

## **A Study Shows the Role of Education in Sustainable Development**

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### **Abstract:**

In recent years, the interest in research concerning Education for Sustainable Development (ESD) has grown considerably. Therefore, a thorough (re)evaluation of this field and its challenges is highly necessary and can help us better understand the diversity of ESD approaches and the ways in which various scholars, countries, institutions, or universities reacted through research and scientific publications to the study of ESD. The development of the field, critical past contributions, emerging trends, and potentially transformative ideas, from different parts and cultures of the world, indicating that publishing on ESD is like a legacy to inter-national efforts to bring this area of inquiry into the mainstream. Finally, the study illustrates two main research directions for the entire time-span: integration of education into sustainable development and of sustainable development into education.

**Keywords:** Education, Sustainable Development, Environment, India, UNESCO

### **1. Introduction**

**Education for Sustainable Development (ESD)** was a United Nations program that defined as education that encourages changes in knowledge, skills, values and attitudes to enable a more sustainable and just society for all. ESD aims to empower and equip current and future generations to meet their needs using a balanced and integrated approach to the economic, social and environmental dimensions of sustainable development. ESD is the term most used internationally and by the United Nations. Agenda 21 was the first international document that identified education as an essential tool for achieving sustainable development and highlighted areas of action for education.

### 1.1. Concept and origin

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One definition of Education for Sustainable Development is an "interdisciplinary learning methodology covering the integrated social, economic, and environmental aspects of formal and informal curriculum". The **Brundtland Commission** defined sustainable development as meeting the needs of the present generation without putting at risk the capacity of generations to come in meeting their own requirements. This Agency used to be the World Commission on Environment and Development created in 1983. The idea of sustainable development originated from the United Nations Conference on Human Environment in Stockholm (Sweden 1972). There were two more global activities since then. These were the United Nations World Commission on Environment and Development 1987 (Our Common Future Report) and the United Nations Conference on Environment and Development 1992 (Rio Earth Summit).

For UNESCO, education for sustainable development involves:

Integrating key sustainable- development issues into teaching and learning. This may include, for example, instruction about climate change, disaster risk reduction, biodiversity, and poverty reduction and sustainable consumption. It also requires participatory teaching and learning methods that motivate and empower learners to change their behaviours and take action for sustainable development. ESD consequently promotes competencies like critical thinking, imagining future scenarios and making decisions in a collaborative way

## 2. Review of Literature

India: Education and environment In the following section I review the work of the Indian Centre for Environmental Education (CEE) looking at the challenges of education for sustainable development (ESD) and the principles and approaches that are seen as important for success. While recognizing an urgent need to move beyond anecdotal and 'advocacy' driven research to ensure education maximizes its contribution to sustainable development. Much has been written on the appropriate terminology to describe environmental learning (Shalcross and Wals, 2006; Scott and Gough, 2004). This is a contested field in which important debates around 'whose knowledge', and the relative efficacy of pedagogical approaches that promote learning 'about', 'from', and 'in the environment' are ongoing. In this paper I use the term 'education for sustainable

development' (ESD) firstly because this is the term used by CEE, the implementing body, and secondly it aligns with the vocabulary of the sustainable development goals. The use of ESD explicitly assumes that the expected outcome of learning goes beyond knowledge acquisition to behaviour change of individuals. Using the vocabulary of 'resilience' this could be conceived as 'adaptation' (equipping upcoming generations for the inevitable changes of a +2°C world) and 'mitigation' (inculcating a greater understanding of and responsibility for the environmental consequences of human actions). Such education, as Sterling (2001: 11) notes, requires an educational paradigm shift from 'transmissive to transformative learning'. The use of ESD as a generic descriptor in this case study may be more 'aspirational' than factually accurate, for in India there exists more of a continuum in outcomes. To illustrate, an analysis of Indian school textbooks revealed comprehensive content coverage of environment topics but no links to action (Ravindranath, 2007). Conversely, there are numerous positive examples of India school and community-focused ESD initiatives (Tomar, 2014; CEE/MoEF, 2010). The size and diversity of India (its 1.2 billion population is equivalent to the combined populations of the USA, Brazil, Japan, Indonesia, Bangladesh, and Pakistan) has led to the evolution of a federal system. Education in India falls under the jurisdiction of both central and state governments and is known as a 'concurrent subject'. In simple terms India's education ministry, the Ministry of Human Resource Development (MHRD) sets curriculum and standards, provides targeted programmatic funding (supplemental to state budgets), and collects and publishes national education statistics (see British Council, 2014, for detailed education system profile). India has a strong tradition of incorporating environmental issues within official documentation defining education content and delivery. This includes the national Protecting the future International Journal of Development Education and Global Learning 8 (1) 2016 ■ 11 education policy, a 1991 Supreme Court ruling making environmental education compulsory at all levels of education and inclusion in the 2005 national curriculum framework (Ravindranath, 2007). MHRD's influence comes through its role as guardian of curriculum standards (formulated by the National Council for Education Research and Training) and the presence of a unit supporting work on the UNESCO Decade for Sustainable Development. MoEF is currently the more 'active partner' providing national funding for both in-school and extra-curricular ESD initiatives. In general, in most states environmental studies is taught as a separate subject in classes one to five – while in higher grades it becomes 'threaded' through the curriculum.

