Gamification Techniques ANY Instructor Can Use to Engage, Assess, and Energize Students
Goals:

1. Define Gamification and expand your thinking about games

2. Provide a variety of examples of how games can be used in the (psychology) classroom

3. Give you tools/inspiration for designing your own games
What is Gamification?

Using the principles of game mechanics to engage people, motivate action, and promote learning.
Gamification (in education) should not be confused with:

- Gamification for Business/Profit
- Digital Game-Based Learning (DGBL):
  - Instructional Games
  - Serious Games
  - Scenario-based games
Gamification is “big business” for business

- Customer loyalty
- Brand Awareness
- Employee Motivation
- Customer Engagement
- Recruitment
- Goal Tracking

- Costly software/products/consultants
- Competition oriented (e.g. use of leaderboards)
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- Gamification for Business/Profit
- Digital Game-Based Learning (DGBL):
  - Instructional Games
  - Serious Games
  - Scenario-based games
Virtual Simulations Help Train Psychologists, Psychiatrists

By RICK NAUERT PHD Senior News Editor
Reviewed by John M. Grohol, Psy.D. on August 6, 2012 ~ 1 min read

Following on the heels of flight simulation training, medical simulation and now virtual mental health simulations train health professionals by realistically mimicking patient symptoms.

New simulators mimic the symptoms of a patient with clinical psychological disorders, according to new research presented at the American Psychological Association’s 120th Annual Convention.

“As this technology continues to...
Effectiveness of GBL in Higher Education
(see Meta-Analyses by Girard et al., 2013; Li & Tsai, 2013; and Sitzmann, 2011)

**Results** for student learning are mixed. Some of the factors that moderate the effectiveness of computer-based games over traditional methods are:

- The type of game
- Whether the game was a supplement or replacement to other instructional methods
- Whether the computer game is compared to active or passive traditional methods

Barriers: Finding a game, risks w/online games, resources
Party games
Ice breakers
Conversation games
Drinking games
Guessing games
Board games
Card games
Dice games
Role-playing games
Strategy games
Cooperative games
Narrative games
Mystery games
Word games
Team games
Outdoor games
Solitaire games
Puzzles
Skill games
Travel games
“[gamification] neither implies nor precludes the use of games or game-like activities but inherently and more importantly shifts the focus from the actual game to the gameplay elements and principles of learning found within.”

<table>
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<th>Everything works..... or does it?</th>
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<td>Flipped Classroom</td>
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<td>Practice Testing</td>
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<tr>
<td>Gamification</td>
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Games often include a combination of the following elements:

- Individual control
- Positive and negative feedback
- Careful balance of reward/challenge
- Cognitively stimulating
- Motivating and Fun
The game should be consistent with the science of learning...
1) Student’s prior knowledge can help or hinder learning
2) Organizing knowledge is important to learning
3) **Motivation** influences learning
4) to develop mastery students need **practice** and application
5) targeted **feedback** is important to learning
6) **social and emotional** classroom climate is important to learning
7) to be **self-directed**, students must **monitor** their learning and adjust.
8 Cognitive Principles of Learning
(Marin, 2014)

1) Learners have short **attention spans**
2) Learners are **visual processors**
3) Learners are easily overloaded
4) Learners must connect to the past
5) Learning is tied to **emotion**
6) Learners need distributed **practice**
7) Learners need **feedback**
8) Learners benefit from practice testing

Goals:

1. Define Gamification and expand your thinking about games

2. Provide a variety of examples of how games can be used in the (psychology) classroom

4. Give you tools/inspiration for designing your own games
The Educational Goal/Purpose:

1) Engagement
2) Social Interaction/Collaboration
3) Content Delivery
4) Content Mastery/Application
5) General Education Outcomes
6) Feedback/Assessment
Can you find the face?

What's wrong with this picture?
Games are naturally motivating because they touch on basic human motives:

- Drive to personalize
- Innate curiosity
- Desire to overcome challenges

“Engaging” Game Mechanics:
The Educational Goal/Purpose:

1) Engagement
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3) Content Delivery
4) Content Mastery/Application
5) General Education Outcomes
6) Feedback/Assessment
Hold your phone up and try to guess the word! Your friends will give you clues!
What’s on my back?

