Can We Create a Sustainable Structural Approach to Pedagogy?

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Introduction

Over the past decade a move has been underway to integrate sustainable policies into the area of higher education. As an example of that movement, the University of British Columbia, Vancouver, Canada has developed two documents that attempt to outline the commitment and role of the university. *Trek 2010: A global journey* (UBC, Office of the President, 2005) and *Inspirations and aspirations: The sustainability strategy* (UBC , Sustainability Office, 2006) are considered policy texts "in that they are intended to shape and guide UBC's current policy agenda and are legacies of its 1997 Sustainability Development Policy" (Timmerman & Metcalfe, 2009, p.48).   Timmerman & Metcalfe researched the transition of the sustainability policy into "sustainability pedagogy" within UBC. They found, among other items, that "the goals and strategies are too general and thus potentially difficult to implement: the contained language is ambiguous and terms are left undefined: both lack an explicit focus on curricula and classroom interaction" (p.57)   A shift from Global Goals, such as these, to Educational and Instructional Goals, or a delineation of specific measureable outcomes, is always required in order to implement any curriculum. Since these are policy statements different Faculties continue to attempt that transition to instructional goals in order to implement the concept of Sustainability within their pedagogical areas. For the Faculty of Education one of the goals, or challenges, presented to the faculty is to "plan for sustainability by creating structural, predictable approaches" (UBC, Office of the Dean, 2010). It is only when discussing the statement with administrators the actual meaning behind the statement becomes clear. Their concern about is making sure courses and programs continue, or maintain "sustainability", within

the constraints of economic shifts. While this is reasonable, perhaps the term "sustainability" is being misused in this context? Then:

- Should a Faculty of Education be looking at a deeper meaning for the concept of sustainability when used in this context?

- Or, is the problem of a sustainable structure toward a pedagogical approach too "messy", considering all of the complexities inherent within a university community?

For faculties which deal with environmental issues within a very broad sense, sustainability appears to be a straight forward goal. However, from an educational perspective a number of questions about the meaning of sustainability need to be clarified.

- What does "sustainability" mean within the context of a structure for pedagogy?

- What kind of structural approach to pedagogy would make it "predictable"?

- What specifically do we mean by "predictable" outcomes?

With these questions in mind, the following concepts are being introduced to provide a basis for discussion. This is not an inclusive group of items, but rather a platform from which ideas can develop.

Selected Definitions of Sustainability

1. "…forms of progress that meets the needs of the present without compromising the ability of future generations to meet their needs". United Nations World Commission on Environment and Development [Brundtland Commission], Our common future, Chap. 2, point 1, 1987.

2. From The United Nations Conference on Sustainable Development (Johannesburg, 2002) some "…recommendations… on how to promote and improve the integration of education for sustainable development in their respective educational strategies and action plans…" (Resolution 57/254) This conference provided a list of characteristics that might contribute to a sustainable pedagogy:

    - Decision-making
    - Social participation
    - Creativity
    - Communication
    - Cooperation

3. From an open letter to UBC on the *Development of the UBC Sustainability Academic Strategy*: "While there are many different views of how best to define sustainability, most of them include a recognition that we must live within biophysical carrying capacity, we must provide systems of governance that propagate the values we want to live by and we must provide an adequate material standard of living for all. We see sustainability not as a prescribed set of outcomes, but as the emergent property of a societal conversation about what kind of world we want to live in, informed by some

understanding of the ecological, social and economic consequences of different courses of action based on knowledge about possible outcomes and their consequences."
(Robinson, J., 2009, para.4 in Timmerman & Metcalfe, 2009, p.58)

4.   Summary quote: "In every deliberation, we must consider the impact on the seventh generation... even if it requires having skin as thick as the bark of a pine." The Constitution of the Iroquois Nations (the Great Binding Law), # 28

Actual text*: In all of your deliberations in the Confederate Council, in your efforts at law making, in all your official acts, self interest shall be cast into oblivion. Cast not over your shoulder behind you the warnings of the nephews and nieces should they chide you for any error or wrong you may do, but return to the way of the Great Law which is just and right. Look and listen for the welfare of the whole people and have always in view not only the present but also the coming generations, even those whose faces are yet beneath the surface of the ground – the unborn of the future Nation.*

Then:

- What is the definition of Sustainable?
- Should it be expanded - or changed - to reflect the growing awareness in fields other than, for example, environmental sciences?
- What items are necessary in an understanding of Sustainability?