The SDG entails “ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all” [1]. Education drives more healthy and sustainable lives, also contributing to a more peaceful world as an outcome of encouraging forbearance amongst nations. Therewith, education diminishes inequalities insofar as educated persons can get high-paying jobs. Also, well-educated workers are imperative in order to fulfill complex jobs and adjust quickly to their changing medium and the growing needs of the manufacturing network [9].

The importance of the link between education and growth is underlined by the neo-classical theory, as well as endogenous growth theory in late 1980s and early 1990s. The neo-classical theory shows that a one-off permanent increase in the stock of human capital results in a one-off rise in the economy’s growth rate until the economy reaches the new higher steady state. In the model of Romer [10], human capital is perceived as a factor facilitating research and development, whence technological growth is heightened. Further, Lucas [11] levied human capital as a factor of production. As such, the accumulation of knowledge by people, either with intentional efforts [11] or with learning by doing [12], support the productivity of labor and capital, being the driving force of economic growth. In line with augmented neo-classical model, a one-year increase in average education raises the level of output per capita by between three and six percent, whereas an over one percentage point Faster growth based on the new-growth theories [13].

Barro [14] reported that the growth rate of real gross domestic product (hereinafter “GDP”) per capita is positively related to school enrolment rates. De Meulemeester and Rochat [15] underlined Granger-causality running from higher education to economic development in Japan, United Kingdom (UK), France, and Sweden, suggesting that education can stimulate growth only if its curriculum is outlined towards such a purpose, whilst social, political, and economic structures alongside the technological level of the society are such that graduates can use their knowledge. Asteriou and Agiomirgianakis [16] pointed out in Greece a positive long-run relationship between enrolments rates in primary, secondary, and higher education and the GDP per capita. Petrakis and Stamatakis [17] revealed that primary and secondary education contribute significantly to growth in least developed countries (hereinafter “LDCs”), whereas growth in OECD economies hangs on higher education. Psacharopoulos and Patrinos [18] showed that the average rate of return to an

additional year of schooling is 10 percent, and that education leads the highest returns in low- and middle-income countries.

In the same vein, Self and Grabowski [19] noticed in India a strong causal link between economic growth and primary education, weak evidence of a link between growth and secondary education, and no link at all between growth and tertiary education. Hanushek and Woessmann [20] pointed out that the cognitive skills of the population are strongly related to individual earnings, to the distribution of income, and to economic growth. Onward, Pereira and St Aubyn [21] reinforced that primary and secondary education has a positive and significant effect on growth, though tertiary education does not contribute significantly to economic growth in Portugal. By employing a meta-regression analysis to 57 studies with 989 estimates, Benos and Zotou [22] provided evidence supporting a large publication selection bias regarding a positive influence of education on growth.

With regard to the influence education has on future wealth of individuals, there is not a consensus. The human capital theory has been suggested that education raises wages since it increases the productivity of employees, thus establishing a boost of productivity in the benefit of society. Contrariwise, the screening hypothesis highlighted that education has no effect on labor productivity, being used as a signalling device that corporations employ to select the more skilled labor force, the benefit of educational investment being smaller. Further, the life cycle and permanent income hypotheses supposed that individuals try to maximize their welfare by balancing a lifetime stream of earnings with a lifetime pattern of consumption. Solmon [23] stated that school quality influences lifetime earnings of all students regardless of the level of development of their nations. Krueger and Lindahl [24] found that increases in schooling raise workers' income. Lin [25] ascertained that one additional percent of higher education stock increase real output by 0.19%, whilst engineering and the natural sciences majors exhibited the most conspicuous role in the Taiwan's economic development. Martins and Pereira [26] revealed that returns to schooling are higher for the more trained persons, and that within-group wage inequality is higher for graduates than for non-graduates. Chevalier [27] reported the highest within-subject wage variation in Maths, IT, Architecture, Law, Business, Finance and Economics degrees, and the least in Linguistics, Education, Psychology, and "other" degrees.

