The Ecology of the Education for Sustainability Paradigm

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In case study research, theory development can take place prior to data collection. Consistent with Yin’s model of case study research design, the author constructed a theoretical framework following Phase One of the research protocol. The theoretical framework is a blueprint for the study that requires theoretical propositions or a hypothetical story about why certain acts, events, structure, and thoughts occur. This blueprint, along with other research design components, provides guidance in determining what data to collect and what strategies to use for analyzing the data. The theoretical framework is then used to analyze the data collected during the research process and as a “framework” for building theory. Subsequently, the research results either confirm or dispute the theoretical framework. This particular theoretical framework serves as a blueprint for the theory development that is presented in the conclusions of this dissertation.

Theory development allows for analytic generalization. Analytic generalization is possible when “a previously developed theory is used as a template with which to compare the empirical results of the case study. If two or more cases are shown to support the same theory, replication may be claimed.” This chapter describes a theoretical framework for the ecology of an education for sustainability paradigm. The theoretical framework is outlined here and developed more fully in this paper’s conclusions.

The Ecology of the Education for Sustainability Paradigm

The theoretical framework (see the Appendix) constructed to facilitate the movement of this research shows the ecology (metaphorically) of an education for sustainability paradigm. The word ecology is used here to mean the interrelatedness and interdependency of variables within the elements of an education for sustainability paradigm. This chapter discusses each element and its relationship to the other elements in the framework or system. Ultimately, this framework is intended to propose a new model for understanding the relationships among these elements and to promote reflection upon and further analysis of dominant assumptions about the location, process, and content of adult education as an agent of change in local initiatives for ecological and cultural sustainability.

The Vision: Ecological and Cultural Sustainability

The vision guiding this work is of a world where ecological and cultural sustainability is the dominant paradigm. Efforts to that end are currently being manifested in the policy and practice of governments, civil society, and the private sector at the global, national, regional, and local levels. Many of these manifestations are at the local level—local initiatives for ecological and cultural sustainability. These initiatives are pervasive, but not always obvious. The author com-
pares the pervasiveness of these local initiatives to what she terms “the lichens phenomenon.” The Lichens phenomenon Lichens (pronounced like-uns) are small, seemingly simple organisms that live all over the earth. Despite initial appearances, the lichen is actually quite complex: two organisms, a fungus and an alga, in a symbiotic relationship. Symbiosis is any intimate relationship or association between members of two or more different species; it is the result of interdependent evolution. This symbiotic relationship means that lichens have the attributes of both the fungus and the alga that enable them to survive under conditions that neither organism could survive in alone. This symbiosis creates a sort of miniecosystem. The alga and the fungus are interactive and interdependent: What happens to one affects the other.

Lichens represent the biodiversity found in the earth’s biosphere, and estimates are that there are 13,500 to 30,000 kinds of them. They are pervasive, found in the arctic tundra as well as the rainforests of Brazil in South America. They are found on tombstones in cemeteries and on natural surfaces where human impact has been nonexistent. The only major habitat they are absent from, as far as we know, is the deep sea.

Despite their pervasiveness, lichens often go unnoticed by the uninformed eye. Inconsequential as lichens seem, they play a significant role in the ecology and sustainability of a place and ultimately of the planet. For example, after a fire has swept across a landscape, the area appears barren and without life. The trained eye, however, will recognize lichen colonies emerging as some of the first life forms in places where little else (plant or animal) can survive. As they establish themselves, they change the conditions of the place they inhabit. They interact with the air and the substrate (soil or rock or whatever surface they live upon), and that interaction changes the capacity of that place to support other life forms. For example, their presence enables a place to retain more moisture and other nutrients. As they interact chemically with the substrate, that place becomes more fertile to support mosses, grasses, and other plant and animal life. In other words, they can help make it possible for increased biodiversity, viability, and stability of life in that place.

