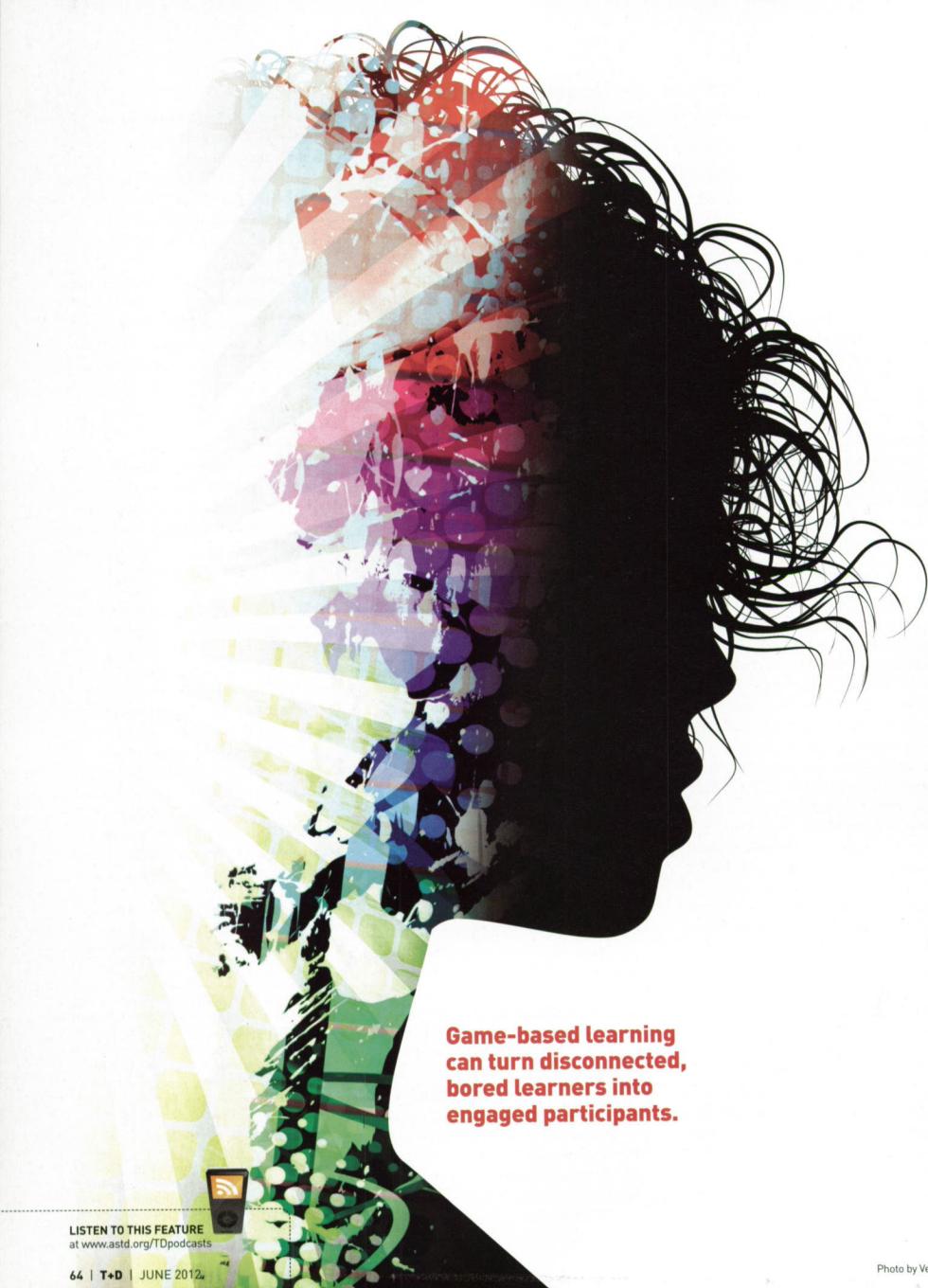


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GAMES, GAMIFICATION, AND THE QUEST FOR LEARNER ENGAGEMENT

By Karl M. Kapp

Juan sits in front of his laptop while slowly, painfully progressing through a customer service e-learning course. He is bored and disinterested. Juan wants desperately to click the "next" button in quick succession and rush through to the end. Then he can take the simplistic 10-question multiple-choice test, pass the course, and get back to work. He can't because he's been foiled.

