Religion Assessment Questionnaire, Rotter's Locus of Control Scale, Optimism Scale and General Health Questionnaire. For data analysis, the statistical method of Regression Analysis was used. The religious beliefs, control source and optimism have significant combinational and differential contribution in prediction of psychological health changes; it means that as the scores of religious beliefs, control source and optimism increase, the scores of psychological health increase too. Also, a significant relationship was observed between the religious beliefs and optimism, religious beliefs and control source and optimism and control source.

Keywords: Religious Beliefs, Control Source, Optimism, Public Health, Payame Noor University Students

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I. Introduction

Based on the ever-increasing extension of modern life and its social, economical and mental consequences and remarkable effect of civilization on the life manner and physical and mental health of human beings, considering mental health becomes more important day by day. Taylor & Robert (1999) on their studies found that in comparison with the past years, nowadays the number of mental disorders among youths is more increased. In recent decades, the effort of psychology theoreticians has been focused on a framework of one comprehensive and theoretical model, factors effective and harmful to psychological health, in order to study and offer a pattern which causes making necessary policies for explanation of this issue (Curtis, 1996). In this way, theoreticians and researchers have been made efforts to this matter; meanwhile, the theories of Selye (1956), Lazarus (1984), Antonovsky (1998), Seligman (1996) and Mathews (1994) can be mentioned.

According to the statistics of World Health Organization (WHO), during the two recent decades in modern world the number of physical diseases has been decreased and mental disorders has been prevalent significantly (Dimatteo, 1999). Douglas (1983) studies indicate that instrumental view on religious beliefs does not have sustainable effects on psychological health; while purposefulness of religious beliefs develops the components of psychological health (Dimatteo, 1999). Also, Levinson (1993) studies demonstrate that having an ideal picture of oneself and future is to lay the groundwork for useful and progressive efforts and make improvements in components of psychological health.

Patillo (1995) researches show that positive thinking on the world around and its events will increase the confronting potentiality and individual skills and in principle Csikszent (1990) has found that pessimism towards external world and its events will bring about languor, depression and avoidance behaviors. In other words, having hope to future affairs and events increase the individual’s effort (Seligman, 1996) and increase his/her social adjustment (Deweck, 1980) and apprehension about the future will inhibit the person from effort (Panak, 1992). Koeing (1994) believes that religion for people plays the role of protective shield against the environmental destructive, injurious and hypertension factors.

Taleghani (2006) in her research found that religion as one of the mediator variables is able to adjust the negative effects of stressors. Didoca and Joseph (1999) in their studies on adolescence girls and boys found that religious adolescents are less impulsive than their coeval irreligious. Koeing etal (2001) in their findings state that religion has a useful and desirable effect on eradication of corruption and decrease of mortality. Jamalizadeh (2003) in her studies found that there is a significant correlation between the feelings of life meaningfulness and mental health and also there is a significant correlation between the religious attitude and mental health. Shahbazi (2007) findings have been indicated that there is a significant relationship between the religious orientation and hypochondria neuroses, depression and psychasthenia.

Koeing and Larson (2001) found that there is a positive relationship between the religious attitudes and mental health. In Seraji (2002) studies on 1300 students, a significant relationship was obtained between internal religious orientation and mental health. Ibrahimi and Nassiri (1997) studies indicated that there is a reversal significant relationship between depression and attitude and religious performance of the aged people and Pourhosseini (2001) found that there is a reversal relationship between dysthymia disorder and belief in resurrection.

Briefly, the studies have indicated that the behaviors and consequences of attributive styles are important and determinant in social adjustments, interpersonal interactions (Seligman, 1975), progressive behaviors (Deweck, 1980), adaptive behaviors (Hicks, 1998), academic function (Watson, 1995) and solving social and individual problem (Dua, 1994). However, the combinational and differential contribution of each of these believing systems is not clearly evident in description of psychological health indicators. So, if we want to settle these believing systems which are referred to past (religious beliefs), related to future (optimism) and referred to present
(attributive styles) in a theoretical and interactive framework, in order to explain the changes of psychological health indicator, we will find the existed gaps of theorization. Therefore, for clarification of these interactions the following hypotheses have been considered:

1- Religious beliefs, optimism and attributive styles have significant combinational contribution in prediction of psychological health changes.

