THE

e-Learning

HANDBOOK

Past Promises,
Present Challenges
About This Book

Why Is This Topic Important?

This book explores the realities of e-learning at several different levels: how e-learning is being used in different environments, the technologies of e-learning, design challenges raised by e-learning, learning theory and research affected by e-learning, and the economics of e-learning. With organizations investing thousands, even millions, of dollars in e-learning, this realistic portrait of e-learning provides executives, managers, and senior practitioners with an independent and balanced perspective on which to determine their investments, and researchers, instructors, and students with a broad picture with which to assess e-learning.

What Can You Achieve with This Book?

With this book, readers can achieve one of two things:

- Executives, managers, and senior practitioners who have responsibility for e-learning can build a practical, holistic view of the field on which to assess future plans for their technology investments and designs for e-learning.
- Researchers, instructors, and students can critically assess e-learning in general and suggested implementations in particular.

How Is This Book Organized?

This book has sixteen chapters spread among six parts, each of which looks at e-learning from a different perspective and is written by an expert in that topic. Our contributors represent both academe and industry. After Part I, which sets the context, the following broad areas are explored: The Reality Versus the Hype of e-Learning, Technology Issues, Design Issues, Issues of Theory and Research, Economic Issues and Moving Forward. Brief biographical information on each contributor is included at the end of the book.
About Pfeiffer

Pfeiffer serves the professional development and hands-on resource needs of training and human resource practitioners and gives them products to do their jobs better. We deliver proven ideas and solutions from experts in HR development and HR management, and we offer effective and customizable tools to improve workplace performance. From novice to seasoned professional, Pfeiffer is the source you can trust to make yourself and your organization more successful.

Essential Knowledge  Pfeiffer produces insightful, practical, and comprehensive materials on topics that matter the most to training and HR professionals. Our Essential Knowledge resources translate the expertise of seasoned professionals into practical, how-to guidance on critical workplace issues and problems. These resources are supported by case studies, worksheets, and job aids and are frequently supplemented with CD-ROMs, websites, and other means of making the content easier to read, understand, and use.

Essential Tools  Pfeiffer’s Essential Tools resources save time and expense by offering proven, ready-to-use materials—including exercises, activities, games, instruments, and assessments—for use during a training or-team-learning event. These resources are frequently offered in looseleaf or CD-ROM format to facilitate copying and customization of the material.

Pfeiffer also recognizes the remarkable power of new technologies in expanding the reach and effectiveness of training. While e-hype has often created whizbang solutions in search of a problem, we are dedicated to bringing convenience and enhancements to proven training solutions. All our e-tools comply with rigorous functionality standards. The most appropriate technology wrapped around essential content yields the perfect solution for today's on-the-go trainers and human resource professionals.
This book is dedicated to our parents, Bob and Beverly Oringel and Louis Carliner and Jodean Rubin, who instilled in us a love of learning and a desire to use that love to make the world a little better.

From Patti: My parents, both gone now, were writers, teachers, and lifelong learners. Bob Oringel wrote audio engineering textbooks and mentored new audio engineers. Beverly Oringel was a high school history teacher whose students kept in contact with her over many, many years. What they taught me influences my career and life every day.

From Saul: My father, Louis Carliner, had strong values around education, which are among his best-known lessons to me over forty years after his passing. Although she thought she was starting a second career for herself, in the process of doing so, Jodean Rubin introduced me to the field of training and development, which is where I have made my career.

