

Introduction

The Theoretical Lens for Reaching and Teaching Diverse Populations: The Classroom as Ecosystem

The conceptual framework of the educational ecosystem is the theoretical heart of this text. As you experience the various activities in each section, you may want to revisit this theoretical framework to ponder the dynamics of the individual within the classroom ecosystem and the complexities and implications for reaching and teaching diverse populations. In section III, you will focus on the classroom as ecosystem, but it is valuable to experience the activities with the conceptual framework of the ecosystem in mind.

We have found that students who approach the classroom as an ecosystem to be studied are more apt to see themselves as agents of change, creators of curriculum and pedagogy, and facilitators of an environment that is synergistic and dynamic rather than one that is static and uniform.

WHAT DO WE MEAN BY THE CLASSROOM ECOSYSTEM?

The term *ecosystem* is adapted from biology, where it has long been used to describe the populations of any defined area and their interactions with each other and their shared environment. In recent years, the term has also been used in anthropology, sociology, psychology, economics, political science, and business, frequently differentiated in many of these fields as a “social ecosystem” rather than a biological or ecological one. Current social scientists also add a key word to the definition of ecosystem—*information*—identifying what is exchanged between and among the interdependent organisms. All the contexts of our lives may be thought of as some type of ecosystem, i.e., frames of reference in which we interact with others and with our environment. From the point of view of education, a classroom, a school, and a school district are all educational ecosystems.

<i>Biological Ecosystem</i>	<i>Classroom Ecosystem</i>
Abiotic elements—nonliving	Materials, books, curriculum
Biotic elements—living	Humans: teacher, students, aides
Autotrophic elements—-independent	Independent learning
Heterotrophic elements—interdependent	Learning interdependent: teacher, students, materials, synergistic, dynamic
Equilibrium—healthy balance	Balanced, safe, comfortable climate/environment
Disequilibrium	Disruptions, chaos
Positive disequilibrium	Debates, discussion

BIOLOGICAL ECOSYSTEM OVERVIEW

Because many students find the visual aspects of the biological ecosystem valuable, we offer a brief overview of some of the biological features, which also metaphorically illuminate the classroom ecosystem.

The following features from the biological model are salient for the classroom ecosystem: abiotic/biotic elements, heterotrophic/autotrophic elements, equilibrium/disequilibrium, positive disequilibrium. An ecosystem is, essentially, the (living, biotic) community inclusive of its (abiotic, but not static) environment and the interdependency inherent in the occurring transactions between and among both the living organisms and nonliving environmental factors.

A classroom, then, can be seen as an ecosystem, a system with an “explicit extent,” i.e., a frame within which the biotic components—the students, teacher, aides—and the abiotic components are interdependent. Via the transaction between and among all components, biotic and abiotic learning occurs or information is exchanged. During the exchange, the abiotic (knowledge) and biotic (students and teachers) elements are changed. Further, in ecological terms, one might visualize the autotrophic organism (green plant), which is capable of synthesizing its own nutrients using inorganic light or chemical energy, and the heterotrophic organism (most animals), which is dependent on complex, external organic substances for nutrition. Just as plants autonomously combine inorganic compounds with energy from sunlight, water, and earth to grow and change, students and teachers are capable of synthesizing (analyzing, comprehending) information on their own—whether taking notes, taking tests, or writing essays.

However, the autonomous and interdependent nature of humans and human ecosystems highlights the complexity of the human organism in the educational setting. Just as animals rely on outside substances to grow and change, in the learning environment, teachers and students also rely on outside energy, i.e., social and

intellectual exchange and transaction. The classroom, then, can be seen both as an autotrophic zone and heterotrophic zone in that students and teachers are both capable of synthesizing (analyzing, comprehending) information on their own, but in order to learn, they also rely on the social, intellectual, and emotional exchange that occurs in the classroom. See the introduction to Section III for a visual representation.

