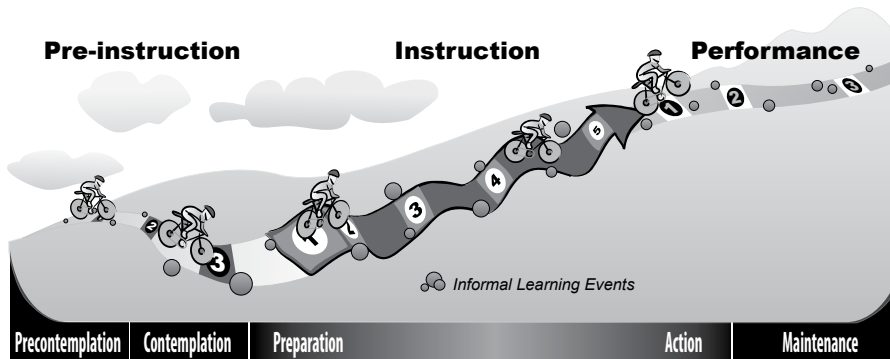


Michael Allen's e-Learning Library

Designing Successful e-Learning

Forget What You Know About Instructional Design and
Do Something Interesting



Michael W. Allen



John Wiley & Sons, Inc.

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 Inc., American Express, Bank of America, Boston Scientific, Delta Air Lines, Disney, Ecolab, IBM, Medtronic, Merck, Microsoft, Motorola, Nextel, UPS, 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. His pioneering work on visual authoring systems led to the ground-breaking introduction of Authorware, elevated the level of interactivity that educators could develop, and launched Macromedia, together with a new industry 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.

About the Author

Starting his work in technology-enhanced learning at Cornell College in the late 1960s, he has been developing instructional paradigms, systems, and innovative tools ever since. Michael W. Allen holds M.A. and Ph.D. degrees in educational psychology from The Ohio State University. He is an adjunct associate 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. Dr. Allen 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. Dr. Allen's advice is based on unrivaled experience and insights.

About this book

Why is this topic important?

In some ways, instructional design missed the boat. Powerful authoring tools coupled with the Internet and low-cost, media-capable computers expanded the sea of instructional possibilities dramatically and did so almost in an instant. Both synchronous and asynchronous communication capabilities exploded and also brought interactive, multimedia-capable mobile devices into the mix. Experienced instructional designers find guidance lacking in classical literature and design principles, while inexperienced designers are drowning in alluring capabilities.

What can you achieve with this book?

You are looking at a lifesaver. This book redirects and narrows the focus of instructional design to those things that matter most in creating successful e-learning applications. Interactive media possibilities easily swamp well-intentioned efforts and reinforce the tendency of organizations to focus on the presentation of information. But with this book, you'll find not only effective ways to design meaningful, memorable, and motivational experiences. You'll also find a blending of successful behavioral change principles. Based on dozens of research studies, these principles will help you design learning events that go far beyond the transmission of information to achieve behavioral change and targeted performance levels.

How is this book organized?

This book is divided into three parts.

Part I Scenarios

These short scenarios capture common situations in which instructional designers often find themselves. The decisions designers made are listed for you to judge before you read Parts II and III, so you can assess your approach and instincts against thoughts presented in this book.

Part II The Art and Science of Instructional Design— A Balanced View

Research, theories, and popular approaches are identified and discussed as a backdrop for presenting the Success-Based Design techniques discussed in the remainder of the book. The need to prepare learners for learning and to assist them in transferring new abilities to applied performance mandates a design perspective that's expands outside the box of simply preparing learning modules.

Part III Designing Successful e-Learning

The chapters of Part III step through each phase of learning and stage of behavioral change, presenting applicable instructional design concepts and techniques. A matrix of the components of interactivity (context, challenge, activity, and feedback) crossed over the critical characteristics of learning events (meaningful, memorable, and motivational) provides the structure.

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 the 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 posttests. 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 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 & 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 second book in the series, presents an expanded view of instruction, looking not only at the key factors of successful learning experiences, but also at what influences learners and performers before, during, and after instruction. 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. I plan to address learner interface design, project management, deployment, and more. 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

Volume 1	Creating Successful e-Learning— A Rapid System for Getting It Right First Time, Every Time
Volume 2	Designing Successful e-Learning— Forget What You Know About Instructional Design and Do Something Interesting
Volume 3	Successful e-Learning Interface— Making Learning Technology Polite, Effective, and Fun
Volume 4	Managing e-Learning Development— Creating Dramatic Successes Even With Outrageous Timelines, Budgets, and Expectations
Volume 5	Deploying e-Learning Successfully— Improving Performance Takes More Than Good Instruction
Volume 6	Evaluating e-Learning Success— Making Evaluation Inexpensive and e-Learning Priceless

Contents

About the library series	iii
Acknowledgments	ix
Foreword	xi
Preface	xv
Part One: Real-World Contexts	1
Scenario 1 Hoboken Automotive Devices	3
Scenario 2 Water Mountain Beverage Company	7
Scenario 3 Top Tech Temps	13
Scenario 4 Bellmore University	17
Part Two: The Art & Science of Instructional Design	21
Chapter 5 What Is Instructional Design?	25
Chapter 6 Success-Based Design	45
Chapter 7 Designing Outside the Box	59
Part Three: Designing Successful e-Learning	81
Chapter 8 Designing Pre-Instructional Events	85
Chapter 9 Designing Instruction: Foundations	109
Chapter 10 Designing Instruction: Meaningful Events	137
Chapter 11 Designing Instruction: Memorable Events	157
Chapter 12 Designing Instruction: Motivational Events	179
Chapter 13 Designing Performance Aids	197
Self-Assessment	209
Success Assessment	219
A Final word	233
Index	234
About Allen Interactions Inc.	239
About the Author	240

Acknowledgments

Successful instructional design is a challenging and complex undertaking. Making headway toward a clear understanding of the process and successful principles requires the collaboration of many experienced and insightful minds. To all those people who have schooled me and shared their wisdom, I give my thanks. To the many organizations that have given my colleagues and me the opportunity to work on their behalf toward improved learning and performance, I also give my thanks.

We are all indebted to James Prochaska, John Norcross, and Carlo DiClemente for their work on behavioral change, which provides helpful explanations for and insights into the disappointing results of many learning interventions.

In the preparation of this work, I am particularly indebted to Richard Sites, Carla Torgerson, and Julie Dirksen for their help and insights. Ethan Edwards, Edmond Manning, Doug Bratland, Len Eichten, Chad Worcester, Stephen Rekstad, Jason Zeaman, Will Thalheimer, and Susan Taylor all made invaluable contributions. Michael Gause coordinated schedules, tasks, documents, updates, and communications. Christopher Allen designed and laid out the book. Corey Stern provided illustrations. Marty Lipshutz and John Welsh provided excellent counsel while taking on extra responsibilities so I could focus on the project.

Special thanks to Nancy Olson at ASTD for her unfailing enthusiasm for developing this material and coordinating the certificate programs based on it.

As always, there is no way to thank my family enough for their patience and support during the extended periods of time during which I was either physically or just mentally off working on the manuscript. Preparation of these books is always a more demanding undertaking than I anticipate. Mary Ann's encouragement and confidence in me joins an unwavering patience that few spouses are privileged to have. We both hope sincerely that this publication shares meaningful, memorable, and motivational thoughts.

Foreword

I was very pleased when Michael Allen asked me to write a foreword for his new book, *Designing Successful e-Learning*. Michael Allen is an e-learning pioneer who has a deep knowledge and tremendous experience in designing world-class e-learning solutions. Because of his passion to move the advancement of e-learning to the next level, he shares with the reader his unique expertise, specific insights, and concrete examples for designing effective online learning.

