USING GAME ELEMENTS TO CREATE ENGAGING, IMPACTFUL INSTRUCTION

Version 7.0

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SYMBOLS AND ICONS

Below is a list of symbols and icons that will trigger you to important items within this Handout

Symbol/Word	Meaning
✓ **Note**	Important information for you to know or remember.
? Question	Write an answer or think about and write a response or ask a question.
Write	Take notes or write information into your learner guide.
Think	Think about a concept or idea.
Definition	Definition of a term you should know.
Play	Play a game or participate in an activity.
Draw	Draw an image or diagram of the concept being discussed.

✓ **Note**

Research shows that longhand note takers engage in more processing than laptop note takers, thus selecting more important information to include in their notes, which enables them to study content more efficiently.

Muller, P. A. & Oppenhiemer, D. M., **The Pen Is Mightier Than the Keyboard: Advantages of Longhand Over Laptop Note Taking**. Psychological Science 0956797614524581, first published on April 23, 2014
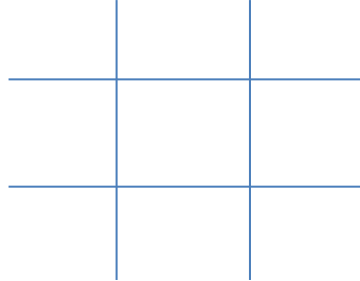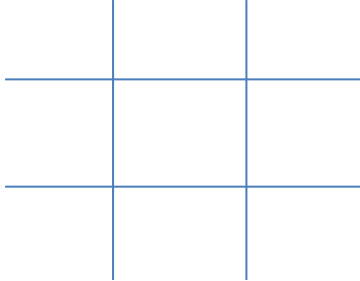
![Think icon] **Think**

What is it about games that make them "fun"?

GAMES

⊡ **Play**

What is a game? Before defining a game, let's play a few.

🖊 **Write**

Did you learn anything from playing Tic-Tac-Toe? In the space below write any lessons learned, observations or other thoughts related to playing the game.

INTRODUCTION

Taking an online workshop can be a great way to enhance and improve your skills but, for many, taking an online workshop can be a new and different experience. Here are some tips to help you maximize the learning from this self-pace online workshop.

1. **Approach the course with a topic, subject or idea in mind that you'd like to gamify.** Something that you teach or has given learners trouble in the past or is hard for learners to understand or even something that is really boring. When you are asked to reflect or use a topic during an exercises, use that subject or topic. It will help ground the course to your on-the-job responsibilities.

2. **Complete the exercises and follow along in the workbook**. Sure, you could watch all the videos and think about what is discussed but to get the most out of the workshop, actually writing down your thoughts, answering questions and dissecting games is going to help you effectively apply what you are learning to the subject at hand.

3. **Seek out fellow learners and tackle this course together**. A real advantage of an actual classroom, as opposed to an online course, is that there are other people to help you if you get stuck or to talk over difficult points. Recruit a co-worker to take this online workshop with you. It will help you on your learning journey.

Putting these tips into practice will help you to develop effective, engaging instruction and help you and your organization achieve success.

✓ **Note**

Have fun with this course. Learning shouldn't be drudgery; it should be fun. Yes, some things are hard to learn or difficult to apply but overcoming challenges is part of the learning process. Best of luck as you work toward helping your organization by creating engaging, impactful learning by adding game elements.

WORKSHOP GOALS

In this workshop, seek answers to these questions:

- What is the difference between games, gamification and simulations?
- What elements of game-based learning lead to increased retention and learning?
- What are key theories that support gamification and game-based learning?
- What techniques can we borrow from games to create engaging, impactful instruction

✎ Personal Learning Objective

What is your Personal Learning Objective for the workshop? Write down what you want to gain from this workshop and make sure the instructor is on-target with meeting your needs. If not, ask questions and make sure you gain what you'd like from the information presented.

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✎ Workshop Subject

One more thing before you dive deep into the workshop. Pick a course, a topic or a subject that you teach or are familiar with as the subject for this workshop. Throughout the workshop, you'll be asked to think about a subject to use as you create gamified elements use the subject you pick here. Having a subject in mind will help you to better apply the concepts and ideas presented in this course.

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LET'S DEFINE GAMIFICATION, GAMES AND SIMULATIONS

Overview of the Basics

It's important to understand the basics of games and gamification. Knowing the lingo and terms used in the design of games will help you to better understand how to apply the concepts to the instruction you design.

In this section of the course, you'll learn basic terms, the difference between similar terms and foundational knowledge that will help you apply game concepts to the design of your instructional material.

But first, let's investigate how prevalent games are in today's society. This perspective sheds light on why it's so important to think about using games and game elements to create engaging instruction.

Power of Games

- Average US high school student plays as much as 10,000 hours of games before they graduate.
- They play approximately 13 hours of console games a week.
- 87% of 8-17-year olds play video games at home.
- The average video game play is between 30-38 years old.
- Almost 43% of the gamers are female and 26% of those females are over 18.
- Females play 5 hours a week of console games. They make up the majority of PC gamers at 63%.
- The phenomenon known as "eSports" has gained traction with the pandemic with NASCAR and other showing actual video games instead of live physical events at the height of the quarantine.

