





August 27, 2007

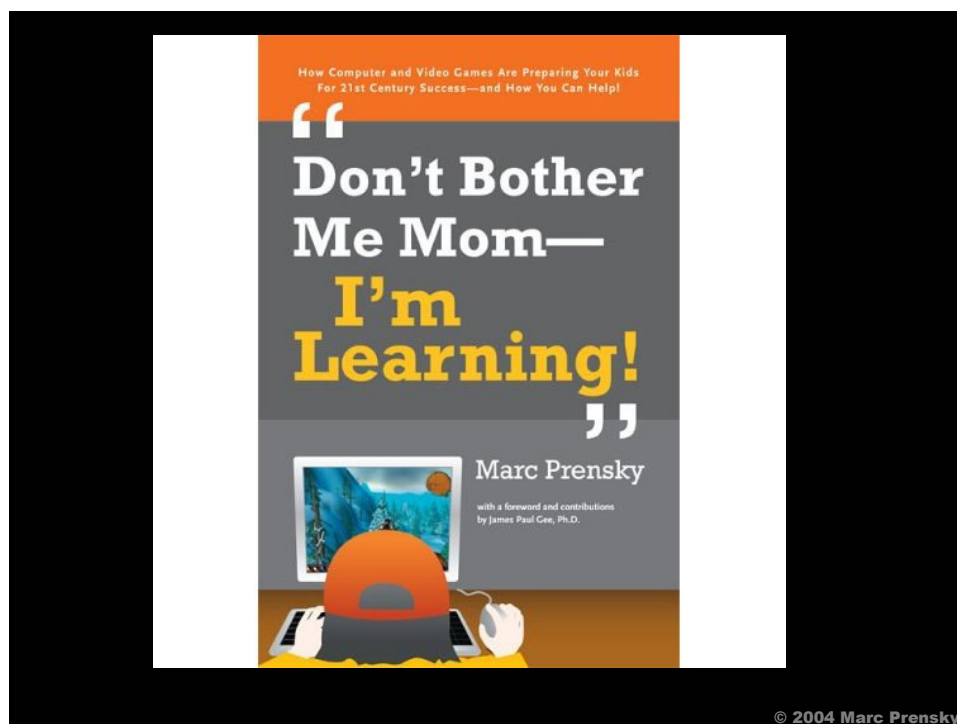
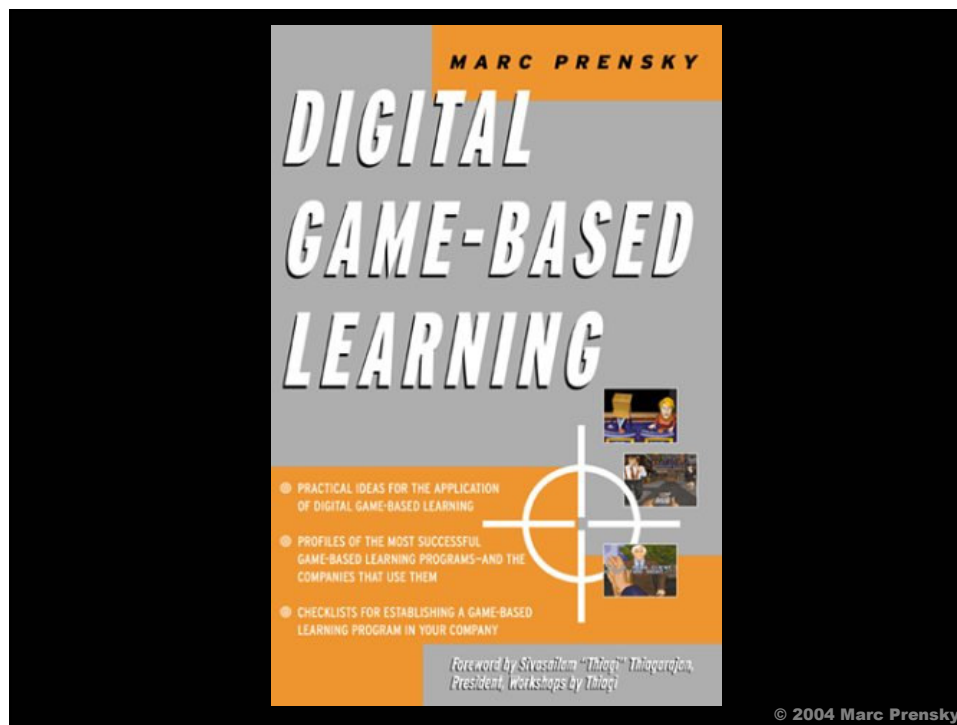
**1A, Plenary: Learning by Doing
1A1: Don't bother me, I'm learning!**