In this foreword, first we'll discuss a conceptual framework that provides a continuum of online learning capabilities, then preview the contribution Michael Allen's new book offers to our collective abilities to produce learning that is *meaningful, memorable, and motivational*, and finally explore a snapshot of the future of learning in a virtual world.

When I published the English edition of *The e-Learning Fieldbook* in 2004 (www.elearningfieldbook.com), e-learning was in the initial developmental stages. I gathered case examples of leading practices in major Fortune companies and organizations worldwide and found that one of the most critical success factors for the adoption of e-learning

is **the capability to design high quality and effective e-learning**. In reviewing a large number of e-learning programs launched over the years, I am still convinced that this is one of the key and most interesting challenges for all e-learning professionals.

Four years ago, there were many projections that the e-learning field would experience exponential growth. These forecasts have actually been surpassed due to a great extent by the seminal work of pioneers like Michael Allen in maximizing the quality and effectiveness of e-learning design.

Online Learning Continuum

It is a real page-turner... usually describes an exciting, dynamic *who-done-it* novel that keeps you engaged from the first moment right up to the last page. However, the early world of e-learning produced exactly the opposite, e-learning courses with limited instructional design—*e-reading page-turners* or PowerPoint® slides that were read online, with limited interaction and no dynamic exchanges. Learners engaged in this type of e-learning were disillusioned and initially turned off about learning online.

This experience supported my firm belief that e-learning excellence requires the right investment in instructional design, founded on proven didactical/learning theories and principles. The Online Learning Continuum figure below depicts applications of e-learning methods that support effective learning and the design requirements at each stage.

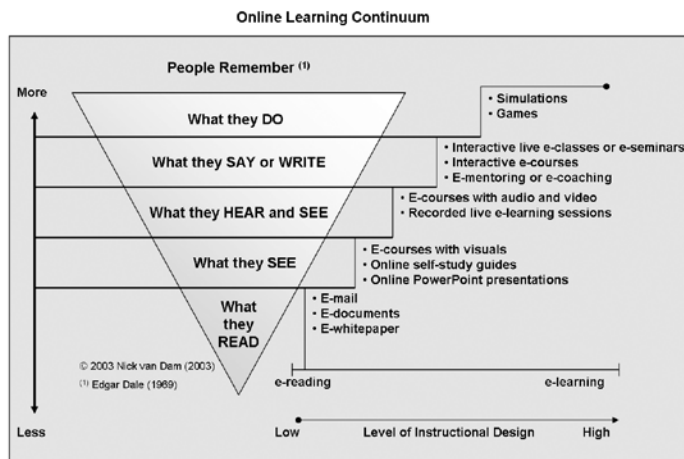
As you move along the continuum from e-reading to e-learning, it is important to note that the degree of investment in instructional design increases the further out you move. Simulations, gaming, and scenario-based e-learning courses are the most powerful learning experiences, because they provide people with opportunities to do the

job in a simulated environment. Designing this level of e-learning solutions requires a combination of well-educated and experienced e-learning designers who have a drive to enhance the e-learning experience, the right design and development methods and tools, and last but not least, sufficient design and development time. This can result in high-impact e-learning solutions that are dynamic, engaging, fun, and effective.

Why is the book important?

As a leader in applying the theories of behavioural, cognitive, humanistic, and social theory to the development and design of e-learning programs, Michael believes that online learning must surpass a course focus to include all of the stages of growth and development required to generate behavioral change—the ultimate outcome of learning. His focus embraces the complete online learning process from pre-program online learning investments, through excellent e-learning course design, to post-program actions that embed the learning in new behaviors.

The theoretical literature on learning and growth can be difficult to master and even more challeng-



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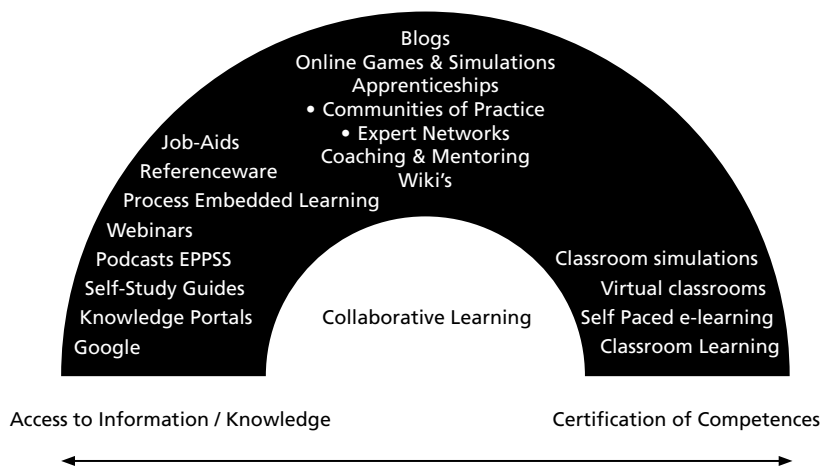
ing to integrate into e-learning, but Michael has made this easy for all of us. He explains this thinking in clear and accessible language, amplifies the theories with research results, and describes popular approaches by applying these theories to learning and growth. Taking the illustrations even further into the field of e-learning design, he offers useful scenarios and practical examples of how these theories can be employed in online learning programs, providing readers with concrete ideas to leverage them in their own work.

Where does e-learning go from here?

A myriad of online learning solutions have emerged over recent years, including self-paced e-learning, virtual classrooms, simulations, games, and communities of practices,

A number of integrated learning solutions provide people with access to information/knowledge over time and support the e-learning design advocated by Michael Allen. Whereas people in the past searched in books and with colleagues and friends for knowledge, today Google has become the *killer application* for learning. Podcasting, both for sound and video, has been launched

Spectrum of Formal and Workplace Learning



by many enterprises and proven to be a very effective medium too for sharing knowledge with a younger generation, as universities are leveraging the ubiquitous iPod® and its competitors to provide students with access to curricula and online lectures.

Collaborative learning applications, including communities of practice, expert networks, and online simulations, are experiencing rapid growth and will have a strong future as they support the team-based learning style of Generation Internet. The classroom has been transformed in many organizations from lecture-based and PowerPoint-driven events toward a facilitated learning continuum. Classroom

simulations and expert performance coaching provide people with a real work experience in a safe environment and support the integration of new behaviors into the workplace.

Most enterprises are in the process of defining a new learning strategy that will provide knowledge and skills to their people when they need it. All learning solutions shown in the visual above will be part of this extended blend of learning.

Personally, I am convinced that the next generation of e-learning solutions will be 3-D virtual learning environments comparable to Second Life (www.secondlife.com). Second Life is a 3-D global virtual world built and owned entirely by its residents. Since opening to the public in 2003, it has grown explosively and is inhabited by millions of people from around the globe. Even the U.S. presidential race has town meetings inhabited by avatars of the candidates and joined-in by residents of the virtual world. In the

business world, these 3-D learning environments will include employee avatars and will provide the learner with a complete, real, interactive, and collaborative learning experience that is completely learner-centric.

Very interesting times ahead of us all—but it's clear to me that emerging technologies will provide new opportunities for developing e-learning solutions. However, they will only be adopted and successfully implemented if solid instructional design methods and human cognitive and behavioral learning practices have been applied.

I hope that you will enjoy this book and will apply the knowledge in your daily work, taking e-learning to the next level.

Nick van Dam, Ph.D.
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Preface

Writing a short book on instructional design is difficult. Just as Mark Twain mused that he didn't have time to write a short letter and so wrote a long one, this short book took me far longer to write than I anticipated. But it also took me to points of interest I didn't anticipate with results I find exciting.