A "clever" designer has forced Juan and other learners to listen to the entire script on every screen before proceeding (so learners don't simply click through to the end without learning the content, the designer told the client triumphantly). Thus, Juan checks his email, plays with his smartphone, and absentmindedly clicks when the audio stops. Every once in a while he is forced to look up from his phone and answer a multiple-choice question.

Meanwhile, across the globe in a training course on the topic of conducting internal investigations, Mary, an MBA graduate, catches herself looking out the window again. For the past 90 minutes, she has been sitting in the classroom listening to the instructor drone on and on about some kind of model. She has run out of things to do. Mary has drawn every doodle she can remember or conjure, counted all the pigeons on

the roof across the street, and created, checked, and rechecked her to-do list for the weekend. She is at her wit's end as the instructor reveals the next text-heavy slide.

The problem

Unfortunately, scenarios like these are all too common. Learners such as Juan and Mary are not engaged in the learning process. They don't see the relevance or application of the information; it doesn't seem real or necessary. Information is presented in a disjointed and unconnected fashion as a list of facts, irrelevant tips, or policies to be remembered. Juan and Mary are given little feedback about their depth of understanding and they

quickly become bored and disengage. The result is resentment, anger, and a sense that they are wasting their time. Little to no learning occurs.

In many instructional programs, the tasks or skills to be learned have become so far abstracted from the context in which they need to be performed that true learning and application is almost impossible. Policies are explained in a vacuum, standard operating procedures are reviewed away from the equipment, and ethical guidelines are dictated as bulleted lists to be memorized. For concepts to be retained and behaviors changed, the person learning the new information needs to be engaged, actively involved, and aware of how the learning fits into his daily demands.

Enter games

As instructional designers, trainers, learning professionals, and even learners search for more engaging designs of instruction, one model looms large—the model of games. Games are incredibly appealing. They engage players because they provide an environment and a context in which actions provide direct feedback and lead to direct consequences. They can provide a realistic context in which actions and tasks can be practiced. Games create a surrogate for actual experiences that provide rich learning opportunities.

A well-designed game is a system in which players engage in an abstract challenge, defined by rules, interactivity, and feedback that result in a quantifiable outcome often eliciting an emotional reaction. Games can be designed and delivered in an online environment with multimedia graphics, interactive characters, and automated scorekeeping, or they can be face-to-face and conducted in a classroom with simple interactions and engagement.

A careful breakdown of the effectiveness of games reveals that games are a series of interactions. These interactions are either among players or between the player and the content. The game Monopoly, for example, involves players interacting with one another in terms of paying rent when landing on another player's space on the board or sending an opponent to jail. The game also involves

players interacting directly with the content by reacting to a "Chance" card or passing "Go" and collecting \$200.

Research indicates that what makes a game effective for learning is the level of activity of the learners. If learners such as Juan and Mary are involved in many activities, they are engaged, learn more, and retain the knowledge longer. If the game has a large number of passive elements and the learner is forced to observe for much of the game, the learning is limited.

The downside

The downside is that creating a highly engaging, full-blown instructional game is difficult, time consuming, and costly. When trying to balance engagement with instructional outcomes, it is difficult to obtain the right balance of learning and gameplay. The process requires detailed planning, the creation of a comprehensive set of rules, testing of a prototype, and the development of game assets such as cards or basic artificial intelligence for computer-based learning games.

Additionally, once a game is developed, it typically requires a long time commitment to ensure the players have enough time to play the game and then learn the desired outcomes. Typically, organizations only can commit limited resources to the creation of one or two games within their learning library, leaving the majority of the organization's learning offerings to be uninspiring page turners or lackluster classroom experiences.

Gamification

The solution for incorporating the engaging aspects of games into the larger curriculum of an organization is the application of the concept of gamification. Gamification is using game-based mechanics, aesthetics, and game thinking to engage people, motivate action, promote learning, and solve problems.

