

**INTERACTIVE
LEARNING
SYSTEMS
EVALUATION**

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Educational Technology Publications
Englewood Cliffs, New Jersey 07632

Library of Congress Cataloging-in-Publication Data

Dedication
To Trisha
and
To Danne

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Preface

Evaluation of interactive learning systems has been a passion for both of us since we were graduate students at Syracuse University a quarter century ago. We share a belief that evaluation activities are critical to effective development of interactive learning systems. We believe that evaluation is often overlooked or shortchanged in the haste to generate a product and deliver it on time. We think that evaluation should guide the creative development process by providing timely and insightful information about the status of the design ideas and the quality of their implementation. We hope that this book will help to raise the quality of how evaluation functions are undertaken. Although we recommend that a skilled evaluator should be part of every team of people involved in designing, producing, and implementing interactive learning systems, we are confident that anyone involved in the development process can apply the ideas and tools in this book.

— **WEB LINK** —
The Web site for this book can be found at <http://it.coe.uga.edu/~treeves/ilse.html>

The book is structured around the provision of information generating activities related to stages in the design and development of interactive educational products such as multimedia DVD's, Web-based training, electronic performance support systems, and e-learning solutions. We have sought to link specific design activities to evaluation procedures and tools that will help the novice (as well as experienced) evaluator plan, conduct, and report better evaluations. Many of the tools can be used for multiple functions. A Web site associated with this book links functions and tools and provides further examples of how to use them.

The structure of the book follows the design, development, and implementation process or journey through which interactive learning systems come to be. The first chapter of the book introduces the starting point for evaluation, which we believe is to inform decision-making at all stages of the product development. The chapter also clarifies what we mean by interactive learning systems and how they have evolved over time as learning theories and technologies have also changed.

Chapter Two locates the evaluation process within an appropriate model of inquiry. Without clearly knowing how your values and methods match the questions and goals of an evaluation, you may just be “painting-by-numbers” instead of skillfully applying evaluation strategies.

The third chapter links the roles that evaluation can play with each stage of the interactive product development process. If done well, evaluation data is often the key element to completing each product development stage. We contend that documenting development activities is critical to every step in the instructional design process. As described in Chapter Three, creating effective systems to collect and organize documentation data along the way is an important element in the success of any development project.

Planning and managing the evaluation component of each project is a special skill in itself, as addressed in Chapter Four. In the evaluation courses and workshops we teach, preparing an evaluation plan is a starting assignment to get participants to the first stage of understanding how evaluation works. This critical planning task reinforces the role that good documentation plays in providing reliable sources of informed insights to guide decision-making.

Chapter Five — concept review — describes the first stage in our six stage model. Review is based upon the idea of a project concept or the initial idea about why and what might be undertaken. Review helps you seek out the sometimes serendipitous information that might provide the rationale for why an interactive product should be produced in the first place. As an interactive learning system project gets started and before too many resources have been expended, you need to review delivery options and existing resources.

Chapter Six describes needs assessment, which usually signals the formal start of a development project. Needs assessment seeks to identify exactly what is required for what reason. It analyzes the rationale for various approaches to resolving performance problems or generating effective learning environments. Needs assessment also helps you and other members of your team to clarify design parameters that might have been suggested or imposed by funding or client constraints.

Chapter Seven focuses on formative evaluation — evaluation intended to enhance a product as it is being developed. Formative evaluation is essential as you and your team seek to translate goals and objectives into a working, effective interactive learning product. Here issues such as the usability of the product are tested, and the resulting modifications are made to streamline the cognitive demands of the interface and ensure that the product achieves its educational goals. Interface, navigation, and visual design components are critical elements in the final product that need to be addressed as the product is formulated. Otherwise, it can be very costly to have to rework and recast graphic design elements once full scale production or implementation is underway.

Chapter Eight deals with effectiveness evaluation. This stage involves strategies for evaluating the interactive learning system in action to determine how it is working in the context for which it is intended. During this stage, issues such as assessing student learning from the completed product and the ease of integration within classrooms or other learning contexts become dominant issues.

Chapter Nine is all about impact evaluation. This function examines the integration of an interactive learning system within an organization's structure and specifies how a product supports the organization's goals. Over time, this area might form the basis for decisions about adopting a product, scrapping it, or identifying cost-effective outcomes that might predispose the organization to future use of other interactive learning technologies.

Chapter Ten covers maintenance evaluation, a neglected area which is a critical part of any product's renewal cycle. It seeks to answer questions such as does the product or system still achieve the learning goals for which it was originally designed, and how is it holding up as technology advances?

Chapter Eleven focuses on several issues about how evaluation studies are reported to clients and other stakeholders. Key issues that are addressed include how to inform evaluation audiences in ways that guarantee that the efforts you make as an evaluator have an impact on decisions in a timely manner. If the information is not fed into the process in an effective manner, then the data will result in little action.

Chapter Twelve seeks to explore how you and other evaluators might contribute to the overall advancement of interactive learning systems design in substantial ways beyond the immediate context of any given development initiative. We recommend a new approach that would enable the design lessons learned through evaluations to become less invisible and contribute to a body of literature that could inform the overall field of educational technology, especially with respect to the design of interactive learning systems.

This book has been carefully crafted over several years, a project that has taken us back and forth to the far corners of the globe numerous times in the search for and refinement of the evaluation ideas that are contained in it. We trust you will find the book and the associated Web site practical as well as inspirational.

We have both shared earlier drafts of this book in our evaluation courses and workshops, using the feedback from participants to improve the ideas and tools, and especially to enhance the relevance of our ideas. Of course, any errors or problems are ours alone.

Along the way we have also been helped by many of our colleagues, such as Bill Aggen, Shirley Alexander, Christine Brown, Kent Gustafson, Barry Harper, Joe Henderson, Jan Herrington, Jim King, Geraldine Lefoe, Mary Marlino, Carmel McNaught, Mary L. Miller, Mary R. Miller, Jim Okey, Ron Oliver, Geoff Ring, Murray Tillman, and Stanley Varnhagen, among others. Trisha Reeves has been especially generous in proofreading several drafts of the book, using up several red pens in the process. We appreciate the assistance of our editor, Larry Lipsitz, and his associates at Educational Technology Publications, Inc. We also wish to thank the many clients who have hired us to conduct evaluations, thus providing us with rich opportunities for professional development. Most of all, we wish to acknowledge our graduate students who have compelled us to write this book in the first place and who have provided us with invaluable feedback along the way.

Tom Reeves
John Hedberg
January 2003

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