Marc Prensky

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**I am speaking to you
today...**

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**...from the
point of view...**



Peter Sheahan's Generation G.....a.....p

ประเด็นความสนใจ	Baby Boomers	Generation X	Generation Y
นักร้อง	ชรินทร์ นันทนาคร	ธงไชย แม็คอินไตย์	ฟิล์ม รัฐภูมิ/ ป๊อ
ดนตรี	วิทยุ/แผ่นเสียง	เทป/แผ่นซีดี	iPods, MP3
คอมพิวเตอร์เกมส์	?	Packman	RakNarok
เงิน	ต้องหา	ไม่ใช่ทุกอย่าง	เอามาซิ
ความจงรักภักดี ต่อองค์กร	ทำงานเพื่อไปถึง จุดสูงสุด Live to Work	หาเส้นทางลัด สู่จุดสูงสุด	ถ้าไม่ให้หยุดวันเสาร์ ผมขอลาออก Work to Live
การเคารพผู้ใหญ่	อัตโนวัติ	สุภาพ	ยังไถ่ก็ได้
การเปลี่ยนแปลง	ต่อต้าน	ยอมรับ	ต้องการ
เทคโนโลยี	ไม่สนใจ	ไม่มีปัญหา	ในลมหายใจ
Sex	หลังแต่งงาน	หลังรด (เบาะหลัง)	ออนไลน์

Naturally, we'll be going at



(slides available)

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WHAT CAN *YOU*
[Educational Policy Makers]
DO FOR *US*?
[The Millennials]

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***“Give us
21st Century
Tools!”***

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**FOR MOST OF US,
OUR BIGGEST NEED
IS NOT
BETTER CONTENT**

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**WE NEED
BETTER
UNDERSTANDING
&
21st CENTURY SKILLS**

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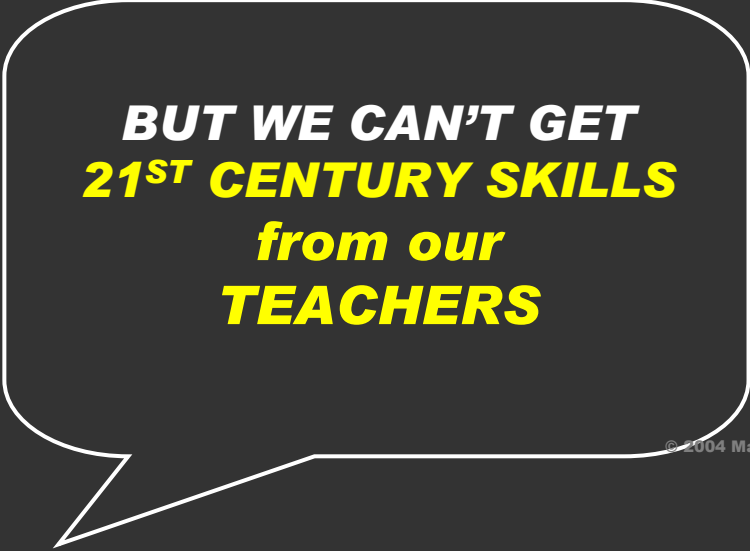
E.G.

***Knowledge filtering
Using our connectivity
Maximizing computer cycles
Speaking in game, etc.***

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**OUR TEACHERS
CAN
PROVIDE US WITH
BETTER UNDERSTANDING**

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***BUT WE CAN'T GET
21ST CENTURY SKILLS
from our
TEACHERS***

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***THEY
DON'T HAVE
THEM!***

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EVEN
IF YOU
“RETRAIN”
THEM!

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WHY?

