Michael Allen's e-Learning Library

Successful e-Learning Interface

Making Learning Technology Polite, Effective, and Fun

Michael W. Allen

Readers should be aware that Internet websites offered as citations and/or sources for further information may have changed or disappeared between the time this was written and when it is read.

About Allen Interactions Inc.

Allen Interactions was formed by learning technology pioneers who have continuously created precedent-setting learning solutions since the late 1960s. Their award-winning custom design and development services have been commissioned by Apple, American Express, Bank of America, Boston Scientific, Comcast, Delta Air Lines, Disney, Ecolab, Essilor, Hilton, HSBC, IBM, Medtronic, Merck, Microsoft, Motorola, Nextel, UPS, Travelocity, and hundreds of other leading corporations.

   Working with IBM and then with Control Data Corporation, Michael Allen led the development of the first two widely used LMS systems. Then his pioneering work on visual authoring systems led to the ground-breaking Authorware, which elevated the level of interactivity that educators could develop and saw the creation of Macromedia, which delivered a powerful collection of interactive multimedia tools.

   Now, his studios at Allen Interactions carry on the search for more meaningful, memorable, and motivational instructional paradigms, faster and lower-cost methods of designing and building technology-enhanced learning solutions, and ways to share their discoveries with those interested in more effective learning. Widely recognized as the foremost company in e-learning, Allen Interactions provides a wide range of consulting and training services, tools and software, and custom-learning design and development. They can be contacted at alleninteractions.com or by phone at 651-203-3700.

About the Author

Starting his work in technology-enhanced learning at Cornell College in the late 1960s, Michael W. Allen has been developing instructional paradigms, systems, and innovative tools ever since. He holds M.A. and Ph.D. degrees in educational psychology from The Ohio State University and is an adjunct professor at the University of Minnesota Medical School in the Department of Family Medicine and Community Health.

Active in e-learning organizations, publishing, and speaking, he has consulted internationally with governments and major corporations on the use of technology for learning over a period of decades. He was director of R&D for advanced educational systems within the PLATO and artificial intelligence groups at Control Data. He created the first commercial LMS products used internationally; the precedent-setting visual authoring tool, Authorware; and countless instructional applications. His first book, *Michael Allen's Guide to e-Learning: Building Interactive, Fun, and Effective Learning Programs for Any Company*, has been praised by beginners and experts alike and is the base text for ASTD's e-learning design certificate programs and many other courses of instruction around the world. *Michael Allen's e-Learning Annuals* have been noted as a "phenomenal resource" for scholars and practitioners alike, carrying up-to-date controversies and conversations from renowned experts.

Contents

2 | Introducing the CEO of LID

"Emily, you're looking like a bright and creative 10-year-old today. So I've got a challenge for you. Show me how to balance a nail, two forks, and a cork all on the end of a pencil. Can you balance them all together while you walk around the room?"

For fifteen years on black-and-white TV, Mr. Wizard challenged "neighborhood" kids in a way that even passive viewers of all ages felt engaged. Those of us who knew what was going to happen when the child aligned magnets backward, put a hardboiled egg over the mouth of a jar containing a burning candle, or reversed DC current to an electric motor couldn't wait to see the child's face when it happened. Children ran to their parents with pleas to try such "science" at home.

Learner interface design (LID) is challenging. As a learner interface designer, you need to interest your learners and maintain that interest. You need to focus learners on what's important and convey information efficiently. You need to provide the means for learner input and control for interactions "that actively stimulate the learner's mind to do those things that improve ability and readiness to perform effectively" (Allen, 2003, p. 255). You need to balance your judgment of how learners can best spend their time and energy against their desires to be in control and exercise their own judgment. You have to create experiences that are instructive, provide sufficient practice, and adapt to individual needs. You have to relate helpful

Яapid readeR

- CEO = connect, empower, orchestrate

- Truly powerful learning experiences start by capturing learner attention.

- Learners want to feel empowered and in control.

- Well-orchestrated learning events lead to outcomes that make learners feel successful.

information, such as progress, level of performance, and where additional resources can be found.