2- Religious beliefs, optimism and attributive styles have significant differential contribution in prediction of psychological health changes.

3- There is a positive relationship between the religious beliefs and psychological health.

4- There is a positive relationship between the optimism and psychological health.

5- There is a significant relationship between the attributive styles and psychological health.

6- There is a positive and significant relationship between the religious beliefs and optimism.

7- There is a significant relationship between the religious beliefs and attributive styles.

8- There is a significant relationship between the optimism and attributive styles.

**Methodology:** The research methodology was descriptive-correlation and the studied society was Payame Noor University students in the academic year of 2009-2010. The assessment of samples was based on the Morgan Table and 200 samples were selected by random cluster method. For data collection and measurement of studied variables, Religion Assessment Questionnaire, Rotter's Locus of Control Scale, Life Orientation Test (LOT) and General Health Questionnaire (GHQ) were used as the research instruments. The psychometrics features of mentioned instruments are as follows:

1- Religion Assessment Questionnaire of Moslems which has been adapted and adjusted to Islam religion by Serajzadeh. This questionnaire consists of 70 sentences and assesses four aspects of religion (believe, religious emotions, religious works and religious acts) (Sharifi, 2002). Serajzadeh has been reported the external validity equal to %61 and according to Sharifi studies the total reliability of this test has been assessed successively %75 and %78 and its validity has been assessed %45 through correlation assessment of the relationship between the scores of this questionnaire and individual's self-reporting from their religiosity. (ibid)

2- Rotter's Locus of Control Scale consists of 29 items which can be used for considering individual's external and internal locus of control. Test's reliability has been obtained %83 and its internal constancy has been gained from %63 to %79 and in Iranian sample, reliability coefficient of this scale has been calculated %70.

3- Life Orientation Test (LOT) which has been designed by Scheier & Carver (1985) and has been consisted of eight multiple choices and its psychometrics features were satisfactory.

4- General Health Questionnaire (GHQ) is aimed at screening those who have probably mental disorder. (Goldberg, quoted from Stora, 1991). In this research, a form which is consisted of 28 items had been used. This questionnaire is consisted of 4 scales of physical cues, anxiety and insomnia, social malfunction, critical depression and the questions are designed in form.
of multiple choices. In this study, the reliability coefficient of the total questionnaire had been reported %72 and the subtests of physical cues, anxiety, insomnia, social malfunction and depression had been reported successively %60, %68, %57 and %58. In the study of questionnaire validity, the correlation between the subtests of GHQ-28 and the total questionnaire was calculated between %72 up to %87.

II. Data Analysis

In order to study and data analysis, based on the hypotheses and objectives of study, descriptive and inferential statistics methods and in the descriptive section the diagrams, frequency table and the indicators of central and dispersion had been used. In section of statistical inference, with use of correlation matrix, the significance of correlation coefficients of the studied variables had been considered and then with use of multiple regression method, the contribution of prediction variables in changes of criterion variable was determined step by step and finally, with calculation of beta coefficients, the exponents of each one of the variables in prediction of criterion variable changes was assessed as the following:

Table1- Descriptive indicators of studied variables

<table>
<thead>
<tr>
<th>Components</th>
<th>Number</th>
<th>Average</th>
<th>Range</th>
<th>Standard Deviation</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychological Health</td>
<td>200</td>
<td>82/38</td>
<td>75</td>
<td>20/60</td>
<td>424/36</td>
</tr>
<tr>
<td>Optimism</td>
<td>200</td>
<td>6/55</td>
<td>8</td>
<td>1/80</td>
<td>3/24</td>
</tr>
<tr>
<td>Religious Beliefs</td>
<td>200</td>
<td>67/26</td>
<td>47</td>
<td>10/62</td>
<td>243/98</td>
</tr>
<tr>
<td>Attribution Styles</td>
<td>200</td>
<td>15/53</td>
<td>23</td>
<td>6/18</td>
<td>38/19</td>
</tr>
</tbody>
</table>

According to the information of table 1, the studied variables (psychological health, optimism, religious beliefs and attributive styles) in the studied group average successively 82/38, 6/55, 67/26, 15/53 and the standard deviation is 20/60, 1/80, 15/62/6/18.