Bipolar
The Educational Goal/Purpose:

1) Engagement
2) Social Interaction/Collaboration
3) Content Delivery
4) Content Mastery/Application
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6) Feedback/Assessment
Characteristics of Pseudoscience

Although, on the surface, it may seem difficult to tell the difference between a true science and the many false ones out there, pseudosciences generally can be identified by the following characteristics:

- **Lack of legitimate training:** There is a lack of legitimate courses or training in the field. There are no accredited or widely accepted university degrees in the field. A person can label themselves as an expert or practitioner without any formal training.

- **Untestable claims:** Pseudosciences rarely offer specific definitions, or measurements that could be tested and repeated by other researchers. For example, how could anyone scientifically measure or test the effects that stars have on our lives?

- **Use of misleading language:** Pseudosciences use technical sounding but meaningless jargon meant to convince people of their credibility. Often these pseudoscientific terms are made up or used incorrectly, misleading the public.

- **Reliance on testimonial and anecdotal evidence:** You've probably seen an infomercial or heard an advertisement for a psychic in which satisfied customers gushed about how the psychic changed their lives. Mainstream sciences avoid personal testimonials precisely because one person's experiences may not be usual or typical of most people and it's easy to be fooled that something was effective when the result was mere coincidence (Herbert et al., 2000).

- **Failure to replicate:** Pseudoscientists often refuse to share their methods or data with other scientists, making it impossible to test or reproduce their research findings. Good scientists are used to having their work "peer reviewed" (analyzed and reviewed by other scientists) and welcome replications. In contrast, pseudoscientists will often refuse to allow their work to be reviewed by anyone else, they keep it secret, which is the antithesis of science.

- **Absence of change or progress:** In most sciences, theories and ideas change with time, as more and more information is collected. Pseudoscientific beliefs tend to be fixed over time; very little change occurs despite decades of existence. Astrology, for example, hasn't changed fundamentally in the last 2,000 years (Harris, 1988). Science moves us forward in our understanding of the world; pseudoscience is static.

- **Well marketed and costly:** Pseudosciences are often used for profit and can be seen in infomercials and advertisements. One review of the pseudoscience called "energy psychology" found that purchasing a complete online training program for one aspect of the belief, called "thought field therapy" (whatever that is), could cost users upwards of $100,000 (McClosky, 2009)!
TOTAL Rumpology Report. This report covers all aspects of rumpology -- an analysis of the LEFT cheek (your past) the Right Cheek (your future) and the Gluteal Cleft, (your natural personality characteristics).
Price: $600.00

LEFT Cheek Rumpology Report. This report focuses on your left rump cheek, that part of your derriere that describes your past. It helps you understand where you are coming from and the things in your past that motivate your actions in the present.
Price: $300.00

RIGHT Cheek Rumpology Report. This report focuses on your Right rump cheek, that part of your derriere that describes your future. It helps you understand if your plans will take you "ass backwards" and mar your future by revealing your natural inclinations and tendencies.
Price: $300.00

GLUTEAL CLEFT Rumpology Report. This report helps you understand who you are, your natural personality and tendencies. When you learn to "know thyself", you are capable of taking advantage of all of life's opportunities because you understand why some of them appeal to you, and why some of them do not.
Price: $250.00
“Rumpology” episode on The Doctors TV show.
FLAT
- Confident
- Smart
- Career-Driven

HEART
- Emotional
- Sensitive
- Helpful

BOYISH
- Happy-Go-Lucky
- Fun
- Confident

ROUND
- Open
- Honest
- Sincere

UPSIDE-DOWN HEART
- Moody
- Shy
- Emotional
SCAVENGER HUNT: Is Rumpology a Pseudoscience?
Instructions: Using your phone, laptop, and/or handouts provided by the instructor, gather information and answer the following questions to determine whether Rumpology is a legitimate practice or a pseudoscience. When you’ve found all the information, ring your buzzer!

Characteristics of Pseudoscience

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- Use of misleading language: Pseudosciences use technical wording or meaningful jargon meant to convince people of their credibility. Often these pseudoscientific terms are made up or used incorrectly, misleading for public.

- Reliance on testimonials and anecdotal evidence: You’ve probably seen an influenza or heard advertisements for a product in which satisfied customers gush about how the psychic changed their lives. Mainstream sciences avoid personal testimonials precisely because their proponents’ experiences may not be usual or typical of most people and so is very likely to be biased when not经科学证明的效应 when not.

