

# Games for Pain Education

Cathy Carlson, PhD, RN  
Northern Illinois University



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## Questions to be Answered

What is Gaming?

What are the benefits of gaming and who benefits?

What does the literature suggest about the effectiveness of gaming?

What game should be used?



What do some games look like?

Where can I get some games?

What are the implications for education and research?

Conclusions

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## What is Gaming?

**“Gaming is an interactive process that lends itself to the acquisition and application of cognitive, affective, and psychomotor knowledge and skills.”**

Hayes & Childress, 2000

**Gaming is “any overt instructional or learning format that involves competition and is rule-guided.”**

Dempsey, Lucassen, Gilley, & Rasmussen, 1994



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## Why Games are Engaging

- Games are:
  - A form of fun
  - A form of play
  - Interactive
  - Adaptive
- Games have:
  - Outcomes & feedback
  - Win states
  - Conflict/competition/challenge/opposition
  - Problem solving
  - Interaction
  - Representation & theory



Prensky, 2001



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## Gaming Characteristics that Encourage Interactivity

- Visually based with graphic presentation
- Self-paced
- Systematic and specific
- Student-controlled
- May be used with Groups or Individuals
- Meets needs of Digital Natives
- Can be placed on the Internet and on WebCT/Blackboard



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## Purpose of Gaming

- Reinforces learning, thus increases retention
- Verifies existing knowledge
- Increases involvement which increases learning
- Encourages engagement that allows brain to make better perceptual maps through emotion, relaxation, and fun
- Increases teamwork if done in groups
- Assesses comprehension



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## Advantages of Gaming in Education

- Reduction of stress & anxiety
- Stimulates interaction
- Promotes teamwork
- Creates a conducive environment for increased learning and retention of learning
- Enhances motivation
- Promotes a relaxed learning environment



• Adds entertainment

Henderson, 2005



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## Disadvantages of Gaming in Education

- Creates stress and embarrassment when incorrect answers given
- Can hinder evaluative learning
- Competition can be seen as threatening
- Cost
- Increases difficulty in assessing individual competencies when teams are involved



• Requires special preparation which can be time consuming

Henderson, 2005



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## Learning Styles

- 60% visual
- 25% kinesthetic
- 15% auditory

Technology of games allows us to match the course content to the learning style of the students.



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## Characteristics of Nurses that Makes Gaming Valuable to Nursing Education

- A heterogeneous population
- An active learning population
- Compassion
- Complex work environment
- Time compression
- The need for motivation
- The need to acquire communication skills.



Fuszard, 1989

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## Product of the Environment

### Baby Boomers

- TV generation
- Typewriters
- Telephones
- Memos
- Family focus

### Generation X

- Video games
- Computers
- Email
- CDs
- Individualist

### Generation Y

- The Web
- Multiple, mobile devices
- Instant messaging
- Texting
- Online communities




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## Differences in Attitudes

	Baby Boomers	Generation X	Generation Y
Web	What is it?	Web is a tool	Web is oxygen
Community	Personal	Extended personal	Virtual
Perspective	Local	Multi-national	Global
Career	One career	Multiple careers	Multiple reinvention
Loyalty	Corporation	Self	Soul
Authority	Hierarchy	Unimpressed	Self as expert

Savage, 2003




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**Generation Y Preferences**

<b>Learning Preferences</b> <ul style="list-style-type: none"><li>• Prefer teamwork</li><li>• Prefer technology</li><li>• Prefer structure</li><li>• Enjoy engagement &amp; excitement</li><li>• Want experiential activities</li></ul>	<b>Strengths</b> <ul style="list-style-type: none"><li>• Able to multitask</li><li>• Are goal oriented</li><li>• Have positive attitudes</li><li>• Work collaboratively</li><li>• Are technologically savvy</li></ul>
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 —Raines, 2002

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**Themes**

- Digitally literate
- Always on
- Experiential
- Mobile
- Community-oriented

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
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**What does the literature suggest about the effectiveness of gaming?**

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### Categories of Articles in Gaming Literature

1. Discussion
2. Research
3. Theory
4. Reviews
5. Development



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### Improvement Compared with Traditional Methods