GAMES VS GAMIFICATION

Let's look at the difference between games and gamification.

✒ Write

Write your definition of a gamification:

_____
_____
_____
_____
_____
_____

✒ Write

Write your definition of a game-based learning:

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📚 Definition

Gamification—The concept of using game-based mechanics, aesthetics and game thinking to engage people, motivate action, promote learning, and solve problems. Using game-elements for learning but not creating an entire game. Bits, pieces, parts of games. It doesn't always "look" like a game.

📚 Definition

Game-based Learning—An entire system designed around helping the learner reach a learning goal. The learners/players engage in an abstract challenge, defined by rules, interactivity and feedback that result in a quantifiable outcome often eliciting an emotional reaction. The activity of playing the game itself teaches the learner what they need to know. A game has a definite beginning, middle and end.

GAMES VS SIMULATIONS

People often confuse the terms game and simulation and while they do have a number of similarities, they are not exactly the same thing.

✎ **Write**

Write your definition of a simulation:

_____
_____
_____
_____
_____

✎ **Write**

How do you distinguish between a game and a simulation? What are the similarities? Differences?

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_____

📚 **Definition**

Simulation--A realistic, controlled-risk environment where learners can practice specific behaviors and experience the impacts of their decisions. The goal of a simulation is often to be as realistic as possible. The person experiencing the simulation feels as if they are actually experiencing the real thing.

WHAT IS A "SERIOUS GAME"?

The term "serious games" seems strange. It combines two things that don't seem to go together "serious" and "games."

✒️ **Write**

Write your definition of the term "Serious Game":

_____
_____
_____
_____
_____

💬 **Think**

What serious games have you played? What is the first serious game you've ever played?

📚 **Definition**

Serious Game-A game that provides the players a chance to learning an important subject, topic or skills.

DEFINING THREE TYPES OF GAMIFICATION

"Gamification" is a broad term that can be further refined into three types:

- Structural Gamification
- Content Gamification
- Performance-based Gamification.

Definition

Structural Gamification-. Structural gamification is the application of game-elements to propel a learner through content with no alteration or changes to the content. The content doesn't become game-like only the structure around the content.

Definition

Content Gamification-. Content gamification is the application of game elements, game mechanics and game thinking to alter content to make it more game-like. The content itself become more like a game and is altered to feel more like a game.

Definition

Performance-based Gamification—Performance-based Gamification is when the game elements are tied directly to an employee's work system. For example, every time an order entry clerk enters a customer order properly, they might earn 100 points, if they check the customer's credit they may earn an additional 50 points

 Think

Is the subject or topic that you have decided to use for this course more aligned with content, structural or performance-based gamification? Why do you come to that conclusion?

Notes

Pages and spaces on pages like this are in the workbook to provide room for you to take notes.

Definition

Meta-Analysis—This is when researchers look at many different studies which all studied the same phenomenon and they analyze the data from those studies to determine the overall trends and results rather than just looking at one study. It's basically a "study of studies."

WHAT DOES THE RESEARCH SAY ABOUT GAMIFICATION?

The question we should be asking is "when gamification is effective, what makes it effective?

Three critical areas that make gamification effective:
- Design of the gamified system
- Learner Attributes (learners with previous experience playing games are more prone to gamification)
- Match the affordances of the gamification dynamics with the desired learning outcomes. They embedded the right gamification to achieve the right outcomes.

Proper Design of a Gamified System
- System Quality-Functionality has to work.
- Information in the System-Accurate, relevant and timely.
- Manage Expectations—Set the right expectations
- Social Use-People have to be using the system as a group to obtain optimal results.
- Overall Look and Feel—Has to have the right feel so it's not too "childish." It needs to "feel" right.

User Elements
- Familiarity with Games
- Allow users to participate in the design or have input into design of the gamified system.
- Matching game affordances (the right pieces) to the right learning outcomes. (more about this later in the workshop when we discuss game elements.)

References:

J. Hamari, J. Koivisto, H. Sarsa Does gamification work?–a literature review of empirical studies on gamification. Paper presented at the 2014 47th Hawaii international conference on system sciences (2014).

K. Seaborn, D.I. Fels Gamification in theory and action: A survey International Journal of Human-computer Studies, 74 (2015), pp. 14-31.

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Tsay, C. H. Kofinas, A. & Lou. J. (June 2018) Enhancing student learning experience with technology-mediated gamification: An empirical study. Computers and Education, Vol. 121. Pages 1-17. https://doi.org/10.1016/j.compedu.2018.01.009

OVERVIEW OF APPLYING GAME ELEMENTS AND LEARNING

The creating of interactive learning using game elements means that we need to understand game elements and how they can be used to ensure that the learner is engaged.

Using game elements means going beyond the points, badges and leaderboards to "deep game" elements like freedom to fail, narrative and challenge and exploration and many others.