Hypothesis 1: Religious beliefs, optimism and attributive styles have significant combinational contribution in prediction of psychological health changes.

For data analysis of this hypothesis, the analysis method of multiple regression was used. For this reason at first, all of the studied variables entered to analysis system simultaneously by Enter. The result and output of analysis had been written in tables 2 and 3.

Table 2- Correlation matrix of the studied variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Attribution Styles</th>
<th>Religious Beliefs</th>
<th>Optimism</th>
<th>Psychological Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychological Health</td>
<td>- 0/70</td>
<td>- 0/75</td>
<td>- 0/83</td>
<td>1</td>
</tr>
<tr>
<td>Optimism</td>
<td>0/72</td>
<td>0/83</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Religious Beliefs</td>
<td>0/68</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribution Styles</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Based on the information of table 3, it is inferred that predictor variables (optimism, attribution styles and religious beliefs) generally obtained correlation r = 0.85 with criterion variable (psychological health) in which with calculation of determination coefficient (R^2 = 0.72) it is inferred that these variables are able to determine %72 of psychological health changes significantly; because the calculated F (170/5) with freedom degrees of 3 and 196 is significant in the level of p< 0.05. So, it is noticeable that the predictor variables have significant combinational contribution in changes of criterion variable. Therefore, part of the hypothesis 1 is confirmed. Also, the regression analysis of the criterion variable scores towards the average of predictor variables scores by variance analysis confirms the obtained result too; which the quantitative outputs of table 4 confirms this affair.

Table 4- Regression variance analysis of the scores of criterion variable and predictor variables

<table>
<thead>
<tr>
<th>Model</th>
<th>Significance Level</th>
<th>F</th>
<th>Average of Squares</th>
<th>Freedom Degree</th>
<th>Total of Squares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>0/000 a</td>
<td>170/504</td>
<td>20362/107</td>
<td>3</td>
<td>61086/321</td>
</tr>
<tr>
<td>Remainder</td>
<td></td>
<td>119/423</td>
<td>196</td>
<td></td>
<td>23406/859</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>54492/180</td>
</tr>
</tbody>
</table>

According to the information of Table 4, it is inferred that the regression of criterion variable scores towards predictor variables scores statistically is significant; because the calculated F (170/5) with freedom degrees of 3 and 196 is significant in the level of P< 0.05. On the other hand, the study of beta coefficients of predictor variables confirms the obtained results too; because the optimism variable with beta coefficient of 0.57 and the variable of religious beliefs with beta coefficient of 0.16 and the variable of attribution styles with beta coefficient of 0.18, have significant contribution in linear equation of regression. The written results of table 5 confirm the above-mentioned inference.

Table 5

<table>
<thead>
<tr>
<th>Model</th>
<th>Correlation</th>
<th>F</th>
<th>Standardized Coefficients</th>
<th>Non- Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Differentia l</td>
<td>Semi- Differenti al</td>
<td>Non- Differenti al</td>
<td>Significanc e Level</td>
</tr>
<tr>
<td>The Constant</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amount-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optimism</td>
<td>0/293</td>
<td>0/486</td>
<td>0/833</td>
<td>0/000</td>
</tr>
<tr>
<td>Religious</td>
<td>0/087</td>
<td>0/163</td>
<td>0/758</td>
<td>0/022</td>
</tr>
<tr>
<td>Beliefs</td>
<td>-0/124</td>
<td>-0/229</td>
<td>-0/702</td>
<td>0/001</td>
</tr>
</tbody>
</table>
Hypothesis 2: Religious beliefs, optimism and attributive styles have significant differential contribution in prediction of psychological health changes.

In order to determine the differential contribution of each one of the predictor variables in changes of criterion variable (psychological health) the method of step by step was used in regression analysis. In this method, proportional to contribution of each one of the predictor variables these variables were entered to analysis system in which the analysis output indicated that among the variables of predictor, the variables of optimism, attribution styles and religious orientation in order of priority have significant contribution in prediction of criterion variable changes (psychological health). The results of this inference were written in table 6.

