



Introduction to Game-Based Learning

Dr. Michael Rugh

Learning Interactive Visualization Experience
LIVE Lab



Dr. Rugh

- Texas A&M University, USA
- Associate Research Scientist
- LIVE Lab =
Learning Interactive
Visualization Experience
- I lead a team of 24 researchers
- Assimilation Theory of
Meaningful Learning



Survey on Game-Based Learning

Answer a few questions

- Raise your hand if you play games.

(phone games, computer, xbox, playstation, switch board games, card games, tabletop rpgs, etc.)

- How about video games?

- Raise your hand if someone close to you plays video games.

(brother, sister, parent, child, cousin, or boyfriend, girlfriend, or spouse)



Outline

- Survey
- Activity
- Basics of GBL
- Benefits of GBL
- Games Made by LIVE Lab
- Break
- How to use GBL
- Resources for GBL
- Designing a Game
- Conclusion
- Q&A



Activity

Play a game with your neighbor

- Tic-Tac-Toe (Piškvorky)
- Rock-Paper-Scissors (Kámen, nůžky, papír)
- Coin Toss (Hod mincí)
- Charades (Šarády)
- Other (Jiné)



What is Game-based Learning?

- Game-based Learning (GBL)
 - Definition
 - GBL is when you use a game for learning.

Any time you use a game to help students to learn or practice specific learning objectives, you are using game-based learning.

What is Game-based Learning?

- GBL is NOT *gamification*
- Examples of gamification
 - Kahoot!
 - Quizlet
 - Points, awards, and badges
 - Credit card points, hotel points, & airline miles



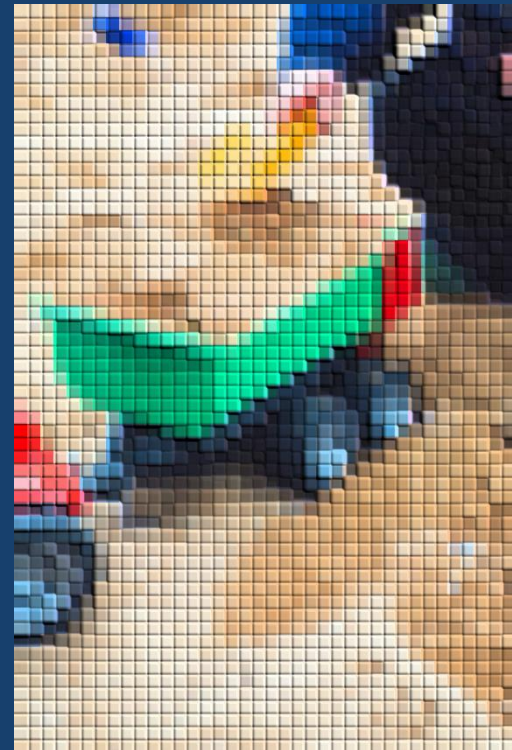
What is Game-based Learning?

Give me examples of games



What is Game-based Learning?

- GBL is more than *play*
- Examples of Play
 - Sandbox
 - Minecraft
 - Role-playing
 - Building blocks or LEGOs



What is Game-based Learning?

- What is a game?
 - A game has rules
 - A game has an end state
 - A game is engaging



- GBL is when you use a game for learning

Benefits of GBL

- Just-in-time automated feedback
- Ability to fail
- Scaffolding future learning
- Simulating impractical or impossible scenarios
- Engagement and motivation
- Promote active learning
- Enhance problem-solving and critical thinking
- Encourage teamwork and collaboration
- Provide personalized learning





Categorization of Games

1. By genre of game

1. First person shooter
2. Puzzle games
3. Mobile games
4. Adventure games
5. Roleplaying games

2. By content

1. Games for health
2. Games for science
3. Political games
4. Historical games
5. Documentary games
6. Or General educational games

3. By purpose

1. Play
2. Education
 1. Learning (formative)
 2. Practice (formative)
 3. Assessment (summative)



Examples of GBL

- Chess (for strategic thinking)
- Coding Games (for learning coding)
- Scrabble (Kris Kros) (for vocabulary)
- Scribblenauts (for vocabulary)
- Arté: Mercenas (for learning art history)
- Variant...



Games Made by the LIVE Lab

- Show Demo Reel

How to Begin Using GBL



How to Begin Using GBL

- Play games yourself
- Try games in class
- Participate in studies
- Pay for games
- Don't use as reward!
- Play – Teach – Play
- Try creative games
- Expect growing pains





How to Use GBL for Social Education

- Inclusivity
 - Diverse backgrounds
 - Disabilities
 - Low Income
- Personal Development
- Civic Education
- Social Values



Challenges and Solutions



Challenges and Solutions

Challenges

- Risk adversity
- Resistance to change
- Low preparation

Solution Option

- Recognize that inaction can hurt your students
- Try – (fail) – Modify
- Attend online PD;
Request assistance



Challenges and Solutions

Society Challenges

- Perceptions
- Low preparation

• What works?

• Assignable and Assessable

Solution Option

- Education
- Improved teacher preparation programs and PD

• Increased research on game-based learning

• Games with clear and measurable outcomes

Resources for GBL



Resources for GBL

- Watch videos on GBL
- Read books on GBL
- Find games
 - Google, Steam, Google Play, Itch.io...
 - Our game database
- Take courses, PD, Webinars



Designing a Game

Design a Game for Learning

- Well-defined learning outcomes
- Know your audience
- Decide on format
- Choose gameplay and mechanics
- Consider assessment
- Keep it engaging
- Explain the rules
- Encourage collaboration



Conclusions



Any Questions?