

KEYNOTE SPEECH OF THE INAUGURAL SESSION

Networked Learning for Sustainable Development

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Introduction

I would like to thank the organizers for inviting me to deliver the keynote address in this 3rd International Symposium on Agriculture and Environment being organized by the University of Ruhuna. The main theme of this year's Symposium is 'Research to Meet Global Challenges'. I could see that this forum is expected to provide opportunity for a number of academics and researchers in the field of Agriculture and Environment to present their research findings and conceptual papers in a variety of sub-themes. I do not strictly qualify to make any expert presentation on research issues related to the core areas of the theme. The organisers were kind enough to inform me that through my presentation, I could provide deep insight into the latest developments in my field of expertise. My discipline is 'Education' and field of specialization has been 'teaching and learning' and to be more specific use of 'Educational Technology and Instructional Design' in designing and improving learning systems in various sectors and modes of education. My research focus in the first ten years of my career was designing learning systems for higher education and teacher education and in the last over 25 years I have been very closely involved in Research and Development activities focusing on the application of Information and Communication Technology and Learning & Instructional Design in the distance education environment manifested in the form of open universities and open schools and non-formal educational contexts.

The principles and concepts underlying the areas of ICT and Instructional Design while applied in different educational modes and contexts lead to different systemic manifestations. That explains the strong impact that applications of these technologies and principles has made on different forms of education such as the 'formal', 'non-formal' and 'informal' education (learning) which fall into an organizational continuum from 'most organized' to 'least organized'. Similarly different modes of education also emerged on the basis of whether the learner is expected to be in a traditional classroom and campus context or whether the learner is separated from the teacher and institutional environment. This led to the emergence of a parallel mode of education viz. Distance Learning as opposed to the campus or institution based 'face to face' education. Open Distance Learning provided increased access to students as this system adopted the philosophy of open learning with system flexibilities in terms of attendance, subject options, time, duration and place of study.

The last over 40 years of history of open distance learning saw remarkable developments in the philosophy and practice of education not only within ODL but also impacting on the thinking and practice of formal educational systems. Based on these significant changes that happened in the educational scenario, I would like to present today some significant developments that would impact the entire academic discourse including teaching, research and communication in all disciplines, sectors, forms and modes of education. I strongly believe that these developments that happened in some areas especially in the last couple of decades have provided a number of challenges and opportunities for academics and researchers in all disciplinary areas including Agriculture and Environment. New research questions have emerged within new development perspectives. The curriculum and curriculum transaction in Agriculture and Environment Education has undergone or are undergoing very significant changes. I want to present here the emergence of four most significant areas which would impact the Teaching, Research and Extension in all disciplinary areas and transform these functions substantially.

These four areas are:

1. Education for Sustainable Development
2. Open Learning and Resources Movement
3. Developments in Information and Communication Technologies
4. Developments in Education towards a Learning Society:

Learning for Sustainable Development

Emerging from the concerns of wide spread pollution and environmental degradation leading to the erosion of the natural environment through the depletion of resources, the destruction of ecosystems and the extinction of plant and animal species, the need for environmental education gained worldwide attention during the last quarter of the last century. This led to the thinking that all forms of learning provide are critical inputs for achieving sustainable development. In the 57th meeting in December 2002, the United Nations General Assembly proclaimed the UN Decade of Education for Sustainable Development, 2005- 2014, (DESD) 'emphasizing that education is an indispensable element for achieving sustainable development'. It also designated UNESCO as the lead agency to promote and implement the Decade.

What is meant by "Education for Sustainable Development (ESD)"? It is a concept that goes far beyond environmental education. ESD is the educational process of achieving human development. UNDP proposed three pillars of human development viz. economic growth, social development, and environmental protection in an inclusive, equitable and secure manner. It thus includes education for not only economic growth leading to wealth creation but also for poverty alleviation, attaining human rights for all, gender equality, cultural diversity, inclusion of marginalised communities, international understanding, peace and many more areas of human development. UNESCO proposed that the vision of education for sustainable development is a world where everyone has the opportunity to benefit from quality education and learn the values, behaviour and lifestyles required for a sustainable future and for positive societal transformation. This educational provision is expected to be life-long in different forms and modes including formal, non-formal and informal education. In the context of agriculture and environment education the educational provision will have to be for everybody in the society.

The concept of sustainable development touches upon all aspects of the social and institutional context. In this sense sustainable development provides a way of articulating the overall all inclusive aim of societal and individual development. Since the deliberations happened in the Earth Summit in 1992 in Rio de Janeiro, there has been increasing recognition of the critical role of education in promoting sustainable consumption and production patterns in order to change attitudes and behavior of people as individuals, including as producers and consumers, and as citizens. While other related international education initiatives look at education as a fundamental human right and focus on providing educational opportunities to everyone and reducing illiteracy, ESD focuses on the underlying principles and values conveyed through education and the content and purpose of education, specifically focuses on re-orienting education towards sustainable development, and encompasses all streams of education, both formal and non-formal, basic education and all the key issues related to educating for sustainable human development (<http://www.desd.org/About%20ESD.htm>).