Table 6- Regression analysis of criterion variable and predictor variables

<table>
<thead>
<tr>
<th>Model</th>
<th>Significance Level</th>
<th>Freedom Degree 2</th>
<th>Freedom Degree 1</th>
<th>Amount of F</th>
<th>Changed R²</th>
<th>Estimated Standard Error</th>
<th>Reformed R²</th>
<th>R²</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.000</td>
<td>198</td>
<td>1</td>
<td>448/634</td>
<td>0/694</td>
<td>11/4309</td>
<td>0/692</td>
<td>0/694</td>
<td>0/833</td>
</tr>
<tr>
<td>2</td>
<td>0.000</td>
<td>197</td>
<td>1</td>
<td>14/962</td>
<td>0/022</td>
<td>11/0480</td>
<td>0/713</td>
<td>0/715</td>
<td>0/846</td>
</tr>
<tr>
<td>3</td>
<td>0.022</td>
<td>196</td>
<td>1</td>
<td>5/349</td>
<td>0/008</td>
<td>10/9281</td>
<td>0/719</td>
<td>0/723</td>
<td>0/850</td>
</tr>
</tbody>
</table>

Based on the information of table 6, it is inferred that optimism with \( R^2 = 0.69 \), \( F = 448/63 \), freedom degree 1 and 198 have significant contribution in prediction of psychological health changes; it means that 0/69 of psychological health changes is determined by optimism. Also, the results of table 6 indicate that the variable of attribution style with \( R^2 = 0.72 \) \( - \) \( 0.69 = 0.03 \) and \( F = 14/96 \) and freedom degree 197 in \( P < 0.05 \) level have significant contribution in prediction of psychological health changes; it means that 0.03 of psychological health changes is determined by attributive styles. Finally, in prediction of psychological health changes, religious beliefs have been ranked at the third grade of importance; because this variable with \( R^2 = 0.73 \) \( - \) \( 0.72 = 0.01 \) and with \( F = 5/34 \) and freedom degree 1 and 196 in \( P < 0.05 \) level has significant contribution in the prediction of psychological health changes; it means that 0.01 of psychological health changes is determined through religious beliefs. According to the above-mentioned analyses, attribution styles and religious beliefs in order of importance have significant contribution in prediction of psychological health changes. The outputs of these inferences have been written in table 7.

Table 7- Variance analysis of criterion variable regression (psychological health)

<table>
<thead>
<tr>
<th>Model</th>
<th>Significance Level</th>
<th>F</th>
<th>Average of Squares</th>
<th>Freedom Degree</th>
<th>Total of Squares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression 1</td>
<td>0.000 a</td>
<td>448/634</td>
<td>58621/276</td>
<td>1</td>
<td>58621/276</td>
</tr>
<tr>
<td>remainder</td>
<td></td>
<td></td>
<td>130/666</td>
<td>198</td>
<td>25871/904</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>199</td>
<td>84493/180</td>
</tr>
<tr>
<td>Regression 2</td>
<td>0.000 b</td>
<td>274/616</td>
<td>30223/766</td>
<td>2</td>
<td>60447/533</td>
</tr>
<tr>
<td>Remainder</td>
<td></td>
<td></td>
<td>122/059</td>
<td>197</td>
<td>24045/647</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>199</td>
<td>54493/180</td>
</tr>
<tr>
<td>Regression 3</td>
<td>0.000 c</td>
<td>170/504</td>
<td>20362/107</td>
<td>3</td>
<td>61086/321</td>
</tr>
<tr>
<td>Remainder</td>
<td></td>
<td></td>
<td>119/423</td>
<td>196</td>
<td>23406/859</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>199</td>
<td>84493/180</td>
</tr>
</tbody>
</table>

Based on the information of table 7 it is inferred that the regression of criterion variable towards predictor variables is statistically significant; because the final calculated \( F (170/5) \) with pdf (3 and
196) in P<0.05 level is significant. Also, significance test of the beta coefficients of predictor variables indicates the significant contribution of these variables in prediction of psychological health changes in which the results of this test have been written in table 8.

