Video games in education

Matthew X. Curinga

Aaron Chia-Yuan Hung

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**Keywords:** games for learning, serious games, simulations, multimedia learning

**Educational Technology 0858-511**

Instructor: [Matthew X. Curinga](http://matt.curinga.com) [mcuringa@adelphi.edu](mailto:mcuringa@adelphi.edu)

## Description

Video games have become an increasingly important source of culture and entertainment in our society. They are more popular than Hollywood movies, yet receive a fraction of the attention, especially in academia. In recent years, this has been changing, as scholars have begun to interrogate games from many levels: design, critique, and as a means of learning. In this course, we really have 3 separate, but overlapping goals: 1) to understand video games as a social and cultural phenomenon, especially important to youth culture; 2) to think of ways to teach *about* video games, as part of a (digital) literacy perspective; and 3) to investigate ways to teach *with* games, both off the shelf and ones that we design ourselves.

## Who should take this course

This course is open to anyone who is interested in how people learn from video games. We will look at games from various perspectives: cognitive, social, ethical, design, pragmatic, etc. You do not need specific technical experience in developing games and you do not need to be a “gamer” to join us.

## Goals

The course has two main goals. Firstly, it introduces students to a range of game genres that have been popular in education. Secondly, it covers a range of learning principles, research topics, controversies, and potential applications for video games and simulations in education, and gives students the foundations for applying both analog and digital games in educational contexts.

By the end of the course, students should be able to:

1. Understand major topics in educational games and simulations
2. Situate video games and learning in its historical manifestations - military exercises, simulations, game theory, board games and digital (video) games
3. Understand the difference between exogenous and endogenous games, and design a simple endogenous game that can be used to teach a specific topic
4. Understand the key differences between popular game genres
5. Analyze and reflect on the potential of existing games and their potential in educational contexts

## Using this syllabus

Here are just a few notes on how this course is organized and how to use this syllabus. **Reading assignments**, wherever possible, link to openly available versions of the article. This makes this syllabus useful to the widest audience, and to students when they are not logged into the Adelphi network. When this is not possible, reading links refer to files uploaded to the Moodle course website. You *must* be logged into Moodle before you can retrieve these articles.

All **game response posts** are due on the course website (i.e. Moodle). You should follow the rule: post once, comment twice. That is, after you post your own response, read what others have posted and let them know what you think.

**Game play assignments** refer to games that are available in the game study center in Harvey 104. If the game is not in the lab, more specific instructions will be available.

## Required books

*none*

## Suggested books

Bogost, I. (2010). *Persuasive games: the expressive power of videogames.* Cambridge Mass. ;London: MIT Press.

Gee, J. P. (2007). *What video games gave to teach us about learning and literacy*. New York: Palgrave Macmillan. ISBN 140398453

Hung, A. (2011). *The work of play: meaning-making in videogames.* New York: Peter Lang.

Salen, K., & Zimmerman, E. (2003). *Rules of Play: Game Design Fundamentals.* Cambridge Mass.: The MIT Press.

## Class sessions

### Introduction to Video Games & Learning

*no readings or assignments due*

### Games, Play, & Society

#### Reading:

Sutton-Smith, B. (2001). *The ambiguity of play*. Cambridge Mass.; London: Harvard University Press. *ch. 1, pp 1-16*

Vygotsky, L. S. (1978). *Mind in Society: Development of Higher Psychological Processes (14th ed.)*. Harvard University Press. *ch. 7, pp 92-104*

#### Due:

* [Game Biography](#game_biography)

#### Play:

* online post: *What is fun?*  
  Please post a comment where you consider the question, “what makes a game fun?”

Choose a game (digital or not) that you are familiar with and enjoy. Write a statement about why it is fun, to you. Consider the mechanics of the game, as well as the circumstances when you play(ed) it. Before class, please make sure that you comment on at least two of your classmate’s posts. (Post once, comment twice). Submit your first post by 8:00am on Monday morning. Submit your comments before the start of next class.