- Need for replication: Pseudosciences often refuse to share their methods or data with other scientists, making it impossible to test or reproduce their research findings. Good scientists are used to having their work peer-reviewed, analyzed, and analyzed by other scientists and then replicated. In contrast, pseudosciences will often refuse to allow their work to be reviewed by anyone else, which is the hallmark of science.

- Absence of change or progress: Most sciences, theories, and ideas change with time, as more and more information is collected. Pseudosciences beliefs tend to remain constant, very little change occurs despite decades of evidence. Astrology, for example, hasn’t changed fundamentally in the last 2,000 years (Hilke, 1993). Science moves us forward in our understanding of the world; pseudoscience is static.

- Well marketed and ready: Pseudosciences are often used to sell a product or can be used to undermine and advertise. One review of the pseudoscience called “energy psychology” found that purchasing a complete online training program for one aspect of the belief, called “thought field therapy” (whatever that is), cost one user upwards of $150,000 (McClure, 2009).

Question the students must answer as a team

Rumpology Information

Recommended Website:
www.jacquelinestallone.com/rumps.html

Recommended Youtube Videos:
“Rumpology” The Doctors (4:07 min)
Rumpologist Sam Amos on This Morning (2:31 min)

Packet of articles, suggested websites and youtube videos.
The Educational Goal/Purpose:

1) Engagement
2) Social Interaction/Collaboration
3) Content Delivery
4) Content Mastery/Application
5) General Education Outcomes
6) Feedback/Assessment
Team Number ________________  #1 - Pottying Puppy

Every time the puppy urinates in the house, the owner hits the dog with a newspaper. When hit, the puppy cries out in fear. Now simply the sight of the newspaper causes the puppy to cry.

Unconditioned Stimulus (UCS): __________________________

Unconditioned Response (UCR): __________________________

Conditioned Stimulus (CS): __________________________

Conditioned Response (CR): __________________________

Team Number ________________  #2 - Musical Ice-Cream

Kaitlyn gets excited about eating ice cream. Whenever the ice-cream truck comes down the street playing music, Kaitlyn gets excited to purchase and eat an ice-cream cone. Now when she hears the music coming down the street, she gets excited in anticipation.

Unconditioned Stimulus (UCS): __________________________

Unconditioned Response (UCR): __________________________

Conditioned Stimulus (CS): __________________________

Conditioned Response (CR): __________________________

Team Number ________________  #3 - The Trouble With Brians

Brian was really looking forward to lunch. His mother prepared a tuna sandwich that day. Unfortunately, the mayonnaise she used had been left out too long after eating. Brian felt extremely nauseated and had to rush to the bathroom with a rolling stomach.

Unconditioned Stimulus (UCS): __________________________

Unconditioned Response (UCR): __________________________

Conditioned Stimulus (CS): __________________________

Conditioned Response (CR): __________________________

Team Number ________________  #4 - Water Show

At a recent water show, temperatures exceeded 100 degrees. As Jennifer performs taxiing routines to the blaring organ music, she got more and more uncomfortable. Eventually, she fainted from the heat. After the other skiers again hear organ music without feeling a little dizzy.

Unconditioned Stimulus (UCS): __________________________

Unconditioned Response (UCR): __________________________

Conditioned Stimulus (CS): __________________________

Conditioned Response (CR): __________________________

Team Number ________________  #5 - Captain Hook

Captain Hook had a nasty encounter with a crocodile in never-never-land. As a result of the battle, he lost his hand to the croc, which also swallowed an alarm clock. Fortunately for Hook, the loud ticking warned him of the hungry crock’s approach. Unfortunately for Hook, any clock’s ticking now ushers in a full-blown anxiety attack.

Unconditioned Stimulus (UCS): __________________________

Unconditioned Response (UCR): __________________________

Conditioned Stimulus (CS): __________________________

Conditioned Response (CR): __________________________

Team Number ________________  #6 - Troublesome Shower

Martin likes to take a shower in the locker room after working out. During one such shower, he hears someone flushing a nearby toilet. Suddenly, boiling-hot water rushes out of the shower head, causing Martin serious discomfort. As he continues the shower, he hears another toilet flush and immediately jumps out from under the shower head.

