

Education for Sustainable Development

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Abstract— For society to progress towards a more sustainable model of development there is a need for every individual to show concern for the environment and the stewardship of natural resources. Outcomes from the World Summit on Sustainable Development (SD) in Johannesburg in 2002 recognized that lifelong learning and education is a driving force towards Sustainable Development. Education for Sustainable Development (ESD), aims at building the capacity and commitment needed for building sustainable societies. It will help both the individual and the group to make responsible decisions that conserve and enhance ecological processes, on which life depends, so that quality of life is improved, now and in the future. The purpose of this research paper is to provide an understanding of the necessity of ESD. It also tries to explain how ESD can be executed. Further it aims to give the advantages that a society can enjoy by nurturing a sustainable society with the aid of the education.

Keywords— Education, Sustainable Development, Ecological processes, Sustainable societies, Quality of life.

I. INTRODUCTION

Irrespective of one's field, every human feels development as an essential process. When over-exploitation of our natural resources takes place in this process, the replenishment of these reserves gets affected which results in imbalance of demand and supply of valuable resources. Managing this imbalance is essential to not only create a

better world for this generation but also for future generations. Education is one of the factors, which plays an increasingly significant role in promoting sustainable development. It is recognized internationally as fundamentally important to address the critical global challenges we all face. ESD helps every individual to acquire the knowledge, skills, attitudes and values necessary to shape a sustainable future.

II. LITERATURE REVIEW

Sustainable development is an evolving concept that emerged in the 1980s in response to a growing realization of the need to balance economic and social progress with concern for the environment and the stewardship of natural resources. The most famous statement on sustainable development is taken from the World Commission on Environment and Development popularly known as the Brundtland Commission in its report *Our Common Future* published in 1987: Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Education is often understood to be a means of overcoming handicaps, achieving greater equality and acquiring wealth and status for all (Sargent, 1994). The curriculum needs to be closely integrated with; research, understanding and reducing the negative ecological and social footprint of the institution, and improving local and regional

communities so they are socially, economically and environmentally sustainable (Cortese, A.D, 2003).

Learning for sustainability is aligned to transformative learning (Mezirow, 2000). In order to enhance competence development for sustainable development, the creation of a new learning culture which involves a mix of formal/informal learning settings, encouraging learners' to take responsibility for their own learning and the promoting of interdisciplinary collaborations are recommended (Barth, M. Godemann, J.Rieckmann, M. Stoltenberg, U, 2007).

Higher education curricula offer experiences which develop graduate attributes of self-efficacy, capacity for effective advocacy and interdisciplinary collaboration, as well as raise awareness of social and moral responsibilities associated with professional practice (Sibbel, A.2009).sustainability education must be "interdisciplinary, collaborative, experiential and potentially transformative. The current models of academic teaching are not structured to provide adequate support for any potential problems that might occur as a result of transformative learning (Moore, J, 2005).

Reinvigoration of environmental and sustainability learning requires major structural changes that foster transdisciplinary curriculum development, using fieldwork and real environmental problems to realign delivery to a focus on students, and realigning organizations to promote diversity (Sammalisto, K. Lindquist, T, 2008).schools are not yet well developed as sites for student teacher learning in the domain; student teachers generally have greater understanding of sustainable development than their mentors. (Summers,M.Children, A.Corney, G, 2005).

Sustainability needs to be embedded in a notion of professionalism that has a professional values framework at its heart. This framework should underpin in all teacher education programmes and energise professional practice (Martin, K.Summers, D.Sjerps-Jones, H, 2007). Teaching sustainable marketing practices requires that curricula advocate a "triple bottom line" approach to personal and marketing decision making, emphasizing requirements for a sustainable lifestyle, company, economy, and society. (Bridges, C.M. Willhelm, W.B.2008).

A multidisciplinary approach is essential in order to both teach the basic concepts of sustainability, and to critique its assumptions. (Banerjee, S. 2004). Studies of Society and Environment are currently well placed to be incorporated into

interdisciplinary curriculum frameworks and assist in meeting the goals of middle schooling philosophy (Hammond, C.McCallum, F, 2009).Technology education may be used as a tool in meeting the challenges of sustainable development. There is a paucity of academic studies which examine the contribution technology education may provide to education for sustainable development (Filho, W.L. Manolas, E.Pace, P., 2009).