Fully enumerated, learner interface design sounds like an intimidating task, but e-learning cannot succeed without good LID. So the question is: How can one go about LID with the best prospects for success?

Let the CEO Take Charge. Connect, Empower, and Orchestrate

Successful learning experiences, whether taking advantage of e-learning technology for delivery or not, connect with learners; empower them to explore, experiment, and
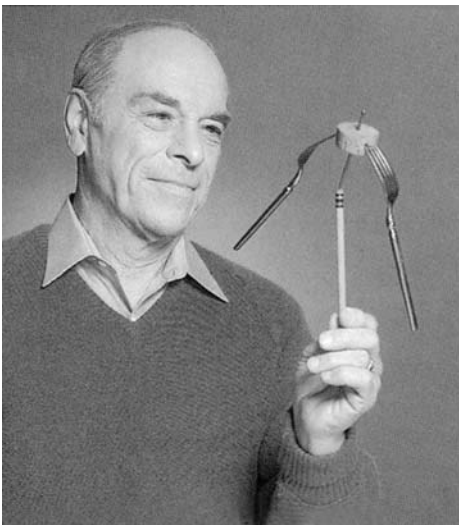
Photograph courtesy of Mr. Wizard Studios, Inc.

react; and orchestrate the learning environment such that it provides critical feedback, help, and guidance.

Over millennia, great teachers have demonstrated their CEO skills in connecting with their students, empowering them to learn, and orchestrating experiences that have benefited their students for the rest of their lives. Don Herbert as the immortal Mr. Wizard mesmerized kids with "the wonders of science" in his TV show that ran from 1951 to 1965, with later revivals. Play some YouTube snippets to see for yourself. Exemplified by Don, great teachers reveal their passion for teaching by finding the fascination in their con-

tent matter and building on it. Often with dramatic approaches, they empower their learners to experience the value of new knowledge through exercises that reward learners with success—sometimes successes they never expected to have.

You can do this, too. With the concepts of connecting, empowering, and organizing to prompt and guide you, you can create LIDs with incredible impact. Let me introduce these concepts very briefly here. We'll pick them up in greater detail with examples in later chapters.

C Is for Connect

It's essential to get learners involved, engaged, thinking, and doing things. While general user interface design aspires to transparency and ease of use (*Don't make me think!*), LID aims for just the opposite: *thinking!* While general user interface designs try to minimize the things users need to do to get what they want, LID again aims for just the opposite: getting learners busy doing things— *all the necessary things in real-world tasks*—and doing them repeatedly until strong skills and confidence develop.

But to fully engage learners, we don't just need to connect with our learners' cognitive, perceptive, and motor skills. We need an emotional or affective connection as well. We want learners to not only know how to work the interface mechanisms we provide, but we also want them eager to explore and use these helpful learning affordances to their advantage. We want learners to be enthusiastic both about learning and about eventually applying their learning for meaningful benefits.

As we discussed extensively in the second book of this series, *Designing Successful e-Learning*, instruction and learning are all about achieving behavioral change. We learn things so that we can perform new tasks or improve our skills. We know things so we can do things. But even though the awesome human brain is capable of incredible learning, it also tends to resist change.

Cradled in the comfort of familiarity, we humans tend to persist in doing what we've always done in the way we've always done it. To
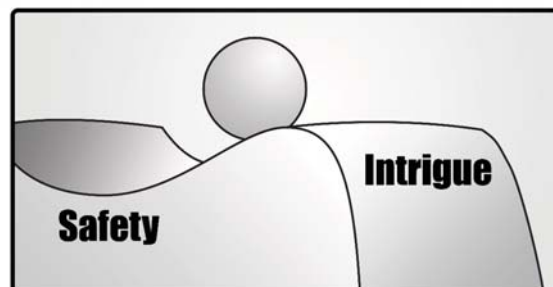
move people forward, we have to coax them out of their comfort nests to see what alternatives may be out there.

One powerful way to begin the process of change and to interest people in learning is to intrigue them. When we're truly fascinated by something mysterious, surprising, powerful, or inexplicable, we tend to push fears out of our minds while searching for explanations and understanding. This is a gateway to effective learning experiences.

