

Tuesday Session III

13:30-15:00 | Room: Prokofiev Hall (2F)

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Education for Sustainable Development

Session Chair: Hui-Chuan Li

34356 13:30-14:00 | Prokofiev Hall (2F)

Education for Sustainable Development through Subject of Science at Junior Secondary Level: A Study Based on Northern Province of Sri Lanka

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Chandra Gunawardena, Open University of Sri Lanka, Sri Lanka

Kanapathipillai Sinnathamby, University of Jaffna, Sri Lanka

Compared with other countries, Sri Lanka is far behind in focusing on the ESD initiatives and is challenged with the task of embedding ESD at national, school wide and subject levels. This study attempts to examine the present situation of ESD implementation through the subject of Science at junior secondary level in Northern Province of Sri Lanka. A mixed research design that used both primary and secondary data. Principals, 136 science teachers, and 397 Grade 9 students from 58 secondary schools in Northern Province of Sri Lanka were taken as the survey sample. The science curriculum has incorporated cognitive content that has received more emphasis than the skill and value components. Likewise, environmental aspects to a greater extent have been given more emphasis than economic elements and sociocultural elements. According to the change agents' perceptions, some issues are still adversely affecting the sustainability within the Province. The study observed, that interviewees do not seem to have a clear understanding of the concept of SD. Few numbers of change agents have acquired training on ESD directly. Students at junior secondary level indicated a fair to strong understanding on knowledge, attitudes and behavior as features of SD. Further students appeared to have positive attitudes and a favorable behavior concerning different aspects of SD related to science. There were several ESD good practices implemented within the classrooms and the school environment related to science. This study also identified problems and its strategies for addressing those issues on implementation of ESD through junior secondary Science.

34507 14:00-14:30 | Prokofiev Hall (2F)

Myth and Parable: The Unnoticed Resource for Sustainability Education

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Educating for sustainable development has been a key focus of curriculum design for both high school and undergraduate educators in recent times. The curriculum has correctly directed learning towards technical knowledge to ensure an understanding of the science of environmental issues, climate change and the dilemmas facing urban and rural development. However, to educate for sustainability requires not only technical knowledge, but also a change in attitude and a change in behavior – the social learning aspects of sustainability education. The notion of experience taking through the use of narrative will be used to demonstrate how such attitude and behaviour change can be achieved and why it is critically important to build this social aspect into education for sustainable development. The narrative structures of myth and parable, which have remained unnoticed as a resource for sustainability education, will be the key narrative structures explored through the theory of experience taking for attitude and behavioural change. It will be argued, that by incorporating myth and parables and social learning in general within sustainability educational frameworks, we will be well on our way to developing the future generations of sustainability literate citizens – the ultimate objective of programs aimed at educating for sustainable development.

34397 14:30-15:00 | Prokofiev Hall (2F)

Call for a Change in Mathematics Education: From Platonism to Social Constructivism

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At school, children are expected to become numerate in order to be able to function in a modern technological society and contribute to the growth of its economy. However, one of the most frequent complaints of mathematics teachers is that “forgetting is particularly common for knowledge acquired in school, and much of this material is lost within days or weeks of learning” (Rohrer & Taylor, 2006, p. 1209). In mathematics education, as Renert (2011) noted, influenced significantly by Platonism, early mathematics was popularly viewed as consisting of abstract mathematical objects, which have no causal properties linking them to their environment. Social constructivists challenged Plato's assumptions about mathematics for ruling out social dimensions in its teaching and learning. They argued that mathematics is the theory of form and structure that arises within language (Zakaria & Iksan, 2007) and that mathematics learning acquires an alignment with its cultural practices through communicative practices or dialogic interactions (Cobb & Bauersfeld, 1995). Thus, in this paper, we present a theoretical synthesis of the specialized literature in the learning and teaching of mathematics, with the aim of calling for a change in mathematics education from Platonism to social constructivism. As stated by Vygotsky (1978, p. 90): “[procedure-oriented learning] does not aim for a new stage of the developmental process, but rather lags behind this process”, we argue that mathematics teaching and learning cannot afford to continue with the “teaching to the test” culture.