Patti Shank and Saul Carliner
THE

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Contents

Preface xi
Introduction 1

PART I: THE CONTEXT FOR E-LEARNING 13
Chapter 1: Thinking Critically to Move
e-Learning Forward, by Patti Shank 15

PART II: THE REALITY VERSUS
THE HYPE OF E-LEARNING 27
Chapter 2: Hype Versus Reality in the
Boardroom: Why e-Learning Hasn’t Lived
Up to Its Initial Projections for Penetrating the Corporate
Environment, by Margaret Driscoll 29
Chapter 3: Hype Versus Reality on Campus: Why
e-Learning Isn’t Likely to Replace a Professor
Any Time Soon, by Brent G. Wilson and Lee Christopher 55
Chapter 4: Knowledge Management: From the Graveyard
of Good Ideas, by William Horton 77

PART III: TECHNOLOGY ISSUES 109
Chapter 5: Infrastructure for Learning: Options
for Today or Screw-Ups for Tomorrow, by
Patti Shank, L. Wayne Precht, Harvey Singh,
Jim Everidge, and Jane Bozarth 113
Chapter 6: e-Learning Standards: A Framework
for Enabling the Creation and Distribution of
High-Quality, Cost-Effective Web-Delivered
Instruction, by Pat Brogan 167
Chapter 7: Learning with Objects,  
by Patrick Parrish 215

Chapter 8: Web 2.0 and Beyond: The Changing Needs of Learners, New Tools, and Ways to Learn,  
by Patti Shank 241

Chapter 9: Locked Out: Bridging the Divide Between Training and Information Technology,  
by Marc J. Rosenberg and Steve Foreman 279

PART IV: DESIGN ISSUES  
Chapter 10: A Holistic Framework of Instructional Design for e-Learning, by Saul Carliner 307

Chapter 11: Converting e³-Learning to e³-Learning: An Alternative Instructional Design Method,  
by M. David Merrill 359

Chapter 12: Design with the Learning in Mind,  
by Patricia McGee 401

PART V: ISSUES OF THEORY AND RESEARCH  
Chapter 13: Revisiting Learning Theory for e-Learning, by Gretchen Lowerison, Roger Côté, Philip C. Abrami, and Marie-Claude Lavoie 423

Chapter 14: Design Research: A Better Approach to Improving Online Learning, by Thomas C. Reeves, Jan Herrington, and Ron Oliver 459

PART VI: ECONOMIC ISSUES AND MOVING FORWARD  
Chapter 15: Is e-Learning Economically Viable?  
by Patrick Lambe 479
Contents

Chapter 16: e-Learning: Today’s Challenge, Tomorrow’s Reality, by Saul Carliner 509

Index 521

About the Editors 533

About the Contributors 535
Preface

Toward the end of 2004, I came up with what I thought was a bright idea. For an article I was writing about the state of the industry, I surveyed people considered to be “thought leaders” in this industry. I wanted to see whether my experiences as a practitioner were mirrored by others. I sent a request for opinions and attitudes; I asked respondents to share their thoughts about trends affecting the field, frustrations working in the field, and rays of sunshine we could expect to see in future years. Responses arrived rapidly; I especially appreciated their candor. What was especially rewarding was the level of sharing and conversation among people whose work I admire. I synthesized their thoughts and added my own in an article published in the eLearning Developers Journal (Shank, 2004).

In fact, that conversation actually began many years earlier, but I didn’t realize it at the time. I had heard of Saul Carliner and very much enjoyed his writing but hadn’t met him until about seven years ago at an industry conference. After his presentation, I went up to introduce myself. We shared some laughs about the absurdities of the field and Ph.D. study, and promised to keep in touch.

It’s hard to appreciate at the time what influence any conversation will have on the course of your work or life. Saul and I kept in touch and developed a friendship over email, phone conversations, and meetings at industry events. He offered a great deal of heartfelt empathy and good advice while I worked through my Ph.D., a rare and precious gift. And we have since shared views, resources, and strong opinions about everything from stupid practices in the field to the best places to shop (and have even gone shopping together at the Container Store and Target).

Saul included me on emails soliciting input from others whose names I knew but had never met in person. Over time, I got to know some of these people as well by sharing resources and meeting them in person at industry events. One thing led to
another and I asked many of them to contribute to the eLearning Developers Journal article. And many of them have written chapters for this book.

