



enspire

Gamification Elements to Use for Learning

By Mindy Jackson

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Gamification

Gamification is one of the hottest trending topics in the learning and development community (alongside big data, learning analytics, and adaptive/personalized learning).

Organizations are seeking gamification of learning activities to boost learner motivation, engagement, and enjoyment in training experiences.

Because Enspire was founded on the premise that computer-based games and simulations change the way we work, play, and learn, we've amassed 15 years of experience and exemplars to share.

Gamification Definitions

First things first: We need to be clear about our vocabulary. What are the differences between gamification of learning, games for learning, and simulated learning experiences?

➤ Games

Games are collaborative or competitive activities played according to a set of rules. Games usually have an end-goal or win-state.

Games frequently used for training purposes include board games, conversation games, quiz games, role-play games, strategy games, and word games.

There are many types of games.

➤ Simulations

Simulations are operational models of real-world processes or systems over time. The models represent key characteristics or functions of a system that can be manipulated for experimentation and study. Common computer-based simulations include enterprises, ecosystems, economies, equipment, and physics.

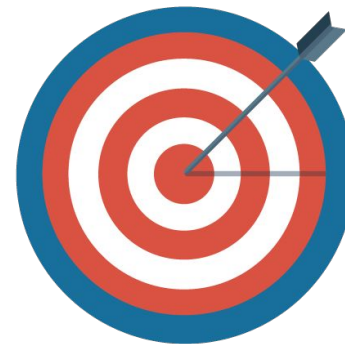
Business decision simulations, conversation simulations, medical patient simulations, and process simulations such as sales and customer service are used for learning and development.

➤ Gamification

Gamification is the application of game-playing elements to another type of activity.

Common gamification elements include points, timers, badges, and leaderboards.

It's no wonder there's confusion about the differences in games, simulations, and gamification. At Enspire, we often blend elements from both games and simulations in a learning experience.



Implications for Instructional Design (ID)

As instructional designers, we are challenged to create learning experiences that:

- Engage and motivate learners.
- Provide practice opportunities to gain confidence using new skills and knowledge.
- Assess learning progress through the practice opportunities.
- Give meaningful feedback to learners to improve performance.

Gamification elements are useful in addressing each of these design challenges:



**Learner
Engagement**



**Practice
Opportunities**



Assessment



Feedback

Gamification Elements to Use for Learning

Learner Engagement

Much has been written about the aspects of play and psychology inherent in successful games; we know people enjoy games.

Our brains are puzzle-solving machines. That's one reason matching puzzle games like Tetris, Bejeweled, and Candy Crush are so compelling: they're essentially brain yummys. Combining short, discrete puzzle-solving with a rewards system and progress meters creates a delicious recipe for brain attention and engagement.

Leveling through a series of quests, unlocking milestones, and accumulating rewards or status symbols motivates continued engagement. There are many game mechanics that naturally tap intrinsic and extrinsic motivations.

Practice Opportunities

Practice improves performance. Neuroscience and education research supports the positive effects of practice over time. Repeated practice with differentiated problems leads to competency and enhances transfer.

Really good games keep the learning activities at the front edge of the learning curve. That is, activities are appropriately demanding without being too difficult. Higher levels of gameplay often combine previously-honed knowledge and skills when developing new skills – another brain yummy that keeps us playing and improving.

Don't discount rote learning activities, either. From developing neural pathways and “memory muscle,” practice improves recall abilities. Casual game mechanics that embody a “twitch” factor of play can be repurposed to work from cognitive reflexes rather than from dexterity reflexes.

Assessment

Games don't stop play to assess player skills and knowledge through a multiple-choice test. Assessment is embedded in the gameplay as performance-based activities.

In well-designed games, assessment is continuous and measured by player actions. Cause-and-effect variables are affected by player choices (or choice absence). Now imagine assessing real-life task performance variables in the same way. A much richer catalog of competencies and areas for improvement is produced.



Feedback

Games are good at tallying scores, and at answering the question, “How am I doing?”

From points, meters, and resource allocation dashboards to immediate event feedback loops, well-designed games provide real-time feedback. Natural consequences reveal the missteps in applying incorrect logic or in following an incorrect process path.

The ability to provide a steady “state” awareness of the learner's skills development is one of the pillars of adaptive learning, but many games do this for players through simple metrics, as well as through complex algorithms.

Providing both immediate and delayed feedback for choices is one of the hallmarks of great video games. Remediation and scaffolding are part of the experience. In essence, the game tells the player, “Remember that decision you made or did not make in the previous level – well you need that tool or information now, so go back and earn it.” For training purposes, the message is, “Go back and LEARN it.”