Unconditioned Stimulus (UCS): __________________________

Unconditioned Response (UCR): __________________________

Conditioned Stimulus (CS): __________________________

Conditioned Response (CR): __________________________
Classical Conditioning Game

N = 80 teams (3-5 students per team in 10 sections of PSY101)
The Educational Goal/Purpose:

1) Engagement
2) Social Interaction/Collaboration
3) Content Delivery
4) Content Mastery/Application
5) General Education Outcomes
6) Feedback/Assessment
In support of the MCCCD General Education Statement, five general education areas are assessed at Phoenix College:

- **Critical Thinking** - Students will be able to apply critical thinking skills to solve problems, make informed decisions, and interpret events.

- **Information Literacy** - Students will recognize when information is needed, identify appropriate types of information, and locate, evaluate, and use information effectively, ethically, and legally.

- **Numeracy** - Students will use numerical concepts and data effectively.

- **Oral Presentation** - Students will plan and deliver an oral presentation to a target audience at a satisfactory level.

- **Writing** - Students will use writing skills to communicate effectively.
COTS for Critical Thinking
Options: Charm school for modeling, nurse, actress, teacher, ballet dancer

Options: Scientist, doctor, athlete, engineer, astronaut.

Stereotyping, prejudice, discrimination, social roles, intergroup conflict, social comparison, traditional racism vs. modern racism.
The Educational Goal/Purpose:

1) Engagement
2) Social Interaction/Collaboration
3) Content Delivery
4) Content Mastery/Application
5) General Education Outcomes
6) Feedback/Assessment
“games can constantly assess the learner’s ability from the moment they start playing to the moment they stop; this is a promise few other pedagogic tools can deliver on.”

Nick Tannahill, Aston University

A “bring your own device” student engagement, assessment, and classroom intelligence system.
1) Could I use Learning Catalytics as a way to deliver games?

2) Could I use this technology for assessment purposes?
   * Assessment of teaching
   * Assessment of student engagement
   * Assessment of student learning
In-Class Exam Review Session

Act it out!  Answer it!  Describe it!

Draw it!  Recognize it!  Sculpt it!

PEARSON  Speaking About... Webinar Week  October 12 – 16, 2015
<table>
<thead>
<tr>
<th>Format</th>
<th>Question</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>multiple choice</td>
<td>ANSWER IT! The inability to smell is called.</td>
<td>1</td>
</tr>
<tr>
<td>slide</td>
<td>DRAW IT! BOBO DOLL Hint: The bobo doll was the inflatable clown used in...</td>
<td>0</td>
</tr>
<tr>
<td>slide</td>
<td>SCULPT IT! IMPRINTING Hint: Conrad Lorenz studied imprinting in Geese...</td>
<td>0</td>
</tr>
<tr>
<td>multiple choice</td>
<td>ANSWER IT! Some information in our fleeting __________________ is encoded int...</td>
<td>1</td>
</tr>
<tr>
<td>slide</td>
<td>DESCRIBE IT! Self-Awareness Hint: Usually in the second year of life, i...</td>
<td>0</td>
</tr>
<tr>
<td>short answer</td>
<td>RECOGNIZE IT! Which infant reflex is being depicted here?</td>
<td>1</td>
</tr>
<tr>
<td>multiple choice</td>
<td>ANSWER IT! What was SALIVATION in Pavlov’s experiment?</td>
<td>1</td>
</tr>
<tr>
<td>slide</td>
<td>ACT IT OUT! ANOSMIA Hint: Anosmia is the inability to smell.</td>
<td>0</td>
</tr>
<tr>
<td>slide</td>
<td>DRAW IT! RELATIVE SIZE Hint: Relative size is one of the monocular cue...</td>
<td>0</td>
</tr>
<tr>
<td>slide</td>
<td>SCULPT IT! LINEAR PERSPECTIVE Hint: This is a monocular cue for depth...</td>
<td>0</td>
</tr>
<tr>
<td>composite sketch</td>
<td>RECOGNIZE IT! Whether you see a snail or an elephant in this picture depen...</td>
<td>0</td>
</tr>
<tr>
<td>many choice</td>
<td>ANSWER IT! Perceptual constancies include which of the following?</td>
<td>1</td>
</tr>
<tr>
<td>slide</td>
<td>DESCRIBE IT! GENERALIZATION Hint: Generalization is a term Pavlov used...</td>
<td>0</td>
</tr>
<tr>
<td>short answer</td>
<td>RECOGNIZE IT! Which perceptual constancy is illustrated here?</td>
<td>1</td>
</tr>
<tr>
<td>multiple choice</td>
<td>ANSWER IT! __________ memories are said to linger in the mind for...</td>
<td>1</td>
</tr>
<tr>
<td>slide</td>
<td>ACT IT OUT! Color Blindness Hint: Color blindness is the inability to ...</td>
<td>0</td>
</tr>
<tr>
<td>slide</td>
<td>DRAW IT! VISUAL CLIFF Hint: The visual cliff is a special table design...</td>
<td>0</td>
</tr>
<tr>
<td>slide</td>
<td>SCULPT IT! OPTIC NERVE Hint: This optic nerve exits the back of the ey...</td>
<td>0</td>
</tr>
<tr>
<td>multiple choice</td>
<td>ANSWER IT! You are drinking a strong cup of coffee that is particularly bi...</td>
<td>1</td>
</tr>
<tr>
<td>short answer</td>
<td>RECOGNIZE IT! Which Gestalt law of grouping is illustrated here?</td>
<td>1</td>
</tr>
<tr>
<td>slide</td>
<td>DESCRIBE IT! CUTENESS RESPONSE Hint: We have a tendency to respond to ...</td>
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</tr>
<tr>
<td>long answer</td>
<td>ANSWER IT! When you get out of the car at your friend’s house, you smell a...</td>
<td>0</td>
</tr>
<tr>
<td>slide</td>
<td>DRAW IT! GRASPING REFLEX Hint: Infants are born with the reflex to gri...</td>
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</tbody>
</table>
Students worked in teams of 3-4 with a minimum of one device per team.
Session 33926645