Local initiatives for ecological and cultural sustainability can be compared to lichens. Lichens exist in communities or colonies. Local initiatives exist in communities, too. Each community has an ecology and culture. The ecology and culture coevolve and are in a symbiotic relationship. These community-based initiatives are going on all over the planet. However, most of these initiatives are not visible to the uninformed eye. They are pervasive, but receive little acknowledgment, despite the fact that they are functioning in many forms and changing the conditions of the places where that initiative is rooted. As an initiative takes root in a place, it changes the viability of that place, contributing to the ecological and cultural sustainability of that community—that place. The symbiotic relationship between ecology and culture strengthens the effectiveness of the local efforts. To learn to recognize that is important. There are lessons to be learned from the stories about how this work is initiated, constructed, and sustained. These lessons provide information and inspiration at a time of so many wars and rumors of wars—when the dominant media message is more about the consumptive and destructive forces on the planet than those that are life sustaining.

The Sense of Place, Self, Other, and Community Dynamic

The work of community-based initiatives is multilayered. The obvious work addresses specific local problems or issues (e.g., brownfields redevelopment, water quality, land use). In the process of that work, the community establishes or reestablishes (restores, redefines, reconstructs) a
“sense of place.” A sense of place is an understanding of one’s connectedness to the place that s/he inhabits. It is a complex dynamic that is interdependent and interactive with the sense of self, sense of other, and sense of community. This dynamic suggests that without a healthy, adequate sense of place, it is difficult—not impossible, but very difficult—to have a healthy, adequate sense of self. Without a healthy, adequate sense of self, it is difficult—not impossible, but very difficult—to have a healthy, adequate sense of other (to be in relationship). Without a healthy, adequate sense of other, it is probably impossible to establish community. Without community, there is no system or structure for taking care of (sustaining) place. The author proposes this relational model as a way to begin to understand the dynamic (or symbiosis) of ecological and cultural sustainability. She realizes the interaction between place, self, other, and community is not a linear, or even a curved, line. It is a dynamic that is both interdependent and interactive. The main point is, however, that the work and learning carried out through the local initiative changes the community’s sense of place and therefore energizes this place-self-other-community dynamic.

### Powershift

When people take action in local environmental initiatives, they are exercising power. Power, in the general sense of the word, is the ability to make things happen. Sometimes that local action represents a powershift, a term coined by Toffler. He describes a powershift in civilization over time from paradigms that used violence to those that used wealth, and more recently, that used knowledge as the sources of power or the means to making things happen. In some systems (and sustainability initiatives), a combination of these types of power are evident.

The author proposes that in community-based initiatives, there has been a shift in the location and execution of power as well as the type of power each one involves. Despite the prevailing arguments in some discourses that globalization is intensifying a top-down power structure, there are pervasive local initiatives that are reclaiming power in and over place, and some efforts are stimulated to take back power to achieve sustainability of place versus the forces of globalization.

This theoretical framework proposes, for example, that local initiatives facilitate a powershift from global to local and local to global—meaning the shift is both from global to local and simultaneously to global and local. For example, as discussed in the literature review, the women homemakers in the United States and Taiwan who were concerned about the health and safety of their community organized locally to take back control of place. However, ultimately, this movement became a model for global efforts. Thereafter, for the most part, control was local, but the movement caused a powershift from local to global, and power was being executed by both local and global forces. In this case, it is not either/or; it is both. In other initiatives, particularly Local Agenda 21 environmental initiatives, local control is driving local action in co-operation with national and global structures.

This theoretical framework suggests a new paradigm that represents varied power relationships: global to local, economic to ecological, top-down to bottom-up. The author proposes that participation in local actions that establish or are based on different power relationships requires new knowledge, skills, and values—or shifts in what is considered worthy of knowing, doing, and valuing.
Education as an Agent of Change

