Center for LifeLong Learning & Design

University of Colorado at Boulder

Wisdom is not the product of schooling but the lifelong attempt to acquire it.
- Albert Einstein

Session 16

Sustainability:
"A Conceptual Understanding and IT Roles"

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and
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ATLAS TAM Course - Spring 2000
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Assignment:

- **No Prior Assignment given – just bring your thinking heads**

Presentation Road Map

Review – Notions of Community and Organization
Sustainability - Introduce notion from other side of campus
Video
Slides
Discuss – IT Roles

Notions of Sustainability: Initial Discussion

Notion of Sutainability

- **In what context have you heard this notion before?**

- **Is this notion relevant to IT?**
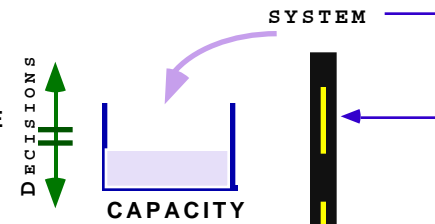 **How? Why?**

Thinking about the Concept and its Relationships
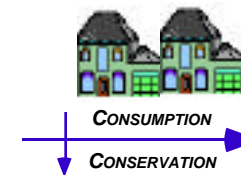
Where do you see IT playing role?

What form does IT take?

E.G.Arias -1999

RESOURCE

SYSTEM

NATURAL
- RENEWABLE
- NON-RENEWABLE

CREATED
- PHYSICAL
- SOCIAL

DECISIONS

CAPACITY

HUMAN ACTIVITY/ POLICIES

CONSUMPTION

CONSERVATION
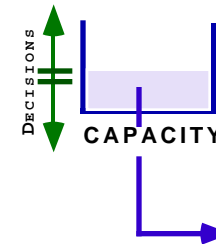
- POPULATION DYNAMICS
- BEHAVIOR PATTERNS
- ATTITUDES & VALUES

COSTS OF IMPACTS =

1. MEASURE: $

2. MEANING:
   STD. OF LIVING
   HIDDEN
   (congestion)
   EQTUITY
   (distribution)
   RELATIVE

WASTE/ BY-PRODUCTS

- RECYLABLE
- NON-RECYCLABLE

DECISIONS

CAPACITY

SUSTAINABILITY: *BASIC CONCEPTS AND RELATIONSHIPS ---- THEIR SHARED UNDERSTANDING ATTAINED THROUGH COLLABORATIVE DECISION MAKING PROCESS*

Real-world social concerns such as sustainability force us to *rethink learning in order to design the future*

It takes place in a context where:

- problems are *wicked* (no right-wrong answers, no stopping point) rather that thinking there is a "*scientific" best way* to learn;

- *integration* rather than *separation* of thinking, doing and learning needs to be pursued;

- *partial understanding* is the nature of learning rather than assuming that task domains can be *completely understood*;

- *knowledge is tacit* instead of holding to the belief that all relevant knowledge can be *explicitly articulated*;

- the teacher should be a *facilitator* or coach rather than the *oracle*; and

- *instruction and construction* are part of a learning continuum rather than separate learning paradigms at odds with each other.

Problems and Objectives

Nature of Sustainability Problems / Concerns
- decision-making
- conflict
- change
- wicked problems

Nature of Sustainability Objectives
- reach informed compromises (individual)
- consensus (group)

Nature of the support context
- Communities of Learning
- Self directed learning
- Self evaluation
- Learning 'on demand'
- *Shared understandings* construction
- *symmetries of ignorance*
- *dynamic asymmetries of knowledge*
- Problem framing / Problem solving
- Critical thinking
- Others

Discussion: IT Support in such a Context

1. Sustainable Computational/Information Technology

- **Should IT systems be sustainable?**

- **Are the Web, open source, others sustainable?**

- **What would the characteristics be for a sustainable computational system?**

2. Computational/Information Systems for Sustainability

- **What should the nature of this technology be?**

- **What roles do EDC, GIS, Web play?**

3. Are these sustainable notions? How can they be sustained?
- **Open / evolving systems**
- **Informed participation**
- **Consumer-Designer**
- **Gift Wrapping**
- **Learning on Demand**
- **Collaborative Learning / Design**

References

The President's Council on Sustainable Development (1996) Sustainable America: A New Consensus – in particular look at Chapters:
    3 – Information and Education
    4 – Strengthening Communities

http://www.fortnet.org/   Ft. Colling FortNet Page

http://gnet.together.org/ Global network of Environment and Technology

http://dir.yahoo.com/Society_and_Culture/Environment_and_Nature/Sustainable_Development/ Sustainable Development Yahoo

http://www.brocku.ca/epi/sustainability/sustprin.htm Environmental Policy Institute – Principles