HOT TOPICS

GAMIFICATION, GAMES, AND LEARNING:

What Managers and Practitioners Need to Know

Brenda Enders

With a Preface by Karl Kapp

THE eLEARNING GUILD™ RESEARCH

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Preface

The time to create interactive and immersive learning is now. For far too long the creation of mind-numbing eLearning courses—where the learner simply presses <Next> to move through a course—has been the norm. The future of eLearning cannot be boring courses lacking engagement or emotional response. Instead they need to be interactive, engaging, and full of passion and enthusiasm. In short, the future of eLearning must include games and gamification.

Games provide a built-in level of interactivity and engagement. In fact, it is difficult to design a game that does not include interaction between the player and the game content or between two or more players. The nature of games is interactivity, which, we know from research, leads to learning and higher rates of retention. It seems that games are naturally built to foster learning. The trick with learning games is to craft the game to meet the needs of learning while making it highly interactive. The best way to begin to learn to do this is to examine successful examples and utilize those techniques as you craft, or ask a vendor to craft, learning games.

While many individuals in the eLearning field understand the power of games for learning, the concept of gamification for learning is, at times, a little harder to grasp. Simply put, gamification is taking the elements of games that lead to learning and using them individually. So rather than create an entire game about sales leadership, the instructional designer takes existing content and adds points for completing an assignment and badges for achieving a certain level of mastery related to the content. This methodology, when done right, has shown to be effective for propelling learners through content and is not as foreign to learning as you may think. In fact, all you need to do is look at the current school system where learners earn points for homework assignments and tests, earn badges in the form of letter grades, and move from level to level until graduation. School, to a certain extent, has been gamified for decades. This is sometimes referred to as "structural gamification," which is adding a structure of game elements around already existing content without altering the content.

However, points, badges, and leaderboards are not the reason people play games. So, while these elements of games are a good start for helping to create engagement, the real value will come with deeper game elements like story, freedom to fail, and challenge. Altering content to be more game-like is called "content gamification." Research has shown again and again that people engage in content when they are challenged to learn rather than simply given answers and that bulleted lists are less effective at teaching and recalling facts than a story that includes those facts. As the field of gamification is beginning to blossom and take shape, eLearning designers and developers need to begin to apply these techniques.

One good way to begin to explore gamification is to read examples of how it is properly and improperly deployed, study the elements of games that are effective, and experiment with gamification in your own courses. But the single best way to understand games and gamification for learning is to, quite simply, play games. So after you have read this report and grasped the content it is providing, stop and play some games. Play them not for entertainment but as additional research. Understand what motivates you through the game play, decide why the act of collecting resources was chosen as a strategy instead of matching one item to another, and examine the challenge put forth by the game designer. Observing games with an eye toward borrowing the concepts for creating engaging learning will provide you with a good foundation to implement many of the ideas from this report. So, your homework for 50 points is to play games, learn, and then apply that learning to engage, excite, and instruct others.

Karl Kapp

Author, *The Gamification of Learning and Instruction*

Executive Summary

We often say that learner engagement is a challenge when developing instruction. But learning solutions must also solve critical business problems, influence behavior, and have an impact on the overall organization. Games and gamification can add to our toolkit to help us achieve these goals.

Karl Kapp, instructional technology professor at Bloomsburg University, widely acknowledged expert on games and gamification for learning, and author of *The Gamification of Learning and Instruction*, defines a game as "a system in which players engage in an abstract challenge defined by rules, interactivity, and feedback, that results in a quantifiable outcome often eliciting an emotional response." He defines gamification as "using game-based mechanics, aesthetics, and game-thinking to engage people, motivate action, promote learning, and solve problems."

Research shows that games and game elements for learning should optimally be part of a larger overall instructional strategy. If we design them as passive experiences or without debriefing, traditional instructional strategies are generally more effective. This report shows that learning via games and gamification can be quite effective when designed correctly, and it helps us understand the other considerations that make games and game elements good instructional tools.

For example, Hideki Narematsu, the human resources manager for McDonald's in Japan, uses games to train new hires. He says it cuts new-hire training time in half. The game he uses is rather expensive. McDonald's Japan reportedly spent approximately $2.2 million on the game development and two Nintendo DS systems for each of their 3,800+ stores. Not every training organization can spend this much on a single game, so using game elements or gamification may be a more cost-effective solution.

Gamification is about applying game elements and game mechanics to non-game activities to make everyday activities more compelling. One example of adding game mechanics to a non-game context that most of us are familiar with is the airlines' frequent-flyer loyalty programs. In these programs, members earn points for flying.

This report discusses common definitions of games and gamification and shows how game design techniques and game elements such as stories, points, and challenges can motivate learners and change behaviors.

You'll learn how game mechanics and game elements work, and key concepts and good practices for designing stories, characters, leaderboards, points, levels, and challenges. And you will see concrete examples of how organizations have successfully

implemented these techniques to solve both training and business problems. For example, Adobe Systems uses gamification to increase both training and usage of their Photoshop software as well as to solve one of their business challenges: getting buyers to become *users*.

Reading this report will also help you get started with gamification. Often people want to start with the tools and technologies; instead, we suggest you start with identifying the business problem you want to solve when gamifying learning solutions, along with how you will define and measure success. This report provides the key questions you need to answer to get started with the gamification process.

Introduction

My first job was working at Ted Drewes, a frozen custard stand and St. Louis landmark. The first position all new employees worked was mixing concretes (shakes so thick you can turn them upside down and they don't fall out). I longed to be a window worker, but the only time you could learn new skills was during down times, which were few and far between.

As soon as there was a lull (a rarity), I would take any opportunity I could to get to that window and shadow a window employee. I'd find 15 minutes here and 30 minutes there and eventually they cleared me to work the window solo. To this day, I still remember the prices of all the items and extras and even the correct calling order. When I go back today, I always place my order exactly the way the workers call it and quite often the window workers comment that I must be one of the alumni workers.

Many of my friends' first jobs were working in fast-food restaurants as well. I'm sure none of us would have ever imagined that they could have trained us in the same way as we spent a lot of our free time—playing video games. Fast forward to today. McDonald's Japan is trying a new approach to train their part-time staff. Instead of the typical job-shadowing process, they have developed a learning game (a game designed for the express purpose of teaching) for the Nintendo DS. The game teaches new employees the basic skills of assembling burgers, making fries, and cleaning their workstations via video games (Figure 1).

Figure 1:

McDonald's Japan using the Nintendo DS to train employees

(Source: Bloomberg Businessweek*; http://www.bloomberg.com/video/58792564-mcdonald-s-japan-teaches-burger-making-with-nintendo-ds.html)*

Hideki Narematsu, the human resources manager for McDonald's in Japan, explained to Mike Firn of *Bloomberg Businessweek*, "People learn twice as quickly compared to the old training methods, and they can apply those skills right away when they get into the workplace. When trainees come into the workplace they already remember the basic tasks and can spend more time building up their confidence in communication skills." The intent is for new employees to play the game and learn the skills on their time away from work.

Using the game, new employees are cutting their training time in half. So why isn't everyone using these types of learning games? One word: cost. McDonald's Japan reportedly spent an initial outlay of approximately $2.2 million on the game development and two DS systems for each of their 3,800+ stores. But when you divide $2.2M by 3,800 stores it only comes to $579 per store, which isn't a huge amount.

The thought of spending millions of dollars on one training program is out of reach for the majority of learning and development organizations. Creating these types of games is costly, but a simpler, less expensive associated approach is to use gamification to make the content more engaging. Dr. B.J. Fogg, who directs the Persuasive Technology Lab at Stanford University, claims that humans tend to respond to computers as if they are people, especially during gaming. Computers can take the place of human interaction if we do a good job of designing the interactions.

Getting Up to Speed

Karl Kapp defines a game as "a system in which players engage in an abstract challenge defined by rules, interactivity, and feedback, and that results in a quantifiable outcome often eliciting an emotional response."

Gamification

In the last couple of years, the term gamification has begun to appear in the learning field (and in many other fields as well). The word suggests that it must have something to do with games. But **gamification** is not about designing full-on games. It's about the use of game elements, game mechanics, and game thinking *in non-game contexts* in order to make everyday activities (like learning!) more compelling. Kapp says gamification for learning is using game-based mechanics, aesthetics, and game thinking to engage people, motivate action, promote learning, and solve problems.

The Gamification Education Portal describes the differences between games and gamification (Table 1), although most believe that gamification should optimally be *intrinsically* rewarding (third row) for it to be motivating. (See the section on *Game Research* for more information about intrinsic motivation.)

Table 1:

Difference between games and gamification

(Source: http://www.gamification.org/education)

Game	Gamification
Games have defined rules and objectives	May just be a collection of tasks with points or some form of reward
There is a possibility of losing	Losing may or may not be possible, because the point is to motivate people to take some action to do something
Sometimes just playing the game is intrinsically rewarding	Being intrinsically rewarding is optional
Games are usually hard and expensive to build	Gamification is usually easier and cheaper
Content is usually morphed to fit the story and scenes of the game	Usually game-like features are added without making too many changes to your content

Sebastian Deterding and others, in *From Game Design Elements to Gamefulness: Defining "Gamification,"* helps us understand the considerable body of research in human-computer interaction and game studies that show the value of using game elements, game mechanics, and game thinking in other human endeavors.