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BECAUSE WE ARE THE

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Digital Natives

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- **10,000 hours Video Games**
- **250,000 emails**
- **10,000 hours on cell phones**
- **20,000 hours TV (incl. MTV)**
- **500,000 commercials**

- **< 5000 hours book reading**

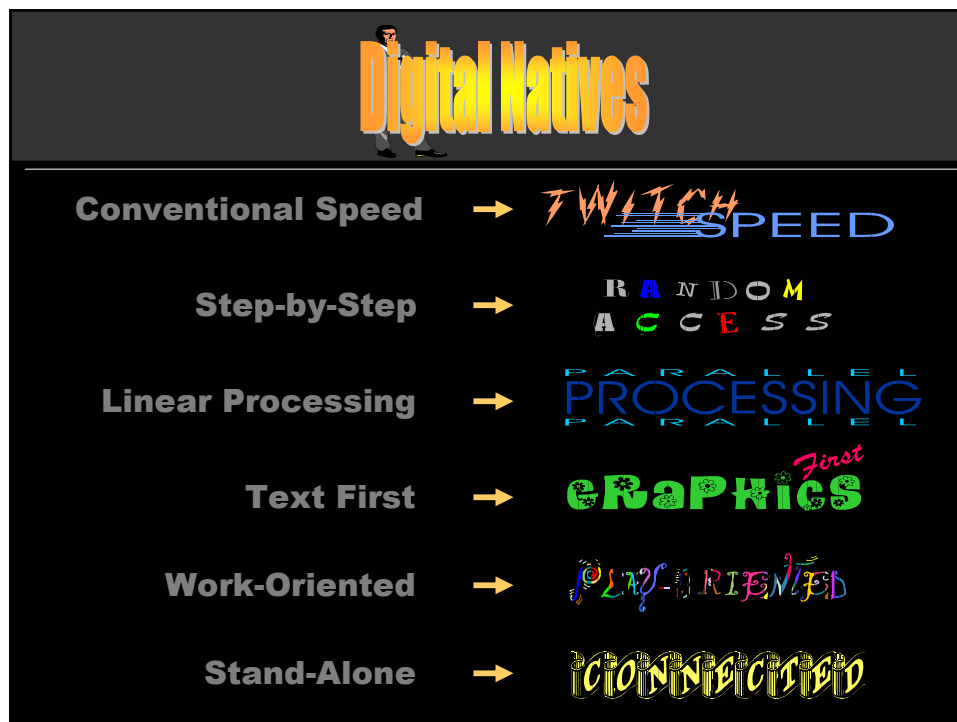
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- **2 billion ring tones per year**
- **2 billion songs + movies per month**
- **3 billion text messages per day**

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***OUR
TEACHERS,
HOWEVER,
ARE MOSTLY...***

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Digital Immigrants

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**AND MOST OF THEM
DON'T UNDERSTAND
THE NEW TECHNOLOGIES
OR EVEN THE LANGUAGE**

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Digital Natives

Digital Immigrants

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So...

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WHAT **CAN YOU
GIVE US?**

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**WHAT YOU CAN,
AND MUST,
PROVIDE US WITH
*IS:***

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POWERFUL

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ENGAGING

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TOOLS

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***THAT WILL
LEAD TO***

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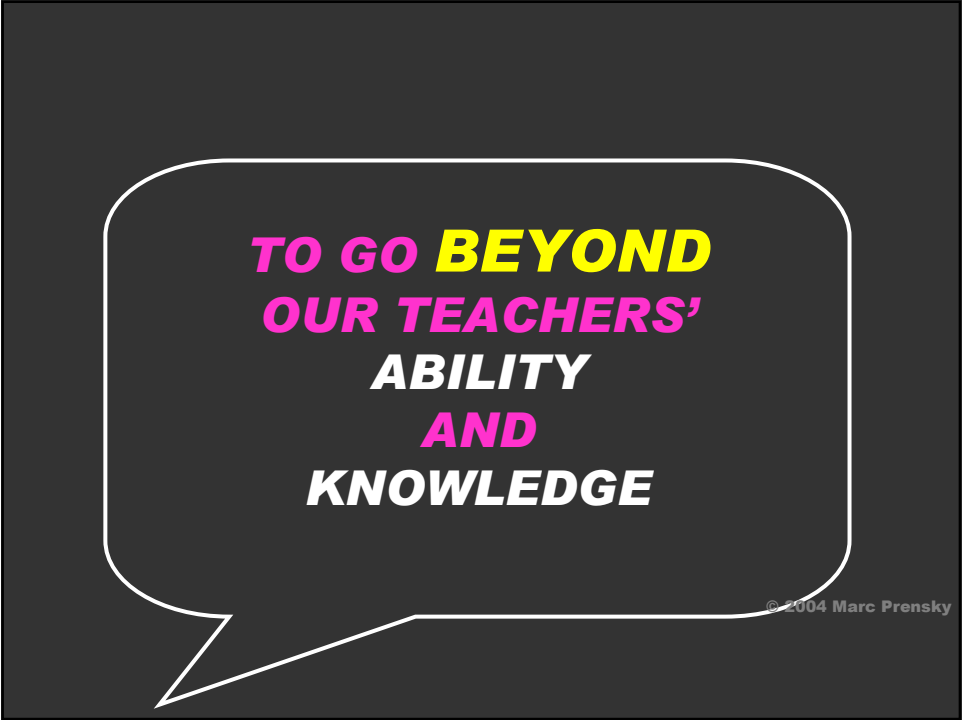
***THE
UNDERSTANDING
&
SKILLS***