I didn't want to simply restate points I've made in previous books, no matter how important and valid I think they are and no matter how often people ignore them, gleefully creating boring and dreadful learning experiences aplenty. Those points are made as well as I know how, and while I do revisit some of them in this book, I wanted this series to move forward, as I hope my own thinking about e-learning and instructional design is.

The perspective of forgetting what you "know" about instructional design is helpful because in creating e-learning that doesn't work and is, indeed, so often boring, designers frequently defend their decisions based on what they feel is solid knowledge about how design should be done or about how humans learn. I don't often find myself disagreeing about the referenced research, but if the science is true and the e-learning

are poor, there's a problem in translating principles to application.

Problems often occur in generalization. *A study reports that learners preferred narration of on-screen text; therefore, narration should always accompany on-screen text.* Of course, that's not always true or a good design decision. One has to be extremely careful and thoughtful in translating research findings to practice. The proof is, of course, "in the pudding." If the e-learning is ineffective, the design wasn't good, no matter how defensible referenced research may be.

In this book, I've tried to combine the two poles of wisdom—what we know from research and what we know from experience—to create a core set of recommendations and guidelines. In developing this approach, I discovered something I think is truly profound, exciting, and practical. It's the Stages of Change model by James Prochaska, John Norcross, and Carlo DiClemente developed from a meta study of research done on how humans change their behavior patterns. This research strongly suggests that for people to change their behavior they must traverse well-defined stages in a specific sequence.

If they do not satisfy the requirements of each stage, any observable changes will be short-lived. The model lists techniques that have proven successful in helping people work through the stages and achieve behavioral change.

As we look at this model from the instructional point of view, it points out the need to prepare learners for change before we begin teaching them how to change. And it points out how we must assist learners after they have begun to apply new skills so that they won't fall back into less desirable behavior patterns. This perspective demands that we design outside the box of instructional modules and think more broadly about the things influencing learners before (Pre-instruction phase), during (Instruction phase), and after instruction (Performance phase). By taking a broader perspective, we can see how blending e-learning technologies with informal learning, learning support, and performance support can strongly increase the prospects of achieving performance success.

Finally, I took another look at two powerful concepts I've introduced in previous books and presentations:

1) interactive events are constructed of four components—context, challenge, activity, and feedback, and 2) instructional events must be meaningful, memorable, and motivational to achieve desired results. In this book, I've combined these concepts into a 4 x 3 matrix to provide a structure for discussing specific design guidelines that seem, in my practice, to be successful time and time again.

There has long been a problem of how to discuss instructional design. We are crippled by the lack of a generally understood vocabulary about instructional design, and therefore, when people discuss designs, they often feel they're in agreement when it later turns out they were far from it. I think the matrix helps by providing a conceptual language designers can use to talk both among themselves and with other stakeholders about design decisions.

I hope you'll find the perspectives and tools introduced in this book helpful as you move your own thinking about instructional design forward.

February 6, 2007
MWA

7 Designing Outside the Box

Remember Bill Hamm (from scenario 1)? Bill brought successes to Hoboken Automotive Devices not because he held with tradition but because he focused on needed outcomes—intensely focused on needed outcomes. Every decision he made and direction he gave was based on its value for achieving the targeted performance.

He was more concerned, for example, with recognizing learners as people than with the “proper” sequencing of content. Even if content were perfectly sequenced (whatever that is), even sequenced perfectly and specifically for a specific learner, that learner might still opt to browse about—picking things up in something of a haphazard sequence or purposely creating puzzles to solve and getting involved. (Remember, we don’t always want things to be as easy as possible.)

Bill was also more concerned with making sure learners would be prepared to learn, focused on the outcomes,

and committed to improvement before they began learning how to improve. And he took proactive steps to provide a supportive environment among coworkers, supervisors, and management, even in different divisions of the company.

Buried in a box

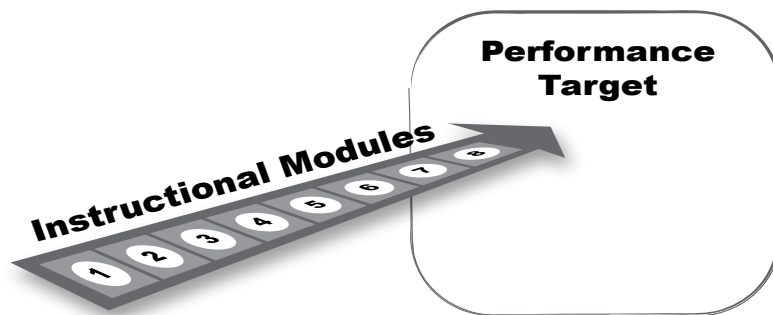
We often think too narrowly of our role as instructional designers, confining our work to the definition of objectives, organizing content, selecting media, defining learning events, and developing performance measures (tests). Not that this isn’t more than enough to do, but our role as instructional designers isn’t

simply to apply design principles and hope for the best; it’s to enable people to perform at higher levels of competency. And that takes what it takes.

If our learners fail in performance, we have failed them, even if they scored flawlessly on our posttest. Excuses that learners would do fine if only they completed all of our e-learning modules, if only they did their homework, if only they’d practice more, if only they’d take a chance and apply the new things we’ve taught

Rapid reader

- External factors preceding, concurrent with, and following instruction affect learning and subsequent performance.
- Instructional design needs to address factors outside “the box” of instructional events.
- The psychology of behavioral change suggests ways to improve the impact of instructional interventions.



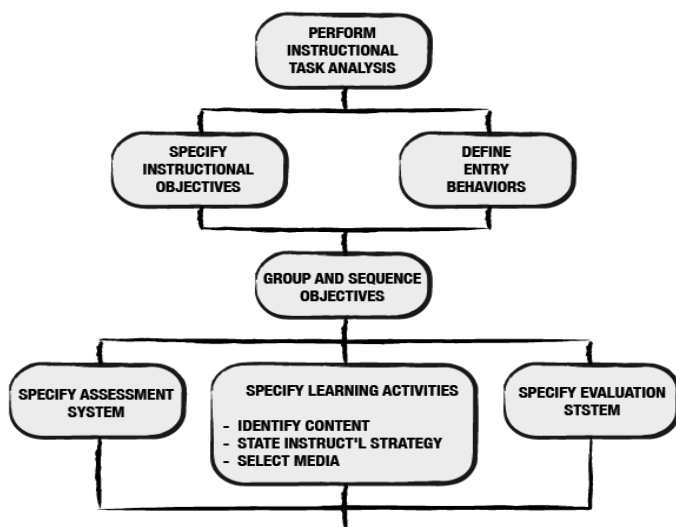
Boxed View of the Instructional Design Task

them, are just that: excuses. We’ve failed to reach the goal even if any of these things “explain” the failure. Designing inside the “boxes” of an e-learning application, an instructor-led course, or even a blended learning solution, is a traditional but narrow view of the design responsibility. Inside these boxes, designers often give little attention

to the practicality of learners actually performing on the job what they are teaching, the level of practice that is necessary to sustain proficiency when performance opportunities might not occur for some time, and the fact that coworkers might misunderstand or even disapprove of the new practices being taught.

No, they create a string of learning modules, each dependent on the preceding one, each presenting more difficult concepts and tasks to perform, each designed to raise performance to a higher level. There’s an assumption that the learner is totally inside each box with the designer—committed to and focused on each module, approaching it with energy and enthusiasm.