Proponents of gamification describe the practical benefits of gamification, and Deterding's paper explains how researchers have explored playfulness as a desirable user experience and what we gain through it. It also explains how people within the serious gaming community sometimes mock the term gamification because they see it as a poor implementation of gaming. Kapp explains that, "It is also seen sometimes as manipulation of learners and just a 'Skinner Box' to get people to do things they really don't want to do … the opposite of games." But remember, gamification is not *gaming* (although gaming design is needed to make it work well).

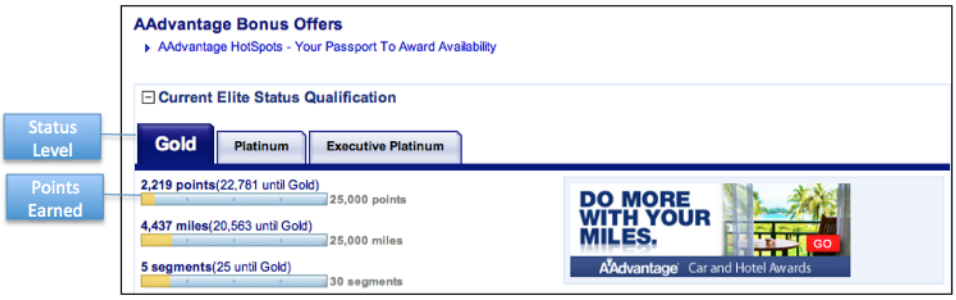
Because we use game elements in gamification, it is important to understand some key concepts and terminology related to games. First: **game mechanics**. Think of game mechanics as the rules and feedback loops that make a game fun. A few examples of game mechanics are points, bonuses, countdown, goals, levels, status, and progression.

An example of adding game mechanics to a non-game context is the airlines' frequent-flyer loyalty programs. In these programs, members earn **points** and miles for flying on the airline as well as for transacting business with other partner companies (such as rental car agencies and hotels, and making credit card purchases). See Figure 2.

Figure 2:

An example of elite status with American Airlines Frequent Flyer Program—AAdvantage

(Source: Author's frequent flyer points)



As you accumulate miles and points, you can redeem them for free flights or other rewards. As your total annual points accumulate, you have the opportunity to achieve various **status levels** that reward your achievements at each level with **perks**. Perks may include free checked luggage, express security lines, the ability to board the plane first, and free upgrades. Kapp says that a good *learning* example is Khan Academy with their points, badges, etc.

On the most basic level, airlines, as well as many other industries, are using game mechanics such as points, status levels, and rewards to not only enhance their programs but ultimately to *influence our behavior*.

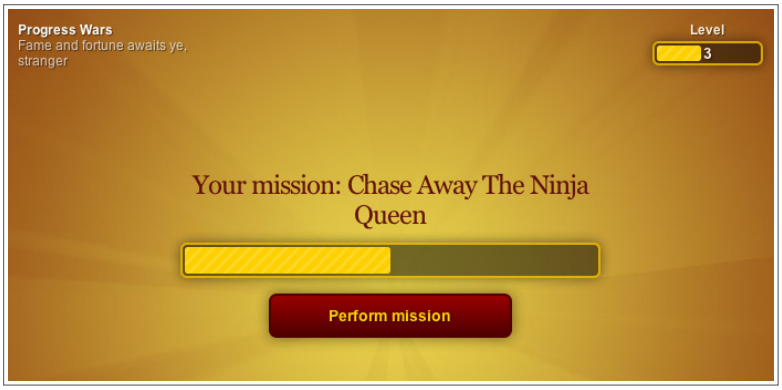
A game that implements game mechanics *alone* may not be engaging, though. For example, consider the game satire, Progress Wars (Figure 3 on page 9). When you

play the game, all you do is click the "perform mission" button and your progress bar fills up. Once you fill up your progress bar you go up a level, it presents a new mission, and the cycle continues. Not exactly exciting, since you have no other involvement!

Figure 3:

Progress Wars, a satire on the gaming mindset

(Source: Progress Wars; http://progresswars.com)



So we need more than game mechanics, we also need to engage in **game thinking**. We need *immersion* in game elements such as stories, challenges and quests, and characters and avatars that give the player control over the game, the freedom to fail, and feedback. Actually, game thinking sounds a lot like good instructional design!

Figure 4 shows an example of applying game elements *and* game mechanics to a non-game activity to make it more compelling. While we all enjoy the feeling of marking a chore off our to-do lists, most of us would not classify the process as *fun*, but rather as one of those things we have to do. Enter EpicWin (Figure 4), an iPhone application, whose goal is to make your to-do list *fun*.

Figure 4:

EpicWin is a gamified to-do list application

(Source: iTunes; http://itunes.apple.com/us/app/epicwin/id372927221?mt=8)

EpicWin is a to-do-list application framed within a role-play game, which integrates game elements such as characters, levels, points, and rewards. This is not your typical to-do list: According to DigitalBuzzBlog, "It helps you get things done by creating a virtual avatar and unlocking points on things like strength, stamina, intellect, and social measures for doing every-day chores like washing, ironing, attending birthdays, and more! Everything you tick off from your real-world list earns you points to help build your avatar while progressing through the quest map."

Increasing engagement may be justification enough to consider applying gamification techniques to courses, but we are also accountable that our learning solutions generate results and have a business impact. Can gamification help us accomplish those goals?

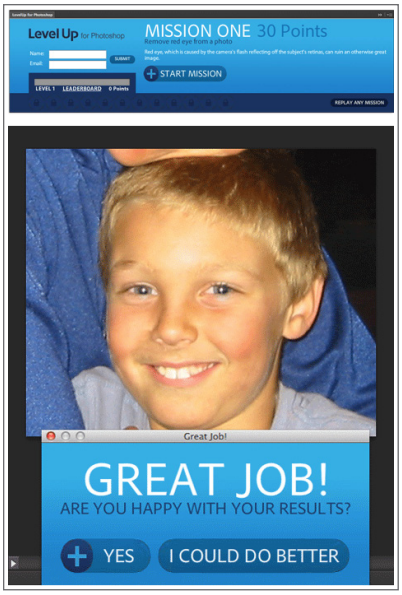
Adobe Systems thinks so. Let's look at how they use gamification to increase usage of their software as well as to solve one of their business challenges: getting *buyers* to become *users*. Imagine for a moment that you just came back from a vacation, your child's first ballgame or dance recital, or the annual company picnic. You have a camera full of new pictures, and you want to try your hand at some basic photo editing. You transfer the photos to your computer, go to Adobe's website, and download a free 30-day trial for Photoshop CC. You open the application and face a blank canvas. Intimidated? Many are. Adobe wants to solve this business problem with Adobe LevelUp, a free plugin that applies gamification to learning the software program.

LevelUp lets you work through a series of missions, such as reducing red-eye, removing unwanted elements from a picture, or whitening teeth. As you successfully complete each mission, you earn points and badges. Figure 5 (on page 11) shows the first mission you encounter, reducing red-eye. It's worth 30 points. The missions are compelling because the best way to learn to use software is when you need to solve a problem and not by going from menu item to menu item and learning about each item separately. The game element that makes LevelUp compelling is the challenge or mission confronting the learner.

Figure 5:

Adobe LevelUp—mission one

(Source: CreativePro.com)

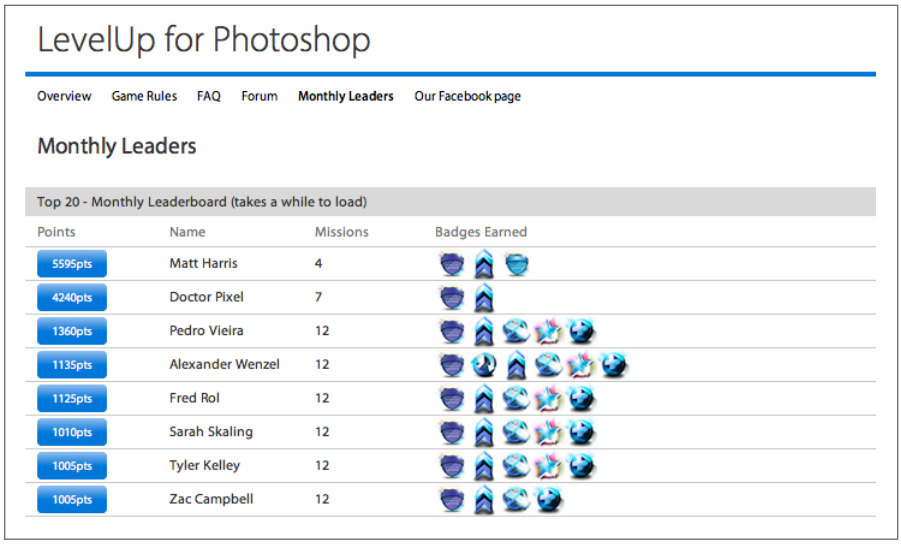


In addition, you have a chance to win free products. The game also includes a daily and monthly leaderboard (Figure 6) that allows you to see how you rank compared to others.