Gamification provides the designer or trainer with the tools to think about instruction from the perspective of engagement and activity without the large-scale investment in the development of a full-blown instructional game. It provides the learner with an engaging, relevant learning experience without the

heavy time commitment necessary to play most games.

Through the careful application of game elements—such as the freedom to fail, interest curve, storytelling, and feedback—in learning programs, ordinary content can be made more engaging without the development of a full-fledged learning game.

Freedom to fail

In most instructional environments, failure is not a valid option. Learners are objectively scored, and they either get it right the first time or fail and do not pass. Few people enjoy failing in traditional learning environments, and most will do everything they can to avoid failing.

This means that most learning environments do not encourage exploration or trial-and-error learning. Learners have little insight into the real consequences of wrong answers or incorrect decisions other than being told they are not correct. Answering a question wrong to "see what happens" is frowned upon in most learning situations.

Games, however, encourage failure. Players will purposely fail to see what happens or to get a sense of the gamespace in which they are playing. Failing is allowed, it's acceptable, and it's part of the game. Games accommodate failure with multiple lives, second chances, and alternative methods of success. Games overcome the "sting of failure" by allowing, as part of their design, multiple opportunities to perform a task until mastery.

Examine your current instruction from a game developer's perspective and determine if your instruction allows learners the freedom to fail. This is not the same as allowing multiple guesses on a four-item multiple-choice question. Rather, it involves encouraging learners to explore the content, take chances with their decision making, and be exposed to realistic consequences for making a wrong or poor decision.

The risk of failure without punishment is engaging. Learners will explore and examine causes and effects if they know it's OK to fail. In many cases, they will learn as much from seeing the consequences of their failure as they will from a correct answer.

Create instruction that forces a learner who enters the wrong code in a piece of software to do the actual work to correct the error. Don't simply provide feedback such as "No, that data doesn't belong in that field." Instead, show the consequence and illuminate the cause and effect.

If Juan doesn't treat a client properly in an online role-play, show the company losing a sale, losing money, and Juan getting fired. Then give Juan another chance. Allow him to try again so he can then keep the customer, make a bigger sale, help the company make more money and, most important, keep his job or even get a promotion.

Don't trap the learner into always being correct because that doesn't happen in real life and it's not engaging. Take the lesson from games and encourage learning from failure.

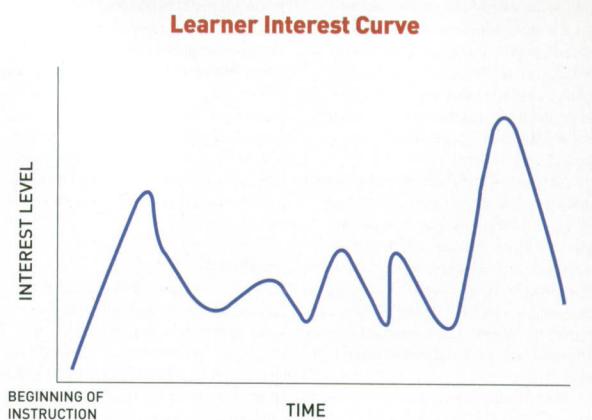
Interest curve

The interest curve within a game is the flow and sequence of events that occur over time to maintain a player's engagement with the game. The concept is to purposefully sequence events within the flow of the entire game to continually grab and hold the player's attention. The idea is that the quality of the game experience can be measured by the extent to which the unfolding sequence of events is able to hold a player's attention.

An ideal interest curve would have a high level of interest at the beginning to immediately draw in learners. This would occur by doing something to grab the learner and get him excited. It could be an interesting case study, a description of the danger of not getting the task right, a mystery, or series of questions.

Once the initial hook is set, the next step is to settle down to business, at which time the interest level will drop slightly from the initial high level. If the learning experience is well-crafted, the learner's interest will then rise again, temporarily peaking at different points (see figure). Finally, at the end, there is the climax, and then the learning is over. And learners leave the instruction with interest left over and the knowledge gained by the carefully sequenced instruction.