We designers need to get out more—out of our boxes, that is. There are many variables not typically seen as within the purview of instructional design that can sabotage instructional efforts or enrich them. Success requires designers to think expansively about the real lives and influences on learners—what they care about, what they are trying to do, how they might perceive the learning intervention—and design both inside and outside the confines of the typical learning product.



Some of the Traditional Design Boxes

Failure to do so may result in great ideas being buried quite prematurely in the very large box of quickly retired learning programs.

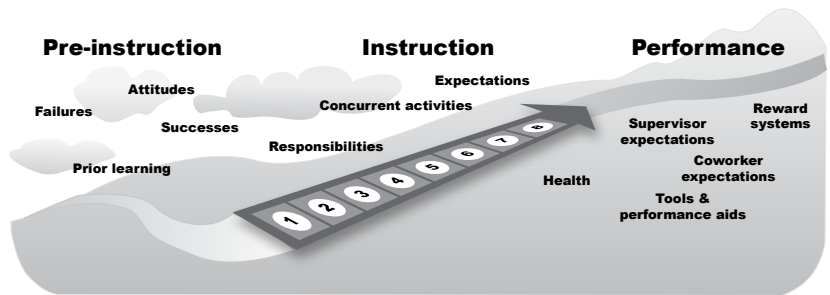
Broader perspectives

Learning and performance occur inside a large and complex landscape of overlapping contexts.

Organizational, family, and personal contexts are a few of the obvious larger contexts, and these are themselves comprised of many subcontexts, ultimately bombarding people with a cacophony of directives.

For example, while we might like to think our travel agent trainee has little excuse not to learn and apply best practices, life is rarely that simple. *I really should get back to my client with available flight information before the end of the lunch hour, but I have such a headache. If I don't take a break and eat now, I won't be back at my desk when my boss returns from her lunch. My client might be unhappy, but I'd rather have that than an unhappy boss. Of course, if my boss finds out my client is unhappy, I'll have both. OK, I'm going for a walk.*

Each context has numerous operational elements that strongly affect what people do, what they perceive, and what happens in their

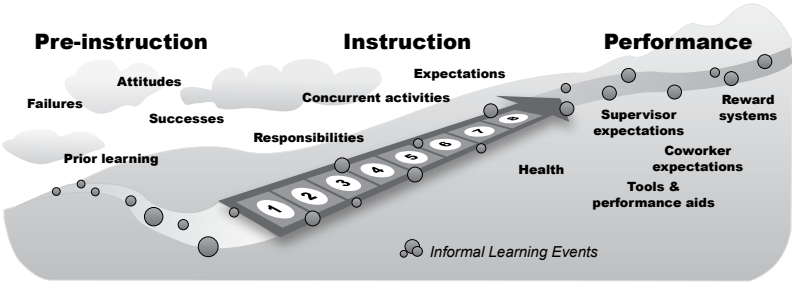


Putting the Design Challenge in Context

minds as they work through a learning program. As a learning program begins, learners set out with their preconceptions of what they think they're going to learn, what they're supposed to learn, why someone else thinks they should learn it, how easy or difficult it will be, and so on. They recall previous successes and failures in learning related content, *I'm just not good at anything to do with math*, in attempts to perform similar tasks, *I get so nervous whenever I work with financials*, and in learning other subjects through similar methods, *Remember that "really complicated" e-learning we had to take on expense reports?* Eagerness to use e-learning and expectations about using it are influenced by prior experiences with it and what one has heard about it.

As learners use e-learning, they are also influenced by other things going on in their lives. If learning

is occurring in a work or school environment, for example, learners will be influenced by assignments they may have, responsibilities they must attend to, and expectations others have of them, *Did you get the munchies for the party tonight?* If you're a learner and others perceive you to be strong in the content area, you may be afraid of exposing any weaknesses through errors or poor scores. If others expect you to do poorly, you may struggle fretfully to gather confidence.



Informal Learning

A very large contextual influence often comes from informal learning events. Informal learning is learning that occurs by casual observation, discussion around the water cooler, reading a pamphlet in the waiting room, e-mailing a friend, or reading a blog.

While formal learning is comprised of prestructured events,

thoughtfully constructed for accuracy and completeness and often imposed on learners, ready or not, informal learning is more serendipitous. Learners approach, select, and personalize the experiences they have, sometimes initiated quite intentionally, but often occurring in an *ad hoc* manner. “It’s all a matter of learning, but it’s not the sort of learning that is the province of training departments, workshops, and classrooms” (Cross, 2003).

Indeed, researchers suggest that 75-90 percent of learning comes not from formally structured learning events, but from informal learning experiences (Cross, 2007). Informal can be sufficient on its own or assist more formal efforts, but just as it can be a boon, it can also confuse learn-

Resources

🖥 Cross, J. (2003). Informal learning – the other 80%. Internet Time Group. Retrieved on Oct. 20, 2006 from <http://www.internettime.com/Learning/The%20other%2080%25.htm>.
📖 Cross, J. (2007). *Informal Learning: Rediscovering the Natural Pathways that Inspire Innovation and Performance*. San Francisco: Pfeiffer.

ers, promulgate misinformation, and decrease the efficiency of an organization. As such a major contextual factor, despite how often it's ignored in the creation of instructional programs, we add informal learning to our visualization of the learning landscape and later address ways designers can work with informal learning as a tool to achieve desired behavioral outcomes.

Working the larger contexts

I've written and spoken extensively about the necessity of learner motivation and ways to motivate learners through e-learning design. In *Michael Allen's Guide to e-Learning* (Allen, 2003), I identified seven particularly powerful ways to make learning experiences engaging and motivational. We'll review the Seven Magic Keys to motivating e-learners later when we address designing interactivity, because these techniques are both amazingly effective and yet frequently omitted. But as frequently as learner motivation is left unaddressed by designers, other contextual issues that have a profound impact on learning and behavior are even more commonly overlooked.

As the figure on the previous page conveys, the three sequential and overlapping contexts surround the path to desired performance, influencing learning and resultant behavioral change along the way. These contextual phases are: *Pre-instruction*, which include attitudes, motivations, and skills developed before formalized training begins on the current topic; *Instruction*, which includes all the behavior and attention-influencing factors concurrent with training; and *Performance*, which includes all behavioral influences extant after training has concluded and new ones emanating when improved performance is expected.

Pre-instruction phase

Learners are anything but a blank slate. They may not know much about the content and skills to be learned, but learners approach learning with various levels of confidence, expectations, readiness, habits, and preferences. They have both a general disposition in each of these factors as well as more specific dispositions with respect to the content or (whatever they know of it) and what they may know of e-learning and other instructional

techniques involved (or expected to be involved).

The period preceding instruction is an important time for (re)setting expectations, energizing learners, and preparing them to learn. Some relevant learning may be happening through informal means, such as peer mentoring or self-improvement efforts, as learners prepare for scheduled learning events. While some of this learning can be helpful, with no support or organization, it will be serendipitous, incomplete, and possibly misguided.

Instruction phase

The Instruction phase is where the organized intervention of teaching takes place with the intent of moving the learner from current levels of capability and performance to more effective and valuable levels.

Although Instruction is the phase in the formalized learning process on which designers traditionally

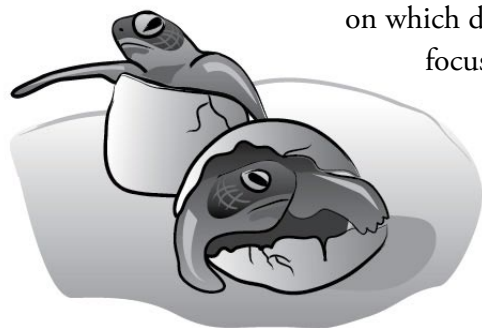
focus their efforts—all of their efforts—here too, there is a larger domain of learning opportunities. Properly harnessed, some contextual influences can become effective learning

aids and some impeding influences can be mitigated. It's important for designers to recognize and give attention to the surrounding environment, taking advantage, for example, of the support and energy concurrent learners can provide to each other.