This section of the course dives a little deeper into various game elements such as:

- Narrative
- Collecting
- Challenge
- Exploration
- Failure
- Fantasy
- Incremental Achievements
- Expected Achievements
- Unexpected Achievements
- Sequencing Content
- Core Dynamics

NARRATIVE

Learners remember fact better when they are presented in a story.

Although not commonly considered in the same sentence, storytelling and learning have a lot in common.

Stories are good for learning because:
- Stories are Memorable
- Learner can Witness Actions from a Safe Distance

Elements of a Story

To create a good story, the following elements must be present:
- Characters
- Plot (something happens)
- Tension
- Resolution
- Conclusion

Adding these elements together creates an effective story for a presentation. In fact, research shows that people remember and act upon facts more easily when those facts are contained in a story than we the facts are presented in a list.

According to an article in the *New York Times*, titled **This is Your Life (and How You Tell It)** how people tell their life stories is a method of gaining insight into the personalities of people and understanding how they learn.

The article notes that:

> Researchers have found that the human brain has a natural affinity for narrative construction. People tend to remember facts more accurately if they encounter them in a story rather than in a list… and [individuals] rate legal arguments as more convincing when built into narrative tales rather than on legal precedent.

Think

How can the subject you are thinking about for this course be contained or describe or taught as a story?

Notes

Pages and spaces on pages like this are in the workbook to provide room for you to take notes.

COLLECTING

Collecting is a basic human need and it works well in the creation of engaging content. Allowing learner to collect information or ideas is engaging. Incorporating a collecting dynamic in a learning situation and be appealing to the learners.

Collecting helps us create a sense of control or mastery. Collecting can also help the learner to see the big picture.

Think

How can the subject you are thinking about for this course benefit from adding the concept of collecting to the design of the instruction?

CREATE A CHALLENGE

For novice learners, a challenge can sometimes be too much. But if the learners have some familiarity with the content, a challenge helps to keep them engaged and motivated.

Often, learners enjoy a challenge, so create a challenge within the learning event.

When preparing learners for challenges on the job, most learning design is geared toward making the learning process as easy and efficient as possible. It turns out that's not the best approach.

Challenged learners gain competence and confidence when they overcome a learning challenge. They gain a sense of accomplishment.

Challenge the learner to:
- Solve a Problem
- Uncover a Mystery
- Figure out the Cause of an Accident
- Make a Difficult Sale
- Solve a Manufacturing Problem
- Solve a Logistical Puzzle
- Escape a Room or Situation

✓ **Note**

Challenge should be meaningful and relevant.

🗨 **Think**

What level of challenge can you add to your subject or topic so it's motivating but not too difficulty for the learners? Can one of the suggestions above be useful as you design your instruction?

EXPLORATION

The concept of "exploration" can be a great tool for engaging the learner. Exploration in a learning activity is typically measured by how involved a learner gets; activity-based. Is the learner searching for answers or clues? Are they exploring content and concepts?

Exploration tends to be especially effective for experienced learners. Learners who have some knowledge of the ideas contained in the content but who need to learn more. Exploration allows them to proceed at their own pace and in their own, desired order.

There are many ways that exploration can be integrated into learning design.

- Hide Objects or Information within the content.
- Provide a "Productive" Place for the Learner to Wander.
- Build in some Structure and Road Markers or Legends so Learners know where to Explore.

✓ **Note**

When learners discover and find information and content on their own, often times they'll retain it better and are better able to apply their learning to future situations. Because the content wasn't told to them, they discovered it.

🗨 **Think**

How can you encourage learners to explore the content and ideas that you are creating within your subject or topic?

FAILURE

Failure is an option—and it's a good one.

In games and gamification, unlike many other learning activities, exploring failure and what it means is a valued approach. Learners can enjoy failures in a game or, at least, use them to progress. The idea of failure is part of the gamer ethos. No one expects to successfully navigate and win a game the first time they play it. In fact, they expect to fail. And look forward to the lessons learned during the failure process.

Failure adds an additional level of content to the game because it makes the player reconsider his or her approach to the game. The necessity to approach the game differently than originally planned adds to the game and expands the playability of the game. This is because often two or more approaches are viable to successfully navigating the game and the player, once made aware of a failed approach, is free to explore other options for success.

Failure is a valuable tool for learning.

Think

How are you going to integrate failure into your learning design? How can you help learners to learn from failure?

FANTASY

Why include a fantasy element when designing learning games? The use of fantasy is a purposeful design decision having a direct positive impact on learning. In fact, research indicates that fantasy provides cognitive emotional and motivational advantages for learning (Malone, 1981).

In terms of the cognitive benefits, the issues confronted and successfully resolved in the fantasy world provide the learners with natural constructive feedback in an uninhibited interaction. The learner is often more open to receiving feedback in a fantasy world because it is unfamiliar and they need feedback to understand the new environment. (Lepper, 1988)

Feedback is conveyed in a safe environment with specific, but not catastrophic, consequences for failure. The fantasy of dealing with the zombies means that failure and experimentation are allowed and encouraged. Humans learn from failure more than instant success. The fantasy environment allows for failure and re-engagement with the content again and again which leads to mastery.