All the efforts made by UNESCO and the world community notwithstanding there are many challenges that remain even after completion of seven years of the Decade for ESD. :

These include need to:

1. Integrate sustainable science and education;
2. Strengthen co-ordination and collaboration between different levels of education for SD
3. Mobilize and use information and communication technology
4. Mitigate information and knowledge gaps between different parts of the world

5. Establish partnerships and creating synergies between initiatives and programmes
6. Going beyond environmental education to reach education for everybody life long

Open Learning and Resources Movement

The origin of the open learning movement could be traced to the sixties when the Open University of UK was being conceptualized and developed as part of extending education to the common man by the then ruling Labour Party in UK with Harold Wilson as the Prime Minister. When the concept of 'open learning' was first introduced in late nineteen sixties many did not imagine that ODL systems will gain currency in the following decades and influence substantially the educational provisions in all sectors of education especially higher education.

What is 'openness' in the educational context? One might say that it is all about 'flexibility' and 'removal of restrictions' in various aspects of learner engagement such as entry qualifications, classroom attendance, course choices, duration of study, etc. McAndrew (2012) discusses how the concept of openness evolved in the last over four decades. The Open University (UK) established in 1969 was built on open concepts that allowed learners to avoid barriers to study and successfully enabled more than 2 million people to experience formal higher education. The Open University sought to use the technology of the time to offer courses that addressed the distance barrier and the entry barrier to offer relatively large numbers of learners access to higher education. The mission adopted by the OU 40 years ago was to be "Open as to people, places, methods and ideas" (<http://www.open.ac.uk/about>) and there by succeeded in 'reaching the unreached' leading to 'democratisation of education'. This model spread to all parts of the world with open universities, open schools and other open learning institutions coming up in several countries in both the developing and developed world.

During the nineties and earlier part of last decade, the philosophy of openness further emerged in the provision of learning content through digitisation and online distribution with relaxation in copyright restrictions. The movement constituting Open Access, Open Content, Open Licence and Open Educational Resources emerged and could be seen as another landmark development in education and free availability of educational resources since the origin 'open learning' concept in late sixties. What does the word open mean in this context? This refers only to characteristics of content that will encourage other institutions and individuals to join in (Wiley, 2006), rather than the approach to open learning itself and the changes that embracing openness imply (Mc Andrew, 2012). I consider both the concepts of 'open learning' and 'open resources' have been revolutionary ideas leading to significant breakthrough in democratising education and making available learning provisions and learning resources to all by liberating from rigidities of traditional campus based educational systems and copyright restrictions. Both open learning and open resources initiatives are part of the same open learning movement which fits within 'the broader framework of the history of openness that brings together a number of disciplines and fields to impact directly upon the value of knowledge and learning, their geographic distribution and ownership, and their organization' (Mc Andrew, 2012). Thus Openness characterizes a kind of 'transparency' which is the opposite of 'secrecy' and most often this transparency is seen in terms of access to information especially within organization, institutions or societies. I endorse the view of Michael Peters (2010) who thinks that 'open education and education for openness are related aspects and perhaps one of the most significant educational movements to surface in the twenty-first century'.

Developments in Information and Communication Technologies

The following areas of technological developments and their use in all forms of education and training are critical to the ongoing educational transformation.

1. **Open Distance Learning:** Originating as correspondence education and home study the entire area of open distance learning has matured considerably today allowing the required flexibility and openness for individual learners to pursue education according to one's own needs and convenience supported by appropriate

information and communication technologies suiting each community context. Today course offer through ODL ranges from blended modes of delivery to entirely e-learning environments.