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***THAT WILL
E-NABLE US***

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***TO GO BEYOND
OUR TEACHERS'
ABILITY
AND
KNOWLEDGE***

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**AND TO
SUCCEED
IN THE
21ST CENTURY**

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POWERFUL

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ENGAGING

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TOOLS

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~~**E-LEARNING**~~

E-NABLEMENT

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Outside School

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**GOOD TOOLS
EMPOWER US
AS LEARNERS**

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**POWERED
By Our
INTERESTS**

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***HERE'S HOW YOU CAN
EMPOWER US***

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***GIVE US THE
HARDWARE TOOLS
THAT WILL
EMPOWER US***

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**Help us take advantage of
the computers we already
have...**

... in our pockets!

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***DON'T BAN
OUR CELL PHONES***

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***MAKE THEM
LEARNING TOOLS***

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CELL PHONES ARE:

- **Always in our pocket**
- **Powerful and inexpensive**
- **Communication-first devices**
- **Full-featured** e.g. Cameras, GPS, internet
- **Easy to download content into**
- **Open to external input & output**

Missing: Imagination & Funding

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***GIVE US THE
SOFTWARE TOOLS
THAT WILL
EMPOWER US***

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***TOOLS MUST BE
NOT ONLY POWERFUL
BUT ALSO
ENGAGING***

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***HOW
CAN YOU MAKE OUR
SOFTWARE TOOLS
ENGAGING?***

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GAMES!

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***So Use
GAMES***

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***As
LEARNING
TOOLS!***

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***GIVE US
GAME-TOOLS
TO
ENGAGE US***

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***WE KNOW
GAMES PRODUCE
LEARNING
WITH
ENGAGEMENT***

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Why Games Engage Us

Fun	➤ Enjoyment and Pleasure
Play	➤ Intense involvement
Rules	➤ Structure
Goals	➤ Motivation
Interactive	➤ Doing
Outcomes & Feedback	➤ Learning
Adaptive	➤ Flow
Win states	➤ Ego Gratification
Conflict, competition	➤ Adrenaline
Problem solving	➤ Creativity
Interaction with people	➤ Social Groups
Representation & Story	➤ Emotion

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Why We Learn From Games

(James Paul Gee: What Video Games Have to Teach Us About Learning and Literacy)

1. Doing and reflecting
2. Appreciating good design
3. Seeing interrelationships
4. Mastering game language
5. Relating the game world to other worlds
6. Taking risks with reduced consequences
7. Putting out effort because they care
8. Combining multiple identities
9. Watching their own behavior
10. Getting more out than what they put in
11. Being rewarded for achievement
12. Being encouraged to practice
13. Having to master new skills at each level
14. Tasks being neither too easy nor too hard.
15. Doing, thinking and strategizing
16. Getting to do things their own way
17. Discovering meaning
18. Reading in context
19. Relating information
20. Meshing information from multiple media
21. Understanding how knowledge is stored
22. Thinking intuitively
23. Practicing in a simplified setting
24. Being led from easy problems to harder ones
25. Mastering upfront things needed later
26. Repeating basic skills in many games
27. Receiving information just when it is needed
28. Trying rather than following instructions
29. Applying learning from problems to later ones
30. Thinking about the game and the real world
31. Thinking about the game and how they learn
32. Thinking about the games and their culture
33. Finding meaning in all parts of the game
34. Sharing with other players
35. Being part of the gaming world
36. Helping others and modifying games, in addition to just playing.