Applying Gamification to Learning Activities

In game-design parlance, a game mechanic is a method of player interaction with the game. Hundreds of game mechanics have been described in the literature about games. Search and you will find the minutia of human-computer interface controls (“jump,” “turn,” “block,” etc.) as well as collections of heuristic patterns (“achievement,” “fixed ratio reward schedule,” “virtual goods”). Integrating game mechanics within the learning experience is the first step to gamification.

But beyond game mechanics, there are other common elements in digital games that are useful for learning experiences: interesting narratives, interface responsiveness, dynamic feedback mechanisms, and maintaining the illusion of choice or control (“agency”). “Player agency” is the feeling of being in control of the experience; in reality, good game design hides the guided paths. There are always a limit to choices in games, but deft design maintains an illusion of self-direction.

The table below presents some of the most widely adopted game elements for the gamification of learning:

Game Element	Examples	Usefulness to Instructional Design
Achievement (Progression)	<ul style="list-style-type: none"> • Points • Badges • Leveling • Leaderboards • Progression bars • Certificates 	<p>Game players get satisfaction from level accomplishment and skill development. Learners enjoy the same types of recognition.</p> <p>The sense of progression motivates continued effort. Leaderboards provide a social status element, as do points and badges.</p> <p>In training, the course completion certificate signals achievement.</p>
Rewards	<ul style="list-style-type: none"> • Equipment, tools and other resources to use in game • Collectibles • Bonuses • Power-ups 	<p>Closely related to achievement, rewards can be scheduled into the learning experience.</p> <p>Both variable and fixed reward schedules are popular game mechanics. Rewards can be based on completing a number of actions, or distributed at set intervals.</p> <p>Rewards provide extrinsic motivation and recognition for time, effort, and skills attained.</p>
Story	<ul style="list-style-type: none"> • Narrative arc • Quest: The hero’s journey 	<p>An adventure setting, a thwarting disaster scenario, or a beating the competition narrative pique learner interest and motivation.</p> <p>Put the learning experience into a compelling narrative setting. Add characters, conflicts, and resolution to immerse the learner – and learner choices – into the storyline.</p>

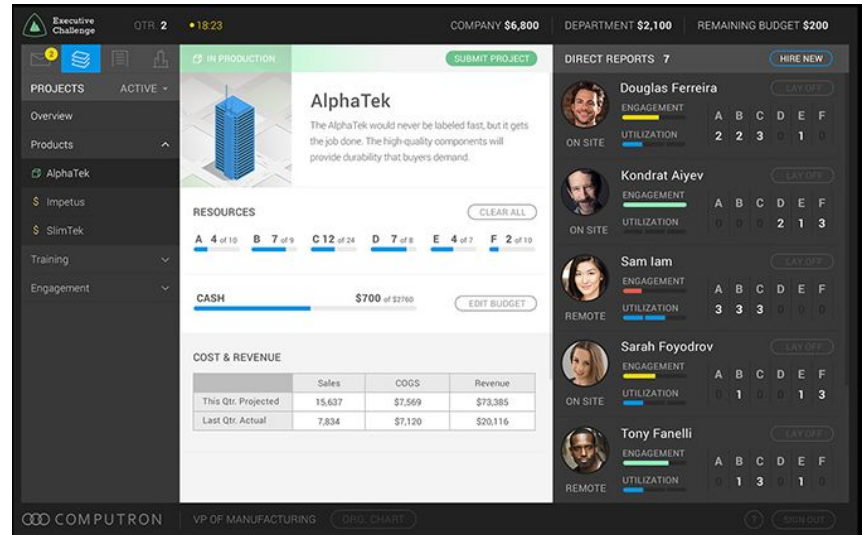
Game Element	Examples	Usefulness to Instructional Design
Time	<ul style="list-style-type: none"> • Countdown • Schedule 	<p>A common trope in board games, timers (counting up total time) and countdown clocks create a sense of urgency. Even using a schedule of events, e.g., before I do B and C, I must complete A, helps focus learner attention to the task at hand.</p>
Personalization	<ul style="list-style-type: none"> • Avatar selection • Avatar customization • Character naming • Interactive conversation (ICI) 	<p>With HTML5 and dynamic CSS, it's easier than ever to provide personalization.</p> <p>From selecting and customizing an avatar to choosing the look-and-feel options (e.g., a dreamy theme or a bright color theme), accommodate individual preferences.</p> <p>Use the information from learner input fields. For example, if the learner inputs a nickname into a text field, use that nickname within the environment or narrative.</p> <p>Repurpose previous responses to provide a sense of intelligence or awareness: "I am known." For example, pull up an earlier answer response later in the game. Personalization ups learner engagement and motivation.</p>
Microinteractions	<ul style="list-style-type: none"> • SFX • Toggles • Animated rollovers • Easter eggs 	<p>Details matter when creating a great experience.</p> <p>Games provide numerous and satisfying moments and microinteractions: a hover-state animation, a sound effect, or a cut-screen narration. But beware of too much flare!</p> <p>Provide nuanced environmental reactions to learner actions through sound, subtle animations, and cool transition screens.</p>

Gamification Examples from Enspire

Executive Challenge

- Role-play
- Strategy
- Resource allocation
- Simulated market dynamics

Executive Challenge is a laboratory for leaders, helping them understand important facets of organizational dynamics, cross-functional collaboration, operational excellence, and strategic thinking.

