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Environment Education in India – Short, Medium and Long term options

KV Raghavan

Abstract

Lack of unified approach and inadequate support at the national, state and local levels have greatly hindered the public and private efforts to make Environmental Education (EE) as an integral part of the school and college curricula in developing countries. The major issues that need to be addressed are the precise role of environmental education to achieve certain specific socioeconomic goals and the type of organizational structure and tools required for its implementation.

The essential elements of environmental education revolve around social dynamics of ecosystems, technoeconomics of environmental options and problem solving ability of S&T system. Global experiences demonstrate that an integrated EE helps to prevent national environmental problems becoming more complex and unsolvable and to enhance the long term sustainability of national resources.

This paper looks at the major challenges in introducing EE in Indian schools and colleges. Fitting the new subjects into a already crowded curricula, lack of training to the teachers, differing priorities of state and central level education systems and lack of innovative tools to link environmental and formal education curricula are major constraints to be overcome. Though more than 50 Indian universities, centres and institutes offer exclusive EE degrees, not much progress has been made in integrating EE into the curricula of the existing science and engineering degree programmes.

It is important to draw useful lessons from global experiences on environment education. The varying perceptions of community at large, teachers and students on the relative importance of various environmental issues have come to the fore. While pollution control ranked as number one issue for all of them, their perceptions on issues like overpopulation, resource conservation and deforestation are varied. Proactive and preventive strategies through cleaner production, waste management and sustainable resource utilization have been universally accepted as environmental themes for integration into various course curricula.

There is a strong need to evolve a viable implementation strategy for EE in India considering its short, medium and long term priorities. While bringing awareness on the pollution of water bodies, air and soil and their treatment will be the focus area in short term, the technological solutions to prevent its occurrence should be the medium term education option. The EE issues pertaining to ozone depletion, green house gas emissions and allied phenomena, which have long term implications, require extensive knowledge base creation and field studies. Their educational needs to be addressed effectively along with the international scientific community.

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Approaches to Environmental Educational Research: Principles & Practices A Mandate for Education for Sustainability

Ian Robottom

Abstract

This presentation will establish the existence of a mandate for education for sustainable development (ESD) at international, national and local/regional levels. With the rise of ESD comes the opportunity and responsibility for research into ways in which educational institutions and programs may effectively engage in ESD. The presentation will put forward a perspective on the nature of sustainability issues based on some recent international project experience. Finally, in light of the foregoing, the paper will consider a number of approaches to educational research, arguing for coherence between the substantive research topics (associated with sustainability issues in particular contexts) on the one hand and the methodological approach we adopt on the other.

Key words: ESD, UNESCO, NAPEE & NAPESD.

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ENERGY, WASTES, ENVIRONMENT, CULTURE - A TIME TO RETHINK SUSTAINABILITY!

H N Chanakya

Abstract

Culture, energy, wastes and resulting environmental damage are strongly linked in an almost linear fashion where each one of these factors conditions and narrows the choices being made such that it finally makes the situation more and more non-sustainable. It has been a self-perpetuating chain. Most energy options that various societies around the world have chosen, led by simple developmental or entrepreneurship (or similar) goals, seem to have led us to greater levels of non-sustainability undermining the very keystone of development - sustainability. When we take a narrow view of energy and environment (delinked from culture and sustainability), as has been done in the past, we have most often made choices of the most dirty technologies while using economic benefit as the only filter criteria. Today when we attempt to use a sustainability filter in our choices - the essence of sustainability has twisted and tilted to once again mean economic /market sustainability, where sustainability concepts related to resource, environment or overall human well being is overlooked and the improper filter continues to make wrong choices. In this paper the relationships between renewable energy sources, dissemination challenges, environmental benefits and "low" marketability factor /conundrum is highlighted. It is envisaged that entrepreneurship, especially micro-enterprise at the grass roots appears to be the solution that will greatly promote renewable energy options. While this approach borders functioning in an ideal society situation, the reality is distorted by the imperfections in the market, especially the fact that we are dealing a poorly informed clientele that easily tends to make glossy choices and it is a sellers' market. This issue is illustrated with two examples of renewable energy technologies the biogas plants of Uttara Kannada and Solar water heaters of Bangalore. Biogas plants in Uttara Kannada has shown almost always 100% success and the demand is always higher than the current promotional modes. Biogas plants built in remote villages continue to be used even though, there is hardly any dearth of fuel wood in the district. Our research shows that this success may be attributed to the role and dedication of the micro-enterprises in Sirsi Taluk and UK district. Small 3-5 member, highly mobile mason-contractor led teams constitute the core of the micro-enterprises. The reasonably well informed clientele ensure that quality is always maintained and performance is assured. Their investments have been made upfront while subsidies, if any, have come two to three years later. Solar water heaters is an urban centric technology developed and incubated at CST and later on promoted by the governments of the state and centre. R&D at ASTRA-KSCST evolved simpler designs and manufacturing techniques that reduced production costs by 66-75% compared to the copper based collectors made elsewhere, simplified manufacturing thus making dissemination affordable. The practice of Bangaloreans - to have a hot water bath every morning using rapidly rising electricity costs was a major factor that helped push the solar water heater technology. Early users were all