Pedagogical approach	Net Effect (Std Dev.)
• Active learning	0.25
• Computer-assisted	0.31
• Cooperative learning	0.51
• Small group learning	0.51

*Pascaralla & Terenzini, 2005*



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### Research Findings Specific to Gaming

- Methodological basis of papers was poor to fair
- Effectiveness of educational gaming as a teaching tool varies
  - Generally, higher levels of postsession knowledge were demonstrated when participants were exposed to gaming interventions when compared to control groups



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### **More Research Findings Specific to Gaming**

- **Generally, long-term retention was increased by gaming**
- **Students experiences using gaming was positive overall**
  - **Motivating**
  - **Competitive**
  - **Nonthreatening**



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### **What Game Should be Used?**

- **Identify direct and indirect aims of the game**
- **Avoid comparing games with traditional teaching**
- **Variables in a gaming environment are complex and difficult to identify**
- **Games shouldn't be overly complex**
- **Use existing game strategies for your purpose**



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### **What Game Should Be used?**

- **Use highly visual simulation games**
- **Incorporate a method of ending**
- **Intrinsically motivating games should be used.**
- **Employ debriefing of or in addition to gaming.**
- **Change the method of scoring and vary challenge level**



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**LET THE FUN BEGIN!!!**



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**PowerPoint: One Type of  
Game Format**



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**Linear PowerPoint**

- **Slide Show Presentations**
  - Organizes lectures
  - Increases aesthetics of presentation
  - Provides effective AV presentation

**Thus.....**



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**Linear PowerPoint  
Perfectly Suited for Traditional  
Style of Teaching**

- **Monologic – “Talking Head”**
- **Discourages active learning**
  - Discourages questions
  - Discourages particular interests
- **Creates an impersonal classroom**



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**Nonlinear PowerPoint:  
General Idea of PowerPoint  
Games**

- **Rather than 40-50 slides, 2-5 slides are arranged around a particular topic**
- **Has a homepage**
- **Each individual slide has an action button back to the homepage**
- **Uses Interactive Tools embedded in PowerPoint**



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**Interactive Tools in PowerPoint  
Allows Generation of Simple Games**

- **Edu-games**
  - **Preformatted presentations – “Frame Games”**
    - Adapt format to any subject
    - Rules stay intact
    - Resemble popular board or TV game shows
  - **Custom presentations**
    - Created according to need
    - Need concept map or storyboard
    - Development of drill applications easiest



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### What do some PowerPoint Games Look Like?

- Pain Flashcards
- Pain Jeopardy
- Painwood Squares



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### What Other Types of Games Are Available?

- Pain Crossword Puzzle
- Pain Multiple Choice Questions
- Pain Flow Sequence
- Pain Definition Matching
- Fill in the Blanks for Pain



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### Where Can I get Some Games?

- See handout
- My Favorite
- Others



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## Implications for Education & Research

- Who will be responsible for developing the content of games?
  - What are the appropriate roles for game developers, content experts, instructional designers?
  - How will entertainment value be weighed against educational value?



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## Implications for Education & Research

- Could the need for high volume game sales lead to the “dumbing down” of curricular materials?
  - Will we see a “Wal-Mart” effect bring educational standards to the lowest common denominator?
  - Can games be developed with enough flexibility to allow for institutional differences? For faculty differences?
  - Will computer games allow for creative, out-of-the-box solutions to problems?



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## Implications for Education & Research

- How will games be integrated with traditional teaching methods?
  - Will the time students spend on games take away from other activities (reading, lectures, papers)?
  - Will games encourage students to resist more “boring” activities?
  - Is there a risk that games will displace traditional teaching methods? Would that be good or bad?



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## Implications for Education & Research

- Will games have unintended consequences?
  - Beyond the academic content, what other types of information might be conveyed by games?
  - What is the risk that negative themes or undesirable perspectives would be conveyed by educational games?



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## Implications for Education & Research

- How will games be evaluated and the benefits documented?
  - What kind of data will be needed to verify the benefits of games and improved learning outcomes?



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## Simplified Conclusions

- Limited available research indicates that gaming may be effective in enhancing learning and does not appear to be detrimental.
- Modify Existing Games to Create Games
- Offer games as an alternative teaching method to increase learning through engagement and meeting multiple learning styles.



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