Introducing Education for Sustainable Development in Emerging Economies

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Abstract

The vulnerable population in emerging economies is more prone to the adverse impacts of climate change. Urgent need is felt for sensitising people towards the effects of climate change, its mitigation and ways to become resilient. This paper argues for introducing Education for Sustainable Development (ESD) in emerging economies as a potent action. The paper has argued for embedding ESD across subjects and school curricula. It should be given a cross-curricula priority. Secondly, as a teacher plays a crucial role in the above process, there is a need to ensure that teachers have proper knowledge of the subject and are aware of the different pedagogies to transact and equip with required competencies. Thirdly, contextualisation of education can help students to relate to sustainable practices. Last but not the least, activity and project-based approach could be used to motivate students to adopt a sustainable lifestyle.

INTRODUCTION

Climate change has manifested itself as a cause of major concern for the existence of humankind. Its adverse impact on the life of people is a known fact. Droughts have killed crops and animals alike; the rising sea level rise has destroyed homes. Extreme and abrupt variation in temperature range that resulted in climate shocks is affecting most of those people who are least responsible for causing climate change. Thus, the need for mitigation of climate change has been recognised by the world leaders and the ratification of the Paris

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Agreement on October 2 2016 by India and other countries shows the primacy that it is being given. It is time to urge the global community to adopt the 'Gandhian way of life' (shun extravagant lifestyles) for addressing the 17 Sustainable Development Goals and 169 targets built on the Millennium Development Goals to take care of the three dimensions of sustainable development— economic, social and environmental.

The idea of sustainable development was first floated by the Brundtland Commission Report of the World Commission on Environment and Development (1987), 'Our Common Future'. It was the World Conference on Environment and Development (WCED) in 1992 in Rio de Janeiro and the World Summit on Sustainable Development at Johannesburg in 2002, which attracted the world's attention towards sustainable development. The concept of sustainable development is a result of the growing awareness about the inversing environmental issues at a global level (Hopwood, Mellor, and O'Brien 2005).

Agenda 21, which was published at WCED specifically, stated that there is a need of addressing the needs of both, the environment and humankind simultaneously. Agenda 21 played a crucial role in stressing the need for including sustainable development as part of the school curricula throughout the world (Kopnina 2012). In December 2002, the United Nations passed

Resolution 57/254 that declared a Decade of Education for Sustainable Development (ESD) beginning in 2005. Thereafter, various committees of the UN and other multilateral organisations have stressed on the importance of sustainable development and ESD.

Sustainable development is most commonly defined as 'satisfying the needs of current generations without putting at risk the ability of coming generations to do the same' (Friman and Hansson 2008). But it became really difficult for the world leaders (of both the developed and the developing countries) to arrive at a consensus about what exactly these 'fundamental needs' are? The United Nations Millennium Declaration has been able to shed some light over it. It suggests that the fundamental human needs such as sufficient water and food, shelter, access to education, health, employment, justice, etc. should be met for all, without harming the earth's life support systems, such as the atmosphere, the water cycle, earth and biological diversity (Annan 2000).

The 2030 Agenda for Sustainable Development underlines the global commitment of 'achieving sustainable development in its three dimensions—economic, social and environmental—in a balanced and integrated manner' (Nilsson, Griggs, Visbeck 2016). In order to propagate the idea of sustainable development, there is an urgent need for education for sustainable

development. Venkatraman (2009) has argued that the school education system of any country should present sustainable development in such a way as to modify individual and societal lifestyles towards protecting the environment. Achieving social equity can help to understand the challenges that the educational community faces and the progress it has made to overcome them.

EDUCATION FOR SUSTAINABLE DEVELOPMENT (ESD)

Unlike most of the education movements, ESD was initiated by people outside the education community. As discussed earlier, it was the UN resolution 57/254 which first advocated for the education for sustainable development at a global level. Subsequently, the need for education for sustainable development was pushed by many multilateral economic bodies.

The difference between environmental education and ESD was also highlighted at various forums. ESD is different from environmental education as it not only focuses on humankind's relationship with the natural environment and the ways to preserve it, but it also stresses on the socio-cultural and socio-political aspects. ESD also entails the discussion on poverty, democracy, way of life and most importantly, equity (Venkataraman 2009).