For the eLearning Developers Journal article, Saul questioned the “industry” of this industry, saying that e-learning was being integrated into education and training and should no longer be seen as separate from it. In his view, this indicated its success, not demise, because the use of technology truly needs to be part of the everyday thought processes of people in the business of building learning. I couldn’t agree more. Much silliness (or worse) was done while online learning went from a (lunatic) fringe element to part of the everyday way of thinking about instructional delivery (and unfortunately, much of that silliness still prevails). If we no longer consider use of a technology for learning an either/or proposition, things are moving in the right direction. Instructional technology can, hopefully, be used to augment the whole spectrum of teaching and learning, from putting syllabi and references online to support a classroom-based course to self-contained tutorials on Microsoft Excel. We can have conversations among co-learners (including the instructor) during and in-between “class,” and extend learning beyond the classroom, where it can flourish beyond the content, activities, and assessments common to formal learning environments.

Technology needs to support informal learning as well, as this is how the bulk of learning occurs. The goal with informal learning is not to deliver instructional content but to help build competence and means to live our lives. When we see ourselves as builders of content, we too often kill the natural desire to learn. We need to support learning anywhere and everywhere competence is needed to solve life’s problems, even where there are no plugs and computers.

Sometime during 2002, Saul and I started talking about co-editing a collection of original essays on the business, technological, design, research, and philosophical issues underlying e-learning. We looked for writers who could provide critical assessments of the industry (or non-industry, as it were) for both academic and corporate e-learning professionals. This book started as a result of these conversations.
Preface

Continuing conversations molded the book and the ideas of the people who wrote these chapters and, hopefully, these conversations will initiate other conversations that mold where we are going next. Saul and I both feel this is greatly needed and hope these conversations will lead to changes in our field.

Patti Shank
January, 2008
Introduction

On one hand, online learning is real, it’s happening, and its use is increasing.

On the other hand, online learning isn’t being adopted as widely or as quickly as some of the enthusiastic analysts have predicted. Consider the following:

- Actual adoption is significantly slower than predicted. For example, one organization predicted in 1998 that 50 percent of all workplace training would be delivered online by 2003. The actual percentage in 2005 was closer to 15 to 20 percent, depending on the survey.

- Similarly, although online learning has delivered the promised return on investment in industry by eliminating training-related travel costs (according to a 2002 report from IDC), online learning has not offered similar returns to academe. At the institutional level, many online ventures that started to great fanfare in the late 1990s folded or were scaled back by 2002. Examples include the failed NYU Online, Fathom.com—an online venture housed at Columbia University that was a partnership of many schools and cultural institutions—and the scaled-back Unext.com (a company that purchases the online rights to courses from leading business schools).

- Although online learning promised to improve the quality and efficiency of teaching in universities, the actual results have shown something different. Although studies, such as Sitzmann and Wisher (2005) and Bernard, Abrami, Lou, Borokhovski, Wade, Wozney, Wallet, Fiset, and Huang (2004), have demonstrated that online and classroom learning are essentially equally effective, other evidence suggests that
instructors find teaching online courses to be more time-consuming than teaching the same course in a traditional classroom, and some economic studies suggest that, because of their labor-intensity, online courses in an academic setting are more costly to teach than classroom courses.

- After the technology vendors promised that better tools and management systems would improve the quality, speed of development, and ease of deployment of online learning, training managers and instructional designers are realizing that the real issues are offline, such as the quality of content, the processes administering online learning, and providing support for online learners. (Perhaps these issues were acknowledged, but the extent of their significance is only now being addressed.) For example, great concern is now being expressed over the quality of the content of online lessons; much of it disappoints learners, sponsors, and instructional designers.

- Although some people believe that standards will solve many problems with online learning, the standards are still a mess in this industry. For example, SCORM-compliant content doesn’t always allow people to exchange data as it should. Other standards are ignored, such as the standards for quality content.

- Most fundamentally, many of the learning professionals charged with choosing and implementing technology don’t really understand it. As a result, they make expensive mistakes in purchasing and make plans for uses of technology that aren’t going to work, such as reusable learning objects.