<table>
<thead>
<tr>
<th>Model</th>
<th>Differential</th>
<th>Semi-differential</th>
<th>Non-differential</th>
<th>Significance Level</th>
<th>F</th>
<th>Standardized Coefficients</th>
<th>Non-standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Constant Amount-1</td>
<td>0.833</td>
<td>0.833</td>
<td>0.833</td>
<td>0.000</td>
<td>5/370</td>
<td>3/146</td>
<td>16/893</td>
</tr>
<tr>
<td>Optimism</td>
<td>0.000</td>
<td>21/181</td>
<td>0.833</td>
<td>0.000</td>
<td>0/442</td>
<td>9/360</td>
<td>40/067</td>
</tr>
<tr>
<td>The Constant Amount-2</td>
<td>0.000</td>
<td>5/964</td>
<td>0.680</td>
<td>0.000</td>
<td>6/718</td>
<td>40/067</td>
<td>7/646</td>
</tr>
<tr>
<td>Optimism</td>
<td>0.000</td>
<td>12/421</td>
<td>0/680</td>
<td>0.000</td>
<td>0/616</td>
<td>7/646</td>
<td>6/380</td>
</tr>
<tr>
<td>Attribution Styles</td>
<td>0.000</td>
<td>-3/868</td>
<td>0/212</td>
<td>0.000</td>
<td>0/186</td>
<td>-0/719</td>
<td>6/380</td>
</tr>
<tr>
<td>The Constant Amount-3</td>
<td>0.000</td>
<td>7/243</td>
<td>0.819</td>
<td>0.000</td>
<td>33/406</td>
<td>6/380</td>
<td>6/380</td>
</tr>
<tr>
<td>Optimism</td>
<td>0.000</td>
<td>7/794</td>
<td>0/568</td>
<td>0.819</td>
<td>6/380</td>
<td>-0/620</td>
<td>6/380</td>
</tr>
<tr>
<td>Attribution Styles</td>
<td>0.000</td>
<td>-3/287</td>
<td>-0/183</td>
<td>0.000</td>
<td>0/189</td>
<td>-0/189</td>
<td>0/189</td>
</tr>
<tr>
<td>Religious Beliefs</td>
<td>0.000</td>
<td>2/313</td>
<td>0/161</td>
<td>0.091</td>
<td>0/211</td>
<td>0/211</td>
<td>0/211</td>
</tr>
</tbody>
</table>

Based on the results of this test it is inferred that the variables of optimism, attribution styles and religious beliefs successively with coefficients of 0.57, 0.18 and 0.16 have significant contribution in linear equation of regression. According to these coefficients, the linear equation of regression is as follows:

\[ y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 \]

Diagram 1 indicates that the scatter of criterion variable scores is not high around the regression line; because the correlation between this variable and predictor variables is high. Generally, the
results of regression analysis show that the predictor variables are able to predict significantly the changes of criterion variable differentially. Therefore, the hypothesis 2 is confirmed.

**Hypothesis 3: There is a positive relationship between the religious beliefs and psychological health.**

In order to study and analyze the data relevant to this hypothesis, significance test of Pearson correlation coefficient had been used in which the data of this test has been written in table 9.

<table>
<thead>
<tr>
<th>Attribution Styles</th>
<th>Psychological Health</th>
<th>Religious Beliefs</th>
<th>Optimism</th>
<th>Psychological Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychological Health Optimism</td>
<td>0/702</td>
<td>0/758</td>
<td>0/833</td>
<td>1/000</td>
</tr>
<tr>
<td>Religious Beliefs</td>
<td>-0/720</td>
<td>0/831</td>
<td>1/000</td>
<td>0/833</td>
</tr>
<tr>
<td>Attributive Styles</td>
<td>-0/686</td>
<td>1/000</td>
<td>0/831</td>
<td>0/758</td>
</tr>
<tr>
<td>Psychological Health Optimism</td>
<td>1/00</td>
<td>-0/686</td>
<td>-0/720</td>
<td>-0/702</td>
</tr>
<tr>
<td>Religious Beliefs</td>
<td>0/000</td>
<td>0/000</td>
<td>0/000</td>
<td>0/000</td>
</tr>
<tr>
<td>Attributive Styles</td>
<td>0/000</td>
<td>0/000</td>
<td>0/000</td>
<td>0/000</td>
</tr>
<tr>
<td>Psychological Health Optimism</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Religious Beliefs</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Attributive Styles</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
</tr>
</tbody>
</table>

According to the information of table 9, the relationship between the psychological health and religious beliefs \( (r=\%75) \) is significant in \( p<0/05 \) level. Therefore, the hypothesis 3 is confirmed. Therefore, as the individuals' religious beliefs become more profound their indicators of psychological health become profound too.

