



# **Structures That Teach: Using a Semiotic Framework to Study the Environmental Messages of Learning Settings**

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## INTRODUCTION TO THE AUTHOR AND THE RESEARCH CONTEXT

The research reported in this article emerges from my interests and experience in the fields of anthropology, science and environmental education. I began teaching science and environmental education as an elementary and junior high school teacher in the US and Canada and later, became a researcher and teacher educator at the University of Alberta. Currently, I am a Professor in the Faculty of Education at the University of Calgary. As a teacher and teacher educator, I have long held deep interests in understanding the ways students learn and I wanted to contribute to the literature something that I felt had been left out. That is, deep descriptions of the ways children uniquely and personally engage in science and environmental learning in naturalistic settings. This program of research began first by considering learners' own efforts to learn, then led to research oriented towards understanding the ways that teachers' ideas about students own efforts to learn influence the creation of the experiences and environments that support students. This aspect deepened my understanding, and my desire to convey the knowledge, 'that those who design learning environments are profoundly influenced by the rules, signs and messages of the culture which frames and guides our lives and our work as educators'. These rules, signs and messages are also 'read' and learned by students as text forms along with explicit instructions from teachers. The research presented in the article is part of my endeavor to examine the nature of these readings, the ways that *these powerful structures teach*, the values that are conveyed through them, and the best ways to study and represent these structures. In the process, I discovered another valuable research resource framework for this task: the perspective of semiotic interpretive studies.

## A SEMIOTIC INTERPRETIVE RESEARCH FRAMEWORK

Semiotics is the study of signs, sign systems and systems of signification. Semiotic interpretation offers a particular way of looking at what occurs in classroom settings. It asks, "How is what we see happening in the learning setting a reflection of the values of the larger culture?" A key insight of semiotics is that signs, sign systems and their meanings involve the constant correlation of content and expression through communication. Its use is based on recognition that the values and beliefs of the dominant culture influence the organization and structure of the communication and educational systems we experience as learners, and guide the ways we organize and structure learning for our own students. The rules, signs and messages, and the values that are featured in them stand as powerful structures, perpetuated by our institutions and through our social interactions. The ways that these structures are used and interpreted (or read) by teachers facilitate, frame or sometimes disrupt learning.



## FINDINGS AND IMPLICATIONS OF THE WORK FOR PRACTICE

By examining a variety of learning settings and documenting and analyzing classroom interactions, a range of messages were identified and organized using four main categories: 1) Architectural Messages; 2) Text and Curriculum Messages; 3) Social/Behavioral Messages and 4) Policy Messages. An interpretive approach was used to identify activity structures and the kinds of messages they present. These are presented as a way to document and understand the variety of ways *environmental messages* are conveyed in learning.

In addition, the development of historical ideas about environmental values are represented in learning structures and also culturally represented. Instrumental values such as: *ecologically positive behavior; responsibility; and generosity* are identified. Examples of terminal values that may underlie these structures are *equality, moral courage, and a balanced world ecosystem*. The study shows that a semiotic consideration of learning settings helps to identify and critique the environmental messages of learning structures and suggests an awareness of the ways cultural structures create messages that may lead to more effective efforts in environmental education.

Everything within the educational setting, formal or informal, holds the potential for learning and teaching. A significant, often overlooked source for accessing new information lies in the learner's knowledge and use of cultural values, habits and norms. In addition to listening and reading texts, learning takes place through daily interaction with building and communication structures. These structures are representations of cultural values that are read by all who inhabit learning settings. They are *structures that teach*. The messages of these structures remain with students long after they leave learning settings. Like language, knowledge of culture serves as an everyday and ever-ready resource for information about how to gather and share knowledge and ideas about how learning proceeds.

When we grasp the complex ways we use sign and symbol messages, we gain powerful insights on how we communicate and how we expect learners to communicate with us. As structures that teach, these messages in learning settings present ideas about the environment, how it is valued, and what are the acceptable actions and forms of behavior that comprise activities in those structures. Among the important goals of learning, is not only the consumption of the sign and symbol systems of our culture but also development of the ability to create and use sign and symbol systems. In summary, one of the benefits of looking at environmental messages of learning is the way that the semiotic lens helps educators become 'wide awake' to messages that are presented through complex sign and symbol systems that are known to be powerful forms of cultural communication. The intention of this work is to provide resources that help practicing educators to understand the way in which the learning environment itself is structured, presents environmental messages. By giving greater attention to the organizational structures we present to students, we may spark new ways of inhabiting these learning environments. Viewed this way, these environments may model, enhance and extend the positive environmental behaviors and actions we seek.