As we explore connecting with learners' minds, both cognitively and affectively, we'll be looking at ways to intrigue learners and put them on the path to learning through three major approaches:

1. Personalization—Is this really about me?

LID Tip: Letting learners feel that the experience is all about them and their needs pulls learners in, captivating their attention and energy, at least for a while.

2. Humanization and dramatic impact—Isn't this going to be boring?

LID Tip: Emotional connection is critical to energizing the learner's full participation and attention.

3. Authenticity and situational fidelity—Is successful performance really like this?

LID Tip: A great context can stimulate learner imagination, set perceptions, and make events feel real, even through quite limited simulations.

E Is for Empower

Mr. Wizard knew it was important to let kids do at least some steps of his TV "experiments." As we watched (those of us old enough to remember will recall), we all wanted to get in there and participate. Mr. Wizard knew never to embarrass or humiliate. There was no risk. We innately know it's in the doing that we can really have fun (and learn). Intricacies that we overlook so easily while watching someone else perform a task can stop us dead in our tracks when we try to do the same task learned only through observation. Ever watch someone demonstrate how to use a new software product, then try it yourself? Did you realize you were

far less prepared than you thought? To empower learners we have to give them some controls and let them do things—seemingly real things, not just advancing to the next slide or answering questions. From an LID perspective, this involves a two-way communication: presenting information and listening.

1. Visual clarity—Can I understand this?

LID Tip: Consistency and persistency of design elements put learners at ease, help them know what to expect, and permit focus on what's most important.

2. Input and control—Can I do it as I really would?

LID Tip: Input gestures and controls need to naturally translate the learner's intentions into actions, for example, allow direct manipulation of objects rather than using extra buttons and controls that have no real-world analogy.

O Is for Orchestrate

It's one thing to provide an open lab and let learners loose in it. But this can be fruitless, not to mention dangerous and expensive. Thinking again of the wildly successful *Watch Mr. Wizard*, star and scientist Don Herbert carefully orchestrated each situation so kids could see scientific principles at work while working with familiar objects. He would compare how things work in some situations (paper burns when it is surrounded by air) and when they
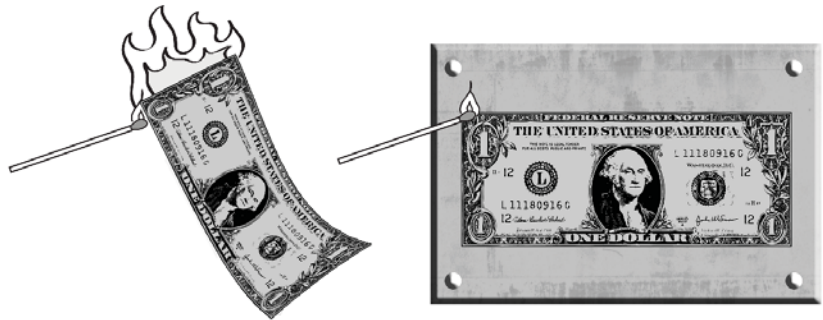
don't (paper money won't ignite when tightly pressed against metal). This took planning, design, development, and testing. Such are the requirements of LID. To successfully orchestrate learning events, we can:

1. Build on performance-based learning objectives—What can I do after completing this?

LID Tip: To achieve needed outcomes, it's important to contrive situations that reveal potential outcomes in obvious ways and inform learners of their progress.

2. Challenge and help—Will you help me when I need help?

LID Tip: Learners will continue to face challenges if they are rewarded by clear outcomes of their efforts, both successes and failures, and as long as help comes when it's needed (and not much sooner).

3. Provide performance-relevant controls—Is that how it works?

LID Tip: Provide a collection of learner controls appropriate to the learner's readiness to handle content complexity. Increase fidelity steadily toward real-life controls as learner skills advance.

The Language of Learning Event Design

In designing an interface, whether for a fruit juicer, an airplane cockpit, or an e-learning application, one must identify and become familiar with the components, functions, and controls. The components and controls of a juicer and an airplane cockpit seem evident on inspection, although perhaps not understandable without explanation of their functions, but what are the components, functions, and controls of e-learning? They're not so obvious.