Examine your current instructional modules and see if they have an



An ideal interest curve would show learners' level of interest peaking at the onset, dropping slightly from the initial high level, temporarily rising at different points throughout the rest of the program, and then climaxing right before the learning ends.

interesting beginning, a compelling middle, and an exciting ending. Review the instruction to see if it flows from one interesting point to another or if it just provides content in a flat or, worse, declining curve of interest. Tracking and measuring the level of interest will highlight opportunities for insertion of engaging activities.

Storytelling

An important element in many video games is that of narrative or story. Most games are based loosely on some type of story. SimCity is the story of building a city from the ground up. Monopoly is the story of becoming fabulously rich through property ownership or going bankrupt, and Angry Birds is based on the story of birds getting revenge on pigs. Many games are great at integrating a story into game play, and research indicates that people learn facts better when the facts are embedded in a story rather than in a bulleted list.

The trick for game developers is to create a story that makes sense, is easy to follow, and can be told in a nonlinear fashion. As a player interacts within a game, the story must make sense in relation to the player's actions and decisions.

Learning programs should be designed around a story. Too often a case study or example is thrown into a training program but is not the central tenet of the program. This approach is limiting because it fails to put all of the learning elements in context. When a story unfolds during the learning process, the learner understands how all of the elements being learned fit into the bigger picture.

As an example, Mary is participating in a traditional learning program focused on preparing her and others to perform internal investigations. The class unfolds in the typical manner; terminology is introduced, concepts explained, a model is described, a small case study is discussed, additional concepts are covered, a quiz is given, and the course ends. A gamification approach to the same course would be very different.

As soon as Mary walks into the classroom, she is given a role and told, "An employee sends you an email saying he suspects a co-worker has embezzled \$10,000. What is the first thing you need to do?" As Mary describes her actions to the instructor, the instructor provides feedback, corrects misconceptions, uses appropriate terminology, and then gives Mary and her classmates the next

part of the story: "The person reporting the embezzlement has recently been demoted. Who is the next person with whom you need to speak?" Again, Mary must make a decision and receive feedback, learn about a model she needs for her investigation, and is then prompted for her next action.

Each action and instructional moment discovered by Mary leads to more story. At the end of the two-day class period, Mary and her classmates cover the same information as a lecture-based format but also gain the experience of conducting an investigation for themselves. The result is that investigations are conducted more efficiently because of the story-based approach.

All learning needs to be applied within a specific context. Seek stories or case studies around which the learning needs

to be applied. Then identify places within the story to insert key learning moments. Provide the story in small chunks and allow the learners to have the story unfold as they learn additional information. This is an especially strong approach in such areas as leadership, sales, or investigatory skills. It also works for learning how to properly enter an order into an online system or how to handle customer calls in a call center.

Feedback

One of the features video games, board games, and other types of games have over traditional learning environments is the frequency and intensity of feedback. Feedback in games is constant. In a video game the player has real-time feedback on progress toward goal, amount of life or energy left, location, time remaining, how many items they have in inventory, and even how other players are doing.

On a board game you can see where your piece is related to others, who is taking the next turn, how much progress will be

made with the roll of the dice, and how close you and your opponents are to successfully finishing.