Figure 6:

Adobe LevelUp monthly leaderboard

(Source: Adobe; http://success.adobe.com/microsites/levelup/monthly.html)



In this example, Adobe uses gamification as a means of engaging their audience within the training they provide on key software functions. You are simply choosing missions you want to complete and earning points as you go along, but at the same time *you are also learning the core functions of the program*.

Adobe partnered with Bunchball to develop the game. Rajat Phaharia, founder and chief product officer at Bunchball, explained at the Enterprise 2.0 Conference, which focuses on the strategic use and implications of using these technologies in organizations, "If we can move the needle even a little bit on that conversion ratio, it would be huge." What Phaharia means by conversion ratio is converting the number of users who download the 30-day free trial program into buyers of the software.

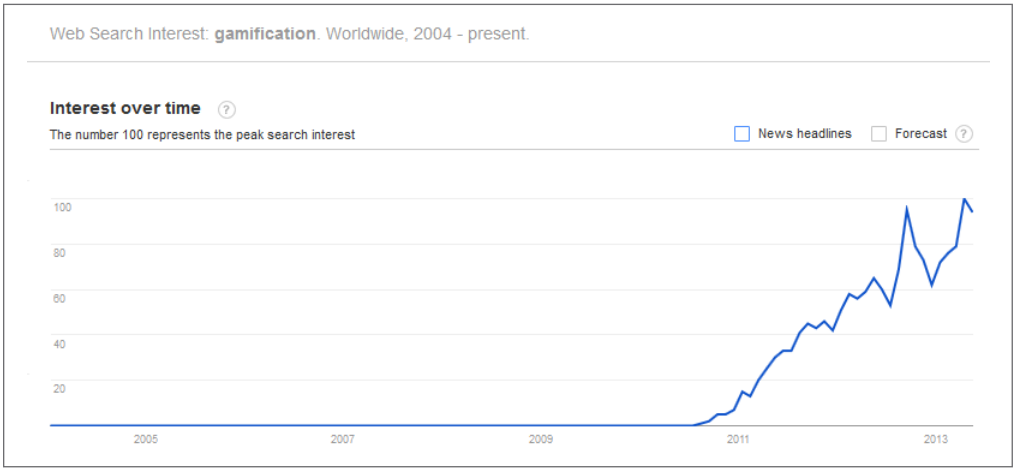
Businesses Are Into Gamification

According to Google Trends data (Figure 7) there has been a steady increase in people searching on the term "Gamification" since late 2010.

Figure 7:

Gamification is trending up according to Google Trends 9/2011 – 9/2012

(Source:Google Trends; http://www.google.com/trends/explore?q=gamification#q=gamification&cmpt=q)



Not only are people researching the topic, but organizations are taking a serious look at how to best leverage gamification.

While the consumer market has been using gamification in full force since 2010, the market segments for gamification are vast and include entertainment, media and publishing, retail, consumer goods, enterprise, healthcare, financial services, government, and telecom. Each of these markets leverages gamification, not only as a consumer-facing experience but also as a means to address internal employee and business challenges.

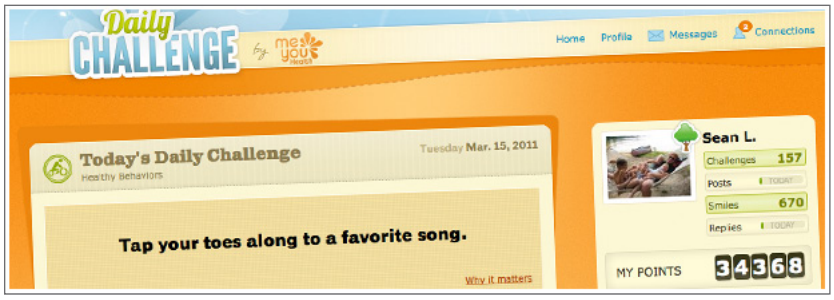
Let's look at an example of how companies use gamification. Blue Cross Blue Shield of California is using gamification as a means to increase the overall health and well-being of their own employees and to lower the costs of healthcare by offering gamified wellness programs such as the Daily Challenge. The Daily Challenge (Figure 8 on page 13)

is a social game developed by MeYou Health that sends players individually tailored challenges each day designed to improve physical, emotional, and mental wellbeing.

Figure 8:

The Daily Challenge gamifies employees overall wellness

(Source: MeYou Health; http://meyouhealth.com/daily-challenge/)



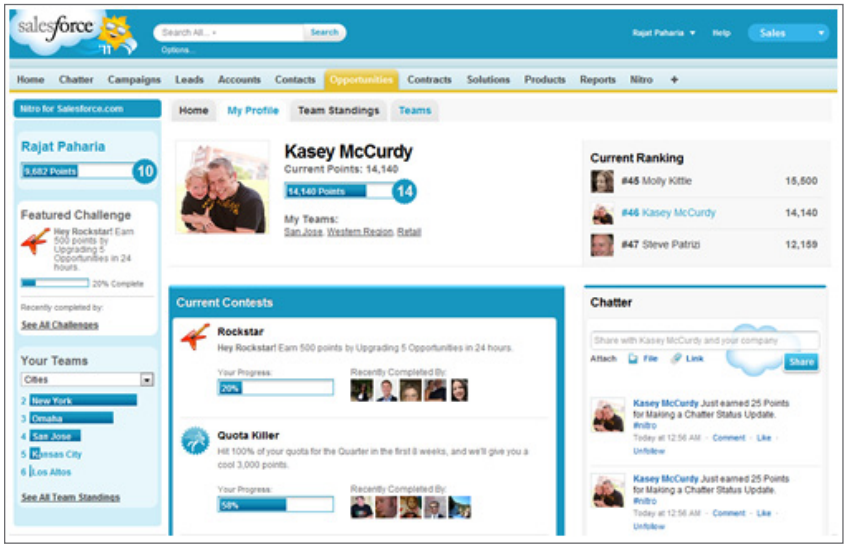
According to M2 Research, "Enterprise gamification is quickly gaining a share of the overall gamification market and in 2013, enterprise gamification revenue will exceed consumer gamification revenue." Gartner Research predicted that by 2014 more than 70 percent of Global 2000 organizations will have at least one gamified application, and by 2015 more than 50 percent of organizations that manage innovation processes will gamify those processes. We'll look now at a couple of examples of enterprises using gamification within their software applications.

Figure 9 shows Nitro for Salesforce.com. Saleforce.com partnered with Bunchball to gamify their customer resource management (CRM) system to address the challenge of getting salespeople to use the CRM system from lead generation through the close of the sale.

Figure 9:

Nitro for Salesforce.com gamifies a CRM

(Source: Enterprise Gamification; http://enterprise-gamification.com/index.php/en/crm/37-salesforce-motivation-)

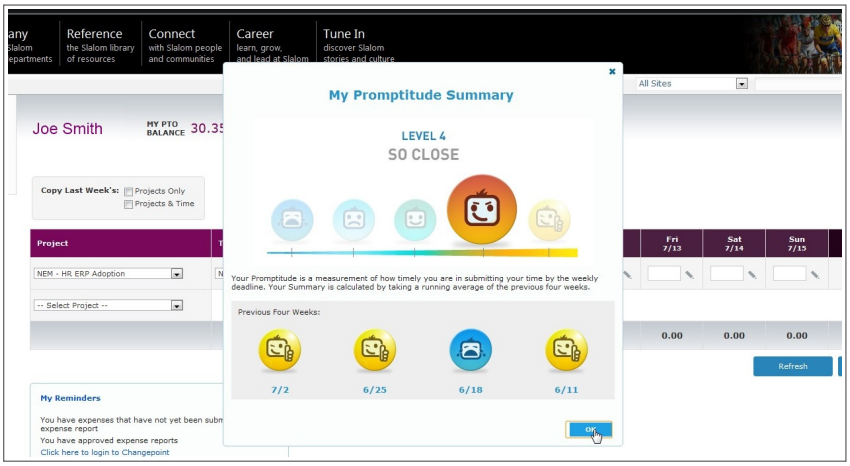


Another example is Slalom Consulting Group's use of gamification for their time-entry system (Figure 10). A common business challenge consulting companies face is accurate and prompt time entry by their consultants. Slalom Consulting Group uses gamification to encourage prompt and accurate time entry.

Figure 10:

Slalom Consulting's "promptitude scale" gamifies time entry

(Source: Enterprise Gamification; http://enterprise-gamification.com/index.php/en/project-management/100-the-promptitudiness-of-time-reporting-through-gamification)



One major issue with gamified systems is good design. Successful gamification requires solid design and, unfortunately, too many organizations are not utilizing game designers or even engagement designers in the process. As a result, Gartner predicts that by 2014, 80 percent of current gamified applications will fail to meet their business objectives primarily because of poor design. Simply adding superficial gaming elements to training solutions and expecting good results is foolish. We must instead learn from the experts how to best incorporate gaming concepts into our learning solutions.

Game Research

With most new hot topics the research is sparse, and such is the case with gamification. However, since gamification utilizes gaming concepts we can look at research on learning games to glean insights into the possibilities that gamification can provide within our learning solutions. Pew Gamification Research says, "Neuroscientists are discovering more and more about the ways in which humans react to such interactive design elements. They say such elements can cause feel-good chemical reactions, alter human responses to stimuli—increasing reaction times, for instance—and in certain situations can improve learning, participation, and motivation." We can also glean information about the motivation factors of games from Mihaly Csikszentmihalyi's flow theory and Edward Deci and Richard Ryan's self-determination theory.

