Learning to Live Together: Reorienting Teacher Education to Strengthen School-based Initiatives

UNESCO Bangkok / APCEIU / Vietnamese National Commission for UNESCO

Introduction to Sustainability

26 October 2009
Ha Long, Vietnam

Robert Steele
Director – Sustainability Asia
Senior Associate – AtKisson Groups
“In our world we need a clear awareness of the interdependent nature of nations, of humans, animals and the world. Everything is of interdependent nature. I feel that many problems, especially man-made problems, are due to a lack of knowledge about this interdependent nature.”

(His Holiness, the Dalai Lama, 1998)
History has entered the planetary phase of civilization in which humanity and the biosphere are entwined in a common fate.
The laws of nature and biology

The trajectories of current trends

The boundaries of the planet

Human nature, human systems ...
Two Big Forces at Work

Demographic Explosion → Unprecedented Stress

Technological Revolution

New World Economy

Economic Revolution

Unprecedented Stress

Unprecedented Opportunity
Aspects of the Global Transformation

- Speed
- Scale
- Complexity
The Digital Age
Age of Globalization

GLOBALIZATION
WHO'S WINNING AND WHO'S LOSING?

Problems of Globalization ILLUSTRATED

WE GOT THESE COOL HATS AT NIKETOWN IN PARIS!
...AND THIS GREAT SHIRT AT THE DISNEY STORE IN LONDON!

AFTER A GREAT DINNER AT MACDONALD'S IN ROME, WE FOUND THESE NEAT SHORTS AT THE GAP!

(figure 1a)

MEANWHILE... billions of people worldwide—urban dwellers like you and me—are scared. Good paying, unionized, manufacturing jobs are disappearing to some countries, while multinational low-wage jobs are growing to others. The gap between rich and poor is widening. Child labor, corruption, and more and more labor and health care and social and income security programs are being de-funded, and privatized. There are fewer regulations to safeguard air and drinking water or forests and landscapes. Young people see no future for themselves or the planet. So people are in the streets by the thousands to say NO to globalization.
Age of Accountability

Global Corporate Reporting Output by Year

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Age of Angst and Uncertainty
Age of Climate Change
Age of Stupid?
Adaptation or Transformation . . . what will be needed?

Tolerable Stress

Destabilizing Stress

ADAPTATION

TRANSFORMATION

Is it possible for the next Age to be the Age of Sustainability?

But what does Sustainability mean?
How do we get there?
How do we know when we have arrived?
What is Sustainability?

“There can be little doubt that sustainability is one of the most frequently used but least understood terms of our time; it is right up there with the term strategy when it comes to overuse and lack of meaning”

Source: Hart, S., Capitalism at the crossroads: The unlimited business opportunities in solving the world’s most difficult problems. 2005,
First things first . . . We have to answer one very important question first!

In a small group (3-5 people), answer the following question....

What is your idea of a ‘flourishing and prosperous society, community, nation’?

- Brainstorm and discuss all the key elements, attributes, habits, etc., that would characterize a “flourishing and prosperous community / society”.

- Record your group’s answers on the flip chart paper provided.
Is what you came up equivalent to what a ‘Sustainable Community / Society’ would be characterized as?

- What is sustainability and how do we know when we have arrived (i.e. we are sustainable)?

- What do we need in order to help us answer this question?
Is this Sustainable?

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What do key Global indicators show us?

Source: International Geosphere – Biosphere Programme 2004
We have surpass some critical limits!

“The human population is now so large that the amount of resources needed to sustain it exceeds what is available at current consumption patterns” (Achim Steiner, UNEP Exec Director).

Source: Global Footprint Network - http://www.globalfootprintnetwork.org/
We are in a ‘Global Overshoot’ situation

In one year (365 days) we are consuming what it takes the Earth now over 511 days to produce / regenerate.

Source: Global Footprint Network - http://www.globalfootprintnetwork.org/
Which is leading to some dramatic global declines

The Living Planet Index of biosphere health fell by about 40% from 1970 to 2000, a period of just 30 years.

