Cognitive objectives vs Affective objectives in Sustainability curriculum

In exploring for the general goals of an academic program in sustainability, even if only at the Gen Ed level, it is useful to follow Bloom’s distinction between *cognitive objectives* and *affective objectives*:

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<th>Remember: Demonstrate recall and recognition</th>
<th>Understand: Comprehend the meaning and interpretation of instructions and problems</th>
<th>Apply: Apply learning to concrete situations.</th>
<th>Analyze: Separate concepts into component parts</th>
<th>Evaluate: Make judgments about the value of material or methods for a given purpose.</th>
<th>Create: Put parts together to create new meaning</th>
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<td><strong>Receiving phenomena:</strong> Sensory availability, directed attention, willing participation</td>
<td><strong>Responding to phenomena:</strong> Engaged participation; attend to and interact with phenomena; motivated to respond</td>
<td><strong>Valuing:</strong> Motivated by worth or value attached to an object, phenomenon, or ideal; expressed in overt, identifiable behavior.</td>
<td><strong>Organizing:</strong> Organize, compare, and synthesize values into priorities, resolve conflicts among them and create a unique value system.</td>
<td><strong>Internalizing values:</strong> Has internalized a personal, consistent, and predictable value system that guides behavior.</td>
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This raises the question of what should be the appropriate balance between the two types of objectives in the program we envision. For example, the objectives from England and Australia show that Australia chooses language to emphasize affective learning goals, while England chooses language to emphasize cognitive learning goals.

**Australia:**
- **Understand** and **value** the interdependence of social, cultural, economic and ecological dimensions at local, national and global levels;
- reflect critically upon how this interdependence affects communities, workplaces, families and individuals and be able to make appropriate decisions;
- develop attitudes and skills which are conducive to the achievement of a sustainable future;
- appreciate and respect the intrinsic value of the whole environment and a sense of the sacred;
- develop an ethic of personal responsibility and stewardship towards all aspects of the environment; and
- participate as active and involved citizens in building a sustainable future. (p. 8)

**England:**
(1) interdependence of society, the economy and the natural world;
(2) local activities and their possible global consequences;
(3) citizens’ rights, responsibilities, participation, and co-operation;
(4) need to safeguard the future;
(5) importance of cultural, social, economic and biological diversity;
(6) equity and justice;
(7) change and development within the carrying capacity of the environment;
Applying the same technique to the nine sustainability themes from Victor’s article, we find that three are oriented toward cognitive learning goals, and six are oriented toward affective learning goals—which makes it a very “value-laden” set of goals for an academic program that will be quite difficult to assess.

The three cognitive themes are broad, encompass a wide range of knowledge and abilities, offer many areas for integration with each other, and lend themselves to relatively straightforward articulation of learning objectives and assessment tools:

**Systems thinking and interdependence.** Forrester’s ideas of systems dynamics (“Systems dynamics… considers interactive feedback and feed-forward loops, and underlying causes and forces that result in change or equilibrium…the way systems behave and change over time and the way different systems interrelate”) could easily form the very core of sustainability studies. To fully comprehend the impact of humans on the natural world, students should be able to make clear distinctions between the kinds of equilibrium the physical world and the living world achieve in the absence of human beings, and the kinds that have been achieved in the presence of human beings.

**Importance of local place.** All habitats are essentially local, defined by a specific set physical states and processes over time at a particular location. Every living being belongs to a place, because the specific range of conditions of the physical world and other beings at that place support its ongoing viability. In a sense, “all sustainability is Local.” This can be a substantial focus of the program, because it is the essence of the ecological concept of “niche.” Along with Systems Dynamics, this is a central idea in Sustainability, and a principle that can tie many elements of the program together.

**Nature as model and teacher.** It follows from study of planetary processes and living systems that we have much to learn from natural systems past and present. The big idea here is that nature represents a significant source of “expertise.” This theme is concerned with advocacy for models and designs that are in accordance with the needs and cycles of the natural world, and follows directly from the first two themes.

The six affective themes are to a large degree associated with values and ethics, have significant overlaps, and pose difficulties for defining specific learning objectives or ways to assess them. Combining some of these themes with each other, and/or reframing
them or parts of them toward cognitive objectives would make the curriculum easier to
develop, define, and assess.

Therefore, the five affective outcomes *Stewardship, Respect for limits, Intergenerational
perspective, Social justice, and Global citizenship*, along with the part of *economics*
which is about *values (see below)*, are all different ways of describing a proposed set of
values that some believe would make sustainability more likely to be attained than with
current values. However, asserting something does not necessarily make for a rigorous
academic program, though studying contrasting assertions might. So this set of
affective themes could fit nicely into a cognitive theme called “Valuing in Decision
Making,” (one of Alverno College’s five Learning Goals).

**Economics of sustainability.** The phrase “Economic restructuring” tends to frame the
economic issues around sustainability as affective ones associated with the latest set of
neo-Malthusian theories, consistently overlooking the basic fact that “technology”
always provides substitutes as resource costs rise, particularly when there isn’t any
other choice. So economics needs no restructuring; economies restructure themselves
constantly as individuals and firms modify their behavior under changing conditions.
Economics is about finding the optimal mix of babies and bath water over time, while
politics pits the water advocates against the baby advocates, guaranteeing the wrong
amounts of both.

**Valuing in Decision Making.** Since sustainability is at root about how human beings
might contain, manage, or mitigate the environmental impacts of their behavior, the
elements of *stewardship, respect for limits, intergenerational ethics, social justice, and
global citizenship* are on the one hand about human behavior and how it is motivated,
and on the other about how different kinds of behavior can have different environmental
and social consequences. Tying values to consequences makes it unnecessary to
assert any particular set of values, while allowing detailed exploration of the implications
of different value sets for sustainability.

**Stewardship.** If “Stewardship in this context becomes a minimal requirement for
intergenerational equity,” then the core topic is in fact *intergenerational ethics*,
a complete discussion of which must involve serious examination of how human
beings have actually behaved toward the world through history, for what reasons,
and with what consequences, and how they will likely behave in the future.
Clearly, worsening conditions due to resource constraints and increasing
population will make “stewardship” more and more of a luxury good over time.

**Political Economy.** Economist Joan Robinson wrote: “Every economic system
requires a set of rules, an ideology to justify them, and a conscience in the
individual which makes him strive to carry them out.” These three issues are
separate from each other and from the basic economic question of any society:
“How should resources (including *environmental* services) be allocated over
time?” They are more connected to the political, affective question of how benefits and costs will be distributed among individuals.

**Respect for limits.** Sustainability is less about the fact that there are limits, and more about the fact that there are consequences to collective human behavior which present opportunities and constraints for present and future well-being, however measured. The underlying questions of “sustainability” are “sustainable for how many, at what level, for how long?”

**Social justice and fair distribution.** This is really about how the benefits and costs of community life, on whatever scale, will be shared among members, so it is really about the values, rules, and actual behaviors of people, organizations, and institutions and evaluating the actual distributional outcomes of the political economy.

**Intergenerational perspective.** This is the special case of social justice across generations, and requires an abstract set of value judgments about what people living in the future would like to inherit from us. In the short run they are our own older selves and families, and in the long run they are an abstract group of strangers.

**Global citizenship.** The concept combines the two issues of systems interdependence and social justice, and therefore tends to obscure both.