This edited collection of original essays takes a critical look at economic, technological, instructional design, business, evaluation, research, and philosophical issues underlying e-learning, like those just described. Each chapter is written by an expert in that area and addresses a different issue, such as the struggle to implement standards, the practicalities in implementing learning objects,
the business failures of many e-learning start-ups, the high dropout rates in e-learning, and the economic viability of online learning.

**Who Should Read This Book**

This book is intended both for the academic community and for experienced professionals.

- The academic community might use it as:
  - A textbook for courses and seminars on distance education, instructional design (such as an advanced instructional design seminar or a seminar on special topics in instructional design), educational leadership, and managing training programs.
  - A research reference.

- Experienced professionals will use this book to inform their long-term strategy regarding e-learning. Specific readers that we have targeted among experienced professionals include:
  - Decision makers about e-learning strategies and technologies, such as chief learning officers, human resources executives, and training managers and
  - Experienced developers of e-learning (people who have developed at least five e-learning programs).

**How This Book Is Organized**

This book has sixteen chapters spread among six parts, each of which looks at e-learning from a different perspective. Each chapter is written by an expert in that topic. Our contributors represent both academe and industry. They also represent four continents: Asia, Australia, Europe, and North America.

Some of the authors critically analyze a situation, others analyze and advocate for evolutionary change, and still others analyze the situation and advocate for revolutionary change, such as a major facelift to instructional systems design (the bedrock of most design approaches).
and an entirely new approach to research on learning, resulting from a need to change the approach to researching e-learning.

Regardless of approach, each chapter offers the following features:

- A brief opening box describing “About This Chapter,” so you can quickly determine whether you are interested in reading further.
- The following features at closing:
  - Concluding thoughts about the topic;
  - A chart summarizing the key points to take away from the discussion in the chapter;
  - Guiding questions for discussion, which are especially intended for people planning to use the content in this book in the classroom; and
  - “Learn More About It,” a chart suggesting links, books, papers, reports, and articles where you might find additional information and examples of interest on the topic discussed in the chapter.

The following sections describe the structure of this book in more detail.

Part I: The Context for e-Learning
This section has one chapter, Chapter 1, Thinking Critically to Move e-Learning Forward, written by co-editor Patti Shank, which explores where we are and where we’ve been, and why we need to consider these issues before moving forward. Specifically, this chapter introduces the landscape of e-learning today and why it’s in a slump. Next, it explores the boom-and-bust cycle of e-learning (previous booms of hype in the mid-1980s and early 1990s), how technology advances rapidly but the design of learning content moves much more slowly (although, with learning objects and shuttleware, some design changes occurred this time around), and introduces some of the debates in the field. Last, it explores what academics and corporate practitioners can learn from each other.
Part II: The Reality Versus the Hype of e-Learning

This part critically explores the e-learning that was proposed by the proponents of e-learning in its infancy in the late 1990s and the early part of the millennium, and the reality that ultimately resulted. As contributor Margaret Driscoll notes, the difference between the initial hype and the current reality of e-learning is not as black and white as many people suppose. Chapters in this part include:

- Chapter 2, Hype Versus Reality in the Boardroom: Why e-Learning Hasn’t Lived Up to Its Initial Projections for Penetrating the Corporate Environment by Margaret Driscoll, which explores the challenges of making e-learning work in the corporate world. Specifically, this chapter contrasts the optimistic predictions of e-learning use and projections of e-learning growth with the reality experienced in the middle of the first decade of the millennium, identifies where e-learning has been successful, and places the reality of e-learning in the workplace in the broader context of long-term change.

- Chapter 3, Hype Versus Reality on the Campus: Why e-Learning Isn’t Likely to Replace a Professor Any Time Soon by Brent Wilson and Lee Christopher, which provides a similar exploration of the challenges of making e-learning work in the academic world. Focusing on the role of the professor who is asked to teach online courses, the chapter explores some of the challenges that professors have encountered and, like the previous chapter, places the reality of e-learning on campus into the broader context of long-term change.