What will happen in the next 30 years?

... such as the world’s forests?

What we had in the 1800s: [Map showing forest coverage in the 1800s]

What we have left now: [Map showing forest coverage today]
... with some long term consequences
Exponential Growth Against Firm Limits Has Just two possible outcomes...

1. Overshoot and Collapse

Delay

Systems Collapse
The other possible outcome is . . .
2. Dynamic Equilibrium

... which is another word for ... Sustainability

- If we are to live healthy, fulfilling lives on this planet in the near and distant future, we must find new life affirming values and forge new patterns of living and working together.
According to the UN,...

Sustainable Development is...

“...development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”


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Let’s simplify
Sustainability

A sustainable society *lives* within the means of nature

In an ecologically and socially sustainable society, a reasonably equitable society, lifestyles and patterns of consumption can be maintained indefinitely without degrading supportive ecosystems or undermining the life support function of the ecosphere.
Ecological Footprint Accounting

Source: From Wackernagel; Global Footprint Network
3 steps to sustainability
Bioproductive Segments

4% Biologically Productive Ocean

18% Biologically Productive Land

22%

67% Low-Productivity Ocean

11% Deserts, Ice Caps and Barren Land

Source: From Wackernagel; Global Footprint Network
There are approximately 13.5 billion hectares of ecologically productive land (and some sea) in the world and over 6.5 billion people. Divided equally among everyone, this means each person is entitled to approximately 1.8 hectares of land.
From Wackernagel; Global Footprint Network
THE ECOLOGICAL FOOTPRINT QUIZ

http://myfootprint.org/
What we will also need to do...

Consumption levels

Industrial countries

Developing countries

today

future

Source: Global Footprint Network - http://www.globalfootprintnetwork.org/
The Sustainability “Funnel”

We are all in the funnel at the moment:

Source: Det Naturliga Steget, Sweden
What can a hula hoop teach us about sustainable development?
Sustainable Development is ...

... a strategic process of continuous change in the direction of sustainability.
Sustainability is... a set of system conditions that can continue indefinitely.
In Other words . . .

**Sustainability means . . .** “to continue to flourish indefinitely.”

**Task:**
Thinking back to the hula hoop exercise, brainstorm and discuss with your group again about what are the key things we must do successfully do sustainable development.
4 Basic Conditions for Sustainability

- Living within the Earth’s physical and biological limits
- Maintaining a vital, prosperous economy
- Supporting social stability, equity, and development
- Making individual opportunity, fulfillment, and happiness possible
The Sustainability Paradigm...

- Without **functioning natural systems**, everything collapses
- Without **functioning economic systems**, societies cannot advance
- Without **functioning social systems**, people cannot develop.

... and at the heart of a sustainable future are **sustainable people** - individuals who are ethical, empowered and have the understanding to make the right choices.
The Need for a Paradigm Shift

“No problem can be solved from the same consciousness that created it. We have to learn to see the world anew.”

(Albert Einstein)
“It is absolutely essential to change the way we think. All other attempts at change will fail if we do not transform our thinking . . . A proper understanding of the way the world works requires people to think systematically, holistically, integratively, and in futures mode.”

(Lester Milbraith, 1996)
The System Iceberg

Mental Models
What assumptions, beliefs and values do people hold about the system?

Systemic Structures
What has influenced the patterns? (i.e. policies, laws, physical structures)
What are the relationships among the parts?

Patterns of Behaviour
What’s been happening?
What are the trends?
What changes have occurred?

“What is seen”
Events
What happened”?

The GREAT SEA of LIFE

Source: Senge, Peter, Schools That Learn: A Fifth Discipline Fieldbook for Educators, 2000
Structure influences the behaviour of the system

Mental Models
What assumptions, beliefs and values do people hold about the system?

Systemic Structures
What has influenced the patterns? (i.e. policies, laws, physical structures)
What are the relationships among the parts?

Patterns of Behaviour
What’s been happening? What are the trends? What changes have occurred?