We also know that if a game or simulation provides the same cognitive activities as the real-life situation, the skills are transferable to the actual in-the-field situation. A fantasy environment can actually help with generalizing of the knowledge and creates, in the mind of the learner, a set of heuristics to deal with sales situation rather than creating a rigid set of algorithms that are difficult to generalize.

In terms of emotional impact, fantasy provokes vivid images related to the material being learned, thus improving the learner's memory of the material. Emotionally, fantasy also helps to break down the defenses of a learner. For example, when confronted with many sales situations, the learner may feel he or she is already well versed in their subject viewing the training process as a waste of time. Fantasy helps to break down that resistance because the environment is new, novel and different. The learner doesn't know how to deal with a new environment; it makes them more open to exploring the learning environment and less defensive (Lepper, 1988; Malone, 1981).

Deena Skolnick Weisberg, a senior fellow in the department of psychology at the University of Pennsylvania, performed a study involving teaching children vocabulary words. In her study, she found that children gained more knowledge from fantastical stories than from the realistic stories. The problem with this finding is that it seems a little contrary to what people think about learning and transfer. Most of the thinking is that the more similar the learning context is to the context where the information is eventually going to be applied, the better. However, Weisberg's study indicated that fantasy allowed children to learn more.

FANTASY (continued)

This is not really surprising given the work of Malone and Lepper but it does seem to fly in the face of conventional wisdom which is to make learning as realistic as possible. But perhaps fantasy of children, and adults, plays a more powerful learning role than we know. One that helps us transition from unknown to known.

It might be that:

> "… something about fantastical contexts…is particularly helpful for learning. From this perspective, fantastical fiction might do something more than hold children's interest better than realistic fiction. Rather, immersion in a scenario where they need to think about impossible events might engage… deeper processing, precisely because they can't treat these scenarios as they would every other scenario that they encounter in reality."[Weisberg]

Cognitively, the learners have to work harder to learn the information because there are few familiar contexts. Fantasy can provide the right environment and cognitive triggers to cause adults to think more deeply and richly about subject matter because it is foreign and requires more processing.

Finally, games can be highly motivational. While not everyone loves to play games, a large portion of most populations like to play games and enjoy the opportunity to gain mastery of the game environment. Games provide an immersive learning environment because they require continual vigilance, provide constant feedback, correct incorrect activities and reinforce correct performance which eventually leads to mastery of content.

References:

Lepper, M. R. (1988) Motivational considerations in the study of instruction. *Cognition and Instruction*. 5(4), 289-309.

Malone, T. (1981) Toward a theory of intrinsically motivating instruction. *Cognitive Science*, 4. pp. 333-369.

Weisberg, D. S., Ilgazb, H., Hirsh-Pasekc, K., Golinkoffd, R., Nicolopouloue, A., Dickinsonf, D. K., 2015) Shovels and swords: How realistic and fantastical themes affect children's word learning. Cognitive Development. Volume 35, July–September 2015, Pages 1–14.

🗨 Think

Could the concept of "fantasy" somehow play a role related to the subject you've chosen to gamify? Would a certain degree of "fantasy" work within your organizational culture?

Notes

Pages and spaces on pages like this are in the workbook to provide room for you to take notes.

INCREMENTAL ACHIEVEMENTS

Incremental Achievements occur for completing more than one task in a sequence. They are awarded in a chain for performing the same task or similar tasks through scaling levels of difficulty.

Make the spacing between the incremental achievements, both in time and in game location separate enough so the players don't feel too controlled by having to "run" from achievement to achievement.

Incremental Achievements can do the following from a learning design perspective:
- Set the Pacing for the Learning
- Helps Establish a Disciplined Approach to the Content
- Help Learner to be Motivated Through Difficult Content
- Help the Learner to Navigate Through Difficulty Content

✓ **Note**

Need to balance the incremental achievements so the learner doesn't feel manipulated.

Definition

Achievement—A goal or recognition that is obtained during game play but does not have direct impact on the goals, outcomes or future play of the game. It's a parallel system of recognition and accomplishment within a game. Achievements are often included within games to extend the gameplay and longevity and provide players with the motivation to do more than simply complete the game but to also find all of its secrets and complete all of its challenges.

Definition

Incremental Achievement—Recognizing a learner for doing something over a period of time. The learner accomplishes a series of events and then is recognized for that accomplishment.

Think

What are three ways you could incorporate incremental achievements into the design of your instruction?

EXPECTED ACHIEVEMENTS

An Expected Achievement allows leaners to set goals for themselves before they begin. It allows learner to set goals for themselves.

Expected Achievements are goals for the leaner. There are a number of benefits of having goals for learning:

- Goals allow the learner to have objectives and allocate their resources (time) to completing those goals.
- Having a goal increases the amount of effort someone is willing to put into a task.
- Leaners who have goals are less likely to give up when they encounter a difficulty task.
- Learners who set goals for themselves will acquire new knowledge and skills to meet those goals.

