Chapter XIII
Evaluation Strategies for Open and Distributed Learning Environments

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INTRODUCTION

Evaluation falls into the category of those often neglected human practices such as exercise and eating right. All of us involved in education or training know that we should engage in systematic evaluation when designing or implementing any type of learning environment, but we rarely get around to it. Perhaps this lapse stems from the fact that most instructional design models such as the ubiquitous ADDIE (Analysis, Design, Development, Implementation, and Evaluation) model (Molenda, 2003) appear to suggest that we can postpone evaluation until the end of the process. Whatever the reason, evaluation often remains in the realm of promises made, but not kept, such as “I’ll eat better tomorrow.”

Even when we do evaluate interactive instructional products or programs such as open and distributed learning environments, we often do so in an ill-conceived manner, the evaluative equivalent of thinking that if we eat a salad with a burger and fries, we have somehow engaged in healthy eating. For example, quasi-experimental comparisons of open and flexible learning environments with traditional classroom learning environments continue to dominate studies published in refereed research journals or presented at research conferences. Did we really need another large-scale meta-analysis such as the one recently reported by Bernard et al. (2004) to tell us that such comparisons are “of low quality” (p. 416) and that the final outcome is almost always of “no significant difference.” Bernard et al. (2004) produced an excellent piece of scholarship, but as with most such meta-analyses of educational technologies (e.g., Dillon & Gabbard, 1998; Fabos & Young, 1999), their analytical synthesis provides...
precious little to guide designers or practitioners in their efforts.

With these failings in mind, this chapter is focused on recommending a set of practical strategies for evaluating open and distributed learning environments. A much more extensive treatment of this important topic can be found in a book titled *Interactive Learning Systems Evaluation* (Reeves & Hedberg, 2003).

A point of clarification about terminology is necessary. In his innovative *Framework for Web-Based Learning*, Khan (2001) includes “Evaluation” as one of the eight key dimensions. Under Evaluation, Khan lists both “assessment of learners” and “evaluation of the instruction and learning environment” (p. 78). In our work (Reeves & Hedberg, 2003), we have preferred to separate these two factors, reserving the term “assessment” to refer to activities focused on measuring characteristics of human learners (their learning, motivation, attitudes, etc.), a process that we see as a sub-dimension of pedagogy. We use the term “evaluation” solely to refer to activities focused on estimating the outcomes and worth of products, programs, and projects. In short, we assess people and evaluate things. The remainder of this chapter is exclusively focused on evaluation issues.

**WHY EVALUATE?**

We recommend a primarily pragmatic philosophy of evaluation that maintains that you should evaluate in order to provide the information that you and other decision makers need to make better decisions about the design and implementation of open and distributed learning environments. We view this as analogous to the conclusion that you should exercise and eat right to provide the necessary ingredients for a long and healthy lifespan. Exercise and evaluation are not ends in themselves in most contexts, but means to longer life on the one hand and better decision making on the other.

As a developer, manager, or implementer of open and distributed learning environments, you must make decisions, similar to those made by other professionals. For example, before rendering a diagnosis, a physician usually questions a patient to ascertain the patient’s presenting complaint and medical history, conducts a thorough examination, and runs various tests. In fact, the quality and reputation of a physician is determined largely by how skillful he or she is in conducting “evaluative” acts such as interviewing, examining, and testing. The same is true of an evaluator.

Years of experiences as designers and evaluators of interactive learning environments have convinced us that decisions informed by sound evaluation are better than those based on habit, ignorance, intuition, prejudice, or guesswork. This may seem painfully obvious, and yet, far too often, we have seen people make poor decisions about the design and implementation of open and distributed learning environments simply because they failed to seek pertinent information that would be relatively easy to obtain. The e-learning field is replete with horror stories of bad choices related to factors such as course management systems, pedagogical design, and graphical user interface (Reeves, 2003).

**EVALUATION FUNCTIONS**

From time to time in the United States, the federal government’s Department of Agriculture issues recommendations for healthy eating, usually presented in the format of a food pyramid. Recent versions of these dietary pyramids suggest that the broad base of the pyramid should encourage us to exercise and consume plentiful helpings of whole grains, fruits, and vegetables, whereas the narrow pinnacle of the pyramid should limit us to the relatively infrequent consumption of red meat, sweets, and butter.

We suggest a similar pyramidal metaphor for evaluation as illustrated in Figure 1. There are six types of evaluation functions represented in this
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