Events
What happened’?

What is seen
What is generally unseen

Leverage

Source: Senge, Peter, Schools That Learn: A Fifth Discipline Field book for Educators, 2000

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We need to Reorient ourselves for the sustainability journey . . .

. . . And we will need some tools and resources
9 Critical Steps (and Skills) for Doing Sustainable Development

1. Understand systems in general

2. Understand sustainability in general

3. Distinguish between "development" and "growth" in goal-setting

4. Have adequate information on current developments and trends for the system in question ("Indicators")

5. Understand the dynamics of the specific system in question ("Systems Analysis")

6. Identify best-practice changes to make in the system ("Innovation")

7. Understand how to make change in that system ("Strategy")

8. Successfully implement change ("Agreements and Actions")

9. Continuous monitoring and adaptation ("Strategic Evaluation")

Sustainable development is a cyclic, continuous improvement process.
The Sustainability Compass

• **N**: Living within the Earth’s physical and biological limits

• **E**: Maintaining a vital, prosperous economy

• **S**: Supporting social stability, equity, and development

• **W**: Making individual opportunity, fulfillment, and happiness possible
The Compass of Sustainability uses the four directions of the Compass (N, E, S, W) to reflect four fully interdependent dimensions of life:

- **(N = Nature)** - The natural systems on which all life depends; healthy air, water, land; sustainable resource use; sufficient habitat; preservation of scenic beauty;

- **(E = Economy)** - The economic systems that provide humanity with goods, services, and meaningful work; includes revenue, jobs and wages, budgets, taxes, markets, etc;

- **(S = Society)** - The social and cultural systems that provide cohesion, identity, security and freedom; cultural traditions; legal frameworks

- **(W = Wellbeing)** - The health, happiness, and quality of life for individual people and their families
The Compass metaphor...

...provides a simple, clear, integrated and comprehensive structure for sustainability learning, as well as a platform for the sustainable management of schools as institutions that actively model the behavior we seek to develop.
Quality of the natural environment and resources under the school’s stewardship
Resource consumption (paper, water, energy, fuel, etc.)
Energy source use
Emissions & waste discharges
Materials used in buildings and landscaping
Environmental impacts (i.e. Climate change from energy use)
Cleanliness of campus
Environmental issues engagement beyond the school
ECONOMY

- Purchasing and resource procurement
- Consumption patterns (energy, raw materials, water, etc.)
- Fiscal Budgets (income & Expenses)
- Sources & level of income
- Governance, Accountability and transparency
- Investments in facilities, materials and equipment, resources
- Endowments, Trusts, Scholarships
- Economic impacts (local, national, global)
SOCIETY

- Social Cohesion among different groups, sections, etc. in the school community
- Inclusivity and transparency in power, policy and decision-making
- Social Services (child care, health care, education & training, etc.)
- Ethnic, spiritual, gender diversity, equality and respect for the individual
- Cross-cultural and interfaith understanding
- Working and learning environment
- Appropriate, supportive, efficient organisational structures and systems
- Good relationships and involvement with the community
- Social impacts at local, national and international level
WELLBEING

- Work load/life balance
- Personal health, fitness and nutrition (tackling issues such as eating disorders, disease, stress)
- Reflective, positive outlook, emotional resilience (tackling issues of depression, self-centredness, and inferiority)
- Professional & career development opportunities
- Sense of personal safety and security
- Personal working conditions & environment
- Intellectual challenge & creativity opportunities
- Impacts on wellbeing and quality of life locally, nationally and globally
- General sense of personal happiness
Mapping Sustainability

- On your flip chart paper, separate the key elements of your sustainable community definition into the four quadrants of the Sustainability Compass.
Where do we start?
What do we mean by sustainability?
What is our vision for the future?
What values and principles will guide our journey?
What is the situation now and what are the trends?
What is causing what? Where can we make self-sustaining change?
Is a key part of the Sustainability Solution!

But what kind of education?
Education directly affects sustainability in the following three areas

1. **Implementation**
   - An educated citizenry is vital to implementing informed and sustainable development.