Definition

Expected Achievement—A goal a game or gamified environment sets for the learner so that the learner knows that after they accomplish certain tasks, they will have earned the achievement.

Think

Can you think of an expected achievement you'd like to include in the instruction you design?

UNEXPECTED ACHIEVEMENTS

An unexpected achievement occurs when a learner does not anticipate receiving an achievement. It is a surprise. The learner performs a task with no expectation and the, suddenly, they receive an achievement. Unexpected achievements can be used to encourage creative and exploration within a game or gamified environment.

There are a number of design considerations related to incorporating unexpected achievements into the game play. Unexpected achievements:
- Encourage Exploration
- Provide a Chance to Brag and to Obtain Social Creditability
- Encourages Learner to Spend More Time in Gamified Environment

You can also "alert" the learner that the gamified or game environment holds unexpected achievements so the learner knows to explore and look for those achievements.

✓ **Note**

Create a mix of expected and unexpected achievements within the learning environment. Blend types of achievements.

Think

Can you think of an unexpected achievement you'd like to include in the instruction you design? How will you balance expected and unexpected achievement in the instruction you are creating?

SEQUENCING CONTENT

When carefully designing instruction using game elements, you want to create the right sequence for revealing the content. You want to be purposeful about the sequence in which a learner encounters content.

Some sequencing strategies include:
- Basic to Advanced
- Known to Unknown
- Complexity with Feedback when Needed
- Chronological Sequencing
- Natural Order Sequencing (first you do this, then you do that)
- Concrete to Abstract
- General to Specific
- Part-to-Whole (teach small part of complex skill or knowledge then teach more difficult parts until all is taught.)

Consider giving the learner a choice in which sequence they'd like to pursue for their learning. You may also want to consider using narrative to hold a sequence together especially in the case of branching scenarios. An important sequence to get correct when creating the instruction is to ensure the on-board sequence unfolds in an easy-to-understand fashion.

✓ **Note**

Be purposeful in how you design sequences which the learners experience. Walking through, observing or experiencing yourself, the sequence the learner goes through will help you to design the right sequence for the optimal learning outcome.

Definition

Sequencing Content—The order in which you design and deliver your game or gamified content designed to improve the learner's ability to achieve the learning objectives. It includes the order in which the learner encounters content and information, the order in which content and information is introduced during the experience.

CORE DYNAMIC

What's the game about? What's the point? When you tell someone about a game, you typically describe it in a sentence or two. Example for Risk: "Be the one to take over the most territories and achieve world domination." The core dynamic is part of the fun; we play because we want to engage in whatever core dynamic(s) the game includes. Here are several common core dynamics. Any game you design will likely use one or more of these dynamics. Some games have only one. Others may use a couple:

Dynamic	Commercial Games that Use This Dynamic
Race to the finish – get to the finish before anyone else	Life, Candyland, Mario Kart
Territory acquisition – acquire – or take – land, typically to create an empire or own the most of something.	Risk, Settlers of Catan, Monopoly
Exploring – wander around, check out aspects of the game world to see if you can find things of value.	Minecraft, Civilization
Collecting – find and get specified objects/people.	Trivial Pursuit, Checkers,
Escape – get out of a situation/place you are in.	Forbidden Island, Escape Room Games
Alignment – arrange game pieces in a particular order	Tic-Tac –Toe, Candy Crush, Bejeweled Connect Four
Forbidden Act – get fellow players to break the rules, make a wrong move, or do something they shouldn't	Twister – get someone to fall; Operation – get someone to touch an edge, Great Divide – get someone to break contact,
Construct/Build – create something using specified resources.	Sims, Roller Coaster Tycoon
Outwit - Use specialized knowledge or skill to defeat an opponent	Stratego, chess
Solve: Solve a problem or puzzle.	SpellTower, Rooms and Doors
Matching-Obtaining two or more items that go together	Uno, Go Fish

 Definition

Core Dynamic—The process used to win the game or to be successful within the game's challenge.

APPLICATION OF IDEAS

Choose two or more of the game elements described in this section and write how they would be applied to the content you are gamifying within this workshop.

✎ Write

Which two game elements did you choose and how will you apply them to content you currently teach?:

_____

_____

_____

_____

_____

DISSECTING GAMES

One effective method of understanding and using game elements to create effective instruction is to examine how game elements contribute to the overall engagement, enjoyment and design of an experience. One way to help gain an understanding is to break down games into their elemental pieces to determine how those pieces contribute to the overall experience. This will help you to better use game elements in your instruction.

The process of breaking down a game doesn't need to be lengthy or involve a great deal of complexity. And, by analyzing various learning games, you will begin to understand how the game conventions and elements of learning games differ from entertainment games. You will also start forming judgments about what makes an effective or ineffective use of a game element

In this section, you will be breaking down three learning games (a breakdown of each game is in the back of the workbook but don't look until you've done it on your own).

