

The Games Show

Guidelines for Planning and Implementing the Use of Commercial Games for Learning

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What Are the Assumptions of This Presentation?

A

You're Aware of Rationale for Using Games for Learning

B

You Want a Practical Guide to Integrating Games in the Classroom

C

Cost to Develop Games Precludes Widespread Development by Educators

D

All of the Above

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Assumptions & Approach

Know why games can be effective

- Anchored Instruction
- Situated Learning & Cognition
- Play Theory
- Intrinsic Motivation

Want to know how to begin

- How to implement in pedagogically sound manner
- Instructional design
- Beginning of an Approach
 - Not only approach
 - Not complete, prescriptive approach

Which of the Following Is TRUE
About Games in Learning
Environments?

A

Games Are a Panacea for
Technology-Based Learning

B

Integrating Games in the
Classroom Is Quick, Easy,
& Inexpensive

C

Any Game Can/Should Be
Used for Problem-Solving
& Motivation

D

None of the Above

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Cautionary Notes

Like Any Technology Integration, Takes Time

- Easy to make non-effective learning material
- Analysis of learner, content, outcomes, and strategies cannot be overlooked

Games Are No Panacea

- Not for all topics, learners, or environments
- Expensive to develop & implement
 - Expense of installation and maintenance in lab environments
 - Higher cost of required hardware
 - Shared space issues (saved games, speakers)
- Games are effective **ONLY** if:
 - Instruction is matched to the medium (e.g., Kozma, 1985)
 - Content is integrated (e.g., not just for motivation)

What Can We Say About Integrating Games in Learning?

A

As Long As the Game Is “On-Topic” It Will Be Effective

B

You Are Limited to the Game’s Design in Terms of Objectives & Activities

C

Integrating a Commercial Game Is Similar to Thematic Units in K-12

D

Games Like *Jeopardy* Teach the Same Way As *Civilization*

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Playing the Matching Game



Not All Games Alike

- Card games, video “arcade” style games, & interactive adventure games: different strategies, different learning supported
- Analyze individually for underlying strengths and strategies



Matching Game and Learning Taxonomies

- Learning taxonomies can be matched to game taxonomy
- A beginning (Gagne, Bloom, & Bates’ Taxonomies--handout)



Games & Problem Solving

- Handout shows games CAN be effective at all taxonomy levels
- Problem solving/synthesis is often missing in instruction (time, difficulty)
- Adventure games may be best for higher levels (problem-based; subordinate skills/knowledge)



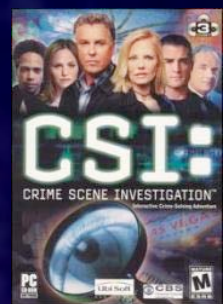
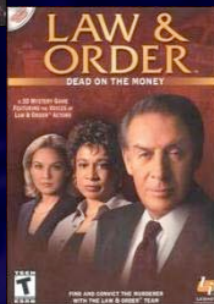
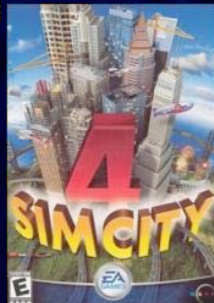
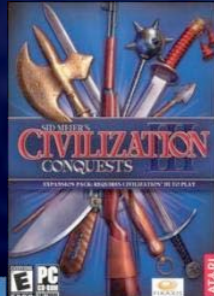
Like Thematic Units

- Theme organizes and structures individual lessons, topics, and units
- Game can serve same purpose, but much is prescribed already

Choosing the Game

Choosing a Suitable Game (see handout)

- 📌 Sometimes Topic Matches Content of Course



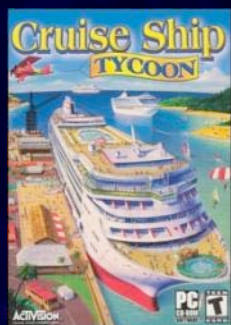
Game	Game Content	Course Content
Age of Empires, Civilization	History	History
Sim City	Geography, Civil Engineering	Geography, Civil Engineering
Law & Order, C.S.I.	Criminal Justice	Criminal Justice

Choosing the Game

Choosing a Suitable Game

- Other times, Gameplay Matches Content of Course

Game	Gameplay	Course Content
Contraption, Roller Coaster Tycoon	Build Machines To Specification & Tolerances	Physics, Mathematics, Engineering
Cruise Ship Tycoon	Manage Budgets, Purchase Supplies, Ensure Financial Success	Business, Economics, Resort Management



Which of the Following Is TRUE?