Learner interface design components can seem innumerable, obscure, and indeterminate, as almost any type of interaction can be created in e-learning software. Screen layout can be varied in an infinite number of ways. Timing, animation, and media, in addition to the infinite functional and conditional variations achievable through programmed logic, allow every e-learning application to be unique in appearance and behavior. Are these myriad components what we're talking about when we learn to create effective learner interfaces?

Well, yes, these are the components of which interfaces are built. But we need a functional and more holistic way of identifying the interface components of e-learning applications to understand, compare, create, and use them effectively. Specifically, for learner interface design, we need to organize learner interface design concepts, approach-

es, and principles in a way that does not bury them in the mechanics of interface components, but rather sorts them by the roles they play in creating effective learning. In short, we need a language for discussing the critical details of learning events.

CCAF to the Rescue

As we discussed in *Designing Successful e-Learning*, the previous volume of this series, there is a unifying, foundational view of instructional events that is useful both for designing and describing instructional designs. It is useful for all instructional delivery means, but is perhaps of special value for both instructor-led and e-learning events. We're talking here about Context, Challenge, Activity, and Feedback—or simply "CCAF" in our designer jargon.

CCAF provides a new lens uniquely suited for viewing LID. It helps keep focus on the contribution that interface components can make, not just to usability, but more importantly to learning outcomes. In some occasions, looking at designs from the perspectives of context, challenge, activity, and feedback reveals that too much emphasis on ease of use and minimized cognitive burden actually conflicts with good learner interface design and weakens the potential power of learning events. Really? Yes. It's hard to learn to really perform tasks if you don't practice performing them. Really.

The next chapter provides a refresher on the critical concepts of context, challenge, activity, and feedback in preparation for using CCAF as a learner interface design framework. It provides a way for communicating, discussing, and examining the many design decisions that define learning events. Following the next chapter, we'll return to a close examination of CEO—connect, empower, and orchestrate.

About this book

Why is this topic important?

Much is written about *user interface* design. You know, when to use click and double-click gestures, how to allow users to sort lists, how to provide a clear screen layout, and so forth. And much is written about *instructional* design: how to write instructional objectives; when to use drill-and-practice, tutorials, and simulations; how to use text and narration; and so forth. But little is written specifically about how to bring it all together to create fantastic e-learning experiences. This needed synthesis is *learner interface* design—the topic of this book.

What can you achieve with this book?

This book will help you use your time and resources effectively to build the best e-learning experiences possible within your constraints. As with the other books in this series, this book is geared toward pragmatic application. It's direct and to the point: here's how to connect with your learners, how to empower learners to make the most of e-learning's capabilities, and how to orchestrate learning events for maximum impact: CEO—connect, empower, and orchestrate.

How is this book organized?

This book is divided into four parts. Part I, consisting of Chapters 1, 2, and 3, describes the importance of excellent learner interface. Part II, consisting of Chapters 4, 5, and 6, describes learner interface guidelines based on the CEO model: connect, empower, and orchestrate. Part III, consisting of Chapters 7 and 8, reviews common mistakes and provides guidelines to assist in focusing on the right things. Part IV, consisting of Chapter 9, provides examples of successful e-learning interfaces. The book also includes a series of challenge exercises and a reference guide of user interface design guidelines.

About the library series

After success with Authorware, Inc., and Macromedia, I felt that I had made a contribution to learning that would satisfy me through retirement. And retire Mary Ann and I did . . . for a few months.

But as my colleagues and I observed what happened with tools that made development of interactive learning systems so much easier to master, it was clear my job wasn't done. Instead of wondrously varied instructional paradigms burgeoning forth, offering more learning fun and effectiveness to the benefit of people and organizations everywhere, we found dry, boring, pedantic presentation of content followed by post-tests. The very model of instruction that was drudgery without technology was being replicated and inflicted on ever-greater numbers of captive audiences.

Making technology easier to use provided the means, but not the guidance, necessary to use it well. To atone for this gross oversight on my part, I formed Allen Interactions in 1993 with a few of my closest and most talented friends in e-learning. Our mission was and is to help everyone and anyone produce better technology-enhanced learning experiences. We established multiple studios within our company so that these teams of artisans could build long-term relationships with each other and their clients. Studios develop great internal efficiencies and, most importantly, get to understand their clients' organizations and performance needs intimately—sometimes better than clients understand them themselves.