Research on gaming and learning can be confusing. Because many of the studies were done with schoolchildren as subjects, it's hard to know how generalizable these studies are to adults. Michael Young, at the University of Connecticut, did a review of trends in educational gaming in different educational subject areas and showed that impact on student achievement is hard to assess. Most of us would argue that test scores, however, are not the only important outcome. In fact, for those of us involved in corporate training, those may not even be the most important outcomes. Instead we might want to look at performance outcomes or behavioral changes.

In the late 1980s, Dean Dorn, at California State University, reviewed the research on simulation games and found that simulation games generate interest and motivation. He found that other active-learning methods such as case studies are also effective, so although simulation games are not the only effective method, they can be a good method for declarative information, principles, and concepts. Dorn recommended that we select games to accomplish specific instructional goals and supplement them with additional instructional methods as needed. In other words, we should not select games or game elements at random. And to gain the most from them, the participants must be debriefed to foster the desired learning.

Recently, Ruth Clark criticized the value of narrative educational games in comparison to displaying similar content in a slide presentation, based on research by Deanne Adams. Adams's research used post-test scores to measure learning effectiveness, and measured learning efficiency by time using two narrative games of less than two hours. Christy Tucker countered Adams's analysis, because she based it primarily on the listed test results. She also asked about possible flaws in the design of the games that could account for the problematic results (see my comments later about design flaws). Research by Wouters and others indicates that games vs. text-based knowledge, when

tested immediately after the instruction, are likely to have similar results, but when tested days later the game-based knowledge is better retained.

Karl Kapp's blog post, "Research to Practice: Games and Simulations," discusses some of the research studies showing favorable results for games research. Kapp described studies showing that avatars can change a person's real-life perceptions and behaviors. Additionally, his book *The Gamification of Learning and Instruction* contains an entire chapter reviewing meta-analysis studies indicating a slight advantage of game-based learning over traditional non-interactive instruction.

Traci Sitzmann conducted a well-known meta-analysis of the instructional effectiveness of computer-based simulation games. Sitzmann, an assistant professor of management at the University of Colorado's business school, spent a year researching the effectiveness of simulation and games in adult learners by examining 65 studies and data from 6,476 adult trainees. She discovered that when they presented training in the context of certain types of simulation games, learners had 14 percent higher skill-based knowledge level, 11 percent higher factual-knowledge level, and 9 percent higher retention rate. I should note that Sitzmann lumped games and simulations together and called them simulation/games because she felt that games and simulations were very similar from a learning perspective.

Sitzmann's analysis found the interactivity of the gaming experience is what led to these results. Simulation/games embedded in a program of instruction were better for learning than standalone simulations. The study found that simulation games were most effective when they were:

- One component within a larger training strategy
- An active learning experience vs. a passive experience
- Designed to engage the learner through intrinsic motivation, resulting in learners playing multiple times
- Followed by debriefing to reinforce workforce applicability

These reasons for success may explain why Adams's games research did not find success. The two games discussed in her study could have failed to show good results because they did not include most of the elements that Sitzmann proposed as needed for success.

Robert Hays of the Naval Air Warfare Center Training Systems Division performed another meta-analysis on the effectiveness of instructional games in 2005. He reviewed existing research literature (105 documents) and provided conclusions and recommendations.

Hays's meta-analysis showed that games *can* provide effective learning in different disciplines (e.g., math, attitudes, and electronics) but it cannot tell us if games are good for a specific instructional task. Like Sitzmann's meta-analysis, his showed that we must embed effective, successful learning games within a larger instructional program and include debriefing and feedback. He also stressed the importance of supporting learners in how to use the game as it allows them to focus on the instruction and not on the game requirements.

Hays provided recommendations for the use of games in an instructional environment. Some of those recommendations include:

- Complete a detailed analysis of the learning requirements and an analysis of the tradeoffs of using games vs. other methods
- Make sure that the game design provides interactive experiences that properly support the learning objectives
- The learning environment needs to include all of the functions that a good instructor-led experience provides such as evaluation, debriefing, and feedback

James Paul Gee, chief games scholar at the Center for Games and Impact, Arizona State University and Gates Foundation, offers a list of research-based principles that good learning games should incorporate. I'll share a few of them with you, as they provide some compelling food for thought about how we might set up learning environments in ways that are very much like the best of games, but which are *not* like most school or training environments.

- **Risk taking**: Good video games lower the consequences of failure; players can start from the last saved game when they fail. Players are thereby encouraged to take risks, explore, and try new things. In fact, in a game, failure is a good thing.
- **Challenge and consolidation**: Good games offer players a set of challenging problems, and then let them solve these problems until they have virtually routinized or automatized their solutions. Then the game throws a new class of problem at the players (sometimes this is called a "boss"), requiring them to rethink their now taken-for-granted mastery, learn something new, and integrate this new learning with their old mastery. In turn, repetition consolidates this new mastery (with variation), only to face another challenge…

  In school, sometimes the poorer students don't get enough opportunity to consolidate and the good students don't get enough real challenges to their school-based mastery.

- **Performance before competence**: Good video games operate by a principle just the reverse of most schools: performance before competence (Cazden 1981). Players can perform before they are competent, supported by the design of the game, the "smart tools" the game offers, and often, too, the support of other, more advanced players (in multi-player games, in chat rooms, or standing there in the living room). This is how language acquisition works, though not always apparent in schools, which often demand that students gain competence through reading texts before they can perform in the domain they are learning.

As Gee explains, making learning more game-like can make learning more fun and rewarding, even though the learning becomes more challenging.

Some game designers aren't merely hoping to help people learn via games; they're hoping to save the world through gaming. Jane McGonigal, a game designer, says in her 2010 TED Talk that attracted over 2.5 million views that her goal is, "To try to make it as easy to save the world in real life as it is to save the world in online games." She's the *New York Times* best-selling author of *Reality is Broken: Why Games Make Us Better and How They Can Change the World*. She tells us that each week the world's gamers spend more than three billion hours playing games and those gamers are industriously and collaboratively working with other people to build worlds and solve problems. Collectively, gamers have spent about 6 million years playing the World of Warcraft game alone.

Research is trying to explain the success of games. McGonigal, in her TED Talk, discusses "the epic win," and how gamers expend much effort and endure failure after failure to improve gaming skills and improve their outcomes. She studied these outcomes in her doctoral work and has studied the effort to use gaming to solve large "real" problems.

You can find one example at http://www.urgentevoke.com. McGonigal worked with the World Bank Institute to create a 10-week crash course in changing the world. Called Evoke, it's an online game that teaches people social entrepreneurship. It uses an interactive graphic novel instead of a textbook, and missions and quests instead of assignments. Almost 20,000 students from 130 countries enrolled, creating 50 new businesses started directly by the gamers to address poverty, hunger, and access to clean water and clean energy.

Although there is a lot of research on games, there is less research on gamification because the concept is newer. But more research on gamification is coming online all the time. For example, the Gamification Research Network convened a forum for

researchers and industry practitioners, and the papers and presentations from the CHI 2013 workshop, Designing Gamification: Creating Gameful and Playful Experiences are now available.

Figure 11 shows six basic game mechanics that you can leverage within training solutions, including points, levels, challenges, virtual goods, and leaderboards, and then tie them to the human desires they can help fulfill when designed appropriately. The green dots show the *primary* desire each game mechanic addresses.

Figure 11:

Interaction of common game mechanics and game play

(Source: Bunchball; http://www.bunchball.com/sites/default/files/downloads/gamification101.pdf)

Often organizations will try to implement a gaming environment by adding a game layer consisting of points, badges, levels, and leaderboards; but these tend to reward extrinsically and therefore may not generate long-term engagement. They might even have a *negative* impact on learning. Aaron Dignan, author of *Game Frame*, explains to *Bloomberg Businessweek* in "The Games Companies Play," "Companies need to guard against adding a superficial gaming gloss to applications—for instance, by creating meaningless leaderboards that have little lasting impact on employee behavior. People could pay too much attention to things that don't matter, or too little attention to things that do matter, if the game is poorly designed." As Dignan notes, we should be cautious of creating experiences that motivate people *only* extrinsically. Learning programs that only motivate employees through extrinsic motivators may start with a high level of success, but over time may have diminished returns.

Gaming Elements for Your eLearning Programs, and Key Design Considerations

The list of gaming elements in this section describes those successfully combined with learning solutions, along with thoughts to consider when implementing them in your learning solutions. First, I'll explain the elements and then, in the next section, I'll show a number of examples.

Points

Points are a common educational convention used in classrooms for centuries. In general, people love to earn points, and points can modify a person's behavior. In learning, we need to be careful that we award points based upon exhibiting *valued* behavior. For instance, giving points each time someone logs in or adds a comment does not mean that the entry will be of any value.

Consider using points for:

- Status indicators
- Progress
- Unlocking access to course content

Achievements and Badges

Within gamification environments, rewards are typically associated with earning badges or reaching a particular status level. But just earning the reward may not be recognition enough for most of us, so a best practice is to include an area in your program where users can *show off* their achievements to others.