Another unique point of ESD is that it focuses on solving two major issues in the dialogue for sustainability,

that is population and resource consumption. Given the limited natural resources, the exponential increase in global population and rapid urbanisation will surely take a toll on the natural resources and subsequently on the environment (Holdren and Ehrlich 1974). There is an immediate need for low and middle-income countries to reduce risks with a particular attention on the vulnerable population. Education has been seen as impacting fertility rates in a country negatively (Kravdal and Rindfuss 2008; Monstad, Propper, and Salvanes 2008). In the Indian scenario, Dreze and Murthi (2001) have empirically established that the female literacy rate has a negative and highly significant effect on the fertility rate. Conversely, some studies have also indicated that increased literacy also results in increased resource use. It is evident from the fact that the per capita energy consumption is much more than the developing world. Despite this, a literate population is vital for sustainable development.

ESD is a vision of education that seeks to balance human and economic well-being with cultural traditions and respect for the Earth's natural resources. It emphasises aspects of learning that enhance the transition towards sustainability including future education, citizenship education, education for a culture of peace, gender equality and respect for human rights, health education, population education, education for

protecting and managing natural resources, and education for sustainable consumption.

The importance of education has been recognised by governments and international agencies. In the last two decades, several programmes and schemes have been launched which ensure that development and education go hand in hand. Some of these initiatives are as follows.

• The Millennium Development Goals (MDGs)

• Education for All (EFA)

• The United Nations Literacy Decade (2003–2012)

• The United Nations Decade of Education for Sustainable Development (2005–2014)

• The Education 2030 Agenda which is encapsulated in Sustainable Development Goal (SDG 4) 2015

Apart from the Millennium Development Goals which were conceptualised and coordinated by the United Nations Development Programme, all the other four initiatives were coordinated by the United Nations Educational Scientific and Cultural Organization. These initiatives aim to improve the quality of life, promote human rights, have a commitment to education and increase participation of everyone in development and education. The Sustainable Development Goals consist of the 17 goals and 169 targets, which have been built on the Millennium Development Goals. Most of these goals are related to Education for Sustainable Development.

EDUCATION FOR SUSTAINABLE DEVELOPMENT IN SCHOOL CURRICULA

Introducing ESD in school education will ensure that youth is not only well informed, but they also participate in and contribute to addressing global challenges. Moreover, owing to its interdisciplinary nature and its relevance in the present and future, ESD offers a starting point for innovation to school education (Rauch 2002). Despite the importance it holds, ESD still has to acquire a prominent place in the school curriculum (Wals and Kieft 2010). The situation is even worse in some of the low and middle-income countries where early childhood education and care is either missing or poor. Also, the absence of adequate nutrition, proper healthcare and physical environment, and most importantly, emotional support hinders effective learning (Kaga 2008). Further,the priority of most of the low and middle-income countries being economic growth, sustainable development often takes a back seat. Therefore, in these countries, ESD is not given its due in the curriculum. Consequently, it has been suggested that the vulnerable population in these countries will be worst affected from the effects of climate change. Embedding ESD in school curricula is not enough in such cases. For effective learning, supportive health, social, economic and labour policies

and concerned services for young children and their families are also necessary (Kaga 2008).

Irrespective of these challenges, the author proposes some cost-effective measures and means which could integrate ESD across the stages and subjects of schooling. Any emerging model should essentially incorporate the following elements.

Cross Curriculum Priority

In order to include ESD in school curriculum, first, we need to focus on the framework highlighted by UNESCO which advocates for integrating the following three dimensions (Wals, Hoeven, and Blanken 2009).

Socio-cultural dimension

This dimension deals with the issues related to social equity. Some of the components within this dimension are as follows.
* Human rights
* Peace and human security
* Gender equality
* Cultural diversity
* Health, HIV and AIDS
* New forms of governance

Environmental dimension

It refers to the issues related to natural resources (water, energy, agriculture, and biodiversity), climate change, rural development, sustainable urbanisation, disaster prevention and mitigation.

Economic dimension

This dimension focuses on the issues related to poverty reduction, corporate responsibility and accountability and re-orienting the market economy.

One of the challenges which the advocates of ESD have highlighted is that sustainable development has been confined to the boundaries of a particular subject or a particular chapter in one of the subjects. If the aim is to embed ESD in school curriculum, merely including a chapter will not suffice. Rather, these dimensions should permeate the entire school curriculum, with every subject area, in every class, dealing with the aspects of sustainability in some way. For instance, following are the ways in which different subjects could be used to impart the knowledge on sustainable development.