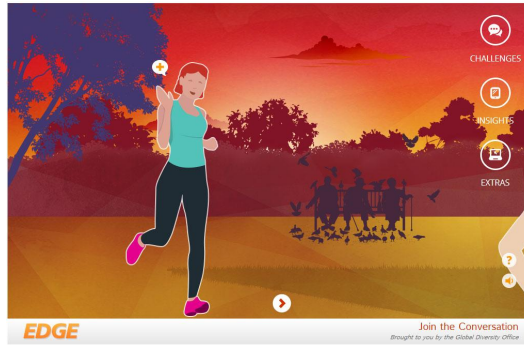




Safety and Security Awareness Training

- Narrative
- Timers
- Divergent pathways
- Badges

Learners in Prudential's Safety and Security Awareness are asked to respond to safety challenges in the office as they would in real life – under time pressures. The safest and shortest solution path earns learners a gold safety badge.



Interactive Virtual World

- Side-scroller
- Narrative
- Levels
- Badges

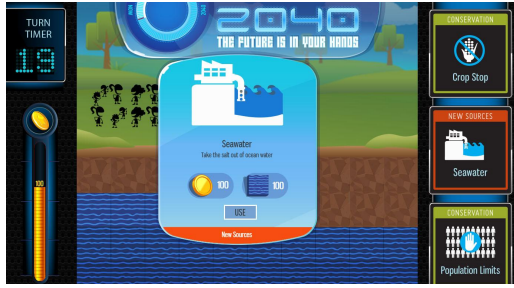
MasterCard's EDGE (Employees Driving the Global Enterprise) is a tablet-enabled interactive gamification program. Employees traverse a virtual world and must articulate clearly and accurately what MasterCard does, and how it benefits individuals and society.



Financial Security Fortress

- Tower defense mechanics
- Strategy
- Resource allocation
- Rewards

The isometric game space represents financial assets and protections. If an attacker sacks the central treasury, "game over." Designed as a consumer-facing experience, the game was playtested at West Point and the United States Air Force Academy.



Water Resource Management Game

- Timers
- Strategy
- Resource allocation
- Unexpected events

The game places learners in a “water management czar” position. Working against time pressure, a finite budget, and variable weather conditions, learners must supply the population of Austin, Texas, with water until the year 2040.



Personal Budgeting and Finance Simulation

- Customizable avatars
- Scoreboard
- In-game message board
- Easter eggs

In Junior Achievement’s Finance Park, each student receives a random life situation that includes a job, salary, family information, and tax obligations. They must then determine their net monthly income, visit a series of stores, purchase items appropriate for their lifestyle, and balance their budget in a timely manner.



Talent Management Board Game

- Game board
- Narrative
- Strategy
- Resource allocation
- Online scorekeeping
- Random events

Focusing on talent management processes and activities, teams compete to increase productivity and revenue. Using the board game, employee profile cards, and other paper-based assets during each round of play, team scores are calculated by and represented in a web-based application.

Ready to Play?

Gamification elements are useful to learning. Whether building basic skills and memory muscle or developing more sophisticated knowledge about the intricate dependencies within dynamic operations, game elements have a place among instructional strategies. But the caveat is that they usually work best in combination with other methods. A classroom debrief, follow-up emails, additional resources, and practice opportunities can take the good learning experience into the realm of great learning outcomes.



Want to see more from Enspire?

www.enspire.com

info@enspire.com



Additional Resources

Game Design Community of Practice Websites

- Gamasutra: <http://gamasutra.com>
- GameDev: <http://www.gamedev.net>
- GDC Vault: <http://www.gdcvault.com>
- IGDA: <https://www.igda.org>

Books about Game Design

- Raph Koster, *A Theory of Fun for Game Design*
- Katie Salen and Eric Zimmerman, *Rules of Play: Game Design Fundamentals*
- Jesse Schell, *The Art of Game Design*

Books about Gamification

- Yu-kai Chou, *Actionable Gamification: Beyond Points, Badges, and Leaderboards*
- Karl Kapp, *The Gamification of Learning and Instruction Fieldbook*
- Andrzej Marczewski, *Even Ninja Monkeys Like to Play: Gamification, Game Thinking & Motivational Design*