The games are:

- Septris
  https://med.stanford.edu/septris/

- The Fugle Company (Cyber Security Game)
  http://targetedattacks.trendmicro.com/

- Password Blaster
  http://www.bottomlineperformance.com/passwordblaster/

✓ **Note**

Links and games change, if you can't find the exact game listed above, feel free to chose a game of your own or do a search on the internet, you might find the game under a different URL.

DISSECTING GAMES: SEPTRIS

Play "The Game Design Guru" and then answer the questions in the worksheet below, a completed sheet is contained in the back of this workbook for you to compare.

The game goal	
What was it?	Was it fun? Why or Why Not?

The Learning Goal. What were people supposed to learn?

Did you learn what you think you were supposed to learn? YES   NO

Identify a Core Dynamic that helped the learning in some way. Describe it.

Place a check by game elements that contributed to learning. Write a note on ONE or TWO items stood out to you and why.

__ Look and Feel __ Story __ Chance __ Conflict __ Competition __ Cooperation __ Levels __ Resources __ Rewards __ Strategy __ Theme __ Time	

DISSECTING GAMES: THE FRUGAL

Play "The Frugal" and then answer the questions in the worksheet below, a completed sheet is contained in the back of this workbook for you to compare.

The game goal	
What was it?	Was it fun? Why or Why Not?

The Learning Goal. What were people supposed to learn?
Did you learn what you think you were supposed to learn? YES   NO

Identify a Core Dynamic that helped the learning in some way. Describe it.

Place a check by game elements that contributed to learning. Write a note on ONE or TWO items stood out to you and why.

__ Look and Feel __ Story __ Chance __ Conflict __ Competition __ Cooperation __ Levels __ Resources __ Rewards __ Strategy __ Theme __ Time	

DISSECTING GAMES: PASSWORD BLASTER

Play "The Business Simulation" and then answer the questions in the worksheet below, a completed sheet is contained in the back of this workbook for you to compare.

The game goal	
What was it?	Was it fun? Why or Why Not?

The Learning Goal. What were people supposed to learn?
Did you learn what you think you were supposed to learn? YES   NO

Identify a Core Dynamic that helped the learning in some way. Describe it.

Place a check by game elements that contributed to learning. Write a note on ONE or TWO items stood out to you and why.

__ Look and Feel __ Story __ Chance __ Conflict __ Competition __ Cooperation __ Levels __ Resources __ Rewards __ Strategy __ Theme __ Time	

YOUR TURN

Now that you've learned about game elements, it's time for you to create a prototype based on the topic you picked at the beginning of the workshop.

You'll need paper, pencils, scissors and tape or glue and stickie notes. It helps if you have flipchart paper because it gives you a lot of room to write. The idea is for you to sketch out and test your ideas and concepts on paper before turning into an online module or a classroom exercise.

It's helpful to place the entire idea on one page. We sometimes call that a "one-page design document." Keeping everything on one page keeps it visible and helps with getting the big picture of what instruction you want to add game elements to.

We can use a slightly modified worksheet that we used to dissect the game as a tool for helping to consider the creation of the game.

What is the game goal	
What was it?	Have you made it fun? How?

The Learning Goal. What were people supposed to learn?
How will they learn what are supposed to learn?

What Core Dynamic do you plan on using? How will it work in the game. Describe it.

Check the game elements will you include that will contributed to the learning you've designed.	
__ Look and Feel __ Story __ Chance __ Conflict __ Competition __ Cooperation __ Levels __ Resources __ Rewards __ Strategy __ Theme __ Time	

YOUR TURN: QUESTIONS TO ASK

If you want to get more in-depth to the design process. Here is a list of questions that can help you "dig a little deeper" in the design of your gamified learning.

Learning Goal

- What's the business need that's driving the use of a learning game?
    - > A need to increase sales or to support the launch of a new product?
    - > Customer complaints or ineffective customer service?
    - > A need to comply with gov't regs?
    - > Quality issues?
    - > Safety issues?
    - > A need to build knowledge or skill on a business-critical process?
- After playing this game, **what will learners be able to DO in their jobs?** (This should be your learning goal).
- As part of achieving the learning goal, **what do learners need to know, do, and believe?** (These statements convert into your instruction's learning objectives.)

Target Players

- Who are the target players? What prior knowledge and skill can I assume they bring to the instruction?
- Will the instruction need different entry points in terms of skill/knowledge?
- Will learners need a lot minimum of guidance in how to navigate the instruction? (this should be NO.)

Game Goal

- Is the game goal fun? Will players be engaged by it?
- Does this support real-world environment of the people taking the instruction?
- Is the game goal clear? Will it be easy for learners to understand?
- Does the game goal distract from the learning goal – or contradict it in any way?

Core Dynamic

- Is the core dynamic one that players will find fun?
- Does the core dynamic align with the learning goal? (e.g. Is Race to the Finish an appropriate dynamic because in real life learners are dealing with time-sensitive task?)