slide question

DRAW IT!

RELATIVE SIZE

Hint: Relative size is one of the monocular cues for depth. Objects further away appear smaller than objects close up.
Student Drawing of “Relative Size”
Session 33926645

SCULPT IT!

IMPRINTING

Hint: Conrad Lorenz studied imprinting in Geese. He found that baby geese "attach" to their mothers shortly after hatching and from that point will follow her wherever she goes.

Book Definition: the process by which certain animals form attachments during a critical period very early in life.
Student sculpting “imprinting”
Student sculpting the “optic nerve”
Assessment

Use the Results → Establish Learning Goals → Provide Learning Opportunities → Assess Student Learning

Use the Results

Establish Learning Goals

Assess Student Learning

Provide Learning Opportunities
Assessment of student mastery
PSY277 (Human Sexuality)

- Contraception: 100.00%
- Sexual Dysfunction: 100.00%
- Sexual Behavior: 60.00%
- STI's: 100.00%
Assessment of student mastery

PSY101 (Intro. to Psych)

- Gestalt Laws
- Sensory Adaptation
- Anosmia
- Sensory Coding
- Perceptual Constancies
- Perceptual Set
Assessment of student enjoyment of question/activity type (N=63)

- ACT IT OUT! 32
- ANSWER IT! 31
- DESCRIBE IT! 26
- DRAW IT! 28
- RECOGNIZE IT! 32
- SCULPT IT! 35
Assessment of Mobile Device Gaming Experience

Did you enjoy the Learning Catalytics experience? What did you like most/least?

“Yes, interaction is key when learning.”

“…I liked the sculpting and drawing. Helps if you are a visual learner.”

“To be honest I really enjoyed doing this. It was another way to study. FUN!!”

“It was cool to have the responses and answers so quickly.”

“I like the hints given at the bottom.”

“I enjoyed using this program because we all learn differently and the different types of methods we use help us get it stuck in our brain.”
Goals:

1. Define Gamification and expand your thinking about games

2. Provide a variety of examples of how games can be used in the (psychology) classroom

3. Give you tools/inspiration for designing your own games
Checklist for good game design

1. GAME PLAN
   - Identify Learning Objectives: Choose learning objectives/goals before choosing a game (e.g., student engagement, writing practice, critical thinking, concept mastery). Build/select a game that best matches your goal.
   - Find the right level: Games should balance just enough challenge with just enough skill set to meet the challenge. Games that are too easy create boredom, and too hard, lead to frustration. Try games that start out easier and become more challenging as players progress.
   - Competition/Rewards: Decide how students will be rewarded up front. Competition can create energy and excitement but students can become overly focused on rules and fairness.

