

Chapter 45

An Ecological Approach to Instructional Design: The Learning Synergy of Interaction and Context

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ABSTRACT

The confluence of collaborative and social technologies, with the phenomenon of digital natives, creates new opportunities for learning environments, which, in turn, demand innovative instructional design strategies. An ecological approach to instructional design can yield rich learning environments that provide learners with authentic experiences. These learning experiences can be challenging, engaging, and effective, and provide students with deep appreciation of underlying processes, principles, and relationships. It's a learner-centered design that features collaboration, authentic experiences, and complex environments. Designing for these complex systems requires thinking outside the boxes of traditional approaches. The ecological approach requires identifying the key contextual factors and interactions that are central to understanding and performing complex intellectual tasks. This non-linear process involves selecting appropriate technologies and social interactions, appropriate levels of scaffolding and support, and giving learners increasing levels of responsibility for their own successful outcomes.

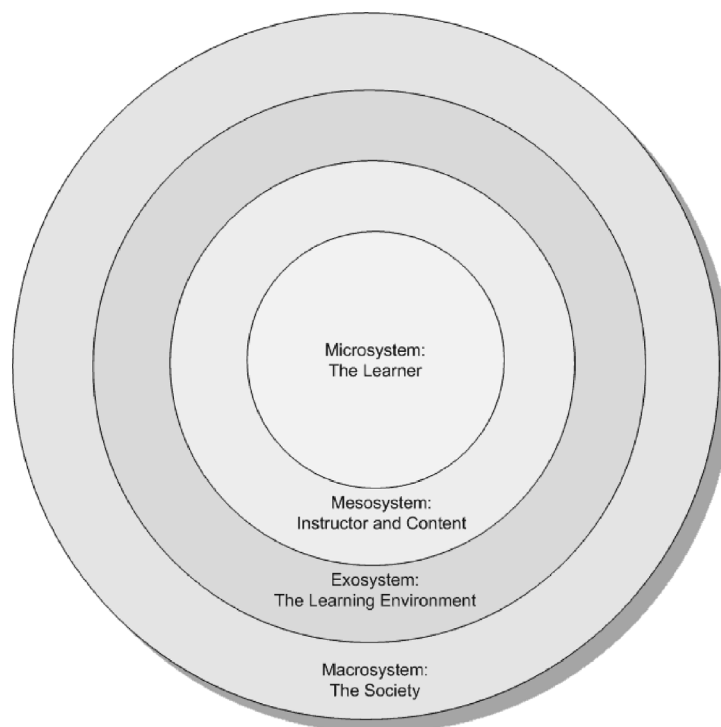
INTRODUCTION

Traditionally, the instructional designer's task was to devise a solution in which the learner was situated in a bounded environment that was linear and self-enclosed. The setting provided the designer with a static certainty about the learners, instructor, location, timeline, and resources. Drawing on Bronfenbrenner's bioecological system theory framework (Bronfenbrenner, 1979, 1989, 1995; Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Morris, 1998), this traditional approach can be seen as a series of nested systems, each wholly contained and unchanging (Figure 1). The learner could be clearly identified, and each concentric circle representing expanding layers of the context for learning could be clearly defined. For instructional designers, this ecological landscape allowed for a systematic approach to design:

- The microsystem is the learner who brings a set of knowledge and aptitudes to the classroom.
- The mesosystem is the classroom, which includes the instructor and content forming the immediate context for the class.
- The exosystem is the learning environment of the school and its resources.
- The macrosystem is the society in which the learning environment is located.

The above static and linear approach stands in contrast to today's rapidly changing, technology and knowledge-based global society that represents features of nonlinear dynamic systems such as adaption and plasticity. Today's college students are also changing. They are immersed in technological environments that provide ubiquitous access to rich information resources. Social networks allow almost continuous interactions with others across the globe, providing more op-

Figure 1. Ecology of traditional context for instructional design



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