Learning by Doing: A Comprehensive Guide to Simulations, Computer Games and Pedagogy in e-Learning and Other Educational Experiences

Clark Aldrich
John Wiley and Sons, 2005
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Reviewed by Deborah Keyek-Franssen

Two recurring thoughts gave me pause as I read Clark Aldrich's *Learning by Doing: A Comprehensive Guide to Simulations, Computer Games and Pedagogy in e-Learning and Other Educational Experiences*. The first was along the lines of "Wow, I really need to play more computer games," and the second was "Why am I reading this book instead of experiencing it as a simulation?" Aldrich somewhat addresses the second question in his introduction with a clever if unsatisfying explanation (books are prerequisite background materials for simulations), but he leaves me to my own devices regarding the first. Thanks to him, I now permit myself to play computer games and muse about the learning implicit in even the simplest of them. Knowing that Minesweeper is honing my skills in logic relieves me of some of the guilt of playing it.

The motivation to think deeply, broadly, and freshly about games and simulations as learning tools is the greatest success of Aldrich's latest contribution to the field of e-learning. His lively and accessible writing, his comprehension of the breadth of the field, and his ability to perceive structure amid the complexity of the field inspire readers to engage in and even create their own simulations and games. The book challenges those of us in higher education to figure out how we as institutions and individual instructors can capitalize on the potential of games to revolutionize learning and even education as a whole.

While *Learning by Doing* is best suited for professional trainers and industry human resource consultants, it also has merits for a higher education audience. Aldrich provides conceptual frameworks for understanding technology adoption, e-learning genres and content, and simulation development that—separately or taken as a whole—would be helpful for IT professionals and faculty alike. Pragmatic guidelines for developing and implementing simulations ground these frameworks in the logistics of real-life deployments.

Aldrich's first section provides both the theoretical packaging for and opportunities to practice what he considers to be four "traditional" simulation genres, which include branching stories, interactive spreadsheets, game-based models, and virtual products and labs. The chapters in this section highlight basic examples of each genre and include both technological instantiations and their non-technology-based counterparts, such as branching stories made famous by children's books and games as simple as Hangman. The structure of these four chapters is particularly helpful: Aldrich augments examples of each genre with lists of vendors and industry sectors most likely to employ them, and he offers suggestions for experimenting with each using standard software; for learning more about them through selected readings; and for experiencing them firsthand online. Aldrich peppers these chapters with opportunities for reflection, asking readers to consider personal experiences with each genre and to review material, sometimes through short games.

The rest of the book delves into next-generation simulations, the richer, more complex, and more technologically sophisticated versions of the four genres of section one. The most useful elements of the latter sections of the book are lists of necessary components of simulations and mandatory steps in their implementation.

Disciplinary differences in uses of simulations finally make their appearance in earnest in the conclusion of the book and are food for thought, even though they still inhabit the realm of the (merely) possible. IT architects will appreciate the increasingly complex architectural figures that appear throughout the book, depicting the technical relationships among content, management, and experience.

Learning by Doing is not without its flaws. At times, Aldrich seems to have merely transcribed workshop presentations or conversations with colleagues. Though this technique gives his writing an appealing, conversational tone, many of his witticisms—without the benefit of an audience to laugh with—fall flat and tend to be distracting. And while the screen shots of simulations, games, and training Web sites provide a visual richness, many of the book's other tables and figures are either superfluous or confusing. Aldrich's most glaring omission is an overall strategy for implementing an "educational simulation strategy," promised as a goal of the book in the introduction. True, he covers strategy for implementing discrete simulations with his model of the "four slates" that compose any simulation: background, introduction, engagement, and practice. That model is a valuable contribution to the field, but there is no sense of why, when, and how to implement simulations and games company- or institution-wide as a broad educational or training strategy.

This book could work both as fodder for rigorous discussions about the role of simulations and games in higher education and as a tool for educational technologists to help faculty imagine the learning potential and plan for successful implementations of simulations and games within and among disciplines. Even though many of Aldrich's examples come from industry and the military, his frameworks allow those examples to be translated into higher education. Because the book works either "chunked" or "skimmed" or even read cover-to-cover, it's an accessible and inspiring way to consider the potential for simulations and games as potent learning tools. I'm also viewing it as background for the eventual simulation of *Learning by Doing*. e

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The New CIO Leader
Marianne Broadbent and Ellen Kitzis
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Reviewed by Wayne Brown

A number of major publications and presentations have recently predicted the impending extinction of the chief information officer (CIO) as a viable role in an organization. As a CIO, I was surprised and concerned by this assertion. In the book *The New CIO Leader*, authors Marianne Broadbent and Ellen Kitzis counter this dark forecast with the belief that the CIO has the potential to be a key part of the organizational leadership team. The authors make the point that a CIO with appropriate skills and knowledge is in a good position to move into the role of chief operating officer (COO) or chief executive officer (CEO). This assertion makes sense when you consider that no other institutional executive, besides the COO or CEO, has the same cross-functional view of the organization as the CIO. *The New CIO Leader* paints a scenario that, in my opinion, is closer to reality than the predicted demise of the CIO. Some CIOs may need to change their approach or learn new skills to avoid a one-way trip back to the server room, but extinction of the role is not a foregone conclusion.