- Chapter 4, Knowledge Management: From the Graveyard of Good Ideas, by William Horton, which explores why one of the most promising forms of informal e-learning—knowledge management—has failed to achieve its potential by describing the challenges with technology and project management.
Part III: Technology Issues
This part explores some of the technical challenges that have affected the growth of e-learning in academic and corporate environments. Chapters in this part include:

- Chapter 5, Infrastructure for Learning: Options for Today or Screw-Ups for Tomorrow, by Patti Shank, L. Wayne Precht, Harvey Singh, Jim Everidge, and Jane Bozarth, which addresses the challenges of preparing an infrastructure for e-learning in organizations. This chapter addresses specifically questions such as: How do needs vary with different phases in the use of e-learning in an organization? What infrastructure is essential? What’s nice to have? What challenges should people be aware of, such as obsolete file formats? Is technology for learning likely to merge with similar technologies in other fields, such as a merger of learning content management systems with more widely available content management systems? Last, this chapter considers why technology is so complicated that the industry has had to spawn a sub-industry of people who advise others on how to choose and implement the infrastructure.

- Chapter 6, e-Learning Standards: A Framework for Enabling the Creation and Distribution of High-Quality, Cost-Effective, Web-Delivered Instruction by Pat Brogan, which critically examines standards. After a quick survey of the standards, this chapter explores issues such as the ongoing problems with interoperability—even after products conform to standards, the IMS bite off more than it could chew with the terminology issue, and the realistic prognosis for learning objects. This chapter also addresses issues such as whether these standards protect current e-learning developers from the problems of obsolete file formats that existed before and whether standards really matter to smaller organizations, who aren’t developing or purchasing large libraries of e-learning.
• Chapter 7, Learning with Objects by Patrick Parrish, which explores the challenges of reusable learning objects. After describing what learning objects are (so readers have a common definition of the concept as definitions are a challenge in this area), this chapter presents two paradigms for exploring learning objects. From each perspective, the assumptions underlying and ignored by the paradigm and the resulting effect on how learning objects affect work and everyday life. The chapter closes with a brief description of a promising effort to employ learning objects in a professional development context.

• Chapter 8, Web 2.0 and Beyond: The Changing Needs of Learners, New Tools, and Ways to Learn by co-editor Patti Shank, which explores Web 2.0, the emerging generation of software driving the web in general and e-learning in particular. After defining Web 2.0, this chapter explores the changing nature of information and learning, then considers the changing nature of learners (especially those who have grown up with the Internet). Next, it explores the response to these changes by providing an inventory of the software tools that characterize Web 2.0, such as blogs, wikis, “google jockeying,” and “mashups.” Then the chapter considers how Web 2.0 is creating new ways to learn and closes by considering these changes within the broader context of e-learning.

• Chapter 9, Locked Out: Bridging the Divide Between Training and Information Technology by Marc J. Rosenberg and Steve Foreman, which addresses personnel challenges associated with learning technology, such as: Are training organizations capable of managing new learning technologies in ways that are consistent with corporate Information Technology (IT) requirements? and Are IT organizations capable of responding to the unique requirements that new learning technologies present? Some of the challenges result from the learning staff’s limited understanding of the technology; some of the challenges result from the IT organization’s lack
of understanding of the changing role of the learning staff. This chapter explores these problems and suggests ways to address them.

**Part IV: Design Issues**

This part explores some of the design challenges that have arisen as our collective experience with e-learning has expanded. Chapters in this part include:

- Chapter 10, A Holistic Framework of Instructional Design for e-Learning by co-editor Saul Carliner, which argues that ISD is a value system. The author believes that the value system, developed in the 1940s with few major changes since then, no longer reflects the value systems of practicing instructional designers in industry, limits practice, does it address project management for e-learning. But because of its wide recognition and its flexibility in research, perhaps the model can be updated. This chapter then proposes a new model called a framework, because ISD is a methodology, not a model. The framework consists of three parts: design philosophies and theories, general design methodology, and instructional considerations. Among the implications of adopting this framework are a stronger focus on human performance, teaching based on real-world problems, and research that is focused on case studies of real e-learning projects.