Performance phase

Designers often act like parental turtles, walking off the job when their eggs hatch and leaving their young to fend for themselves. But embryonic skills face a high fatality rate when support terminates at the end of formalized instruction.

Just as only one in one hundred hatchling turtles survive to juvenility, designers leave much to chance if they view what happens to learners after instruction as something that is completely outside their realm of influence. Throughout all three phases, which repeat over and over in our lives, many surrounding factors work against change, even beneficial changes. Designers need to recognize and mitigate adverse factors where possible and devise safeguards and support mechanisms so that nascent abilities can be fully developed along with performance confidence.



Accumulating influences

Shaping and reinforcing behavior patterns, sometimes over the course of many years, the collection of memories and emotions that influence us presents real obstacles to behavioral change. We work hard to achieve comfort and find ways to assimilate new experiences and values with minimal upheaval. Rather than replacing them with memories of new occurrences in subsequent contexts, experiences and their effects accumulate and intermix with those of newer contexts. And because of the cumulative, interactive, complex, and persistent nature of all these experiences, perceptions, and values, they are formidable determinants of behavior, indeed. We shouldn't expect change to be easy.

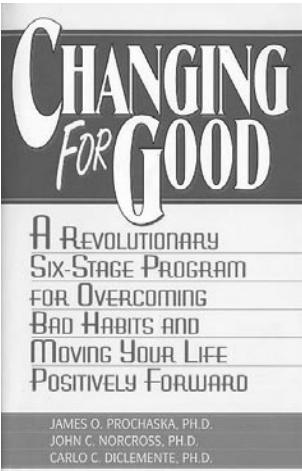
And yet, it's not always a tough situation. Learners are sometimes positively poised for change. Their prior experiences are positively aligned and nourish both the learning and behavioral changes we are trying to achieve. Other times there are few active influences; they neither support undesired behaviors nor inhibit desired ones. Here too, it's important for designers not to overlook the positive influences that can be commandeered.

Learning and contextual factors are important. Working with contextual factors may achieve a major portion, if not all, of the desired outcomes an instructional program is being created to achieve. For example, helping capable learners set appropriate goals, commit to a program of change, and make contact with other learners targeting the same goals may be enough. Arranging this can require some actions that are very much outside the normal duties of instructional designers, but are nevertheless necessary if any performance intervention can have hope of success.

The design challenge

Behavioral patterns are difficult to change. They tend to persist even when a simple variation might be both pleasant and beneficial to the performer and everyone surrounding him or her. There are many reasons we form consistent behavioral patterns, even when there may be better options. A few are:

- Familiar responses take less energy than crafting and executing new ones. Our brains are wired to conserve energy.
- We can perform practiced behaviors faster than new ones.



Sticking with old behaviors saves time.

➤ Behaviors that were successful in the past are likely to be successful again. Repeating them incurs less risk of failure than trying something else.

➤ Our behaviors reconfirm who we are, both for ourselves and for others. This consistency is comforting and continually reinforced if even by just the slightest non-verbal recognition by others.

Many, many factors inhibit change, and instructional efforts can directly address very few of them, indeed. When we evaluate instruction based on the extent to which it leads to improved behavior, we realize we're asking it to do something that's often tremendously difficult, especially when that improvement is in real-world performance, as opposed to just correct answers—on a test.

The psychology of behavioral change

In broadening the scope of instructional design, beyond the confines of “simply” designing learning activities, and to engage the full challenge of enabling superior performance, it's prudent to ask what other efforts

to modify human behavior yield guidance. Are there techniques employed by psychologists, for example, which are effective in helping people change their behaviors? If so, do these techniques identify possible ways to increase the effectiveness of instructional programs?

James Prochaska and colleagues, John Norcross and Carlo DiClemente (1994), have identified stages of behavioral change in a model that deserves consideration by instructional designers. Although this work has focused primarily on weight reduction, drug addiction, anger management, smoking cessation, and lifestyle behaviors, its effectiveness for behavioral change has been verified by considerable research. The clarity of its structure yields relatively clear implications for instructional design, especially when taking the broader view of instructional design, which expands to pre-instruction, concurrent instructional

Resource

 Prochaska, J.O., Norcross, J.C. and DiClemente, C. C. (1994). *Changing for Good: A Revolutionary Six-Stage Program for Overcoming Bad Habits and Moving Your Life Positively Forward*. NY: Quill.

contexts, and transfer of training to performance. If this model can be effective for combating entrenched, even physically addictive behaviors, it would seem that it might be even more effective when the change-opposing forces were milder.

Stages of Change model

The *Stages of Change* model postulates that there is a course of successful change comprised of six well-defined stages (p. 39):

1. Precontemplation
2. Contemplation
3. Preparation
4. Action
5. Maintenance
6. Termination

Each stage serves as a prerequisite to the following stage, with almost all changes beginning in the Precontemplation stage. Most interestingly, the model claims that stages cannot be skipped for successful, sustained change. Each stage requires different activities and achievements before one can successfully engage the next stage.

Precontemplation stage

In the *Precontemplation stage*, people don't see problems arising from their own behavior. They don't want to

change and don't see the need to. If they recognize a problem, they see it as caused by others or by external factors outside their control. People in this stage can be pressured into changing exhibited behaviors, but will quickly revert to previous patterns as soon as the pressure abates. As changers progress through this stage, they begin to focus more on the reasons to change and less on the sacrifices change would require.

Contemplation stage

At the start of the *Contemplation stage*, people focus on their problems, dwell in its causes, but also ponder solutions. These ruminations don't necessarily indicate readiness to commit to a solution or, in fact, any action at all, just the consideration. Contemplation is as far as many people get for weight loss, fitness, or smoking cessation.

Contemplators transition through this stage by focusing more on the solution than the problem and to imagining how much better things will be when their problem is solved. Although anxious, they become excited and hopeful about making a change.

Preparation stage

In the *Preparation stage*, people begin making concrete plans for change. This is a point where a realistic appraisal leads to identifying strategies not only for moving forward, but also for handling setbacks when they occur. This is also a point of making a commitment. It helps to make that commitment not only to yourself but also more publicly to others.

Cutting preparation too short often results in setbacks, but taking too long risks regressing back to contemplation.

Action stage

In the *Action stage*, people make changes to their behavior. Although it would seem that the purpose of the entire change process is to achieve appropriate actions, the Prochaska team warns that a few appropriate actions don't equate to change. Aligning emotions and self-image with successful performance is just as critical as sharpening skills to detect situations in which different behaviors are effective. This stage begins the practice that is critical to substituting good habits for bad.

Maintenance Stage

In the *Maintenance stage*, one has to maintain vigilance to keep from slipping back into poor habits. If reinforcements for poor behaviors have not been removed from the environment, this vigilance requires constant energy and may need to persist for a long time. One slip can begin a pattern of a few slips here and there. A complete relapse is then imminent.

Termination stage

Termination of undesired behavior and substitution of desirable behaviors is the ultimate goal of change. In the Termination stage, the temptation to revert to previous behaviors no longer represents any threat. Even without exerting the effort required for vigilance in the Maintenance stage, those who have terminated undesirable habits have no likelihood of falling back to undesirable behavioral patterns.