**Hypothesis 4: There is a positive relationship between the optimism and psychological health.**

In order to study and analyze the data relevant to this hypothesis, significance test of Pearson correlation coefficient had been used in which the data of this test has been written in table 9.

Based on the information of table 9, the relationship between the psychological health and optimism \( (r=\%83) \) is significant in \( p<0/05 \) level. Therefore, the hypothesis 4 is confirmed. So, as the individuals' optimism increases, their indicators of psychological health increase too.
Hypothesis 5: There is a significant relationship between the attributive styles and psychological health.

According to the information of table 9, the relationship between the psychological health and attributive styles ($r=0.70$) is significant in $P<0.05$ level. So, the hypothesis 5 is confirmed. Therefore, as the individuals' internal control increases, their indicators of psychological health increase too.

Hypothesis 6: There is a positive and significant relationship between the religious beliefs and optimism.

Based on the information of table 9, the relationship between the religious beliefs and optimism ($r=0.83$) is significant in $P<0.05$ level. So, the hypothesis 6 is confirmed. Therefore, as the individuals' religious beliefs (internal religion) become more profound, their optimism increases.

Hypothesis 7: There is a significant relationship between the religious beliefs and attributive styles.

According to the information of table 9, the relationship between the religious beliefs and attributive styles ($r=0.68$) is significant in $P<0.05$ level. Therefore, the hypothesis 7 is confirmed. So, as the individuals' religious beliefs become profound, their control becomes more internal too.

Hypothesis 8: There is a significant relationship between the optimism and attributive styles.

Based on the information of the table 9, the relationship between the optimism and attributive styles ($r=0.72$) is significant in $P<0.05$ level. So, the hypothesis 8 is confirmed. Therefore, as the individuals' optimism increases, their internal control increases too.
III. Discussion and Conclusion

The analysis of the results relevant to research hypotheses indicated that among the predictor variables, optimism variables, attribution styles and religious orientation in order of priority have significant contribution in the prediction of criterion variable changes (psychological health). The obtained results of the conducted researches in this field such as Hamilton (1998), Douglas (1983), Dimateo (1999), Levinson (1993), Csikszent (1990), Panak (1992), Taleghani (2006), Bahrami (2005), Didoca & Josef (1999), Koeing et al. (2001), Seraji (2002), Ibrahimi and Nassiri (1997), Poor Hosseini (2001), Ashgarzadeh (1999) andJamalizadeh (2003) are the same as each other.

In explanation of the obtained result can be mentioned that those individuals, who have optimistic attitude towards themselves and the world, are more physically and mentally healthier and the recovery procedure of the illness is higher in optimist individuals. Optimist and positive view naturally brings about success.

In brief, optimist people are healthiest and happiest; their immunity systems work very well; by utilization of effective coping strategies such as reappraisal and problem solving can deal with stresses better and by optimism from the beginning of the adulthood period can predict the health level of the end of the adulthood period and during 35 years. Also, in explanation of the relationship between the attribution styles and mental health can be mentioned that those individuals, who gain high score in test of control, become depressed less than those who are believed in role of chance. Several evidences emphasis on this point that the feature of psychological indefatigably has also in positive relationship with mental and physical health and in its opposite point has negative relationship with depression and anxiety. (Ashgarzadeh, 1999).

In explanation of the relationship between the religious beliefs and optimism can be mentioned that religion affects on mental health by enhancing ability in coping with stress, creation of social support milieu, creation of hope and optimism towards contribution in creation of positive emotions such as living well, life satisfaction and happiness. The conducted researches determine the probability of life satisfaction and hope in religious people more than the others (Koeing etal, 2001).

Also, the findings analysis indicated that there is a significant relationship between religious beliefs and psychological health and this result is the same as the other findings of researches such as (Koeing etal, 2001), Jamalizadeh (2003), Hamilton (1998), Douglas (1983), Demateo (1999), Koeing (1994), Taleghani (2006), Bahrami (2005), Didoca & Josef (1999), Shababzi (1997), Koeing & Larson (2001), Seraji (2002), Ibrahimi & Nassiri (1997) and Pourhosseini (2001).