For example, consider designing a trophy case, a profile page that displays achievements, and/or allowing learners to announce their achievements through a social network such as Twitter. *A word of caution regarding achievements*: For this element to be effective, the reward or achievement must be meaningful to your learners and be somewhat difficult to obtain.

Leaderboards

A leaderboard is a scoreboard. It shows who is ahead and by how much. It shows all players' results; however, if many people are playing, it usually only shows the top players' results.

When designing leaderboards for your eLearning solutions:

- Make sure the leaderboard displays the behaviors and activities that are most important to reaching your learning program's goals.
- Consider using more than one leaderboard in your program. For instance, you may have leaderboards for each region or office location.
- Consider giving everyone the ability to search for players. If we can only see the top performers, and cannot quickly find where we stand in the rankings or where our inner circle stands, the effectiveness of the leaderboard decreases.
- Consider allowing your learners to create their own leaderboard participant list. This allows them to quickly see their standings compared to their inner circle.
- If your leaderboard does not refresh immediately (in learning solutions, many do not), make sure you clearly communicate the updating frequency to the learners.
- Consider having different leaderboards within the gamification environment. Have one overall leaderboard and then leaderboards for individual tasks.
- Another best practice is to "wipe out" a leaderboard at the end of the week and give everyone a fresh start.

Game Levels

Most of us are familiar with the basic concept of game levels. If you chunk content into topics and lessons, then you are familiar with the basic concept of levels. Levels are milestones that a player achieves by completing certain tasks. Levels also provide a logical flow for the gaming experience.

When designing game levels in your solutions, consider:

- Allowing learners to level up (achieving the next level in the game) based on their active participation in the experience, and not just the on completion of content.
- Tying levels to the learner reaching specific point thresholds.
- Using levels as a means to show their progress in the content.
- Communicating to the learner how many points they have earned and how many points they still need to achieve to gain the next level of content.
- Displaying learners' current game-level status to other participants as a means of driving competition by using leaderboards.
- Controlling access to course content and ensuring that learners meet pre-requisites before moving on.

- Designing your levels based on degree of difficulty. The initial levels should be easier to complete, and, as your learner progresses, the levels should ideally have a higher level of difficulty.

Challenges

Challenges, in the gaming world, are missions or tasks that give the player the opportunity to achieve specific goals within the game.

When designing challenges:

- Configure your challenges based on the actions and behaviors that you're tracking.
- Reward your learners for completing challenges and achieving the designated goals. Remember to make sure that the rewards you give your learners are meaningful to them.
- Vary the length, difficulty, and completion time of your challenges.

Time-based Activities

Time can create a sense of urgency within your learners. You can create activities where the clock ticks down, and learners must complete and prioritize tasks. Consider using time-based activities in your learning activities to mimic real-life time constraints.

Game Feedback

Let's look at how games typically provide us with feedback as soon as we perform an action, which immediately lets us know if we are on the right track to achieving the game's goals or if we need to modify our strategy.

When you design feedback, consider designing it like game feedback:

- Provide feedback opportunities throughout the learning experience; do not wait until the end of the course
- Provide feedback on behaviors and actions the learners take in the course, and not on their ability to temporarily remember or recognize information
- Use a point system as a means of giving instructive feedback and show the progress made in relation to the learning goals

Designers most commonly use the following game elements within games; however, with creative application they could be effective within gamification as well.

Stories and Characters

One element that makes games interesting and motivating to the player is a compelling storyline that unfolds gradually throughout the gaming experience. Stories are a primary means of providing the context for why players take action. This is not a new concept within learning; in fact, research shows that learners remember and can apply information better when presented through a story than within a bulleted list. Unfortunately, many eLearning programs have moved away from this practice by only providing screen after screen of facts.

Characters are a key component within a story, but don't think of that as the only way you can use them in your eLearning. Amy Bahlers's research has found compelling reasons for using characters.

A few points to consider when designing stories:

- Set the scene.
- Create a compelling plot that creates a sense of tension and establishes a conflict. The learning opportunities lie within the conflict.
- Use characters that your learners can relate to, so they generate an emotional response.
- Consider using a variety of characters, each providing a different type of knowledge or support. This approach allows your learner to know what type of support each character will provide and the role they are playing in the experience. For example, you could use one character as an instructor and another one as a mentor or coach.
- Characters should present content in a realistic tone of voice.

Playing Levels

Playing levels are a means for game developers to create an experience matched to the player's skill level. Playing a too-easy game is no fun, and playing a too-hard game will most likely result in a player stopping. Game designers usually allow the player to select a playing level based on degree of difficulty when they begin the game. Commonly, playing levels in games are easy, intermediate, and hard. By incorporating playing levels within a game, game developers are increasing the odds that players will replay the game at each of the various levels.

In training, we can apply playing levels by organizing our content as demonstration, practice, or assessment. The first level, demonstration, shows the learner what

they need to accomplish, and, as such, is the easiest level and requires minimum knowledge. The second level, practice, provides a safe environment to apply the concepts learned in the demonstration level. The final level, assessment, is the most difficult player level and requires the most knowledge. By applying a three-tiered-playing-level approach, you can allow your learner to control where they want to enter the training experience based on their perceived knowledge base. If they incorrectly assessed their skills, they can always go back and select a different level.

Freedom to Fail

In games, failure is one of the main ways we learn how to master the game and achieve its goals. Could you imagine playing a game, where on your first mistake, you hear "Game over." Sometimes we move forward just by dumb luck or chance, but we learn from that experience. And research shows that learning from mistakes is a powerful way to learn.

Things to consider in creating a learning environment that promotes the freedom to fail include:

- Design multiple attempts into your interactions.
- Provide positive instructional feedback when your learners fail on the first attempt, and give them opportunities to try again.
- Create a point category tied to how well the learner is meeting the stated goals. Provide the opportunity to retake the training until they have achieved the goal and mastered the content.

Examples of Learning Solutions with Game Mechanics, Game Elements, and Game Thinking

Game mechanics, game elements, and game thinking are the foundational building blocks for creating a gamification experience. Let's look into how organizations are tying these together to create successful gamification experiences.

Gamification of a Conference Application

We've all attended a conference at some point or another. In the old days we got a printed schedule with the session information, speaker profiles, and a list of pre-scheduled networking activities. Today, many technology conferences have created mobile applications that provide this information along with much more. Many incorporate Twitter feeds into the application, and include the abilities to see who else is attending the event, to email attendees without exposing their email addresses to all attendees and vendors, and to submit session evaluations when it is convenient for them and not just at the end of session, along with getting last-minute updates to the conference schedule. A challenge many conference event organizers face is getting people to change their habit from clutching the printed-out program to using the application. Many attendees perceive the app as just an electronic version of the program and don't realize the other benefits the conference application holds. So how can you change this habit? Let's look at how *The eLearning Guild* leveraged gamification to address this issue.

During the *mLearnCon 2012* conference, *The eLearning Guild* added a gaming component to the conference application (Figure 12 on page 26). Goals for the game included:

- Increasing engagement and usage of the conference application
- Increasing interaction within the conference event and between participants, speakers, and exhibitors
- Creating a fun experience for the participants

Figure 12:

The eLearning Guild's mLearnCon 2012 Game On

(Source: The eLearning Guild*)*

Conference participants earned points for performing activities within the application as well as for entering game codes. From the get-go you were earning points just for using the application. In addition to earning those points, conference attendees were on the hunt throughout the event for game codes displayed on signs posted throughout the event, on buttons that speakers wore, within sessions, and within the Twitter feed. Upon finding a code, participants received points by entering the code in the application. They could see where they stood compared to others by viewing the leaderboard. Game leaders could earn awards each day.

I presented a session titled "Gaming on the Move" and had submitted the game code "GameGuru" to the staff. Throughout the event, many participants walked up to me out of the blue and asked, "Do I have your code?" My first reaction was, "I don't know," but I would then tell them the code. This first question broke the ice and led to discussions about how they were enjoying the event, what they were hoping to get out of the conference, and often, the challenges they were facing within their organizations. From my perspective, Game On achieved the conference organizer's goals. More people were using the application, they were interacting with more people, and they were definitely having fun.

> ***What elements are used?*** *The Game On solution used the elements of points, achievements, and a leaderboard.*

Gamification of a Learning Curriculum and Portal

Great Clips for Hair operates more than 2,000 hair salons exclusively through franchisees in all 50 US states, Canada, and select international markets. They operate online learning, but wanted to update the learning experience. Great Clips agreed to

serve as a "beta customer" for OnPoint Digital's new Gamification feature set as part of an overall Learning Portal refresh effort. The new site (Figure 13) integrated game mechanics to drive interest and awareness for all salon managers throughout their network.

Figure 13:

Great Clips for Hair's learning portal using OnPoint Digital's CellCast

(Source: Great Clips for Hair and OnPoint Digital)

The new learning portal was an instant success with salon managers, who began taking online courses and assessments at a rate of **more than 900 percent** over the previous "traditional" learning portal. Ironically, most of the learning content and assessments were exactly the same as they'ed been for many years, but the applied game mechanics had dramatically altered the perception of the learning portal as being more "hip, interesting, and beneficial," according to a recent survey of salon managers Great Clips conducted.

