This is . . . More than Just Jeopardy:
Designing and Using Effective Medical Education Games

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Objectives

• Explain the benefits of game-based learning as an adjunct to traditional didactic methods

• Apply *Twelve Tips for Effective Game-Based Learning* for your own novel game designs

• Immediately implement game-based learning using easily adaptable templates and examples provided on a flash drive
How We’ll Get There

Background: The Tools (35 min)
- Why Game Based Learning?
- 12 Tips

Small Group Session: Design Your Own (40 min)
- Design and Present a Novel Game

Explore the Game Closet (20 min)
- Overview of the Games on the Jump Drive

Demo: Time to Play (15 min)
- Pediatric Slot Machine

Questions/Wrap Up (10 min)
Definition of an Educational Game

Instructional method requiring the learner to participate in a competitive activity with preset rules

Problem Based Learning

Small Group

Simulation

Student Centered

Problem Based

Game Based Learning
Traditional Didactics
The Perfect Package

- Fun
- Memorable
- Effective

Shown to be preferred to traditional didactics and equally effective in retention

If well designed, can be packed with adult learning theory
• NOT just throw away or filler

• Designer’s job to:
  • Ensure substance
  • Meet tangible objectives
  • Know how to implement properly
Technology, Apps, Interactive PowerPoints Templates, Audience Response Devices, etc. ARE NOT NECESSARY for a well designed game when a CHALKBOARD CAN DO THE JOB.
Twelve Tips for Effective Game-Based Learning
Tip #1: Embrace “The Slumdog Concept”

• Don’t Memorize, Make Memories

• Create games that are:
  • Interactive
  • Relevant
  • Challenging
  • Fun
Tip #2: Challenge Minds, Not Nerves

Competition need not be stressful

Aim for intellectual arousal, not anxiety

Avoid stigma of a wrong answer
Circumplex Theory of Affect (Russell 1980)
Tip #3: Don’t Reinvent the Wheel of Fortune

• Borrow from what works and put a medical spin on it
  • The majority of published games are based on existing games

• Examples:
  • Medical Sketch
  • Medical Jeopardy
  • Medical Charades
  • Who Wants to be a Pediatrician?
  • Name that Syndrome
  • Jargon-Be-Gone
Tip #4: Make it more than just a game

• Remember the objectives

• Design games that cover specific themes

• Don’t just play the game

• Discuss every answer (even the wrong ones)

“Your turn.”
Tip #5: Step away from the blackboard

• Let the contestants do the teaching

• Transition from “instruction” to “facilitation”

• Participate when possible
Tip #6: Around the Room in 80 Seconds

- Resist rattling off teaching points yourself
- Be quiet for 80 seconds and go around the room letting the students do the teaching
- Allow peer-pressured learning (“If they know it, I should know it too.”)
- Creates a dynamic learning environment
Tip #7: Mind the Gaps

• Have a mental (or written) checklist of ideal learning points

• Identify gaps in knowledge

• Fill them in (if possible, in the format of the game)
Tip #8: Think Outside the Trivia Box

Test more than just the facts

Non-trivia games may be less intimidating

Examples:
• Medical Charades
• Medical Sketch
• Jargon-Be-Gone
• Slot Machine
Differential Diagnosis Slot Machine

Three stacks of ten index cards labeled A, B and C

• Stack A: combinations of an age and sex of a patient (i.e. 6 month old male, 17 year old female, etc)

• Stack B: chief complaints or symptoms (i.e. blood in stool, cough, abdominal pain, nystagmus, etc)

• Stack C: abnormal labs or studies (i.e. “abnormal CBC,” “abnormal UA,” “abnormal CXR,” etc)
How to Play

1. Player creates a chief complaint by drawing a random card from stack A and B (for example, a 5 year old boy with limp).

2. Group discusses what differential could be, what they’d like to ask patient, look for on exam, etc.

3. Player draws an abnormal value from stack C. For example, abnormal CXR.

4. Group now discusses what could be abnormal on the CXR that could lead to a diagnosis explaining the limp (i.e. mediastinal mass, broken ribs, metastases, rickettsial rosary, etc).

5. Can repeat drawing from stack C to further “narrow” diagnosis.
Differential Diagnosis Slot Machine

- Ideal balance of activation and psychological safety as there is no single right answer

- Allows real-time creative medical thinking

- Mimics real world

- Can be tailor made as specific as possible (all GI complaints, adding a fourth stack with gestational age for NICU, etc.)
Tip #9: Take Action Seriously
Don’t downplay action-oriented games
Embrace less stigma in shouting out wrong answers
Examples of Good Medical Charade Clues

• Anaphylaxis
• Cyclic Vomiting Syndrome
• Febrile Seizures

• Happy Puppet Syndrome
• Maple Syrup Urine Disease
• Legg-Calves-Perthes Disease
There's not always a right answer.

Use games with NO right answers.

Write questions to get more inclusive answers.

Tip 10: Ditch the buzzer always a right answer.
'I pity the fool' is a catchphrase of which famous American?

A: Tom Cruise  B: Jerry Seinfeld  C: Mr T  D: George Washington
Write Questions in Such a Way to Encourage Multiple Correct Answers

A newborn female with a webbed neck, lymphedema of the feet and wide spaced nipples may have what disease?

Only one correct answer: Turner’s Syndrome
These are three of many findings that may be seen in a newborn female with Turner’s Syndrome:

- Webbed neck
- Lymphedema
- Wide spaced nipples
- Short stature
- Small fingernails
- Low hairline
- Low-set ears

When writing a Jeopardy, instead of a random potpourri of trivia, make it all themed (i.e. Well Child Check Jeopardy) to replace a traditional didactic lecture.
Tip #11: Size up the crowd

- Not all groups are created equal
- Tailor way game is played to size of group
- Use non-trivia games for small groups
Grocery Game
Tip #12: Use Feedback to Feed-forward

• Learn while teaching
• Take notes of what’s working and what isn’t
• Use feedback forms
12 Tips Summary

- Game-based learning is an effective alternative to traditional teaching methods
- Well-designed games allow for making memories rather than memorizing and are based on sound adult learning theory
- By embracing the twelve tips, educators can maximize the effectiveness of GBL
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Design a Game

- Break into groups of 4-7 people
- Use the 12 Tips to create (or modify) a novel medical education game
- Include objectives, ideal setting for play, rules, and examples (worksheet provided)
- Pick a presenter to present to the large group

Twenty Minutes
Medical Game Design Worksheet

**Game Name** Jargon-Be-Gone

**Based On** (if applicable) Taboo

**Objectives:** (“As the result of playing this game, students will be able to. . .”)

1. Describe medical conditions without using jargon
2. Discuss common pediatric disease processes

**Ideal Setting:** Small group; could be played between rooms on rounds

**How to Play:**

1. Two teams
2. Player from each team alternates drawing cards from a stack
   Player tries to get teammates to guess the top word on the card without using any of the forbidden words below
3. Each turn lasts 1 minute
4. One point gained for each correct card, one point lost for each pass or use of a forbidden word
5. After each turn, the player who just gave clues must lead a brief discussion on each card topic, using the card itself as a cheat sheet
6. First team to 10 points wins
Example(s):

- Example Card
- CROUP
- Barking
- Cough
- Steeple Sign
- Seal
- Stridor

Teaching Insights:

- Less anxiety provoking because there are clues on the card
- Safe to shout out a wrong answer
- After each round, clue-giver leads discussion of all the cards, and has the clue words as a cheat sheet
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https://www.appd.org/amsurvey/
References


References (continued)