A key to successful change is in knowing what stage you are in for the problem at hand. Our research has consistently shown that people who try to accomplish changes they are not ready for set themselves up for failure. Similarly, if you spend too much time working on tasks you have already mastered—such as

understanding your problem—you may delay acting upon it indefinitely. Matching your challenges to your stage of change will help maximize your problem-solving efforts (p. 39).

Parallels to learning for performance improvement

The work of Prochaska, Norcross, and DiClemente has focused on overcoming bad habits, even addictions, and replacing them with more desirable behaviors. Changing these problematic behaviors is difficult, whether people undertake efforts to change on their own or with professional help. Such changes could be considered to fall at the extreme end of a continuum of difficulty, whereas the typical changes sought from learning and training programs might cover the area from easy to moderately difficult. In addition, some behavioral change objectives might not involve supplanting conflicting behaviors but simply developing new skills, such as learning to count or how to shut down a computer.

The process of teaching new behaviors for performance at work or in one's intellectual life is arguably quite different from the process

of eliminating personally destructive habits or replacing bad habits with good ones, but the parallels between the processes are striking nevertheless.

First, just as we cannot change the voluntary behavior of others, neither can we learn for people. Setting traumatic events aside, to change their habits, people must come to want change, commit to change, and work to make it happen. To learn, people must want to learn, commit to learning, and work to make it happen. Very similar.

Second, new behaviors are often difficult to instill. The failure of many instructional programs to generate measurably improved performance, despite earnest efforts by organizations, attests to the fact that there are powerful forces resisting change, whether lifestyle or performance related. While some behaviors can be changed as simply as issuing a directive or erecting a barrier—*The rear door is no longer to be used except in an emergency. It now sounds an alarm when opened.*—many behaviors are much more complex and extremely resistant to change.

Think

How is the process of changing lifestyle behaviors different from changing other behaviors?

Third, it's easy to blame poor performance on external factors, just as it's easy to abrogate responsibility for bad habits and project blame on others or uncontrollable situations. *I know I should develop a sales strategy for each account, but it takes so long to enter the data in our system.* This doesn't sound much different from: *I don't have much time to eat lunch, and the fast foods they serve are unavoidably high in fats and calories.* Taking responsibility for your behavior is critical to changing it in both cases.



Fourth, lacking confidence in themselves, many people don't take the risk of applying newly learned skills. If they aren't applied reasonably soon after acquisition, of course, new skills fade rapidly.

This failure to achieve behavioral improvement correlates with the pattern of those having poor self-esteem, who blame themselves for characteristic weaknesses and make only half-hearted attempts to terminate bad habits. When they fail once or twice, they quickly give up, sometimes even taking comfort from accurately predict-

ing that they wouldn't be able to do it. *See, I knew I couldn't do it.*

Fifth, denying or minimizing the effects of one's flawed behavior provides an excuse for not acquiring new skills and changing behavior. *I might not be the most knowledgeable or meticulous painter on our team, but if people didn't complain about my goofs, they'd complain about the quality of the paint, the color, the cost of the job, or something else.* Not much different from: *Sure, I smoke a little. But one day, fat is bad for you; the next day, high fat diets are all the rage. Soon, they'll find smoking has benefits. Besides, George Burns smoked as many as 10 cigars a day until his death, and he lived 100 years!*

If the case weren't strong enough already, two additional parallels are very interesting:

1. Much contemporary instructional design is based on behaviorism or retains at least a strong flavor of it. *Simply get people to respond as we wish, provide knowledge of results as a reward, and practice until correct responses meet criteria.* Unfortunately, this approach, while quite effective with mice and pigeons to "teach" them relatively simple behaviors, has not worked as well with humans. It does not embrace the complex-

ity of human thinking, emotions, motivation, and the powerful effects of the environment in which people behave.

Similarly, in psychotherapy for behavioral problems, ...

The action paradigm has dominated behavioral change programs for the past three or four decades. Following this model, clients are enrolled in relatively brief programs designed to conquer smoking, weight, alcohol, or other problems; within weeks they are expected to take action and adopt healthier lifestyles. If they fail to take or maintain action, the clients themselves are blamed for a lack of willpower or motivation (Prochaska, et al., p. 15).

2. Instructional designers have long been looking for more effective design models that, because they are based on a robust mapping of human behavior, are reliable and well structured. Similarly, Prochaska, et al. wanted to know if there were basic principles that reveal the structure of change.

In more than fifty studies of thousands of individuals attempting to overcome behavioral problems, Prochaska, et al. discovered that the sequence of successful change required preparation in advance of simple action. Mental and emo-

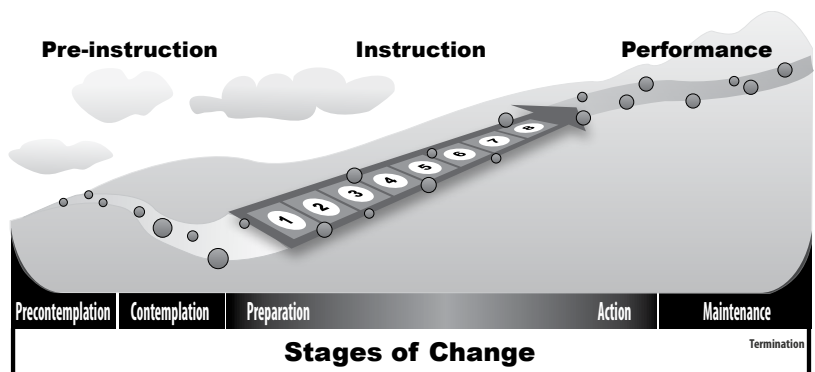
tional preparation, for example, is critical for modified actions to take root and last (p. 14).

This observation couldn't be more similar to the instructional design advice given to us by many researchers and instructional design experts. Learners need to be ready, motivated, and focused.

There may be additional parallels between the processes of changing personal habits and learning for performance change, but we have enough impressive similarities identified to explore how the understanding of behavioral change revealed by the Prochaska Stages of Change model can lead to more effective e-learning design.

Aligning stages of change

It would be interesting if the Stages of Change aligned directly with learning contexts, but some stages



would seem to overlap learning phases. The appropriate alignment is, arguably, as shown in the figure on the previous page.

The Precontemplation and Contemplation stages define processes that would be most helpful if they were completed before undertaking the instruction to learn how to behave more effectively. If learners have no interest or intent to learn or perform new skills (the question of *whether* to do anything at all), instructional events will have little effect (the question of *how* to do things). We show these two stages occurring in the Pre-instruction phase.

A commitment to improve behavior can greatly increase the effectiveness of an instructional program and the likelihood of successful change. In the Stages of Change model, commitment is a process that occurs in the Preparation stage. We therefore show Preparation beginning before the onset of instruction. Because instruction can help learners further their commitment to change and make more effective plans for acquiring and implementing new behaviors, we show Preparation continuing well into the Instruction

phase and blending into the Action stage.

We show the Preparation and Action stages blending together because it is effective to make plans, take corresponding action, and then make additional plans for the next actions. In other words, learners may find it strategic and beneficial to bounce back and forth a bit between these two stages. Note that we also show the Action stage overlapping the Instruction phase because learners can begin to take action, even if just in simulation, with the guidance of e-learning.

The new behaviors targeted by both the change and training processes are applied and practiced subsequent to the Instructional phase and hopefully continue long after. We therefore place much of the Action stage in the Performance phase along with the Maintenance and Termination stages. Maintenance is especially important for tasks that are not performed often and for situations in which there are temptations to cut corners, revert to prior habits, or otherwise perform less than optimally.

Termination is perhaps a concept that applies less well than others to training and education. It does, of

course, represent the targeted performance context, however idealistic, in which there is no longer any likelihood that the learner's performance will lapse. Here, we have terminated either ineffective behaviors or the habit of taking no action when action is called for and see targeted behaviors occurring instead.