> ***What elements are used?*** *Great Clips for Hair's learning portal uses the elements of points as a progress indicator, levels, leaderboards, and achievements (badges).*

Process Management Game

NewWave Learning and Suddenly Smart leveraged game-design principles for applying Six Sigma principles. It presents learners with a compelling storyline about surviving a plane crash in the mountains. The quality of the actions that apply process management principles determines whether you live or die. Learners can replay the lesson at any time and the system provides instructive feedback. From the screen shots, this may appear to be a video game, but it is designed primarily with images and hotspots heavily immersed with gaming elements.

The eLearning solution begins with setting the scene and creating a sense of tension by immediately presenting the learner with the backdrop of a plane going down, in both visuals as well as the sounds of a failing engine. The story: You've made an emergency landing, you're alive and okay, but time is of the essence because you have just a few hours of sunlight left to be rescued. Due to the extreme cold, you would never survive the night.

On an upcoming screen (Figure 14) you are in the cockpit. Notice at the bottom of the interface you have two status bars, one for health and one for the number of minutes remaining until sunset. The learner starts at 85 percent health; after all, you were in a crash and there is no way you could feel completely fine. You also have only 240 minutes left until the sun sets.

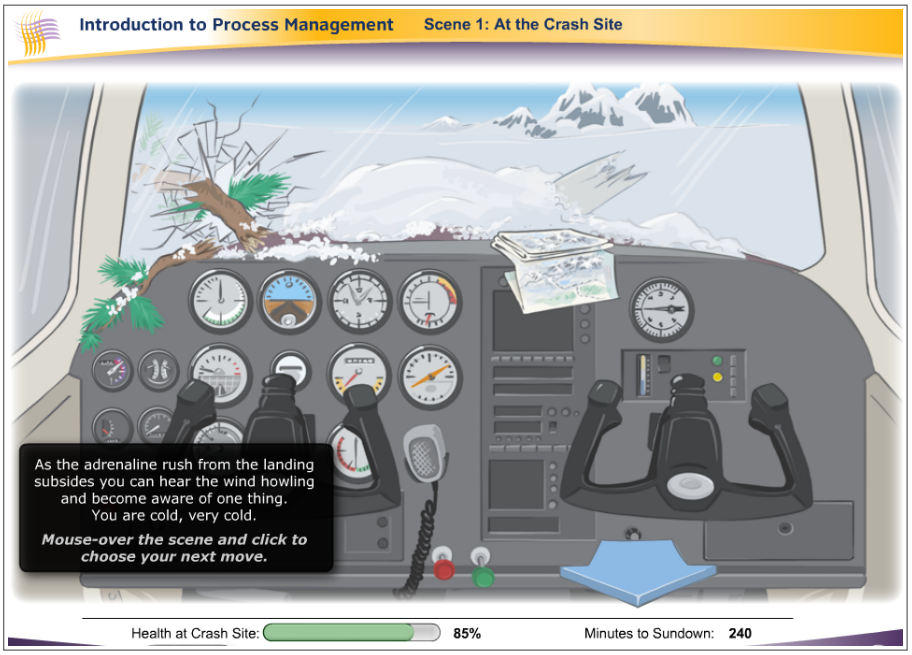


Figure 14:

Introduction to Process Management, showing health status and time

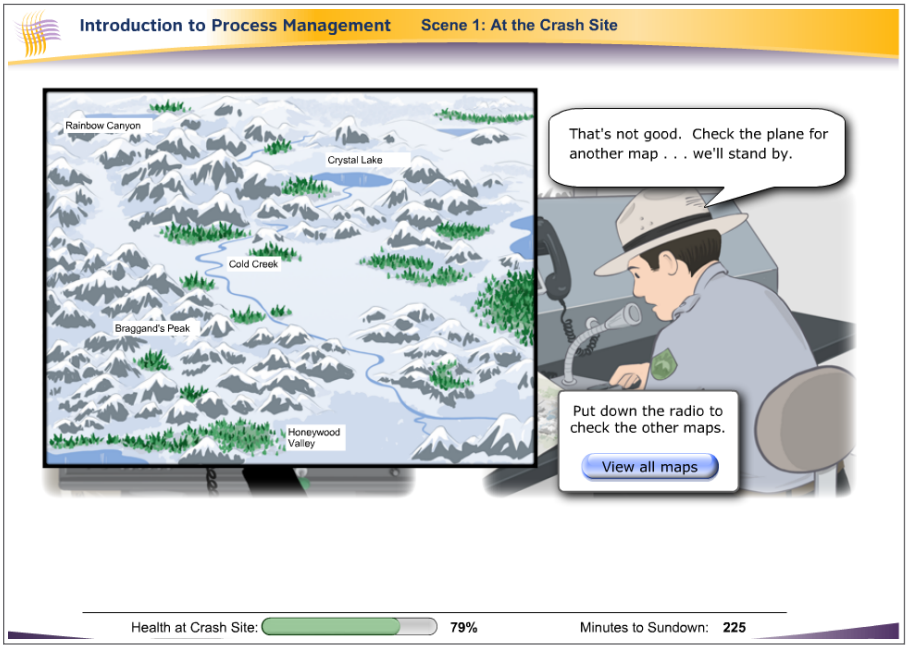
(Source: NewWave Learning and Suddenly Smart; http://www.suddenlysmart.com/examples/survival/player.html)

As the learner makes choices (either correct or incorrect), they receive instructive feedback within the context of the story. Figure 15 shows how the training provides feedback to the learner when they make a mistake. In this case, I selected a map that did not show enough detail. Also, notice how the health and time progress has now changed to 79 percent health and I am down to 225 minutes until sunset.

Figure 15:

Introduction to Process Management, showing incorrect feedback and its effect on health and time – Try Again

(Source: NewWave Learning and Suddenly Smart; http://www.suddenlysmart.com/examples/survival/player.html)



After you have identified where the rescue will take place, gathered the appropriate tools you will need to survive, and mapped a course to the rescue site, you begin your journey. After making all the right decisions and being rescued you are presented with a drag-and-drop activity to relate the decisions you made in the game to the four principles of process management (Figure 16 on page 30).

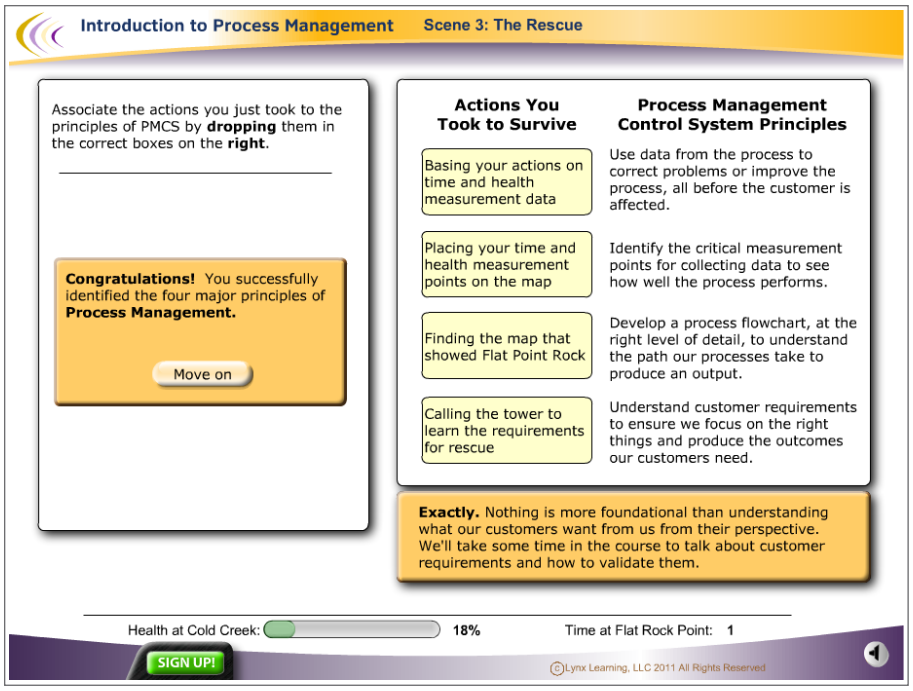


Figure 16:

Introduction to Process Management, mapping your actions in the game to the four principles of process management

(Source: NewWave Learning and Suddenly Smart; http://www.suddenlysmart.com/examples/survival/player.html)

What elements are used? *This process management training game uses the elements of stories, characters, the freedom to fail, time-based activities, and points.*

Reinforcing Key Sales Concepts with a Mobile Game

The Willis Organization partnered with Metil Lab in the development of a Go for the Green Challenge (Figure 17 on page 31) that uses a golf theme to reinforce key sales concepts. The rationale for using a golf theme, according to the Willis Organization's website, is that it "links the challenges and competition of selling with the competitive challenges of golf. Why the linkage? Both selling and golf require preparation, planning, and practice on a defined 'track' to maximize positive outcomes and results."

Figure 17:

Willis Organization and Metil Lab Go for the Green Challenge, course layout, and sample interaction

(Source: Metil Lab)

So how does it work? They mapped the nine holes of the golf course to nine steps in the sales process. At each hole, you get a series of questions and multiple attempts to answer the question correctly. If you answer correctly on the first attempt, you will have just made a hole in one. However, if you answer incorrectly, you will get feedback both in text as well as in the context of the game, i.e., you may have just hit the ball into a sand trap. Users attempt to complete the full course by answering all questions and avoiding common "traps" in the sales process. Quiz answers count as strokes and the scorecard tracks them.