Broadbent and Kitzis, who have decades of experience working with CIOs, assert that although the CIO role is not going away, individuals in this critical position must adjust, or they—the "old CIOs"—will find themselves in a maintenance role, one which will not do justice to the importance of the technology function. The book outlines, in an easy-to-read format, the tasks the CIO must accomplish to succeed and to avoid relegation to a maintenance role. The authors' assertions are backed by Gartner research and surveys, and the book brings together other research including CIO reporting, technology governance, and CIO surveys.

The foundation for the new CIO skills includes three basics: leading rather than managing, possessing an in-depth understanding of the organization, and recognizing what mode the organization is operating in. The authors point out that the organization may be operating in one of three different modes: fighting for survival, being successful, or leading. The CIO's approach may depend on the mode the organization is in. For instance, when the organization is fighting for survival, the CIO has to work on building a new technology group versus creating a governance structure or a compelling vision.

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Broadbent and Kitzis break up the new CIO attributes into two root components: demand side (outside the technology department) and supply side (inside the technology department). Under the demand-side category, the CIO should understand the business. This conclusion is echoed in CIO research, articles, and reports. In order to make a significant strategic contribution to the organization, the CIO has to understand how the various functional pieces fit together. The CIO also has to be able to integrate business and technology strategies. Furthermore, the new CIO should create an IT governance process that determines how technology decisions are made. Finally, a vision has to be created and the expectations for technology must be defined and publicized to the organization.

In the technology department, or the supply side of the equation, the CIO has to accomplish a number of objectives, including building a new technology organization. This goal is accomplished by working smarter, not harder. Making the right sourcing decisions for all of the different technology needs is another aspect of building the new group. In addition to building a new organization, the CIO has to develop a "high-performing" team, fluent in a number of technical, business, and behavioral activities, which the authors list. If you have seen Gartner presentations, or research on the changing roles of technology-department employees, some of these 25 activities may look familiar.

Continuing with the supply-side skills, the authors recommend that the new CIO leader work to ensure financial security for the technology department. The first step on the path to this security is to make certain that all of the technology costs are identified. The second step is to allocate costs effectively so they are visible to the organization, without creating a bureaucracy for technology customers to navigate.

Security and risk management are probably on every CIO's list of things to do, and the new CIO leader is no different. Broadbent and Kitzis recommend the CIO spend supply-side leadership time working on security and compliance requirements, which may come from a number of laws and regulations.

Lastly, the CIO operating in a supply-side mode should communicate the performance of the technology department to the organization's constituents. This communication should be approached on three fronts. The authors recommend that the CIO first ensure communication that makes sense to high-level constituents such as a board or, in the case of a public college, taxpayers. Second, a set of measures should be mapped to the items important to the organization's functional areas. Finally, the CIO should create an agreed-upon set of technology metrics, highlighting the contributions the technology department makes to the functional areas.

The New CIO Leader takes a great deal of useful information and boils it down to a straightforward review of attributes and skills technology executives will need to survive in the next few years. Broadbent and Kitzis give CIOs a good list of things to do, an assessment tool, and a reaffirmation of some of the basic things CIOs should be doing to prevent a return to the time when the CIO was kept locked away in the server room. e

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The Power of eLearning: The Essential Guide for Teaching In the Digital Age

Shirley Waterhouse
Allyn & Bacon, 2005
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Reviewed by Scott Macklin

Science and industry are exponentially improving the methods by which information can be collected, assembled, edited, updated, archived, displayed, distributed, and accessed. Now is the time to ask, In what ways can progressive innovations in information technology enhance the outcomes of educational efforts across the full spectrum of institutional missions? Educational technology has the potential to contribute enormously to meeting the challenges we face today, significantly enhancing both teaching and learning. Achieving this promise requires an intimate coupling between educational technology and educational practice and science: each must inform the other, in a continuous cycle.

Shirley Waterhouse's book *The Power of eLearning: The Essential Guide for Teaching In the Digital Age* gives educators an overview of and access to resources that, as she writes, "focus first on the fundamentals of teaching and learning—that is, on pedagogical principles—rather than on eLearning technology." Her point is that pedagogy must be the driver in implementing e-learning strategies, rather than implementing technology for its own sake. She defines e-learning pedagogy as the "pedagogical principles and the related instructional strategies applied to an eLearning environment…. eLearning involves the application of computer technology to enhance teaching and learning."

To play off the old phrase, "before you build IT right, you better build the right IT," the 11 chapters of this book provide a roadmap of sorts to understanding the needs of learners and thus to implementing the right set of e-learning strategies. To complement the book, Waterhouse created a set of interactive modules for each chapter that are available online.