Definition of the Problem

One of the most interesting notions regarding the <u>planning</u> aspect of sustainability in a pedagogical environment is the identification of the "problem" itself. It requires an identification of the current situation and a description of the desired or ideal situation.

 However, within the field of education, it is acknowledged that teaching-learning environments are complex and interrelated networks consisting of myriads of variables.   In the 1960's researchers attempted to identify and quantify the classroom interaction.   Much of this interest was established as the result of the political and societal reaction to advances by the then U.S.S.R. orbiting Sputnik in 1959. This lead to numerous complex flow charts depicting the components each item brought to the teaching-learning-classroom environment activity. Lists of student characteristics, teacher characteristics, classroom environments and curricular challenges became the foundation for the addition of learning styles, teaching styles, diversity, students with special needs, cultural influences, and so forth. All of this research leads to a call for changes and improvement to our educational system.

Within that understanding of the history of educational research, we are back to actually defining the current problem before we can move forward. Social policy planning is not the same as planning in the natural science where problems are definable. This does not imply that the problems are not difficult or complex, just that they tend to be more definable. For example, with the knowledge that the flu tends to "hit" people in the fall, an immunization program in place before that time can alleviate the impact on the overall population. In contrast, social

policy attempts to resolve ill-structured problems; that is, ones with shifting structures and/or undefined parameters where solutions often result in other problems, often unforeseen. "Social problems are never solved. At best they are only re-solved – over and over again'' (Rittel & Webber, 1973, p.160).

In an article on the dilemmas of planning Rittel & Webber coined the term "Wicked", in reference to these ill-structured social policy planning problems. The problems and issues are unclear, circular, tricky, usually tied to social policy issues, hard to work into a timeframe, and require an "exhaustive inventory of all conceivable solutions ahead of time'' (p. 161)

> Wicked problems often crop up when organizations have to face constant change or unprecedented challenges. They occur in a social context, the greater the disagreement among stakeholders, the more wicked the problem. In fact, it's the social complexity of wicked problems as much as their technical difficulties that make them tough to manage. (Camillus, 2008, p.100)

A list of the Ten Traits for Wicked Problems is attached.

Based on the social political platform of university planning and culture as well as the issues inherent within the education community as a whole, pedagogical research, teachers and shifts in philosophy, and so on, I will suggest that the problems faced by the Education Faculty are "wicked problems''.

- Can a plan for sustainability by creating structural and predictable approaches be realized?

- If so, how?

- What are the dynamics inherent within the problem?

- As an extension: Is Problem-Based learning a plausible, realistic approach?

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Ten Traits for Wicked Problems

1. There is no definite formulation of a wicked problem.

The information needed to understand the problem depends upon one's idea for solving it. To describe a wicked problem properly, one has to develop all of the conceivable solutions in advance.

2. Wicked problems have no stopping rules.

When solving a tame problem, the problem-solver knows when the job is done. With wicked problems you never come to a final solution. The problem is continually evolving and mutating.

3. Solutions to wicked problems are not true or false, but better or worse.

The criteria for judging the validity of a "solution" to a wicked problem are strongly stakeholder dependent. Different stakeholders see different "solutions" as better or worse.

4. There is no immediate or ultimate test of a solution to a wicked problem.

Any solution will generate waves of consequences over an extended period of time. Moreover, the next day's consequences of the solution may yield undesirable repercussions which outweigh the intended advantages.

5. Every solution to a wicked problem is a "one-shot operation" because there is no opportunity to learn by trial and error.

Every implemented solution is consequential. It leaves traces that cannot be undone. Every attempt to reverse a decision or correct for the undesired consequences poses yet another set of wicked problems.

6. Wicked problems do not have an exhaustively describable set of potential solutions.

There are no criteria which enable one to prove that all the solutions to a wicked problem have been identified and considered. It may happen that no solution is found.

7. Every wicked problem is essentially unique.

There are no classes of wicked problems in the sense that the principles of solution can be developed to fit all members of that class.

8. Every wicked problem can be considered to be a symptom of another wicked problem.

Many internal aspects of a wicked problem can be considered to be symptoms of other internal aspects of the same problem.

9. The causes of a wicked problem can be explained in numerous ways.

There is no rule to determine the correct explanation for a wicked problem. The choice of explanation determines the nature of the problem's resolution.

10. With wicked problems, the planner has no right to be wrong.

In hard science, the researcher is allowed to make hypotheses that are later refuted. Thus, one is not penalized for making hypotheses that turn out to be wrong. In the world of wicked problems, the aim is not to find the truth, but to improve some characteristic of the world.