The open-ended enquiry-based learning techniques are useful for promoting sustainability values within educational programmes. (Murray, P.E. Murray, S.A, 2007). There is general support for the embedding of ESD in the curriculum, but there is considerable uncertainty expressed by lecturers concerning how this can best be done. (Jones, P.Trier, C.J.Richards, J.P, 2008).A frame of reference is to be provided to help students make sense of how organisations implement sustainability and the assumptions that underlie their behaviour, while at the same time developing their critical and reflective thinking skills (Stubbs, W.Cocklin, C, 2008).

III. RESEARCH METHODOLOGY

The principal aim of this study is to analyze how education at different stages can optimize contributions to sustainable development. The present study has used journals, magazines, newspapers and websites as secondary data sources to outline the necessity of ESD and to explain how ESD can be executed. The paper also provides the benefits that a society can enjoy by promoting education for sustainable development.

IV. DISCUSSION & RESULTS

Education for sustainable development enables an individual to love the world in which they live and understand that opportunities and resources are not infinite. It helps in acquiring knowledge, skills, and social responsibility to make learners become caregivers of the earth for future generations. Education for Sustainable Development consequently promotes competencies like critical thinking, imagining future scenarios and making decisions in a collaborative way. Education system in India: Today education system in India can be divided into following stages.

- Pre- Primary - It consists of children of 3-5 years of age studying in nursery, lower kindergarten and

upper kindergarten. At this stage student is given knowledge about school life and is taught to read and write some basic words.

- Primary - It includes the age group of children of 6-11 years studying in classes from first to fifth.
- Middle - It consists of children studying in classes from sixth to eighth.
- Secondary - it includes students studying in classes ninth and tenth.
- Higher Secondary - Includes students studying in eleventh and twelfth classes.
- Undergraduate - Here, a student goes through higher education, which is completed in college. This course may vary according to the subject pursued by the student.
- Postgraduate - After completing graduation a student may opt for post graduation to further add to his qualifications.

The Table-1 exhibits the execution of ESD at various stages of education and the advantages that a society can enjoy by nurturing a sustainable society.

Education-Stage	Execution	Advantages
Pre- Primary	Practical knowledge of what children learn about nature should be taught by making them play, sing, dance and watch related videos. Involving students to participate in events like fancy dress competition, debates, and other celebration keeping environment related themes.	Students learn to show love and care to nature in their stage of education and this lays a strong foundation for them to become responsible citizen.
Primary	Curriculum should support child-centered active learning approach. Time-tabling should be flexible so that teachers can make students involve in the practical sessions of the theory taught. Related videos of	Encourages critical thinking and the development of responsible attitudes. Active learning

	environmental issues which are part of curriculum should be played to the pupils i.e., e-learning has be encouraged. Schools should organize events which throws light on the importance to ‘go green’. Students should be encouraged to take active role in Drams which reflect the Impact of human activities on environment.	
Middle & Secondary	Awareness about the scarce resources to be created, and how well to use them should be taught. Students should be entrusted with the SD projects which demand them to explore and develop an understanding of the natural, human, Social and cultural dimensions of the society. Schools should encourage students to participate in science exhibitions and present their innovative ideas.	Children are encouraged to become active citizens. Environmental awareness becomes an intrinsic part of the school ethos. Develops knowledge and skills of environmental stewardship.
Higher Secondary	As students opt different backgrounds, in this stage, irrespective of the branch, social awareness education and action Programmes have to be conducted. Showcase, collage and ‘speak-out’ sessions should be encouraged.	Enables learners to make decisions and judgments through a reflective citizenship. Empowers young people to come up with innovative solutions to social problems.