Moreover, Nickell [28] proved that each year of schooling up to 12 years lessens the estimated period of unemployment by over 4%, whereas the achievement of qualifications at regular levels or above decreases the expected unemployment time by 12%. Farber [29] reported that job losers with higher levels of education register higher post-displacement employment rates, being more likely to be re-employed full-time. Likewise, Riddell and Song [30] reinforced that education raises re-employment rates of the unemployed, with large effects being reported in the neighbourhoods of 12 and 16 years of schooling.

There are different views of the influence foreign study has on developing countries. For instance, Ahiakpor [31] examined dependency theory, which underlines that the connection of LDCs with more developed industrialized countries has operated to the LDCs loss. In fact, the skills developed in industrial countries are not suitable in the economy of LDCs since the last nations are capital-poor, even if labor rich. Based on the institutionalization theory, foreign education ensures prestige or authority to returning students, regardless of the quality of foreign education, which often leads to better access to political and social privilege. Sutton and Rubin [32] pointed out that students that were spending time abroad have benefited in terms of improved language skills and better cultural understanding. Hence, Mechtenberg and Strausz [33] proved that internationalization could also improve economic productivity due to the cultural knowledge that students achieve in foreign education.

### **3. Methodology**

This review has been informed by international surveys and regional reports provided by UNESCO and a significant new research review that has assessed the nature and strength of the evidence base and provides an overview of the main trends to be found in the research and professional literature associated with ESD ECCE. While the quality of the evidence available was found inadequate for the purposes of any objective evaluation or systematic review of the progress being made in the UN DESD, the review has adopted a qualitative approach that provides appropriate standards of reliability and validity. In identifying appropriate sources for review a strong emphasis was placed on research providing a robust empirical basis, and where the evidential basis of arguments and inferences are weaker we have indicated this in the text. Scoping searches were carried out using bibliographic databases and extended searches were also carried out using search engines such as Google and Google Scholar.

#### 4. Discussions

Education for Sustainable Development can provide the tools, skills, and knowledge needed to understand Sustainable Development and nurture a sustainable society. It will help both the individual and the group to make responsible decisions that will benefit themselves and the local and wider community. But it also represents a major change in the education delivery process. There is a need to put in place policy frameworks and supports for the development of Education for Sustainable Development (ESD). Outlined here are some suggested policy frameworks and mechanisms for the future development of ESD. The UN Decade of ESD has played an important role in the development of Education for Sustainable Development and provides a useful framework in which to develop and grow ESD in India. The interdepartmental committee on ESD must ensure the development and implementation of a National Strategy on Education for Sustainable Development. The successful development and implementation of any National Strategy depends on many issues but adequate resourcing and funding is a main issue. Therefore an adequate funding stream to implement the UNDESD needs to be put in place. The review of the National Strategy of Sustainable Development is taking place currently. Education and communication are cross-cutting issues, however, there needs to be adequate reference and supports made available to ensure that education and training are given adequate and appropriate recognition and importance within the strategy. The Department of the Environments has a part to play in advising other departments on Sustainable Development. It is therefore vital for the success of Sustainable Development and Education for Sustainable Development that an active leadership role is taken by Government. There is a need for all government departments including local government to provide adequate supports and measures to ensure the professional development of their staff in education and training for Sustainable Development within their place of work. It is also vital that education and training are included in internal and external policy on Sustainable Development. The Department's own internal structure should reflect the importance of this area and a special ESD section, as part of the newly formed Environment Awareness and Heritage section, should be put in place. Educational institutions are at the centre of learning, training and development. These institutions are heavily involved in peoples development of knowledge, skills, attitudes and values. These institutions in their internal and external policies should prioritise Education for Sustainable Development in their course development and in the professional development of their staff. The same should apply to the private sector and professional bodies.

## 5. Recommendations

- ESD is given priority in all levels and forms of education – formal and non-formal.
- Open and effective consultation mechanisms be used in the development and implementation of ESD at all levels to include children, young people and the interests of future generations.
- A National Strategy on ESD be developed and implemented with consultation from all relevant stakeholders.
- A National ESD forum and network be established to assist in the development of partnerships and dialogue in India.
- Appropriate and adequate funds be made available to implement the National Strategy.
- Education for Sustainable Development principles and approaches be embedded in the formal curriculum in a cross-cutting, holistic way.
- A Whole Schools Approach to ESD be encouraged and that the learning community is engaged in planning and decision-making to achieve a sustainable educational environment. Schools should take part in the Green Schools programme and develop Sustainable Policies and practices.
- Schools and centres develop links on a local, national and international level so that experiences can be shared and good practices can be encouraged.

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