- Chapter 11, Converting e₃-Learning to e³-Learning: An Alternative Instructional Design Method by M. David Merrill, which illustrates those instructional principles that can help designers avoid *enervative, endless, or empty* e₃-learning (pronounced e sub-three learning) and replace it with *effective, efficient, and engaging* e³-learning (pronounced e to the third power learning). This chapter then describes these first principles of instruction, which include the *activation* principle, the *demonstration* principle, the *application* principle, the *task-centered* principle, and the
Introduction

integration principle. This chapter concludes with a brief description of an alternative method for designing more effective, efficient, and enabling e³ instruction.

• Chapter 12, Design with the Learning in Mind by Patricia McGee, which addresses the challenges of providing learners with the support needed to succeed in e-learning courses. Specifically, this chapter addresses the pedagogical, interpersonal, and cognitive supports that can assist online learners. Within each area, this chapter illustrates how strategies, tactics, and organization can be enacted.

Part V: Issues of Theory and Research

This part explores some of the challenges that arise in transferring learning theory, which has primarily been developed for application in the classroom, to the online environment, as well as issues with the research—including a call for a radically different approach to research on e-learning. Chapters in this part include:

• Chapter 13, Revisiting Learning Theory for e-Learning by Gretchen Lowerison, Roger Côté, Philip C. Abrami, and Marie-Claude Lavoie, which explores the ways that learning theories have had to be adjusted to the realities of teaching online and whether certain popular approaches to learning, such as constructivism, can effectively work in a self-study online environment.

• Chapter 14, Design Research: A Better Approach to Improving Online Learning by Thomas C. Reeves, Jan Herrington, and Ron Oliver, which explores what should happen with research in online learning in the light of several major meta-analyses that have essentially concluded that “no significant differences” exist between distance and classroom instruction, the authors add that “It hardly needs saying that the largely pseudoscientific research studies reviewed for these meta-analyses fail to provide practitioners with much-needed guidance for
improving the design and use of online learning.” In this chapter, the authors propose a different approach to research called design research, which (1) addresses pressing complex problems in real contexts in close collaboration with practitioners; (2) integrates known and hypothetical design principles with technological affordances to render plausible solutions to these real-world problems; and (3) involves conducting cycles of rigorous and reflective inquiry to test and refine innovative learning environments as well as to define new design principles. This chapter explores what design research is, provides a rationale for it, presents strategies for conducting it, and suggests ways to overcome challenges to design research.

Part VI: Economic Issues and Moving Forward

This part explores some of the economic issues that have affected the growth of e-learning in academic and corporate environments, as well as predictions for the future of e-learning. Chapters in this part include:

- Chapter 15, Is e-Learning Economically Viable? by Patrick Lambe, which explores how the evaluation of e-learning and its economic impact have evolved over the past several years from simplistic ROI considerations to metrics that are closely aligned to a business strategy, and thereby can be justified and tracked over time. Specifically, this chapter explores the following topics over a range of different applications of e-learning: why investments in training and e-learning are not equivalent; the need for infrastructure investments in e-learning; and a variety of economic benefits to e-learning, including productivity and quality improvement, a market requirement, access to new markets, a means of leveraging human capital, and a means of reducing business risk.

- Chapter 16, e-Learning: Today’s Challenge, Tomorrow’s Reality by co-editor Saul Carliner, which explores ways that
Introduction

organizations are currently using e-learning in academic and workplace contexts and, given the issues raised in this book, how e-learning might make a difference in the future.

References


Part I

The Context for e-Learning

This section has one chapter, Chapter 1, Thinking Critically to Move e-Learning Forward, written by co-editor Patti Shank, which explores where we are, where we’ve been, and why we need to consider these issues before moving forward. Specifically, this chapter introduces the landscape of e-learning today and why there’s still so much controversy about it. Next, it explores the boom and bust cycle of e-learning (previous booms of hype occurred in the mid-1980s and early 1990s), how technology advances rapidly but the design of learning content moves much more slowly, and introduces some of the debates in the field. Last, it explores what academics and corporate practitioners of e-learning can learn from one another.