<p>Undergraduate & Postgraduate</p>	<p>The courses should aim to give students an understanding of the interface of curriculum and sustainable development. Different disciplines (environment, logistics, accounting, economics, social policy, sociology, politics, geography, philosophy) have responded to the sustainability agenda and offers suggestions for further development. New courses have to be introduced with modules in economics, sociology, data collection and analysis, public administration and law. Conducting Assessment centre activities (Group Discussion, in-tray, role play, case studies). Allowing should to work on live project relating to current issues of SD.</p>	<p>Develops skills of critical thinking.</p> <p>Reflective learning.</p> <p>Students understand of the environment and of the issues affecting the sustainability.</p> <p>Ensures development of intellectual inquiry & analytical ability</p>	<p style="text-align: center;">V. CONCLUSION</p> <p>In any stage of learning, Education aid an individual develops a sense of respect for others and helps to develop a sense of belonging to a community. Education for sustainable development would not be complete if it is not concerned with social, techno-economic and environmental issues. If the education system provides a link between theory and application, misuse of resources can be prevented. The citizens develop positive attitudes, confidence and knowledge to make better choices.</p> <p style="text-align: center;">ACKNOWLEDGMENT</p> <p>I would like to express my deepest gratitude to the Management of CBIT, Dr. B. Chennakesava Rao, principal, CBIT, the department of School of Management Studies, my family members and friends who helped me in accomplishing the work successfully.</p> <p style="text-align: center;">REFERENCES</p> <p>[1] Barth, M. Godemann, J.Rieckmann, M. Stoltenberg, U. (2007) Developing key competencies for sustainable development in higher education. <i>International Journal of Sustainability in Higher Education</i>, 8(4), 416-430.</p> <p>[2] Banerjee, S. (2004) Teaching sustainability: A critical perspective. In C. Galea (Ed.) <i>Teaching business sustainability</i>. Sheffield, UK: Greenleaf Publishing Ltd.</p> <p>[3] Bridges, C.M. Willhelm, W.B. (2008): Going beyond green: The “why and how” of integrating sustainability into the marketing curriculum. <i>Journal of Marketing Education</i>, 30(1), 33-46.</p> <p>[4] Cortese, A.D. (2003) The critical role of higher education in creating a sustainable future. <i>Planning for Higher Education</i>, 31(3), 15-22.</p> <p>[5] Filho, W.L. Manolas, E.Pace, P., (2009), Education for sustainable development: current discourses and practices and their relevance to technology education. <i>International Journal of Technology & Design Education</i>, 19(2), 149–165.</p> <p>[6] Hammond, C.McCallum, F (2009)Interdisciplinarity: Bridging the university and field of practice divide. <i>Australian Journal of Teacher Education</i>, 34(2), 50-63.</p> <p>[7] Jones, P.Trier, C.J.Richards, J.P (2008) Embedding education for sustainable development in higher education: A case study examining common challenges and opportunities for undergraduate programmes. <i>International Journal of Educational Research</i>, 47, 341–350.</p> <p>[8] Martin, K.Summers, D.Sjerps-Jones, H. (2007) Sustainability and teacher education. <i>Journal of Further & Higher Education</i>, 31(4), 351-362.</p> <p>[9] Mezirow, J. (2000) Learning as Transformation: Critical Perspective on a Theory Progress. New York, USA: Jossey Bass.</p> <p>[10] Moore, J. (2005) Is higher education ready for transformative learning? A question explored in the study of sustainability. <i>Journal of Transformative Education</i>, 3(1), 76-91.</p> <p>[11] Murray, P.E. Murray, S.A.(2007): Promoting sustainability values within career-oriented degree programmes: A case study analysis. <i>International Journal of Sustainability in Higher Education</i>, 8(3), 285-300.</p> <p>[12] Sammalisto, K. Lindhqvist, T,(2008), Integration of sustainability in higher education: A study with international perspectives. <i>Innovative Higher Education</i>, 32(4), 221-233.</p>
<p>PhD programme in Sustainable Development</p>	<p>Education system should support research activity on sustainable Development issues by granting financial aid, fellowships etc.,</p>	<p>Society can take aid of research findings and can frame policies, programmes to promote SD</p>	
<p>Apart from the above initiatives following should be considered: Professional training and development should be given to the teachers regarding need for ESD. Government should go for creating public awareness and provide enough funds for campaigns and social media should take active role & Research on ESD should be promoted.</p>			

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