Implications for instructional design

Stages of Change research focuses on the complexities of human behavior that make change difficult. It focuses on a wide range of human behaviors, from kicking destructive and potential fatal habits to making changes for improved family or work life. Why do people do what is harmful to themselves? Why do they not change when the harm they are causing is so extreme as to be fatal in the long run? Why do workaholics sacrifice time with their children that can never be replaced? Why do people eat when they aren't hungry, stay up too late, or fail to listen attentively? Although many of the behavioral challenges the Prochaska team faces are much more recalcitrant than those faced by trainers and educators, the failure of so many instructional programs to yield

performance improvements suggests that we have been underestimating the challenges even simple change presents.

Prochaska, et al. provide not only an understanding of the stages through which changers progress to reach their goals, but also, as we shall see in the next chapter, a compilation and synthesis of techniques used to help people along the way. Quite specific techniques, such as raising consciousness, social liberation, and emotional arousal, are found to be effective at identified points of the process. These various techniques can be applied in part or whole through the interactive capabilities of e-learning, and comprise what might come to be recognized as "the missing" e-learning techniques—what e-learning has needed to achieve its full potential.

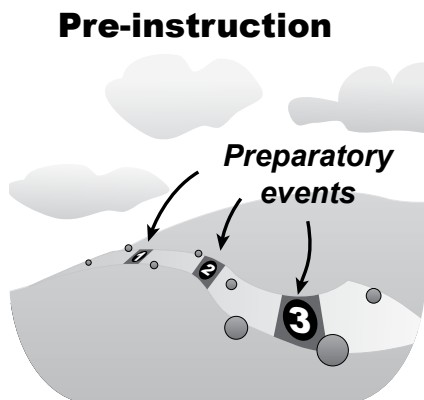
The focus of instructional programs is to help people acquire the knowledge and skills necessary to behave more effectively. The most powerful programs are complementary to helping people overcome their resistance to change because they focus not simply on teaching recognition and recall skills, but also on problem-solving skills, recognizing situations for which certain

behaviors are appropriate and for which others are not, adapting solutions as specific conditions warrant, and evaluating the success of applied solutions. When targeted behaviors are complex, effective instructional techniques become crucial for the success of any change initiative. Clearly, if people don't know how to behave more effectively, they won't,

no matter how determined they become to do so.

Stages of Change-based help programs teach people the *reasons* change is important, *methods* of preparing for change, and *actions* to take to

overcome problematic behavior. This approach correlates well with many instructional design theories. And the concurrence continues as both processes also need to be sure learner/changers *are motivated* to learn, *are committed* to making changes, *make effective plans* to learn and change, *put appropriate actions in place* to transfer learning to real situations, and *practice sufficiently* to make new behaviors resilient.



Expanding the purview of instructional design

Aligning the process of change with the process of instruction suggests the need for instructional design to address a broader range of needs. Since cognitive and affective preparation is essential for effective learning to occur, and since performance must be guided and nurtured for an extended period after new skills are learned, instructional design attention should extend into both the Pre-instruction and Performance contexts. Addressing these additional needs appears fundamental to achieving difficult behavioral changes and may also provide the key as to why otherwise well-designed instructional events fail to have the intended impact.

To reflect these insights, we can begin to modify the diagram of the instruction/learning/change process by adding events as shown here. What's changed? Interactive activities are introduced before the Instruction phase, but instead of focusing primarily on developing targeted skills, these activities provide information and learning experiences designed to help learners contemplate and prepare for making behavioral changes.

Providing preparatory events to precede formal learning events isn't really anything new, but the nature of them as suggested by Stages of Change is. For example, instead of simply giving learners preparatory reading to help reduce variance in readiness to learn, suggested preparatory events use such techniques as raising consciousness, social liberation, and self-reevaluation to help learners focus on behavioral changes and commit to the process of achieving them.

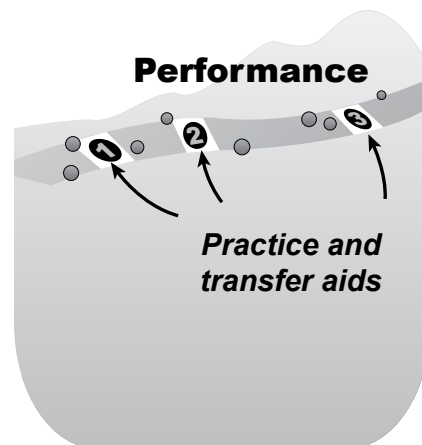
This approach points to ways we can release instruction from the controlled and constrained context that many adult learners abhor and fit it into the larger stream-of-life context. That's not to say that this broader perspective and framework are more fitting for training than education. Nor is it to say that this framework wouldn't be far more effective for academic application than the traditional methods of educational institutions. It appears, rather, that this framework recognizes the true needs humans have when more effective behaviors are targeted and begins to give us a blueprint for designing more effective and interesting learning aids.

This view also recognizes that

new skills are often difficult for learners to apply outside the support and cues provided in learning environments where all the familiar cues and support systems for prior behaviors exist, prompting learners to behave as they did before they learned new ways. If opportunities to rehearse new skills don't come immediately or often, newly learned behaviors stand a strong risk of being forgotten.

Effective design work combats these barriers to change by offering learners assistance with the transference of training to application in the real world. For example, learners often find reminders, checklists, recurrent training, and feedback systems of great help. Supervisor training may make the difference between success and failure because their ability to coach learners in application of their new skills is often pivotal.

By the way, organizations that try to make changes without recognizing the influence of supervisors are



often puzzled about why behavioral changes are so difficult to effect. Supervisors are powerful influencers. They can provide essential feedback and reinforcement, making change programs highly successful. Conversely, they may find changes in behavior patterns unsettling and annoying. Communicating their stance to subordinates, even subtly, can squash their attempts to apply newly learned behaviors.

Spaced learning events

Spacing is defined as the distribution of learning events over time. For example, instead of learning how to write useful objective statements in one full-day class, an e-learning application might introduce the key concepts and provide practice for an

hour or less. The next day, learners would review the concepts and do more exercises. Perhaps a week later, learners would do still more exercises, and then maybe a month later, the final set.

With spaced learning, learning time is more efficient (less total time is required) and learning is retained for a longer period of time. Ideally, the spaces between practice sessions increase to equal the time between actual events in which learners will perform the learned tasks (Thalheimer, 2006). That is, if learners evaluate job applications only twice each month, practice sessions will grow to be spaced about two weeks apart.

“The spacing effect is one of the oldest and best documented phenomena in the history of learning and memory research” (Barrick and Hall, 2005, p. 566). Spacing saves learning time and produces superior results, although it’s a technique that I find seldom used in e-learning—an observation that seems odd given that e-learning can provide individualized spacing that might be difficult to schedule for a group. Repeatedly requiring learners to assess a situation, recall information, and apply a skill is better than no

Resources

 Thalheimer, W. (2006). Spacing learning events over time: What the research says. Retrieved October 15, 2006, from <http://www.work-learning.com/catalog/>

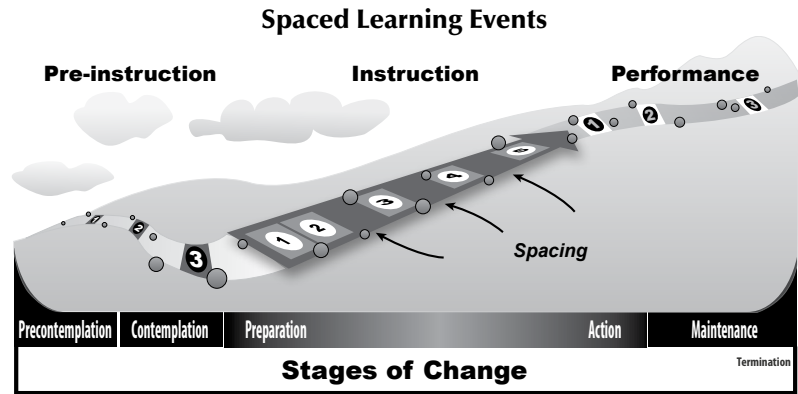
 Barrick, H.P. and Hall, L.K. (2005). The Importance of retrieval failures to long-term retention: A metacognitive explanation of the spacing effect. *Journal of Memory and Language*, 52(4) 566-577.

repetition—and we also see far too little practice in most designs, but spacing the repetitions is better yet, and increasingly spaced repetitions are best.