First Language subjects (Hindi, Tamil, Telugu, etc.)—All the aspects of language and art offer the ways in which they can contribute to the sustainable development. The wealth of local literature, folklore, etc., can be used to highlight people's relationship with nature.

Mathematics — Mathematical concepts can be illustrated by experiences and examples from the natural, social, economic and political environments. The course curriculum should also include additional activities which require quantitative measurement of environmental and human activities. Students can

also be encouraged to compare the per capita energy consumption, waterfootprint and carbonfootprint of various economies in the world.

Social Sciences — Since policy decisions at the local, state, national, and global levels are made within the context of social institutions and human values, various social studies or social sciences (such as geography, history, political science, anthropology, sociology, psychology, etc.) can contribute greatly to the study of how alternative plans and actions can affect a sustainable future.

These issues constitute the core of the BLK (Bund-Länder Commission for Education Planning and Research Promotion Programme '21' in Germany. The programme stresses on interdisciplinary approach towards ESD. The programme advocates for participative learning and encourages all the stakeholders including the community, its residents, companies and local organisations to coordinate with schools to promote sustainable development. Furthermore, the programme has been integrated in everyday school routine (Haan 2006). Through his empiricalstudy involving around 1,500 students who went through the programme, Haan (2006) established that more than 75 per cent have learnt what they themselves can do to promote sustainable development. Also, more than two-third pupils could convince others towards the necessity of sustainable development.

In order to implement programmes such as BLK '21', countries need to first focus on training the teachers as teachers play a crucial role in shaping how students think.

Training the Teachers

The first step in promoting sustainable development among the students is to sensitise the teachers towards the issue. Once the teachers are oriented enough and understand the importance of the need of ESD, it would reflect in day-to-day interactions with the students and in the classroom transactions too. The educational system should also support the issue and its implementation at all levels. A two-pronged approach, that is, top-bottom and bottom-top is necessary in this regard. It should not remain as a cosmetic effort; rather it should be deeply embedded in the psyche of the teacher, students, parents and ably supported by the administration and the system.

The environmental educator cannot simply pass on knowledge and contents, but has to constantly contextualise locally, look for doable activities and practical examples. Capturing the interest of the students in the process would help them attain a better understanding, participation and widen their horizons.

With regard to teacher training, the pre-service teacher courses should have sufficient space for sustainable

development across the subjects. As mentioned in the previous section, sustainable development cannot be studied in isolation. Also, in-service teacher training programmes can be effectively moulded to propagate concept. Periodic refresher courses will add to the newer knowledge emerging in the area and enable its wider dissemination for further emulation.

Edman (2004) has argued that active learning, critical sensitivity and critical evaluation of values should be the parts of ESD pedagogy. Similarly, Björneloo (2004) also advocates for independence, critical thinking, participation and evaluation of results as central concepts of ESD. The modules on ESD in Teacher Education should encourage teachers towards reflective practice, reflexivity and critical thinking. The author agrees with Badjanova et al. (2014) when they argue that in order to promote sustainability, there is a need to move from transmissive form of teaching to transformative and experiential form of learning. Therefore, the Teacher Education institutions are not only supposed to make teachers well versed in a subject, but they also have to develop competencies which ensure that there is transformative teaching. Instead of confining themselves to just the content delivery, teachers are supposed to ensure activity-based learning.

Contextualising Education for Sustainable Development

Contextualisation of instruction on sustainable development to the local issues and things which pupils could relate to, will make ESD more effective. Rivet and Krajcik (2008) refer to contextualising of instruction as presentation of concepts and ideas based on the events and situations which occur outside the class or relating these concepts and ideas to the paticular interests of the students. Using the real world examples or problems to which students relate, can help in connecting with the concept and ensure better understanding. National Curriculum Framework (2005), the guiding document for curriculum in school education of India aptly highlights the importance of contextulisation of education— '...of situating learning in the context of the child's world, and of making the boundary between the school and its natural and social environment porous. This is not only because the local environment and the child's own experiences are the best entry points, into the study of disciplines of knowledge, but more so because the aim of knowledge is to connect with the world' (NCERT 2005).

Contextualising instructions takes an important role in activity and project-based learning. The next section will explain how both these modes of instruction can be beneficial in ESD.