Participation in local initiatives may require new knowledge, new skills, and changes in values or attitudes. Education, in all its forms (education, training, and public awareness—both formal and nonformal), is part of this powershifting and transformative process. Essentially, in order for education to be an agent of change toward ecological and cultural sustainability, it must have three dimensions. First, its content and process must help the learner to possess or repossess the knowledge of how humans and other living beings interrelate within the biosphere. We shall call this knowledge ecological and cultural literacy, or systems literacy. The term possess means the learner acquires or creates new knowledge, and the term repossess means the learner acknowledges indigenous or endogenous knowledge that has been marginalized, ignored, or abandoned. Second, the content and process must help the learner to understand the symbiotic relationship between the ecology and the culture and, therefore, how the culture has evolved because of a given ecology. Third, the content and process must help the learner to understand how to create, use, and support educative, economic, and governance systems that sustain the ecology and culture. This is participatory process. Here, again, the author de-emphasizes the economic paradigm as the dominant one controlling the fate of the ecology and culture. The economic is restored to a more sustainably critical position as a means to ecological and cultural sustainability along with education and governance.

Education for Sustainability and Place-Based Pedagogy

An educational process that helps the learner to understand the ecological and cultural dynamics of a specific place, its people, and the community those people share in that place as well as to understand how to participate in maintaining community will be an education for sustainability imbedded in a place-based pedagogy. An education that is place-based can accommodate the diversity that various contexts present. A place-based pedagogy allows for content and process that is explicit to the ecological and cultural dynamics of that place, the people, and the ecological and sociological processes that created and sustain that community.

A survey of the literature about place-based education reveals distinctive characteristic patterns to this still-evolving approach.

1. It emerges from the particular attributes of a place. The content is specific to the ecology, economy, geography, sociology, politics, and other dynamics of that place. These fundamental characteristics establish the foundation of the concept. It is inherently multidisciplinary.
2. It connects place with self, other, and community. Because of the ecological lens through which place-based curricula are envisioned, these connections are pervasive. These curricula include multigenerational and multicultural dimensions as they interface with community resources.
3. It is inherently experiential. The process of the educational activity includes “hands-on” experience as a means to increasing understanding of the concepts to be learned. In many programs this includes a participatory action or service-learning component; in fact, some advocates insist that action must be a component if ecological and cultural sustainability are to result.
4. It is reflective of an educational philosophy that is broader than ‘learn to earn.’ Place-based education can be a part of a program that will lead to employment or increase employment options, but it also has direct, local application to the ability to live well in a place. In adult
education contexts especially, this application may be for the purpose of identifying or solving community problems.⁹

In contradiction to some critics of place-based education who believe that the primary goal of education should be to prepare the learner to work and function in a highly technological and consumer-oriented society, place-based educators believe that education should prepare people to live and work to sustain the ecological and cultural integrity of the places they inhabit. To do this, people must have knowledge of ecological patterns, systems of causation, and the long-term effects of human actions on those patterns.¹⁰ One of the most compelling reasons to adopt place-based education is to provide the learner with the knowledge and experiences needed to actively participate in the democratic process required to sustain that place. This education must be available to learners in K-12 systems, higher education, and adult and community education contexts.

Summary

This theoretical framework presents a discussion of the various phenomena or variables that contribute to the ecology of education for sustainability—a critical agent in creating a vision of a world where ecological and cultural sustainability is the defining paradigm. This framework proposes that a place-based pedagogy will facilitate this process.

Local initiatives for ecological and cultural sustainability, like the lichens phenomenon, exist in many forms and contexts all over the planet, from Bangkok to Boston and from British Columbia to Brazil. Adult education, in its many forms, is also pervasive; it takes place all over the planet. The goals of education for sustainability are complementary to those of adult education; in some cases, they are the same. For these reasons, among others that will be discussed in the concluding chapters of this dissertation, the field of adult education is well positioned to participate in the construction of this sustainability paradigm. It might, in fact, provide leadership, functioning as an agent of change. Examining the adult education that is occurring as part of local environmental initiatives is one step toward field-testing this theoretical framework.

NOTES

3. ----- Case Study Research, 32-33.
5. An ecosystem is a community of organisms and its abiotic (nonliving) environment and includes all the interactions among the organisms and between organisms and their abiotic environment. See William Purvis, Lichens (London: Smithsonian Institution Press, 2000; Raven et al., Environment.
Appendix: The Ecology of Education for Sustainability