government establishments that showed the functionality of these devices. Dissemination was strongly pushed by governmental efforts including subsidies. Today after 25 years of inception /R&D, local enterprises have begun to run by themselves and have even begun to carry out small scale development efforts. Both these technologies have led to a significant level of reduction of the need to use dirty fossil fuels that pollute environment in various ways. It may be estimated that over 25% of Bangalore's electricity and over 75% of electricity in a modern building is used for heating or cooling - both of which have "greener" alternatives. Our weakness to imitate western buildings and lifestyles has often been a strong determining factor in various forms of environmental 'Harakiri' where means have ruled over the ends. It is time to examine and strengthen cultural bonds that prevent such environmental disasters.

Keywords: Sustainability, Biogas plants, cultural bonds & environmental disasters.

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An Overview of Environmental Issues in Mining Industry

H.C. Sharatchandra

Abstract

Many of the environmental impacts can either be avoided or greatly minimized through careful planning, with appropriate mining techniques and careful operations. This paper gives an overview of environmental issues in the mining sector.

Mining is an important industry providing necessary raw materials to the industrialized societies. It is also providing employment and business opportunities to a large section of population. Mining activities can be found in all sorts of locations, in tropical jungles, in Arctic regions, below sea and in high mountains. As mining is done in every conceivable areas/locations, there is diversity in extraction and processing methods and technologies. Performance of mining operations varies from responsible operations with concerns to minimize the impact to those that show no concern at all. Naturally, the mining has an impact on the environment. Without adequate precaution, mining and mining related activities will have adverse negative impacts on the environment and human health.

Keywords: Environmental Issues, mining techniques, diversity, in extraction.

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Is Creativity a Matter for Cultural Leaders?

Ruth Rentschler

Abstract

A climate of change in the 1990s and the growing recognition of a need for creativity in management raise the issue of how nonprofit art museum directors are applying creativity to their managerial roles. Change has heightened tensions in the role of the director which have long been recognised in the conceptual and empirical museums literature. Traditionally the prime function of art museums has been to gather, preserve and study objects. Directors were perceived as keepers of collections and creativity was seen to reside in the object. The role is no longer seen as one of caring only for objects, but also of caring for people. Creativity is seen to reside also in people, their management and the management of cultural organisations. Reports from the population of art museum directors in Australia and New Zealand revealed six strategic responses to change which affect their creative approach to leadership: economic emphasis, change orientation, audience development, cooperation, accessibility and community relations. The question this paper poses is whether the change in directors' roles has endangered the traditional view of creativity. The answer proposed is to balance creativity in the art work with a strategy which sees creativity in management leadership.

Keywords: art museum directors, nonprofit management, creativity, roles

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Developing Experiential Learning: Blended learning in a 'real' world scenario

Karen Le Rossignol

Abstract

How do we absorb or learn social entrepreneurial skills? Has the recent emphasis on experiential learning tools and techniques had an effect on our learning styles? A recent research study at Deakin University has indicated the need to combine the exploration of the way students access learning, with imaginative virtual communities which simulate the real world and deepen understanding of community activism or social engagement.