### Fundamentals of Game Design

#### Reading:

Costikyan, G. (1994) [I have no words & I must design.](http://www.costik.com/nowords2002.pdf)

Salen, K., & Zimmerman, E. (2003). *Rules of play: Game design fundamentals.* Cambridge, MA: The MIT Press. [Chapter 3](https://moodle.adelphi.edu/file.php/49381/salen-zimmerman-rules-of-play.pdf)

#### Play:

* play a game (of your choice) in the Adelphi Game Study Center (Harvey 104)
* post your first [game response](#game_responses)

### Serious Games

#### Readings:

Hung, A. (2011). [Chapter 2: Serious games in education](https://moodle.adelphi.edu/file.php/49381/hung-2011-work-of-play-ch-2_serious-games.pdf) in *The work of play : meaning-making in videogames.* New York: Peter Lang.

Kim, J., Lee, E., Thomas, T., & Dombrowski, C. (2009). [Storytelling in new media: The case of alternate reality games, 2001–2009.](http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/2484/2199) *First Monday*, *14*(6).

Squire, K. D., & Jan, M. (2007). [Mad City Mystery: Developing Scientific Argumentation Skills with a Place-based Augmented Reality Game on Handheld Computers.](https://moodle.adelphi.edu/file.php/49381/squire-2007-mad-city-augmented-reality.pdf) *Journal of Science Education and Technology*, *16*(1), 5-29. doi:10.1007/s10956-006-9037-z

United States Armed Services. (n.d.) [America’s Army::About](http://www.americasarmy.com/about/)

#### Play:

* [download and play America’s Army 3](http://www.americasarmy.com/downloads/?view=steam) or play it on one of the laptops in Harvey 104
* post a game response

### Games4Learning

#### Readings:

Gee, J. P. (2007). *What video games have to teach us about learning and literacy*. New York: Palgrave Macmillan. [Chapter 1](https://moodle.adelphi.edu/file.php/49381/gee-2003-games-learning-literacy_ch-1_2.pdf)

Salen, K. (2011). [Quest To Learn: Developing The School For Digital Kids.](http://games.curinga.com/wp-content/uploads/2011/11/salen-2011-QuestToLearn-DevelopingTheSchoolForDigitalKids.pdf) Only Sections: Background (pp 1-9), Curriculum Structure (pp 73-90)

#### Play:

* LittleBigPlanet
* Post a game response

#### Due:

* come to class prepared with all materials for your **game pitch!**
* post your pitch summary and title to Moodle

### Studying games

#### Readings:

Aarseth, E. (2003). [Playing research: Methodological approaches to game analysis](http://hypertext.rmit.edu.au/dac/papers/Aarseth.pdf)

Lemke, J. L. (2006). [Toward critical multimedia literacy: Technology, research, and politics.](http://www-personal.umich.edu/~jaylemke/papers/reinking2.htm) In M. C. McKenna, L. D. Labbo, R. D. Kieffer & D. Reinking (Eds.), *International Handbook of Literacy and Technology Vol. 2* (pp. 3-14). Mahwah: Lawrence Erlbaum Associates.

#### Play:

* play a game of your choice, analyze the game in your response using Aarseth and Lemke’s approach
* you might want to start playing a game in-depth for your game analysis paper

### Game Design Session

#### Readings:

Hunicke, R., LeBlanc, M., & Zubek, R. (2004). [MDA: A formal approach to game design and game research.](http://www.cs.northwestern.edu/~hunicke/MDA.pdf) Proceedings of the AAAI Workshop on Challenges in Game AI.

Squire, K. (2006). From content to context: Videogames as designed experience. Educational Researcher, 35(8), 19-29. [moodle](https://moodle.adelphi.edu/file.php/49381/squire-2006-content-to-context-videogame-design.pdf)

#### Play:

* Civilization V (session 1)
* game response: a **M**echanics-**D**ynamics-**A**esthetics analysis of Civilization

### Games as Strategic Interaction (Strategy games)

#### Readings:

Bogost, I. (2005). [Procedural literacy: Problem solving with programming, systems and play.](http://www.journalofmedialiteracy.org/index.php/past-issues/14-video-game-culture/197-procedural-literacy-problem-solving-with-programming-systems-a-play) Telemedium, Winter/Spring, 32-36.