EDUCATIONAL THEORETICAL CONNECTIONS

Paulo Freire's (1993) problem posing (liberatory) theory of education best represents this dynamic aspect of the information and concept exchange that occurs in the classroom:

Through dialogue, the teacher-of-the-students and the students-of-the-teacher cease to exist and a new term emerges: teacher-student with students-teachers. The teacher is no longer merely the one-who-teaches, but one who is himself taught in dialogue with the students, who in turn while being taught also teach. They become jointly responsible for a process in which they all grow. (p. 265)

Freire's acknowledgment that "they become jointly responsible for a process in which they all grow" further illustrates the multidimensional aspect of the classroom. His theory clearly supports the classroom as a complex human ecosystem in which the biotic and abiotic transact (ideally) for the benefit of all. Perhaps most important, Freire's perspective encourages the teacher to learn from his or her students, which is exactly what is demanded in the diverse classroom in order to facilitate and sustain the classroom ecosystem.

Learning from and about our students is essential in creating and sustaining equilibrium in the diverse classroom ecosystem. This requires that the teacher do more than acknowledge that there are myriad cultures, attitudes, values, and beliefs on holidays or during Women's History Month. Throughout the year, the teacher must weave in opportunities via pedagogy to create a sustainable ecosystem, one in which equilibrium is a constant. Disequilibrium will occur if we don't come to understand those whose backgrounds differ from our own. Once we come to know each other, we are better able to create an atmosphere in which equilibrium in interactions reigns, but one in which the exchange of ideas among students of diverse backgrounds results in that positive disequilibrium; i.e., excitement and learning result when the exchange of ideas and thoughts are shared in a diverse community. Thus, the ecosystem model may also be used to inform classroom management as we strive to create a classroom environment in which the guidelines for interaction are clear to each individual student so that all students may experience optimal learning.

ELEMENTS OF THE EDUCATIONAL ECOSYSTEM

Organization in the classroom ecosystem is revealed in the nature and kinds of relationships between individuals (e.g., student and teacher, student and student) and between individuals and aspects of the environment (e.g., student and text, teacher and curriculum). In what directions do interactions move in these relationships? Who initiates? Who responds? The flowchart of a thriving, sustainable ecosystem will have arrows moving in a variety of directions instead of all top-down or bottom-up (see the figures that open Sections II and III).

Features of the classroom ecosystem include goals and objectives, rules and procedures, practices and processes, participant roles and functions, leadership roles and functions, values, attitudes, and beliefs. For example, what counts as good reading or good writing? Good teaching or good behavior? Who decides what matters in a given lesson or text? Who decides what something means, what is valued in a classroom, or what attitudes are fostered? What motivates participants?

Principles of operation in a successful classroom ecosystem are similar to those of culturally responsive pedagogy: They make room for and make use of what every student brings to the classroom—their home cultures, background knowledge, and previous experiences. That means that they are

- more collaborative than competitive;
- more organic and multidimensional than mechanical and linear, i.e., derived from rather than imposed on the students (and the teacher);
- more responsive (open and interested) than reactive (closed and theoretically neutral);
- more inclusive than exclusive;
- more win–win than win–lose in the definition of success.

Unlike their scientific counterparts, elements or participants in educational ecosystems cooperate with each other to create, maintain, and support lives and growth. Elements of biological ecosystems are not sentient in the ways people are, i.e., they do not think about, realize, or plan for their connections to or relationships with each other. Each gets what it needs from the others without intention; each provides what the other needs without motive. Participants in the classroom ecosystem are different in this regard, and it is the teacher's responsibility to structure experiences within which supportive, fulfilling, and ultimately motivating interactions can take place for everyone.

If school is a place from which students feel disconnected for whatever reason, they are less likely to want to cooperate there. They need to identify with others, to want to affiliate and cooperate with them rather than separating themselves from the group. Therefore, teachers must ask themselves the following questions:

- What do students need to thrive in this classroom ecosystem?
- What kinds of interactions can I facilitate to meet those needs?
- What do I need to know about my students—and about myself—to create and model effective relationships and a thriving classroom ecosystem?

The strategies in this book are designed to help students and teachers learn what they need to know about themselves and each other to do just that.