2. **Decision-making**
   - Good community-based decisions - which will affect social, economic, and environmental well-being - also depend on educated citizens.

3. **Quality of Life**
   - Education raises the economic status of families; it improves life conditions, lowers infant mortality, and improves the educational attainment of the next generation, thereby raising the next generation’s chances for economic and social well-being.
Sustainability asks us to look at the world differently ...

... and to educate differently.
Reorienting formal education includes addressing:

- Values
- Principles
- Perspectives
- Knowledge
- Skills
- Buildings
- Program
- Practices and Actions
- What we value and evaluate
Reorienting towards a new way of thinking and behaving, is a shift from . . .

- A mechanistic view to an ecological view
- Fragmented thinking to systems thinking
- Competition to cooperation
- A teaching focus to a learning focus
- Exclusion to inclusion
- **Transmissive to transformative learning**
- Content based to process based
- Top-down control to democratic control
- Fixed knowledge and ‘truth’ to provisional knowledge
- Disciplines and defense of borders to trans-disciplinary / domains of interest
- Accountability to responsibility
- From short-term to long-term thinking

I expect you all to be independent, innovative and critical thinkers who will do exactly as I say.
Transmissive Education

Characteristics of this approach:
• Top Down Approach,
• Quantity Focused,
• Knowledge Transfer,
• Cause-effect relationships,
• Problem solving

Learners

The Learning Environment

Teachers

Experts & Researchers

Skills, Knowledge, Awareness
The Role of Educators

- Education for the full potential of people and sustainable development requires a different orientation to the role of educator and to relationships with students and their families.

- The changes is from passing on a set body of knowledge *(transmissive)* to recognition that we are all learners learning together and moving into the unknown, to invent and discover more sustainable practices *(transformative)*
Transformative Education

The Learning Environment and Opportunities

Action Participation for Social Change

Learners & Facilitators

Learners
Towards Transformative Education

“… a different approach is needed … one that is collaborative, non-hierarchical, and which focuses on the learning experiences and processes in the social context.

This approach sees everyone as proactive learners who can use intellectual and emotional skills to initiate, negotiate, evaluate their experiences and bring about actions for change.”

(Askew & Carnell 1998)
WHAT IS TRANSFORMATIVE EDUCATION?

Transformative education is a process that brings about deep and significant changes (for the better) in an individual and ultimately culminates in similar changes at the societal level, principally brought about through innovative and creative teaching and learning, curriculum reform and appropriate policy at the school level.
Basis For Transformative Education

- Understanding of change process.
- Commitment to change.
- Deep understanding of the ‘meaning of experience’.
- Ongoing engagement in reflecting on learning and actions for change.
- School improvement revolve around aims and objectives and what needs to be changed.
- Self is central in the process of learning.
- Learner impacts on context and vice versa.
- Exposure to diverse learning experiences
EMPHASES IN TRANSFORMATIVE EDUCATION

PLACES EMPHESIS ON:

- learning leading to change, highlighting the importance of the individual learner;
- holistic approach to teaching;
- equal value to the emotional, social and cognitive dimensions of learning, and
- learning brings change, and change provides opportunities for more learning.
Transformative Change

VALUES

RELATIONS

student

STRUCTURES

STRATEGIES

school
The Time of Our Lives

Objective:
- Strive to push this point forward and up
- Implement sustainability faster...
- And reduce the amount of loss and damage

A Symbolic Representation

Unsustainable Technologies & Practices
- Poverty gap
- Pollution
- Destruction of natural habitat
- Fossil fuel use

Sustainable Technologies & Practices
- Innovation
- Empowerment
- Renewables
- Conservation
- Awareness

The No Hope Graph...

The Hope Graph
The Primary Question for educators today

“How can we give ALL of our students the knowledge, skills and perspectives they will need to live and work in an increasingly connected world and to address the critical global issues of the 21st century towards co-creating a sustainable world?”

Thank you for your attention!

Questions or Comments