2. GAME-ON!
   - Pre-Game Show
   - Game Design Checklist
   - Provide Feedback: Feedback is critical to learning. The best games are those in which feedback is built into the structure of the game such as when players can't move on in the game until they've mastered some competency.
   - Prep for Failure: Let students know that failure has an important role in learning and that errors should be expected and even welcomed. Anticipate places in the game where difficulties may arise and have an action plan. You may want to have a “cheat sheet” with hints and clues ready to go just in case students get frustrated or stuck.
   - Student Buy-in: Think about how you will cultivate a culture and expectation of “doing” and “active participation” in your classroom. Without buy-in students may see the game as trivial/unimportant.
   - Clearly state the Learning Objectives: Students need to know at all times “why” they are playing the game and what goals they should accomplish by playing.
   - Name the Game: Give your game a short and catchy name. Once students become familiar with a particular game format, you can quickly and easily use the same structure again at a later time simply by referencing the name of the game.

3. THE MAIN EVENT
   - Post-Game Wrap
   - Provide Feedback: With rare exception, games should have an end product that holds students accountable for playing the game. Will you call on students? Ask them to submit something in writing or electronically? Turn in a drawing, image or data?
   - Student Accountability: With rare exception, games should have an end product that holds students accountable for playing the game. Will you call on students? Ask them to submit something in writing or electronically? Turn in a drawing, image or data?
   - Assess Effectiveness: Assessing student engagement is important, but even more so is assessing how effective a game is in terms of learning outcomes. You may want to assess student performance at the time of the game, or use a longer term assessment, such as including questions from the game content on your next exam.

4. GAME UP!
   - For more ideas on how to “gamify” your course, contact Dr. Amy Marin at Phoenix College (amy.marin@phoenixcollege.edu) for a detailed list and description of psychology games for the classroom.
   - Gamification: Using the principles of game mechanics to engage people, motivate action, and promote learning
   - Game Elements
     - Individual Control
     - Rules
     - Trial and Error
     - Constant Change
     - Problem-Solving/Challenge
     - Competition
   - Principles of Game Design
     - Careful balance of reward and challenge
     - Provide positive and negative feedback
     - Design for failure as a learning device
     - Get players into “flow” state
     - Game should be easy to learn, and difficult to master
     - Game should be cognitively stimulating and motivating
     - Game should be FUN!!!
   - Why use Games?
     - To increase student engagement
     - To encourage social interaction and collaboration
     - To deliver course content
     - To help students master/apply concepts
     - To encourage development of general education skills
     - To provide students with feedback on their learning
     - As a way to get assessment feedback from student performance as well as instructor effectiveness
Game Design Checklist:

1. Identify Learning Objectives
2. Find the right level
3. Competition and Rewards
4. Student Buy-in
5. Clearly state the learning objectives
6. Name the game
7. Provide feedback
8. Prep for failure
9. Student accountability
10. Assess Effectiveness
Are students “in the zone”?

Game Design Checklist:

1. Identify Learning Objectives
   - Find the right level
   - **Competition and Rewards**

2. Student Buy-in
   - Clearly state the learning objectives
   - Name the game

3. Provide feedback
   - Prep for failure

4. Student accountability
   - Assess Effectiveness
Competition in games:

Pros:
• Competition brings excitement and motivation

Cons:
• Competition can shift the focus from the means to the ends
• Can increase anxiety/threat (e.g. fear of failure)
• Accentuates differences in ability levels
Healthier ways to use competition:

1) Encourage competition with past performance over competition between groups

2) Focus on teams/collaboration over individual performance.

3) The prize is not “real” (e.g. the reward should not be points towards grade)

4) The emphasis is on fun and mastery OVER external rewards.

Take home message....

By using simple gamification techniques we can create an “edutaining” classroom experience that’s both enjoyable and consistent with how students learn.
Handouts:

- “Game-on” Checklist
- Game Ideas for the Psychology Classroom

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Questions or Comments?