Game Rule	
• What rules best support the outcomes I want learners to achieve from a learning perspective?	
• What rules in my game mimic real-world conditions players/learners need to deal with as part of doing the task game is supposed to teach? Am I missing opportunities to include rules that do link to the real-world conditions my learners/players will face?	
• Do any rules create unnecessary distractions to learning? (e.g. Have I unintentionally included complexity with rules that are distracting people from the learning goals I have?)	

Game Elements	
Aesthetics (look and feel)	• How can I use aesthetics to immerse people in game play? • Are the aesthetics offering visual cues and guiding game play – or are they just eye candy? • Will lack of aesthetics hinder players' engagement?
Conflict	• Given what I want people to learn, what conflict is most appropriate? Should I incorporate a conflict that arises with other players or should I incorporate challenges that all players work together to overcome? Or should I include some sort of challenge against the game itself? **Example:** puzzle-style games are really a challenge that pits you against the puzzle. • How can I best represent the real-world conflicts I want people to deal with? **Example:** conflict between quality and time constraints or quality and budget. • What rules can I create to simulate the real-world conflicts/challenges players encounter?
Cooperation/ Competition	• Do the learners need to compete in the real-world or is competition not a factor in using the skill or knowledge I want people to learn? • If competition is part of the real-world context, do I incorporate it into the game as players working together to beat the game or as players competing against each other within the game? • Will competition motivate or demotivate the target group I'm designing this for? What negative consequences might occur if only one person wins and everyone else loses, and how do I manage those emotions?
Story	• Should I use a story? • Should I couple my story with a theme? • Will it help my game or make it too complicated? • How much story do I need? • Do I need just enough story to convey a theme or do I need to immerse players in the story to provide the right learning experience?

|	
	> Example: The stories used in Settlers of Catan or Forbidden Island are really "back stories" used to set up the game. The story doesn't drive the game itself. This contrasts with some of the intense video games. • How do I integrate story? • Do I make each player a separate character? Do I incorporate "nonplaying" characters? If so, who do characters represent? Is it a fantasy character (such as a super hero or an alien) or does it represent something with real-world context to their job or situation?
Time	• Do I want to incorporate time? If so, how? Time can be a resource, it can be a constraint (e.g. you have to complete a task within a specified amount of time), or it can be a means of compressing real-world time into a more manageable amount of game time.

Rewards/Scoring/Feedback

- How will players track their progress? Points? Badges, Achievements? Levels?

- What are the most important real-world measurement criteria and/or learning criteria? How do I incorporate these into game scoring?
    - > Time
    - > Accuracy/Correctness
    - > Knowledge

- What scoring provides the greatest clarity to the player re: their performance in the game?

- How do I use scoring to reinforce the behaviors I want to see?

- Is scoring needed?

YOUR TURN: SCRATCH WORK

✏️ **Write**

Write a brief description of your interactive activity (game or gamified activity).
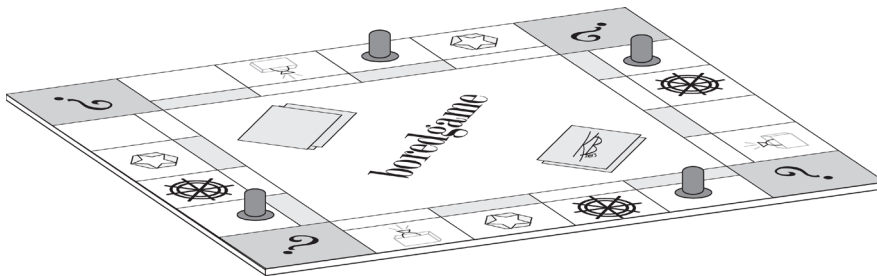
NEXT STEPS: ACTION ITEMS

✎ **Write**

Three things you are going to implement based on today's workshop. Provide an estimated date.

	I AM GOING TO IMPLEMENT….	BY THIS DATE
1		
2		
3		

About Your Instructor

Karl M. Kapp, Ed.D., is a professor of Instructional Technology at Bloomsburg University in Bloomsburg, PA. where he teaches several game design related classes and serves as the Director of Bloomsburg's Institute for Interactive Technologies which works with government and private corporations to create interactive online instruction. Karl has authored a number of books including *The Gamification of Learning and Instruction* and its accompanying how-to-book *The Gamification of Learning and Instruction Fieldbook.*

TO FURTHER YOUR KNOWLEDGE AND SKILL BASE

These are useful resources on game design and/or learning game design:

Selected Blogs and Articles

Kapp Notes (follow @kkapp on Twitter)

> http://karlkapp.com/kapp-notes/

Think Like a Game Developer:

> http://www.nxtbook.com/nxtbooks/trainingindustry/tiq_2011fall/index.php?startid=33

Five Game Elements for Effective e-Learning:

> http://www.nxtbook.com/nxtbooks/trainingindustry/tiq_2012fall/index.php?startid=31

If you have LinkedIn Learning search for "Gamification of Learning Course" and "How to Increase Learner Engagement."