What We Learn from Games

Areas various researchers claim are improved by Playing Video Games

visual selective attention
multiple task processing
rule understanding
strategy
morality
ethics
identity
flow
traditional literacy
digital literacy
new media literacy
concentration
social skills

stress relief
scientific thinking
intellectual development
affective development
social development
transfer
comprehension skills
academic skills
strategies & procedures
use of symbols
problem solving
sequence learning
deductive reasoning

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What We Learn from Games

(simplified)

- **How** (to do things)
- **What** (Rules)
- **Why** (Strategy)
- **Where** (Environment)
- **When / Whether** (Ethics)

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Commercial-off-the-Shelf (COTS) Games

History

Gettysburg
The New World
Civilization III
Pharaoh
Medieval Total War
Viking Invasion
Rampage Across Britain
Stronghold Crusader
Caesar III
The Age of Kings
The Age of Empires
The Rise of Nations
Shogun
Qin

Job Simulation Resource Mgmt

Emergency Room
Emergency
Emergency EMT
Vet Emergency
Roller Coaster Tycoon
Airport Tycoon
Cruise Ship Tycoon
Big Biz Tycoon,
Roller Coaster Tycoon
Mall Tycoon
Startup
Theme Park Tycoon
Zoo Tycoon
Restaurant Empire

Math-Science

Physicus
Chemicus
Green Globs and
Graphing Equations

Business

Virtual Leader
Trader
Objection!
Strategy Co-Pilot
Marketing Co-Pilot
Sales Co-Pilot
Virtual U

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**MOTIVATION IS
MORE IMPORTANT
FOR US
THAN CONTENT!**

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***DON'T
BORE US!***

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Gameplay!

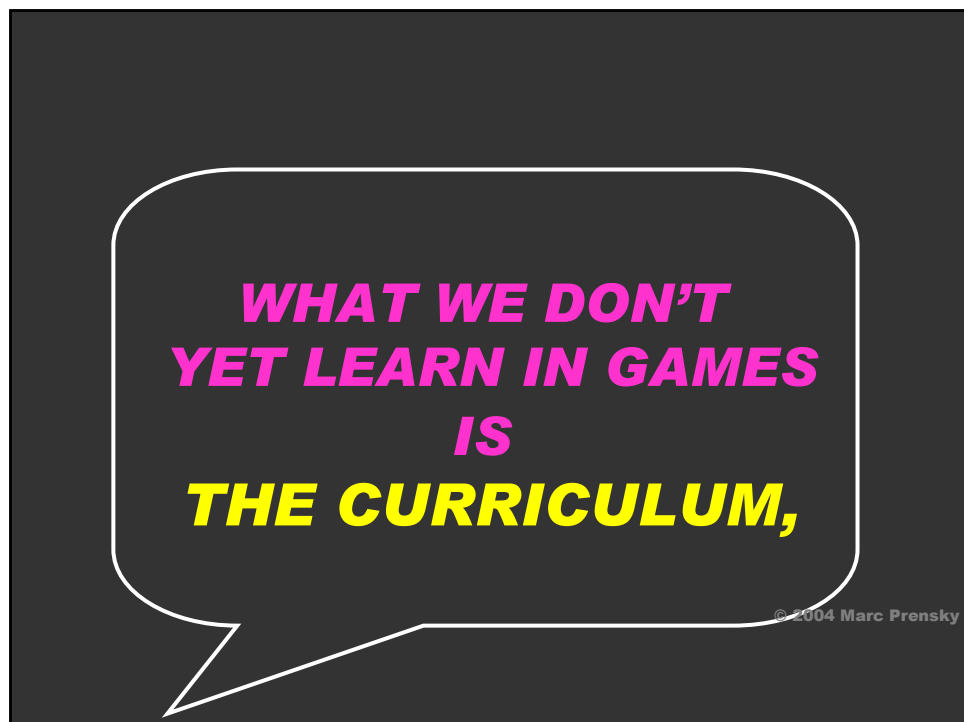
includes

- Continuous decision making
- Good pacing
- Complexity
- Important choices
- Immediate feedback
- Adapting to the player's skills

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	Game Design	Curriculum Design
Focus	<ul style="list-style-type: none">• Engagement	<ul style="list-style-type: none">• Content
Mode	<ul style="list-style-type: none">• Gameplay	<ul style="list-style-type: none">• Presentation
Decisions	<ul style="list-style-type: none">• Frequent and important	<ul style="list-style-type: none">• Relatively Rare

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But...

