UPPING YOUR GAME WITH GAME-BASED LEARNING

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• 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
Workshop
Roadmap

Why Use Game Based Learning? [5 min]
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Workshop Roadmap

Designing Effective Games (Twelve Tips) [20 min]

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Time to Play: Design Your Own [40 min]

Why Use Game Based Learning? [5 min]
Explore the Game Closet [15 min]

Workshop Roadmap

Designing Effective Games (Twelve Tips) [20 min]

Time to Play: Design Your Own [40 min]

Why Use Game Based Learning? [5 min]
DEFINITION

• The perfect package:
  – Fun
  – Memorable
  – Effective

• Shown to preferred to traditional didactics with equal or better 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
Twelve tips for maximizing the effectiveness of game-based learning

Michael B. Pitt, Emily C. Birman-Shap & Walter J. Erlich

Abstract

Game-based learning (GBL) in medical education is emerging as a valid alternative to traditional teaching methods. Well-designed GBL sessions use non-threatening companions to capitalize on heightened learner arousal, allowing for high-level engagement and dynamic group discussion. While many templates for specific educational games have been published, little has been written on strategies for educators to create their own or how to use them with maximal effectiveness. These 12 tips provide specific recommendations for the successful design and implementation of GBL sessions in medical education based on a review of the literature and insight from experienced designers.

Introduction

As educators are increasingly being challenged to diversify their teaching repertoire beyond traditional didactics, one form that is garnering momentum in the use of educational games (Chochrane et al. 2017, Scoby et al. 2017, Akd et al. 2018, 2019). An educational game is an instructional method requiring the learner to participate in a competitive activity with preset rules (Gertler 2017). Innovative educational games have been shown to be effective alternatives to traditional didactics with retention that is at least equal to, and often promotes better attitudes about learning than the traditional methods (Fukuchi et al. 2010, Gertler 2019, Theurer et al. 2019). Although the literature contains examples of specific games that have been used and reports of their success, little has been reported about strategies to replicate them or how to maximize their effectiveness.

Our goal is to provide guidelines for medical educators to design and incorporate their own innovative educational games. Moreover, we wish to identify strategies to use these games from secondary add-on sessions to primary educational interventions based on sound pedagogic principles.

Experience and evidence

Our recommendations are derived from three sources. First, we draw from our own practical experience of designing and implementing game-based learning (GBL) sessions for pediatric medical education as well as our conference workshops on effective game design. Our teaching experience from these GBL sessions for both residents and medical students

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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 #4: Make it more than just a game

• Have objectives beyond “getting the write answer” or just having fun

• Design games that cover specific themes

• Don’t just play the game

• Discuss every answer (even the wrong ones)

“Your turn.”
Tip #5: 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

- 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 #6: 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
Tip 7: Ditch the buzzer

There's not always a right answer

Use games with NO right answers

Write questions to get more inclusive answers
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
Tip #9: 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 # 10

• Identify gaps in knowledge
• Fill them in (if possible, in the format of the game)

• Have a mental (or written) checklist of ideal learning points
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 game-based learning.
Design a Game

Break into small groups

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
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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Twenty Minutes
Explore the Game Closet