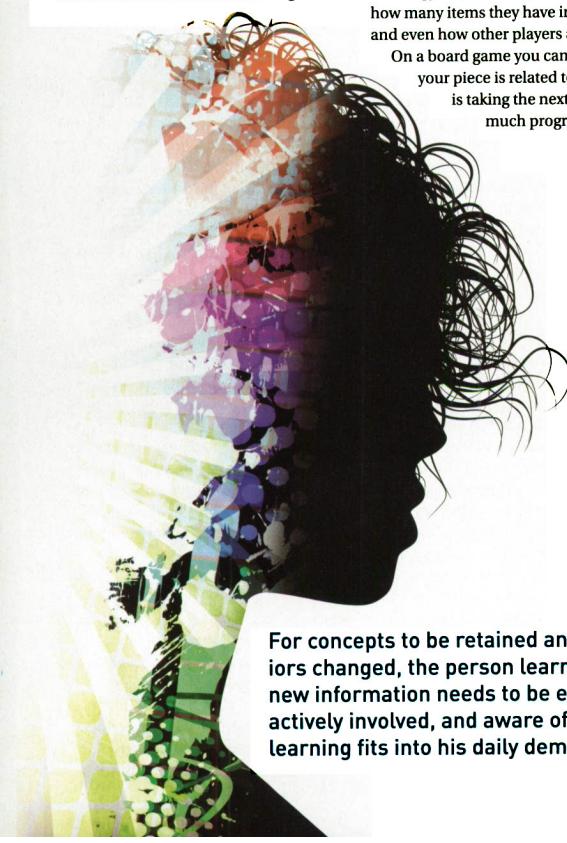
Research shows that feedback is a critical element in learning. The more frequent and targeted the feedback, the more effective the learning. Unfortunately, in many learning programs feedback is not frequent or specific. Provide continual feedback to learners in the form of self-paced exercises, visual cues, frequent question-and-answer activities, a progress bar, or carefully placed comments by nonplayer characters. Even something as simple as having Mary summarize the content just covered as a review is effective for providing feedback to her about her level of comprehension.

Fulfill the quest

Gamification, when applied carefully, leads to learner engagement. It turns disconnected, bored learners into engaged participants.

The participants will understand the context in which to apply their recently learned skills, will be willing to take chances, and will change their behavior based on feedback. Incorporating game-based elements and thinking into the design and delivery of instruction fulfills the quest for engaged learning.

Karl M. Kapp is a professor of instructional technology at Bloomsburg University in Pennsylvania. He is author or co-author of five books on the convergence of learning and technology. His latest book is *The Gamification of Learning and Instruction: Game-based Methods and Strategies for Education*, co-published by ASTD; kkapp@bloomsu.edu.



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EXECUTIVE SUMMARIES //

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Government Resource Fills a Vital Need

By Larry Mercier

A big part of the U.S. Department of Energy's job is to promote advancements and breakthroughs in energy technologies, ranging from biofuels and solar to building and energy efficiency. So it is perhaps not surprising to see the department push the envelope on new ways to share ideas, collaborate on research, and provide learning and training content to a large audience.

But what is exciting is to see the extent to which the department has integrated open source software and combined it with new, easy-to-use authoring tools to energize the department's knowledge sharing and learning opportunities. This represents a real breakthrough for content sharing, collaboration, authoring, and e-learning management that government agencies, colleges, and industries are using to reduce costs and improve access to learning.

A few years ago, the Department of Energy initiated a program that became known as the National Training and Education Resource (NTER). NTER is licensed under the General Public License Version 2, which requires the software to be released to anyone who asks for it, and that all improved versions be free software. This makes NTER a great solution for an organization with tight budget constraints but must still offer a high-quality user experience.

For complete text, see page 54.

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Learning at the Speed of Life

By Kate Day and Lisa Maria Fedele

Understanding the next generations' learning preferences is a key to creating classroom environments that engage the user and accelerate learning. To be successful you must design an innovative instructional framework that supports the Millennial generation's need for two-way dialogue and connections without constraints, while still providing structure, guidance, and practical knowledge gained through hands-on interactions.

In 2010, Cisco redesigned its Sales Associates Program to match the mindset of its emerging workforce. The learning and development team was charged with redesigning a more scalable and sustainable program that, in addition to reducing costs, would better resonate with the learning styles of young-in-career recruits. The only catch was that it had to be completed and ready for launch in four months in 18 time zones and 13 global sites, with 12 global training tracks running concurrently, and using a core team of only 23 employees.

The Cisco Sales Associates Program is now a year-long curriculum of technical and sales professional training married to 14 connected global classrooms and 1,800 virtual learning experiences, including local, "in-person," on-the-job mentorships. The program is designed to provide young-in-career sales associates and engineers with the skills they need to become our next-generation leaders. During the course of the redesign, we learned valuable lessons about creating talent development experiences that deliver measurable results.

For complete text, see page 60.

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