In explanation of this relationship can be mentioned that health psychology in recent years has placed importance on the role of coping strategies and individuals life style in quality of their mental and physical health. In religious coping, religious sources such as praying, blessing, trust in God and resort to God and ... are used for coping and whereas these kinds of copings is source of emotional support as well as positive interpretation of living events, are able to facilitate the future copings. (http://www.I.R.I.B.Education & Research head office). Also, results analysis indicated that there is a direct relationship between the optimism and mental health. This result was the same as the other research results of some researchers such as Karror and Ginez (1987), Levinson (1993), Csikszent (1990). Optimist individuals because of having flexibility in job and living are more successful, have greater physical and mental health and it's possible to live longer. Optimist individuals infected with mental and physical diseases less than pessimist individuals. They are healthier and have stronger immunity system. Depression, success and health are considered three most important elements of learned optimism (Seligman, 2007). Moreover, the results analysis showed that there is a direct relationship between the attribution styles and psychological health. The obtained result is the same as researches results of Schultz (1986) in this field. In explanation of this relationship can be said that those individuals who have stronger emotion of individual control are exhausted less in stress-stricken situations of life. Healthy individuals frequently attribute successes to themselves and defeats to external factors, lest not hurt
their self-esteem. As it is observed and based on the result of this research, attributes have important role in individuals’ mental health and those individuals who have internal attributes are physically and mentally healthier than those who have external attributes and in a state of being affected by disease are coped with their illness better. Also, the results analysis indicated that there is a direct relationship between the optimism and religious beliefs. The obtained result is the same as the other research results such as Lazarus, Gunner, and Folkman (1980).

In explanation of the relationship between the optimism and religious beliefs can be mentioned that religious belief in human creates power of resistance and makes disappointments tolerable. Faith in God causes hope and optimism towards future and makes life pressures endurable. The results analysis showed that there is a direct relationship between the religious beliefs and attributive styles. This result is the same as the other research results such as Park and Kohen (Seraj, 2002) and Baker and Gorsutch (1982). In explanation of this relationship can be mentioned that religion has positive effect on individuals’ mental health with internal orientation. There is a positive relationship between the internal religious orientation and reduction of anxiety, depression and increase of mental health, self-esteem, patience and focus of control. In lieu, there is a positive relationship between the external religious orientation and increase of anxiety, depression and there is a reversal relationship between the external religious orientation and internal focus of control, responsibility and self-esteem. The results analysis showed that there is a direct and significant relationship between the optimism and attributive styles.

This result is the same as the other research results such as Csikszent (1990), Seligman (1996) and Panak (1992). In explanation of this relationship can be mentioned that some of the psychologists have been taken into consideration the optimism based on the explanation method of past negative events. According to this view, those individuals who attribute the undesirable events, defeats and past disappointments to particular, inconstant and external reasons, are considered as optimistic individuals; but those individuals who attribute these events and experiences to special, inconstant and internal reasons, are generally considered as pessimist individuals.
IV. Suggestions

Based on the obtained results of research, it is suggested that:

- The role of environmental factors has taken into consideration in future studies.
- Some situations are created in order to increase the individuals' optimism.
- The religious beliefs of individuals are reinforced.
- Based on the important role of attribution style in mental health, a method is adopted in order to be taught the practices of healthy attributive styles.
V. References


- Sharifi, T. (2002). "The study on the relationship between religious view and general health, depression, aggression anxiety and patience in students of Ahwaz Islamic Azad University", M. A. Dissertation of General Psychology, Islamic University of Ahwaz, Faculty of Literature and Humanities, Department of Psychology.


Koeing (1998) believes that religion for people plays the role of protective shield against the environmental destructive, injurious and hypertension factors and creates a wide range of psychological positive effects on people. Individuals and some groups of researchers throughout the world have achieved into positive and remarkable results about the effect of faith in God, religion and religious environments, religious mores and manners on individuals' mental health, society mental health, and amelioration of mental patients, resistance against painful distastes and events and creation of quiescence.