Although our studios compete in the custom development arena, we also share our best practices openly and freely. We exhibit our applications as openly as clients allow, hoping they will stimulate critique and discussion so we can all do better and so that successful ideas can be broadly applied. We teach and mentor in-house organizations that aspire to create great learning applications. And, in close association with the American Society for Training and Development (ASTD), we offer certificate programs to help participants develop effective design and development skills.

This series of books is another way we are doing our best to help advance the field of technology-enhanced learning. I've not intentionally held back any secrets in putting forth the best practices our studios are continually enhancing.

This, the third book in the series, presents a lacking and needed synthesis of user interface (UI) design principles used generally in software applications and of specific interface needs required by learning events. Learner interface and UI conflict at times, and learner interface must take precedence over UI in these cases. We expose in this book a number of sources of design influence that authors must be particularly wary of, as they frequently nullify learning impact.

Six books are planned for this library, each to be focused on one major aspect of the process of designing and developing great e-learning applications. When the series is compiled, I hope it will be a useful tool for developing great and valuable learning experiences.

Michael Allen's e-Learning Library

ABOUT THE AUTHOR
MICHAEL W. ALLEN | CHAIRMAN & CEO

Michael Allen is a recognized leader in the architecture and design of interactive multimedia learning systems and strategies. He is the chairman and CEO of Allen Interactions, which builds custom interactive learning solutions and provides consulting and training for interactive multimedia professionals. Allen holds a PhD in educational psychology from The Ohio State University and is an adjunct associate professor at the University of Minnesota Medical School. He has written four books including the best-seller, *Michael Allen's Guide to e-Learning* and his *e-Learning Library Series* – the third volume of this series, *Learner Interface Design* releases July, 2011. Additionally, he is editor of *Michael Allen's e-Learning Annuals*. Michael received ASTD's Distinguished Contribution to Workplace Learning and Performance Award in May 2011.

MICHAEL ALLEN'S e-LEARNING LIBRARY
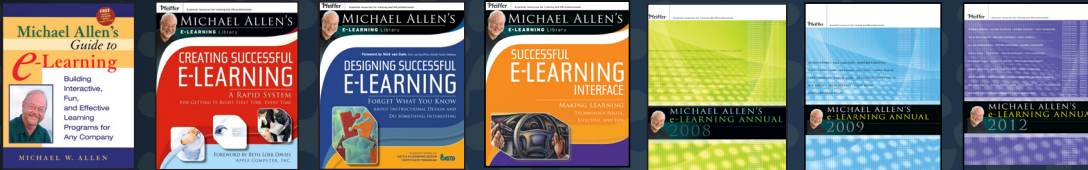
FREE CHAPTER DOWNLOADS AVAILABLE AT: alleninteractions.com/michael-allens-books

ABOUT ALLEN INTERACTIONS

Since 1993, Allen Interactions has delivered custom e-learning and blended solutions that serve employees, partners and customers of many of the world's leading companies including Apple, Essilor, HSBC, and Motorola. Through studios located in the Midwest and East and West Coasts, the Company provides high-level expertise in instructional design, technical, creative, process, project management, and writing integrated together for sustained learning and real business results.

Allen Interactions will launch a revolutionary authoring system, ZebraZapps, in 2011, allowing developers and non-programmers to create rich interactive media applications easily and quickly, as well as share, publish, and sell their inventions. Technology designed and built by Allen led to the formation of Macromedia and revolutionized multimedia software development. With ZebraZapps, Allen is set to disrupt the industry once again.

OUR SERVICES

- Custom e-Learning
- Blended Learning
- Strategic Consulting
- Authorware Conversion
- Tools & Models

TrainingIndustry.com
2011
Top Training Companies
Content Development

CONNECT WITH US:
FACEBOOK | @CUSTOMELEARNING | LINKEDIN
alleninteractions.com | 800.799.6280

allen interactions
LEARNING. FOR A CHANGE.