We'll review spacing again as we talk more specifically about designing learning events, but for now, we'll adjust the visual of the learning process to show spaced learning events.

Using the savings

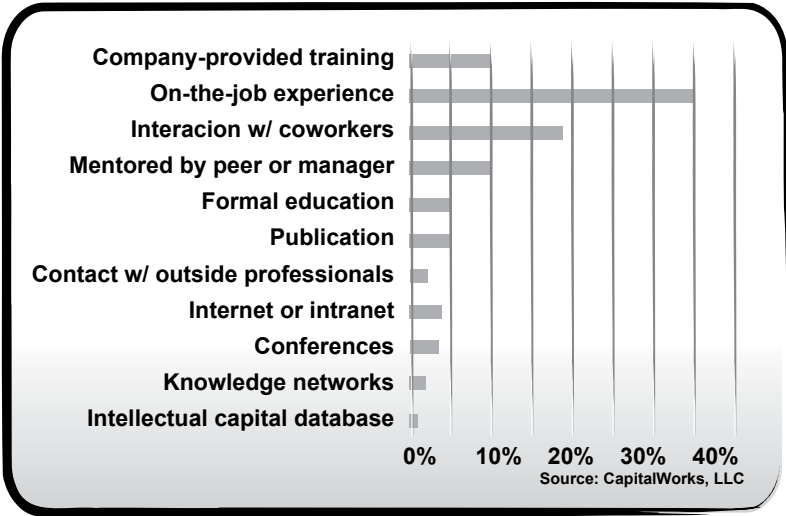
Adding pre-instruction and performance modules to e-learning applications may be essential to achieving great success (and a great ROI), but there are obviously associated costs. These costs are not always significant, but are almost always worth the expense. A highly motivated, ready-to-learn learner is much more likely to actually learn and need less support. Added to the fact that, the impact of spaced learning is much higher than the impact of massed learning events, it may be possible to develop much more effective e-learning at the same cost as ineffective learning. Fewer “traditional” learning events can be developed while a few additional interactive events are spaced through the Pre-instruction and Performance phases.



The optimal target may be the one represented in the figure above in which learning activities help prepare learners for change, help prepare learners for learning, help learners develop needed knowledge and skills, help learners apply their new abilities in actual situations, and then help learners maintain and refine their skills in practice.

Informal learning

Finally, but definitely not to be forgotten, we turn to the effects of and opportunities with informal learning. We learn things every day, regardless of whether we attend classes or use e-learning. *Informal learning* is defined simply as learning that occurs outside of events specifically designed to result in learning outcomes. Examples of informal learning include serendipitous



How Workers Report Learning To Do Their Jobs

learning through lunch discussions, browsing through a catalog, and assembling a kit airplane.

Through informal learning, learners make discoveries from real-life experiences and from socially based interactions with coworkers, mentors, and coaches. These interactions provide a basis for modeling behaviors, gaining on-the-job proficiencies, and adapting to continuously changing work environments. Nuances not easily captured in instructional design efforts nor conveyed well to learners in more formal contexts are easily, and often enthusiastically, conveyed informally. *We're supposed to complete account strategy reports on every identified account, but Marilyn is much happier with just*

a few detailed strategies than a boat-load of drivel. Not only is informal learning more personal, contextually relevant, memorable, and applicable in business settings, it also leverages learners' versatility in adapting to future conditions and establishing greater connectivity within these settings (Cross, 2003).

Kelley (2001) provides an interesting breakdown of how we learn in the work environment.

On-the-job experience was reported to be the largest single source of learning in the workplace, by far. This category can include a host of things, of course, even such everyday experiences as trial-and-error attempts to fix a copy machine. The message is clear, and really not surprising as we think about how one becomes proficient in any job, that most of what we learn and apply comes through personally directed, informal learning experiences.

Just as with learner motivation, where instructional interventions need not be helpless victims of low motivation levels, instructional designers can increase the quality and impact of informal learning. We will review methods of doing this in later chapters.

Blended learning

We conclude this chapter, which explores the need for instructional designers to work outside the confines of isolated instructional events, with a few thoughts on blended learning.

I have been resistant to what appeared at first blush to be yet another fad in the never-ending search for a simple, quick, and easy way to create high-impact, learning events. *Blended learning* appeared to be a regression to instructor-led learning as a fix for ineffective e-learning. Indeed, it is often just that. When e-learning fails to motivate learners, adapt to their individual needs, and provide authentic learning experiences that transfer to the real world, some fix is certainly needed. Since so much e-learning has these weaknesses, complementing it with other experiences that might do better in these regards can help.

But face-to-face, group, synchronous distance, and other forms of instructional-led learning are not reliably better with respect to motivating learners, adapting to the individual needs, and providing authentic learning experiences. It is, in fact, these typical weaknesses of

instruction that motivated pioneers in e-learning to seek alternatives (Allen, in press). And in all cases, it's not the channel of delivery that determines outcomes; it's the quality of the instructional design.

Resources

-  Allen, M.W. (Ed.). (in press). *Michael Allen's e-Learning Annual*. San Francisco: Pfeiffer.
 -  Kelley, J.D. (2001). *Developing and Applying a Learning Effectiveness Index: Preliminary Findings Report*. Williamstown, MA: CapitalWorks, LLC.
-

However, by looking at the multifarious factors that determine behavior and resist its change, it now becomes clear that some form of blending is essential in many situations. The blending concept that is essential, however, may be less focused on delivery channels and more a blending of purposes. We need activities to enhance the learners' emotional readiness to learn, create a groundswell of social support for behavioral change, provide incentives for performance improvement, provide feedback to guide changers, and train supervisors for mentoring. This is blended learning

that makes sense and will undoubtedly result in success.

Summary

As complex as instructional design is, typical processes tend to oversimplify the view of what causes people to behave as they do, whether it's in learning experiences, on the job, or elsewhere. As a result, popular techniques often focus on design details while missing the big picture and not targeting the most significant issues.

It's time to forget some of the detail and connect with the major issues. People are busy, familiar with current routine, and frightened of change. People don't improve their performance just because someone tells them to, because they know how, or because they will be rewarded for it (behaviorism). In

fact, if they feel manipulated, their natural response is to fight back.

There are three contexts of concern: the Pre-instruction phase, the Instruction phase, and the Performance phase. While designers have naturally focused on teaching knowledge and skills in the instruction phase, behaviors seldom change if learners are not committed to change and work through a process of change. The Prochaska, et al. Stages of Change model identifies a well-validated process of change that we have aligned with the phases of learning. This alignment calls out ways to help learners focus on and achieve the changes that learning interventions are designed to accomplish. It expands the province of and challenge to instructional design. It pushes us out of the box.

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