2. **Open Source Software:** Open-source software is the most prominent example of open-source development and often compared to (technically defined) user-generated content or (legally defined) open content movements. Open-source technologies are already broadly used across the entire spectrum of the software industry. The Open Source Initiative (OSI) is a non-profit corporation with global scope formed to educate about and advocate for the benefits of open source and to build bridges among different constituencies in the open source. Open source is a development method for software that harnesses the power of distributed peer review and transparency of process.
3. **Open Educational Resources:** OER movement initiated in the start of this century is slowly but steadily picking up and emerging as a very significant factor in opening up digital resources for use freely by individuals and institutions. Starting with MIT's Open Courseware initiative OER movement has received lot of support and popularity in several countries facilitated by multi-lateral agencies such as UNESCO and Commonwealth of Learning (COL). Incidentally even in the nineties the trend of making available free digitised resources was slowly taking shape and this movement is now really getting momentum with the emergence of wiki initiatives (wikipaedia, wikieducator) and initiation of OER Foundation. Open Licenses such as Creative Commons (CC) with various degrees of copyright relaxations are being adopted for their web publications by more and more authors.
4. **Learning Management Systems:** A learning management system (commonly abbreviated as LMS) is a software application for administering e-learning content and managing learning processes including assembling and delivering learning content, personalise content and enable reuse, provide assessment item repositories and administer online tests, etc. Different versions of Moodle open source software are in use/available as LMS today.
5. **Cheaper Computing:** The last decade saw a rapidly decreasing cost in computing systems. Personal Computers and tablets with fast processing and large memory are available for very affordable price today. The OLPC Foundation (Boston) made it possible to provide low cost PCs in schools in many developing countries. National governments have been trying to make low cost computers available mainly for educational institutions.
6. **Improved access to internet:** Broad band connectivity is still a major of concern in many countries. Access to internet is also becoming faster and cheaper in many developing countries.
7. **Mobile reach:** Mobile technology is the most affordable hardware in most developing countries and its use within a country is becoming increasingly less. Today it is free to receive message and calls in many developing countries. Smart phones are also slowly picking up popularity although it is still not very affordable. Cheaper availability of smart phones with telephone and internet facilities will be a revolutionary breakthrough and will impact educational provision significantly.
8. **Social Networking:** There is an increasing participation in social networks especially among teens and youth in the last decade. In the U.S. the active unique social network audience grew roughly 29% from 115 million in February 2009 to 149 million in February 2010. There are several social network sites available today for various purposes focusing various age groups. One of the major reasons for increased time share for informal interaction today are the virtual social connections and relationships provided by the Social networking services

Developments in Education towards a Learning Society:

The development of a country in the present day world is determined by its ability to provide education to all life long and make best use of its brainpower. This capability is thus depends on the development of the human resource of a country. Every citizen will have the conducive environment to learn and train oneself thereby strengthen the brain power. The knowledge society thus will have to go hand in hand with a 'Learning Society'

The following trends in education of relatively recent origin have great significance in developing a new perspective of education and are impacting on the way educational systems are undergoing transformation.

1. Many learners will move into a variety of different, possibly unrelated fields over the course of their lifetime.
2. Formal education no longer comprises the majority of our learning, its place being taken increasingly by informal learning which emerging as a significant aspect of the total learning experience.
3. Learning is a continual process, lasting for a lifetime and includes also the work related activities which are no longer separate.
4. Ever increasing possibilities created by the developments and applications of technology can make it possible the required learning practices expected by learning theories.
5. Know-how and know-what is being supplemented with know-where in the educational context.

The major causes for the trends indicated above have been the developments that happened in the understanding of the learning process and the changed place of education to deal with complex life and occupational requirements of people and also the fast developments that occurred in technology.

A learning society considers 'learning' to be a comprehensive and life long process (Learning; Treasure Within, UNESCO, 1996). The trends one finds or expected to find in Learning Society (European Community, 1995) are the following:

1. **New ways of organizing learning:** Technology is changing where and when learning takes place and also how it is supported and funded. New groups can come together virtually based on a common interest or professional cutting across geographical distances and age.
2. **New pedagogy:** By removing learning from traditional classroom and school contexts, new models that use technology increasingly focus on participation and negotiation rather than direction and instruction. There are increased opportunities for students to act as mentors for other students or to support teachers giving them new insight into the education system and greater independence as learners.
3. **New relationships:** Connectivity is supporting new learner-mentor relationships beyond classroom or school walls. Education is becoming not just the 'concern' of teachers and parents, but of learners and a wider, distributed community network of support.
4. **A more sophisticated, integrated learning mix:** Technology allows access to the learning that takes place outside traditional classroom settings, whether at home, within local communities, or within the global community. The learning can be formal or informal, reflecting either standard curricula or learning that is initiated by the interests and enthusiasms of the learners themselves.
5. **Richer assessments and evaluations:** New forms of assessment, including development of e-portfolios, simulations, and formative assessment with immediate feedback, can make a contribution to understanding each learner's development, understanding, and future direction. Learners are being given more control over what is assessed, and when and how the results are used.

Conclusion

The four areas of development discussed above are impacting on changing the content and structure of all academic engagements carried out in teaching, research and communication in higher education. The content as well as transaction of the content will change substantially. The change in the concept of development as just economic growth to that of sustainable development will significantly change the nature of research questions asked, the research paradigms formulated and even the methodology of investigating into these research areas. For example networked research community, free open educational resources available and the social media connecting individuals having common interest are going to change the way researchers will conduct investigations, communicate findings and collaboratively reflect on issues and generate solutions in a more efficient manner. There will be more opportunities for integrating global knowledge with local knowledge and even tacit knowledge in order to get a better understanding any phenomenon. It also helps researchers to work closely with practitioners and community in a very cohesive and effective manner. The web publishing for example will help anybody to publish their work or creation in any area of study or creativity faster and with minimum expenses and with an open license. The open educational resource movement is expected to make a revolutionary impact on how we learn, when we learn and what we learn thereby making informal education possible all the time lifelong. I would think that all research community present in this Symposium will reflect on how best the developments in education, technology and efforts towards sustainable development can and will impact our day to day life and professional engagements.

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