A

Liking & Playing Games Yourself Has No Relevance to Teaching With Them

B

Students Universally Enjoy Computer Games

C

Computer Games Make Teamwork Impractical (one game = one student)

D

None of the Above

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Analysis & Design: People

One Size Does NOT Fit All (see handout)

Are Your Students Game?

- Play games?
- Individual differences
- Access to appropriate computers?

Have You Got Game?

- Do you play computer games?
- What is YOUR approach to game play? (linear vs. non-linear, speed)
- Must know the game THOROUGHLY (start to finish and then some)

Analysis & Design: Resources

Environment

- Your Computer
- School Computers
 - Game requires “on-the-fly” system access
 - Licenses
- Access to Computers
 - Yours, school’s, students’

Gathering Resources

- Walkthroughs
- Hint Books
- CNN (Children, Nephews, & Nieces)
- Game Web Sites
 - Patches
 - FAQs

Analysis & Design: The Game

Things to Consider



Interface

- Quality, Efficacy
- Game management (inventory, save game, etc.)
- Navigation (ease of, flow)



Instructional/Learning Factors

- Type/level of learning supported by game (taxonomy)
- Type/level of learning supported by puzzle (taxonomy)
- Relation of puzzles to story, plot, and/or goal (flow)
- Strategies (promoted by game/puzzles, relation to problem solving)



Learner Characteristics

- Protagonist/learner representation
- Intended audience

Analysis & Design: The Game

Things to Consider



Groups vs. Individuals

- Group play minimizes resources, maximizes your time
- Game may not be designed for it, but may support it



Length of Time to Play

- Good players take less time (CNN)



Linear or Learner Control?

- Linear means game experience identical for all
- Non-linear means different experiences OR you must guide & control

Analysis & Design: Content

It's in the Game



What IS Covered?

- Topics focus on breadth or depth?
- Which topic(s) will you focus on?



What Is NOT Covered?

- Missing topics (breadth)
- Missing content within topic (depth)
- Pre-requisite knowledge required



What Is Wrong? (teachable moments)

- Inaccurate information (poetic license)
- Misleading information (fosters inaccurate/incomplete information)
- Alternate viewpoints/interpretations (one of many views or theories)
- Inappropriate/incorrect strategies (method of deriving information/ conclusions inaccurate/incomplete)

Analysis & Design: Evaluation

Based on Analysis, What About:



Missing & Inaccurate Content

- Which content will you have to add?
- Who will provide this? (you, students, both)
- Maximize learner responsibility



Activities

- What instructional activities can you create to maximally address weaknesses (e.g., missing/inaccurate content)?
- How many weaknesses can be addressed collectively (maximize ratio of activity to weaknesses)?



Is It Worth the Time?

- Is the amount of potential learning justified by the amount of work and time to implement the game?
- Must be willing to admit it is not!

Which of the Following Is A GOOD Way to Integrate Games?

A

Play the Game, Then Study the Content and Refer Back to the Game

B

Study the Content, Then Use the Game for Application & Assessment

C

Alternate Playing the Game With Activities That Extend the Game/Learning

D

All of the Above

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Instructional Activities

Top-down or Bottom-up

- 📌 Game as Frame for New Learning (top-down)
- 📌 Game as Chance to Synthesize and Apply Pre-learned Skills (bottom-up)
- 📌 Hybrid

*Stay in the Game

- 📌 Flow & Gaming
 - Games can promote optimal flow experiences
 - Flow may be optimal learning state
 - Interruptions to game equal interruptions to flow
 - Maximize game time AND focus on game world

Instructional Activities

Staying in the Game

- Intrinsic Motivation (Malone & Lepper, 1987)
 - Endogenous vs. exogenous fantasy (in relation to content)
 - Endogenous fantasy will promote flow
 - When not IN game, keep activities & roles endogenous TO game

Types of Activities (handout)

- Math & Numbers
 - Budgets, spreadsheets, reports/charts, databases
- Writing
 - Diary, scientific report, letters, legal briefs, dictionary, faxes
 - Multiple viewpoints

Instructional Activities

Types of Activities



Science

- Design, duplicate, conduct experiments (endogenously!)
- Conduct/write up feasibility studies
- Hypothesis testing



Research

- Assess veracity of game information, provide missing data
- Internet, library, encyclopedia, etc.