Focus on Activity- and Project-based Learning

Leu and Price-Rom (2006) define activity-based learning as 'minimal teacher lecturing or direct transmission of factual knowledge, multiple small group activities that engage students in discovery learning or problem solving, and frequent student questions and discussion'. Activity-based learning has been seen to have encouraged the learners to interact with their surroundings and environment (Biazaka, Marleya and Levinb 2010). It has been observed that cognitive growth can be facilitated through activity-based learning during the pre-school years (Tomlinson and Hyson 2009). This finding is very significant as it has resulted in the use of activity-based instructional techniques in school education too, in order to capitalise on its cognitive benefits (Guthrie et al. 2006, Sherman and Bisanz 2009). The argument is also supported by several theories of cognition, and Piaget (1962) has argued that providing representitation to the children enhances their learning.

As the benefits of activity-based instructions are well documented, sustainable development can be taught in schools through this method. As sustainability is a multifaceted and interdisplinary topic, activity-based learning will help the students in creating meaning through interacting with their environment. This process will ensure that knowledge is not simply acquired but it is used and implemented in day-to-day affairs (Hedden et al. 2017).

On the similar lines, project-based learning can be a tool for the learners to not only interact with their environment, but also to help in constructing knowledge by solving complex problems. In this process, the learner uses different sets of cognitive tools and relies on mutiple sources and individuals for information (Resnick 1987). Blumenfeld et al. (1991) define project-based learning as a comprehensive mode of teaching which involves teaching through engaging students in investigation. Within project-based learning, students are supposed to find solutions to non-trivial problems by asking questions, debating ideas, making plans, collecting and analysing data, communicating the finding to others, discussing the findings, asking the questions again (if any) and coming up with multiple solutions. Through project-based instruction, the student is motivated to test what they have learnt when confronted with similar problems in real life. This also helps in deepening their knowledge in that particular subject.

The role of teachers occupies place of eminence in such instruction. Although the project components and its orientation are student-centered, but the exercises in project-based learning are usually teacher-centered project pedagogy (Helle, Tynjälä and Olkinuora 2006). The exercises are

to be designed by the teachers in a way that integrates the subject material. The first step for the teacher is to introduce students to the fundamentals. They have to constantly support learning through instruction, guide the students and make tasks more manageable. At the same time, the focus should also be on making classroom environment conducive for enabling constructive inquiry and managing the classroom to ensure that work is completed in an efficient and orderly fashion.By focusing on learning, rather than focusing on performance, teachers can promote motivation to learn, encourage risk taking and most importantly encourage a habit of enquiry among the pupils (Blumenfeld, et al. 1991). The teacher has to play the role of the coach or facilitator in the process. Therefore, teacher training should build in competencies among the teachers that ensure that the teachers not only possess sufficient understanding of the subject, but they also have pedogogical content knowledge of probable alternative queries of the students.

As climate change is a complex societal problem, the sustainable development programmes must not only equip the students with just the content knowledge, but they should also develop analytical skills and interpersonal competencies (Arnim Wiek, et al. 2014). Project-based learning can help the teachers and students in this regard. It can help the students in engaging with the real life sustainability issues. At the same time, it can also help in developing analytical skills and interpersonal competencies.

CONCLUSION

In the quest to accelerate economic growth, environmental considerations have taken a back seat. Despite the adverse impact of climate change on the humankind, the world as a single entity has not been able to resolve the conflict among people, planet and profit. The people in emerging and low-income countries are more vulnerable to the effects of climate change due to the financial constraints. Therefore, sensitisation of all the stakeholders towards sustainable development practices becomes all the more important. At the level of school education, informed parents, aware, oriented and sensitised teachers along with the systems supporting ESD can contribute towards becoming more resilient towards the effects of climate change.

Despite this, education for sustainable development has not attained the place it deserves in the school curriculum globally (barring few exceptions). It has been superficially touched upon in a few textbooks to some extent (Venkataraman 2009). The paper has proposed four necessary points which could ensure proper dissemination of ESD at school level.

Firstly, the paper has argued for embedding ESD across the subjects and the school curriculum. It should

be given a cross curricula priority. Secondly, as a teacher plays a crucial role in this process, there is a need to ensure that teachers have proper knowledge of the subject, are aware of the different pedagogies to transact, and are equipped with required competencies. Thirdly, contextualisation of education can help students to relate to sustainable practices. Last but not the least, activity and project-based approach could be used to motivate students to adopt a sustainable lifestyle.

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