Karl Kapp Books

- Play to Learn: Everything You Need to Know About Designign Effective Learning Games by Sharon Boller and Karl Kapp
- Gadgets, Games, and Gizmos for Learning by Karl Kapp
- The Gamification of Learning and Instruction by Karl Kapp
- The Gamification of Learning and Instruction Fieldbook by Karl Kapp, Lucas Blair and Rich Mesch

Other Good Books

- The Art of Game Design: A book of lenses by Jesse Schnell.
- Challenges for Game Designers by Brenda Brathwaite, Ian Schreiber.
- Game Development Essentials by Jeannie Novak

ANSWER KEYS

ANSWER KEY: DISSECTING GAMES: SEPTRIS

Here are the answers to "Septris" worksheet. See how closely your answers aligned.

The game goal	
What was it? Keep the patients alive.	Was it fun? Yes, at times frustrating not knowing the right protocol but got anxious as patients floated down.

The Learning Goal. What were people supposed to learn?
Learn how to treat Sepsis. Learn what the right treatment protocols happen to be. **Did you learn what you think you were supposed to learn?** (YES) **NO** Yes, for the most part, didn't become an expert but did learn about treatments. Can't just click around, have to read the info.

Identify a Core Dynamic that helped the learning in some way. Describe it.
Race to the Finish, racing against time to ensure that patient doesn't die, by falling into the red area on the screen. It could also be **Solve** since you are trying to diagnosis and cure the patient, you need to problem solve along the way.

Place a check by game elements that contributed to learning. Write a note on ONE or TWO items stood out to you and why.	
_X_ Look and Feel __ Story __ Chance __ Conflict __ Competition __ Cooperation __ Levels _X_ Resources __ Rewards __ Strategy __ Theme _X_ Time	The fact that the patient is moving down the screen and you can see their face and the other side of the screen looks like a folder for medical records makes the game interesting. It is a simple "look and feel" but it provides enough context so you know where you are (hospital) and what you are trying to do (save the patient). The fact that you can get information about sepsis and that you get feedback from Dr. Septris helps with the learning elements of this game. Time is a huge factor in this game because you are racing against time to save the patient.

ANSWER KEY: DISSECTING GAMES: THE FRUGLE

Play "The Frugle" and then answer the questions in the worksheet below, a completed sheet is contained in the back of this workbook for you to compare.

The game goal	
What was it? Make The Frugal successful/Have a successful product launch with no problem or minimum problems.	Was it fun? Why or Why Not? It was fun making decisions to help the company.

The Learning Goal. What were people supposed to learn?
How to think about and address security concerns within an organization.   **Did you learn what you think you were supposed to learn?** YES   **NO** The game doesn't provide a clear explanation of what needs to be done until the end, then you can learn what to do correctly by playing the game again. So, if you stick with it you can learn what to do.

Identify a Core Dynamic that helped the learning in some way. Describe it.
Out wit, you are trying to out wit the invisible attacker who is breaching the data during the game. Or it could also be Escape, you are in a situation of being attacked and you are trying to escape from the situation. Either or a combination of these two elements can be the core dynamic. Often games use more than one core dynamic or even a combination of core dynamics.

Place a check by game elements that contributed to learning. Write a note on ONE or TWO items stood out to you and why.	
__ Look and Feel _X_ Story __ Chance __ Conflict __ Competition __ Cooperation __ Levels _X_ Resources __ Rewards __ Strategy __ Theme __ Time	The story propels you through the content and describes to you the impact of the decisions that you make. The "Resource" of coins in the game has a great deal of influence on how the game turns out. If you make wrong resource allocation decision early in the game, you could run into a resource allocation later in the game that will cause some problems.

DISSECTING GAMES: PASSWORD BLASTER

Play "The Fugle" and then answer the questions in the worksheet below, a completed sheet is contained in the back of this workbook for you to compare.

The game goal	
What was it? Destroy all the bad passwords.	Was it fun? Why or Why Not? Average level of fun (This is really a subjective category, people like different kinds of games.)

The Learning Goal. What were people supposed to learn?
To learn what makes a good password. To reinforce good passwords. **Did you learn what you think you were supposed to learn?** (YES) NO The game is based on a simple topic, what makes a good password, so it does teach and reinforce the concepts that most people know already. So the game is a little more focused on reinforcement than teaching but it does give you information about passwords when you blast the wrong one.

Identify a Core Dynamic that helped the learning in some way. Describe it.
Matching-This is a little tricky because you are not matching on the screen but what you are doing is matching the criteria for a good password against the passwords you see coming toward you. So in your mind you need to do a match.

Place a check by game elements that contributed to learning. Write a note on ONE or TWO items stood out to you and why.	
__ Look and Feel __ Story _X_ Chance __ Conflict __ Competition __ Cooperation __ Levels __ Resources _X_ Rewards __ Strategy __ Theme __ Time	The game has an element of chance since the passwords are randomized, you might get several good passwords in a row and several poor passwords so you have to be paying attention the entire time. One thing about the rewards is that the higher up you blast a password, the more points are earned so that encourages quick recognition of the elements of the password.