> ***What elements are used?*** *This key sales concepts course uses the elements of challenges, points, and the freedom to fail.*

Getting Leaders to Come to Training

We often complain about how hard it is to get leaders to want to come to leadership training. Here's where we see another successful example of gamification. According to *CIO* magazine, since the addition of gamification elements to Deloitte Leadership Academy, there has been a large increase in the number of participants attending training. In fact, *CIO* says that Deloitte Leadership Academy has seen a *47 percent increase* in the number of participants that return to the online course site on a daily basis since they launched the platform over a year ago. Analysis shows that each active user has almost three badges, with one gathering 30 badges in two months.

The article explains that Deloitte is looking into gamifying other processes such as recruitment in order to motivate employees to refer candidates to jobs.

Getting Started

While there are a variety of game development tools, game engines, and vendors available, choosing the right one is dependent on both your internal development needs and the experience that you would like to create. Quite often people get so excited about creating a gaming or gamification experience that they want to jump right into the technology elements. It's important to keep in mind that you should not develop gamification and gaming without the assistance of experts in the gaming field. Remember Gartner's prediction that 80 percent of gamification will fail because of poor design? It's not as easy as simply adding gaming elements to content.

Enterprise Gamification provides a list of studios that build games and simulations and that gamify applications and processes for organizations. They also list game design tools and platforms.

Organizations that partner in the development of gamification and/or the games referenced in this report include:

- Bunchball
- Moving Knowledge
- OnPoint Digital
- Suddenly Smart
- The Mixed Emerging Technology Integration Lab

Unfortunately, it is *very* easy to let the technology components sidetrack the instructional intent. I strongly recommend that your first step be to focus on the problem you are addressing, the goals for the program, and the high-level vision of the gamification experience, *and then* find the development tools and partners that are best suited to bring your vision to life. Before you think about technologies, think through the next section, which is why I've spent very little time talking about technology solutions. *They don't come first*.

Gamification and games, when designed with solid game and instructional design principles, can increase learner engagement, increase completion rates, create a sense of community among your learners, provide reinforcement of key learning content, and provide a safe and fun environment in which to solve problems. However, it takes time to design games and gamification events properly.

I want to leave you with this challenge: Take a serious look at your eLearning programs and consider how can you leverage gaming concepts to engage and motivate your learners, promote learning, and solve business problems. Questions you should consider include:

- What problems are you trying to solve with games or by gamifying your learning?
- How can you turn your content into a compelling story that will not only provide context for the learning but allow learners to actively interact with the content?
- What content could you organize into playing levels such as demonstration, practice, and assessment?
- How can you reward and motivate your learners based on real outcomes vs. simple completion of tasks?
- How can you use the concept of time within your games to mimic real-life situations?
- Where could you leverage gaming elements as a means of providing a safe environment where learners can truly learn from their mistakes?
- Do your current eLearning courses provide immediate feedback, or do they wait until the end of the course? If the latter, can you rethink your design to incorporate game-element feedback on an ongoing basis?
- What type of gamification experience could you create that addresses your problem statement? What game elements can you use?

Now that you've given some serious thought to how you can gamify your learning and whether it is the right decision for your organization, the next step is to begin fleshing out your vision. While there is no standard design document for gamifying your learning, the following will give you a basic structure for applying what you have learned in this report and documenting your requirements and initial design considerations. Not all sections or questions may be relevant, depending on the type of experience you are creating, but they can serve as a baseline for your design.

Project Concept

Big Picture

Questions to consider may include:

- What problems are you trying to solve?
- What are your reasons for wanting to gamify your learning?
- What are your goals?
- What are the main benefits or outcomes you expect to achieve?
- How will you define and measure success?

Gamification/Player Experience

Document the experience your learners will have when they participate in the experience. Be specific as you outline the experience from beginning to end. Questions to consider may include:

- Who is the audience?

Objectives and Activities

To ensure that the instructional intent is always in the forefront of not only your design but also throughout the process, you should identify the learning objectives and supporting tasks. Make sure that you are documenting both your measurable learning objectives and any affective (emotional) objectives. Next, identify activities that the learner will participate in to achieve these objectives and define how you will measure the objectives. Questions to consider may include:

- What do I expect the learner to be able to do upon completing the game?
- What are the associated tasks and activities the learner will need to complete?
- How will I measure that they have met the objectives within the activities?

Storyline and Characters

The most engaging game experiences include a storyline to draw the player into the experience. If your gamification vision includes a storyline, write a high-level description of the storyline, the characters, and their intent, as well as the settings in which the storyline will unfold. Items to consider may include:

- Describe the high-level storyline.
- Does your storyline involve multiple settings or does it take place in one setting? Describe each setting.
- How many characters will the storyline include, and what is the role of each character? Describe each character.

Technical Considerations

Just as in eLearning, you should document all of your technical considerations. Questions to consider may include:

- How will your learners access the game or gamification experience?
- Will the solution be web-based, or will learners need to download an application?
- Will the solution integrate with your learning management system or other internal systems?

- Will mobile users use the game or gamification application? What kinds of considerations do you need for their use?
- What development software will you need, such as game-development software or game platforms?

Upon completing these questions, you have made a good start towards thinking through how you can apply gaming principles within your learning experiences and can move forward with either determining vendors to work with or working with your development team to flush out the details of your solution and begin the design and development of a prototype. Remember, if you are depending only on your internal team, make sure they have the required background in gaming design and development to ensure a successful outcome.

Major Takeaways

- Gamification is about applying game elements and game mechanics to non-game activities in order to make them more compelling. We use it in learning to increase engagement and motivate specific behaviors.
- *Game mechanics* include points, bonuses, countdown, goals, levels, status, and progression. *Game thinking* includes stories, challenges and quests, and characters and avatars, which give the player control over the game, the freedom to fail, and feedback.
- Gaming and gamification, like other learning strategies, are not one-size-fits-all solutions. A detailed analysis must take place prior to adopting these strategies.
- We typically use gamification to increase engagement, but learning solutions must also have business impact. Therefore, we need to make sure that we design gamification with *both* of these results in mind.
- Researchers doing meta-analyses of games studies (a research method combining results of existing studies to identify patterns among study results) showed that games have their best results when used as a component in a larger instructional strategy that includes adequate debriefing and feedback. The most engaging games offer an experience that unfolds over time.
- Game elements should provide relevant feedback and learning reinforcement, and should be part of an engaging and collaborative environment.
- Gamification research is newer than games research, because gamification is newer than games. Watch for new research in this area.
- Begin your gamification process by focusing on your requirements. Ensure the experience is the best solution for your initiative and design it to support your instructional objectives.
- Review many examples of gamification to see what works and how game elements, game mechanics, and game thinking combine to make game activities engaging. Consider how to best combine these elements in learning-specific solutions. Karl Kapp's book *The Gamification of Learning and Instruction: Game-Based Methods and Strategies for Training and Education* discusses gamification in learning-specific contexts and is a valuable resource for getting started.
- Games and gamification projects should ideally include game specialists in the design process.

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7

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Resources

The eLearning Guild

Articles

Clark, Ruth. "Why Games Don't Teach." *Learning Solutions Magazine*. 19 February 2013. http://www.learningsolutionsmag.com/articles/1106/why-games-dont-teach

Derryberry, Anne. "Dispatch from the Digital Frontier: Imagining a Badge System for e-Learning." *Learning Solutions Magazine*. 22 March 2011. http://www.learningsolutionsmag.com/articles/649/dispatch-from-the-digital-frontier-imagining-a-badge-system-for-e-learning

Kapp, Karl. "Once Again, Games Can and Do Teach!" *Learning Solutions Magazine*. 4 March 2013. http://www.learningsolutionsmag.com/articles/1113/once-again-games-can-and-do-teach

Neibert, Jennifer. "Book Review: The Gamification of Learning and Instruction, by Karl M. Kapp." *Learning Solutions Magazine*. 2 May 2012. http://www.learningsolutionsmag.com/articles/915/book-review-the-gamification-of-learning-and-instruction-by-karl-m-kapp

Villar, Mayra Aixa. "Game Architecture: Delivering Meaningful Learning Experiences." *Learning Solutions Magazine*. 14 January 2013. http://www.learningsolutionsmag.com/articles/1087/game-architecture-delivering-meaningful-learning-experiences

Research Reports

Casebourne, Imogen. "How Mobile Learning Is Done: Nine Case Studies from Around the World." *The eLearning Guild*, 2013. http://www.elearningguild.com/research/archives/index.cfm?id=166&action=viewonly&from=content&mode=filter&source=archives

Shank, Patti. "Getting Started in e-Learning: Simulations and Games." *The eLearning Guild*, 2010. http://www.elearningguild.com/research/archives/index.cfm?id=144&action=viewonly&from=content&mode=filter&source=archives&showpage=2

Wexler, Steve, Kevin Corti, Anne Derryberry, Clark Quinn, and Angela van Barneveld. "Immersive Learning Simulations." *The eLearning Guild*, 2008. http://www.elearningguild.com/research/archives/index.cfm?id=121&action=viewonly

Additional Resources

Articles

Adams, Deanne M., Richard E. Mayer, Andrew MacNamara, Alan Koenig, and Richard Wainess. "Narrative Games for Learning: Testing the Discovery and Narrative Hypotheses." *Journal of Educational Psychology*, Vol 104(1). February 2012.