Part one of the book lays the groundwork for pedagogy and planning in three chapters and outlines six steps for getting started: ask yourself why; make a commitment; develop a vision for your course and how you teach; determine the available resources; acquire new technology skills and develop new instructional methods; and plan. These steps help situate the tasks at hand when one begins to use e-learning.

In spelling out the assumptions of learning theory, Waterhouse lists the main components of Chickering and Gamson's *Seven Principles for Good Practice in Undergraduate Education*, Bloom's *Taxonomy of Intellectual Behavior*, and Gagne's *Nine Events of Instruction*. Although it is critical for Waterhouse to articulate the theoretical grounding of e-learning, this explication might lose some readers. An educational researcher might want to argue with one of the theorists; a faculty member might not have the time or focus to keep seven principles, nine events, and a taxonomy in play; and someone providing support for teachers to integrate technology into their teaching and learning might not have the agility to weave the theory and practice together into a digestible whole.

A list she provides of exemplary instances of e-learning is more helpful in terms providing starting points for teachers interested in taking up e-learning strategies. The list includes e-learning facilities; student-centered learning; anytime/anyplace learning; and student interaction with course content, communications, and collaboration. Waterhouse goes on to argue that e-learning makes course administration easier, helps track students' time on task, reduces the cost of delivering instruction, and adds a worldwide dimension to a course.

A key question to ask as one begins taking up e-learning strategies is, Is a lecture a choice? If lecturing is indeed a choice, then the next question would be, What are the alternatives? This second question opens the door to consult a chart Waterhouse provides called "Seven Principles for Good Practice in Undergraduate Education Applied to ELearning." In the chart, she takes one of the principles (for example, "Use Active Learning Techniques") and lists the application of the principle to e-learning—in this case, online research, online field trips, online simulations, online case studies, and online self-tests.

In chapter three, Waterhouse lays out the Vision, Profile, Objective, Design, Development, Delivery, and Assessment (VPODDDA) e-learning planning process. At first glance, the VPODDDA process might cause those new to e-learning to back off due to perceptions of time investment required to take up e-learning. The seven-step process is quite helpful, however, in that it emphasizes that refinement must take place throughout the instruction cycle and that this process is one of iteration.

The five chapters of part two deal with tools and resources by looking at learning management systems, one- and two-way communications tools, digital library resources, and course Web site design and maintenance. I would have liked to see more time spent on the types of technologies one might use in the classroom to enhance teaching and learning beyond presentation tools or Web-based resources—for instance, interactive multimedia whiteboards or "clicker" devices. Also, with the advent and proliferation of social software, Waterhouse could have spent more time on blogs, wikis, and shared interactive spaces like MySpace.

Part three of the book deals with course management and comprises the final three chapters. Information regarding course management includes intellectual property rights, course delivery, and e-learning assessment. In this section, Waterhouse provides a much needed, and often overlooked, overview of the e-learning implications of copyright law and an explanation of fair use. Also in this section are examples of course policies, including student code of conduct, discussion, assignment, and cheating and plagiarism.

In chapter 11, Waterhouse discusses e-learning assessment. She provides two categories of evaluation forms: one for post-course feedback from students, and

the other for peers to evaluate a course. She provides example forms both for a student survey of course effectiveness and for course site effectiveness. Waterhouse states, "…most students are good judges of how much they learned…. [C]orroborating information about the success of your course is desirable."

Missing from this section, however, is an adequate discussion of assessment—an empirical, evidence-based approach to identifying demonstrable units of merit regarding learning gains. A strong program of assessment is required if needed institutional commitments to e-learning are going to happen. Whether evaluating a research university, liberal arts college, community college, P–12 school, or other learning/training facility, one has only to look at the percentage of an institution's budget that specifically targets e-learning support—personnel resources and tools—to assess whether an institution is committed to e-learning. In most cases, the investment needed to adequately bring about a transformation of teaching and learning with technology is woefully lacking.

In summary, I found this book a good resource for someone making his or her way into and through the wide world of e-learning. The book lays out some of the major challenges to e-learning: namely, technology, instructor, and effectiveness issues. The Web-based interactive modules are helpful enhancements to the text. The book provides useful examples of how e-learning might enhance the teaching of technology. I would have liked to see more examples of where e-learning might assist in teaching and learning disciplinary knowledge. For instance, more examples of how a biology, history, or art course could use e-learning strategies would have been useful.

Waterhouse states that the book is intended for teachers in K–12, faculty in higher education, and students in either graduate or undergraduate programs. Although one might get lost in the three learning theories she posits as the grounding for e-learning, I find them to be good starting places if teachers have the time and necessary resources (personnel and tools) to situate their teaching goals and students' learning expectations. Although not stated as a goal of this book, developing criteria that judiciously show learning gains from e-learning practices is crucial to demonstrating the return on intellectual investment. Only when these criteria are established can e-learning practices be adequately resourced, and only then will we begin to see a coupling of educational technology and the practice of teaching and learning.

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