Neomillennial learning styles are a starting point. These have been postulated by Dede as:

- Fluency in multiple media and in simulation-based virtual settings
- Communal learning involving diverse, tacit, situated experience, with knowledge distributed across a community and a context as well as within an individual
- A balance among experiential learning, guided mentoring, and collective reflection
- Expression through nonlinear, associational webs of representations
- Co-design of learning experiences personalized to individual needs and preferences

(Educause Quarterly, Vol 28 No 1 2005)

These potential neomillennial styles are now being tested and defined further at Deakin by the development and application of resources which explore the nonlinear, associational approach in virtual contextualised work environments which include:

- **Newlandia**, a Pacific island where postgraduate students (international and local) creatively come to terms with persuasive writing and community groups as a lobby force
- **Bilby**, the Australian town where undergraduate students start their university journey in a first year transition unit *Writing for Professional Practice*.

These virtual worlds are part of the media platform, as students creatively engage with 'real world' issues and communities. However it seems the factor driving engagement may be the strong need to participate in and build on narrative, to be a storyteller. These virtual scenarios invite that sort of active engagement.

Keywords: Anura; Frog; Polypedates *maculatus*; Life history; Metamorphic progression.

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“In search of digital natives: snapshots of Generation Y in Australia”

Paul Bethell & Stephen Quinn

Abstract

Much has been written in the United States about generation Y and its adoption of, and attitudes towards, media and digital communication technologies. At the same time, relatively little is known in Australia about this generation’s attitudes towards media and related technologies. This paper provides a snapshot of media and technology use by journalism students at Deakin University in Australia. It is based on surveys conducted in 2006 and 2007 at the university’s campuses in Victoria. These surveys provide a revealing snapshot of one group of students in Australia.

The initial survey in 2006 carried out by Associate Professor Stephen Quinn and Paul Bethell set out to explore whether Australian Generation Y students had similar media habits to their American counterparts. The survey discovered that the Australian students were a more conservative group. Almost all of them were connected to the Internet at home (two thirds via broadband, but these students spent far less time on the Internet each week compared with their American counterparts. Largely they still relied on newspapers and TV news for information, rather than the Internet. They read books and magazines but weren’t that interested or engaged with the blogosphere. In short, there was no great evidence of a comprehensive generational shift towards online news consumption.

However, all students had a mobile phone and in 2007 a further study of a similar cohort of students was surveyed to explore their use of these more fully. A different picture emerged with just under half of those surveyed using their phone to access the internet and nearly a third using their phone to listen to downloaded music (31%). Nearly all took photos on their phones and three quarters of them took video. Some of these photos and some of the video were then sent to others from their phones. Some of the video and photos taken on the phones were also posted online.

This snapshot of one group of students suggests a generation of “digital natives” may be starting to emerge in Australia and that the mobile phone may be the catalyst.

Keywords: Digital natives, Snapshots, Generation Y.

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Dr Stephen Quinn, Associate professor of journalism, Deakin University and the author of Conversations on Convergence (Peter Lang), published 2006.

A Novel Functional Dairy Product: SYNBIOTIC SHRIKHAND

Sumaiyah Khader, Pratima Khandelwal and Laiqha Khadri

Abstract

Ever-growing customer demands for convenience, combined with a healthy diet and preference for natural ingredients has led to a growth in functional foods markets. Current trends and changing consumer needs indicate a great opportunity for innovations and developments in fermented milks. Synbiotics is one such relatively novel area that can provide wider horizons with low calorie &/or reduced-fat varieties. In India too, the trend of functional food consumption is encouraging and steady increasing, Shrikhand is a traditional fermented dairy product relished as a desert in India. Being a fermented milk product, it has numerous functional benefits.

In present study, an attempt was made to prepare shrikhand having functional attribute owing to health promoting probiotics and dietary fibres (prebiotics) which can support probiotics (Tamime & Robinson, 1988) and intestinal health. Synbiotic shrikhand was developed at lab scale by addition of *L acidophilus*, *B bifidum*, *L casei*, Bioyoghurt cultures singly and in combination (1:1 or 1:1:1) with prebiotics namely oat fibres and inulin (used as partial sugar replacer) in pasteurized toned cow milk. The symbiotic shrikhand thus prepared showed excellent results in terms of sensory attributes, a high Total Viable Count (1010cfu/g) and appreciable shelf life (~ 2 months) apart from exhibiting biocompatibility qualities towards human GI system. To substantiate the product, the product was analyzed for physio-chemical and microbiological attributes. The scale up studies were conducted to confer that symbiotic shrikhand can be prepared as small scale enterprise via batch process with product priced @ Rs 10 per 100 gm basis.

Keywords: synbiotics, probiotics, shrikhand, functional dairy products, enterprise, commercialization.

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