Brousell, Lauren. "How Gamification Reshapes Corporate Training." *CIO*. 5 February 2013. http://www.cio.com/article/728268/How_Gamification_Reshapes_Corporate_Training?page=1&taxonomyId=3119

Carr, David. "Gamification in Play at Enterprise 2.0." *InformationWeek*. 30 April 2012. http://www.informationweek.com/thebrainyard/news/231902300/gamification-in-play-at-enterprise-20

Dorn, Dean S. "Simulation Games: One More Tool on the Pedagogical Shelf." *Teaching Sociology*, Vol. 17, No. 1. January 1989.

Fogg, B.J. "Persuasive Technology: Using Computers to Change What We Think and Do." *Ubiquity*. December 2002. http://dl.acm.org/citation.cfm?id=763957&CFID=333406407&CFTOKEN=40882946

Gartner Research. "Gartner Says By 2015, More Than 50 Percent of Organizations That Manage Innovation Processes Will Gamify Those Processes." 12 April 2011. http://www.gartner.com/it/page.jsp?id=1629214

King, Rachael. "The Games Companies Play." *Bloomberg BusinessWeek*. 5 April 2011. http://www.businessweek.com/stories/2011-04-05/the-games-companies-playbusinessweek-business-news-stock-market-and-financial-advice

Ryan, Richard, Scott Rigby, and Andrew Przybylski. "The Motivational Pull of Video Games: A Self-Determination Theory Approach." *Motivation and Emotion*. 30. 2006.

Ryan, R. M., and E.L. Deci. "Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions." *Contemporary Educational Psychology*, 25. 2000.

Sitzmann, Traci. "A Meta-Analytic Examination of the Instructional Effectiveness of Computer-Based Simulation Games." *Personnel Psychology*, 64. 2011.

Terry, Ken. "Gamification Boosts Employee Health Behavior, Blue Shield Argues." *InformationWeek*. 19 April 2012. http://www.informationweek.com/healthcare/patient/gamification-boosts-employee-health-beha/232900572

Wouters, Pieter, Christof van Nimwegen, Herre van Oostendorp, and Erik D van der Spek. "A Meta-analysis of the Cognitive and Motivational Effects of Serious Games." *Journal of Educational Psychology*, Vol 105(2), May 2013.

Young, Michael, et al. "Our Princess Is in Another Castle: A Review of Trends in Serious Gaming for Education." *Review of Educational Research*, 82, 61-89. 2/2010.

Books

Csikszentmihalyi, Mihaly. *Flow: The Psychology of Optimal Experience*. New York, NY: Harper & Row, 1990.

Dignan, Aaron. *Game Frame: Using Games as a Strategy for Success*. New York, NY: Simon & Schuster, Inc, 2011.

Kapp, Karl. *The Gamification of Learning and Instruction: Game-Based Methods and Strategies for Training and Education*. San Francisco: Pfeiffer, 2012.

Koster, Ralph. *A Theory of Fun for Game Design*. Scottsdale, AZ: Paraglyph Press, Inc, 2006.

McGonigal, Jane. *Reality Is Broken: Why Games Make Us Better and How They Can Change the World*. New York, NY: The Penguin Press, 2012.

Prensky, Marc. *Digital Game-Based Learning*. St. Paul, MN: Paragon House, 2007.

Radoff, Jon. *Game On: Energize Your Business with Social Media Games*. Indianapolis, IN: Wiley Publishing, Inc. 2011.

Rigby, Scott, and Richard Ryan. *Glued to Games: How Video Games Draw Us In and Hold Us Spellbound*. Santa Barbara, CA: Praeger, 2011.

Schell, Jesse. *The Art of Game Design: A Book of Lenses*. Burlington, MA: Morgan Kaufmann Publishers, 2008.

Sheldon, Lee. *The Multiplayer Classroom: Designing Coursework as a Game*. Boston, MA: Course Technology, 2012.

Zichermann, Gabe, and Christopher Cunningham. *Gamification by Design: Implementing Game Mechanics in Web and Mobile Apps*. Sebastopol, CA: O'Reilly Media, Inc, 2011.

Conferences

Deterding, Sebastian, Dan Dixon, Rilla Khaled, and Lennar Nacke. "From Game Design Elements to Gamefulness: Defining 'Gamification.'" *The Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments*. http://dl.acm.org/citation.cfm?id=2181037&picked=prox

The Gamification Research Network. *CHI 2013 Workshop*. 3 April 2013. http://gamification-research.org/wp-content/uploads/2013/03/CHI2013_Designing_Gamification_Workshop.pdf

Papers

Bunchball. "Gamification 101: An Introduction to the Use of Game Dynamics to Influence Behavior." October 2010. http://www.bunchball.com/sites/default/files/downloads/gamification101.pdf

Gee, James Paul. "Good Video Games and Good Learning." http://www.academiccolab.org/resources/documents/Good_Learning.pdf

Reports

Anderson, Janna, and Lee Rainie. "Gamification: Experts Expect 'Game Layers' to Expand in the Future, with Positive and Negative Results." Pew Research Center's Internet & American Life Project. 18 May 2012. http://www.pewinternet.org/~/media//Files/Reports/2012/PIP_Future_of_Internet_2012_Gamification.pdf

Burke, Brian. "Gamification 2020: What Is the Future of Gamification?" Gartner Research. 5 November 2012. http://www.gartner.com/id=2226015

Hays, Robert. "The Effectiveness of Instructional Games: A Literature Review and Discussion." *Naval Air Warfare Center Training Systems Division Technical Report 2005-2004*. 2005.

M2 Research. "Gamification in 2012: Market Update, Consumer, and Enterprise Market Trends." http://www.slideshare.net/wandameloni/gamification-in-2012-trends-in-consumer-and-enterprise-markets-13453048

Websites

Adobe Systems. "LevelUp for Photoshop—Monthly Leaderboard." http://success.adobe.com/microsites/levelup/monthly.html

Chen, Jenova. "Flow in Games." http://jenovachen.com/flowingames/flowtheory.htm

Clark, Ruth. "Why Games Don't Teach." 30 April 2012. http://www.astd.org/Publications/Blogs/L-and-D-Blog/2012/04/Why-Games-Dont-Teach.aspx

Firn, Mike. "McDonald's Japan Teaches Burger Making With Nintendo DS." *Bloomberg Businessweek*. 12 April 2010. http://www.bloomberg.com/video/58792564-mcdonald-s-japan-teaches-burger-making-with-nintendo-ds.html

The Gamification Education Portal. http://www.gamification.org/education

Gamification Wiki. http://gamification.org/wiki

Google. Trends Web Search Interest: Gamification. Worldwide, Sept. 2011 – Sept. 2012. http://www.google.com/trends/explore#q=gamification&date=9%2F2011%2013m&cmpt=q

Hepburn, Aden. "The Epic Win iPhone App." *Digital Buzz Blog* (blog), 07 12, 2010. http://www.digitalbuzzblog.com/epic-win-iphone-app-trailer/

Herger, Mario. "The 'Promptitudiness' of Time Reporting Through Gamification." Enterprise Gamification. 13 July 2012. http://enterprise-gamification.com/index.php/en/project-management/100-the-promptitudiness-of-time-reporting-through-gamification

Herger, Mario. "Game Studios and Game Design Tools." Enterprise Gamification. http://enterprise-gamification.com/index.php/en/resources/game-studios

Herger, Mario. "Gamification Platform Matrix." Enterprise Gamification. http://enterprise-gamification.com/index.php/en/resources/platforms

Kapp, Karl. "Research to Practice: Games and Simulations." Kapp Notes. 17 November 2011. http://karlkapp.com/research-to-practice-games-and-simulations/

MeYou Health. "MeYou Health Products Improve Your Well-Being." http://meyouhealth.com/blog/

Ruther, Brian. Talent Tornado, "Gamify Your Workplace, Increase Quality Hires." 27 February 2012. http://talenttornado.com/gamification-of-workplace/

Shape Up. "Turkey Dash." https://mywellvolution.shapeup.com

Substance Lab. "Progress Wars." http://progresswars.com

Suddenly Smart. "Introduction to Process Management." http://www.suddenlysmart.com/examples/survival/player.html

Supermono Limited. "EpicWin." https://itunes.apple.com/us/app/epicwin/id372927221?mt=8

Trend Hunter. "Nintendo and McDonald's Team Up for Employee Training." 22 March 2010. http://www.trendhunter.com/trends/nintendo-and-mcdonalds

Tools

Bunchball LevelUp for Photoshop:
http://www.bunchball.com/blog/post/10510323510/levelup-for-photoshop-gamification-of-learning

Enterprise Gamification:
http://enterprise-gamification.com/index.php/en/crm/37-salesforce-motivation

The Mixed Emerging Technology Integration Lab:
www.metillab.com/

Moving Knowledge:
www.movingknowledge.com/index.php?option=com_content&view=article&id=6&Itemid=5

On Point Digital Learning & Performance Suite:
www.onpointdigital.com/

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