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***CURRICULAR
GAMES
ARE
COMING***

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***AND YOU CAN
HELP US!***

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***BY SUPPORTING
THE DEVELOPMENT
OF
CURRICULAR
GAME-TOOLS***

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***PLEASE
HELP!***

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Today:
**TOOLS AND GAMES
CAN ENRICH
OUR CLASSES**

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The **A→g∃βO↑ζ**

***“Beat the Game,
Pass the Course”***

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Question ?

Game Examples

High School: **Social Studies**

“Revolution”



From The Education Arcade at MIT

<http://www.educationarcade.org/modules.php?op=modload&name=Sections&file=index&req=viewarticle&artid=9&page=1>

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High School: **Social Studies**

“Tropical America”



Available Online

<http://www.tropicalamerica.com/>

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High School: **Social Studies**

“Making History”



Coming, from Muzzy Lane Software

<http://www.muzzylane.com/products/making-history.htm>

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High School: **Social Studies**

“Eyewitness” (Nanking Massacre)



Coming (free download)
<http://www.mic.polyu.edu.hk/nanjing/index.asp>

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High School: **Social Studies**

“Under Siege” ***(Palestinian Freedom Fighters Game)***



Available for download
<http://www.underash.net/>

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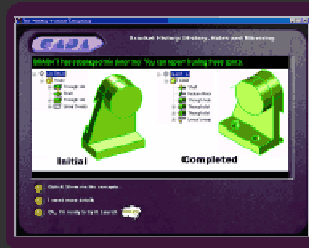
HS: Mechanical Design

“The Monkey Wrench Conspiracy”



GAME

3 levels, save station



TASKS

30 graded, w/self-evals

Demo Copy Available

<http://www.games2train.com/site/html/tutor.html>

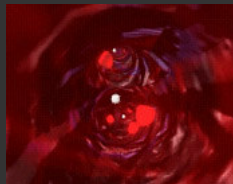
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High School: Biology, Virology

Immune Attack (NIH)

Coming

Replicate (MIT)



Design Only

<http://www.educationarcade.org/gtt/Virus/Intro.htm>

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High School: **Ethics**

“Corporate Greed: Names, Faces and Deeds”



Available Online. From Games2train

<http://www.games2train.com/games/MatchIt/MatchIt.html>

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High School: **Law**

“Objection!”



Online demo available

<http://www.objection.com/>

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High School: **Business**

“Virtual Leader” (Interpersonal Relationships)



For Sale at
http://www.simulearn.net/SimuLearn/simulearn_home_page.htm

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High School: **Business**

“Airline Tycoon”



In Stores

(along with *Casino Tycoon*, *Cruise Ship Tycoon*, *Big Biz Tycoon*,
Roller Coaster Tycoon, *Mall Tycoon*, *Railroad Tycoon*,
School Tycoon, *Theme Park Tycoon*, *Zoo Tycoon*,
and *Restaurant Empire*.)

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High School: **Business**

***“Start-Up,”
“Capitalism,” etc.***

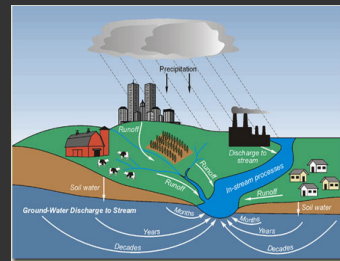
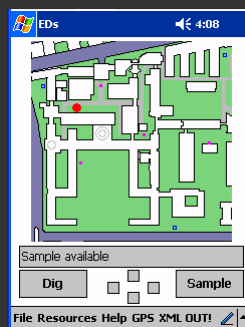


Available in Stores

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HS-AP: **Environmental Science**

***“Environmental
Detectives”***

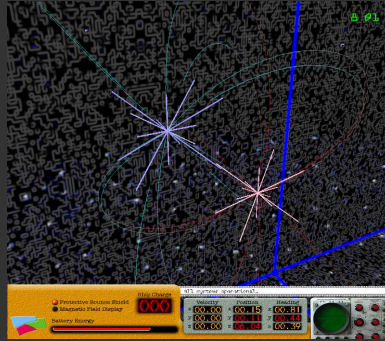


Available From MIT

<http://cms.mit.edu/games/education/Handheld/Intro.htm>

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HS-AP: Physics “Supercharged”



Available From MIT
<http://www.educationarcade.org/gtt/EM/Intro.htm>

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www.socialimpactgames.com

**Education
Health and Wellness
Public Policy
Media /
Political and Social
Advertising
COTS**

BYE BYE!

Social Impact Games
 Entertaining Games with Non-Entertainment Goals

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