Gee, J. P. (2007). *What video games have to teach us about learning and literacy*. New York: Palgrave Macmillan. [Chapter 2](https://moodle.adelphi.edu/file.php/49381/gee-2003-games-learning-literacy_ch-1_2.pdf)

#### Due:

* blog post number 2 due

#### Play:

* Civilization V (session 2)

### Games as Systems (Simulation and Sports games)

#### Reading:

Frasca, G. (2003). Simulation versus narrative. In M. J. P. Wolf & B. Perron (Eds.), *The video game theory reader* (pp. 221-236). New York: Routledge. [moodle](https://moodle.adelphi.edu/file.php/49381/frasca-2003-simulation-vs-narrative.pdf)

Squire, K. (2003). Video games in education. *International Journal of Intelligent Simulations and Gaming*, *2*(1), 49-62. [moodle](https://moodle.adelphi.edu/file.php/49381/squire-2003-video-games-in-ed.pdf)

#### Play:

* SimCity
* CityVille (suggested, on Facebook)

### Games as Problem-Solving (Platformers and Puzzle games)

#### Readings:

Bransford, J. (2000). [Chapter 3: Learning and Transfer.](https://moodle.adelphi.edu/file.php/49381/bransford-learning-transfer.pdf) *How people learn: Brain, mind, experience, and school*. Washington, DC: National Academies Press.

Sanchez, J., Mendoza, C., & Salinas, A. (2009). [Mobile serious games for collaborative problem solving.](http://sites.google.com/a/unicatt.it/arctt/volume-7-summer-2009/Sanchez_ARCTT_2009.pdf) The Annual Review of Cybertherapy and Telemedicine, 193–197.

#### Play:

* Portal 2
* Angry Birds (any version, either on your own mobile device or on a tablet in harvey 104)

### Games as Collaboration (First-person shooter and online games)

#### Readings:

Steinkuehler, C. (2004). Learning in massively multiplayer online games. In Y. B. Kafai, W. A. Sandoval, N. Enyedy, A. S. Nixon & F. Herrera (Eds.), Proceedings of the Sixth International Conference of the Learning Sciences (pp. 521-528). Mahwah: Erlbaum. [moodle](https://moodle.adelphi.edu/file.php/49381/steinkuehler-2004-learning-mmog.pdf)

Gee, J. P. (2007). *What video games have to teach us about learning and literacy*. New York: Palgrave Macmillan. [Chapter 7](#tbd)

### Play:

* World of Warcraft, download free version at home or play on a lab PC
* if you have extensive experience with WoW, test out a new/different MMOG

### Games as Narrative (Role-playing and Adventure games)

#### Readings:

Frasca, G. (1999). [Ludology meets narratology: Similitudes and differences between (video) games and narrative.](http://www.ludology.org/articles/ludology.htm)

Crawford, C. (2003). *The Art of Interactive Design a Euphonious and Illuminating Guide to Building Successful Software.* San Francisco: No Starch Press. Chapter 28, Interactive storytelling. [moodle](https://moodle.adelphi.edu/file.php/49381/crawford-2003-interactive-design.pdf)

#### Play:

* Deus Ex: Human Revolution

### Games and Violence

#### Readings:

Ferguson, C. J. (2010). [Video games and youth violence: A prospective analysis in adolescents.](http://www.tamiu.edu/~cferguson/Video%20Games%201%20Year.pdf) *Journal of Youth and Adolescence.*

DeVane, B., & Squire, K. D. (2008). [The meaning of race and violence in Grand Theft Auto.](http://website.education.wisc.edu/kdsquire/tenure-files/10-DeVaneSquire_revised.pdf) Games and Culture, 3(3-4), 264.

#### Play:

* Grand Theft Auto IV

### Games and Gender

#### Readings:

Yee, Nick. (2008) [Maps of Digital Desires: Exploring the Topography of Gender and Play in Online Games.](http://www.nickyee.com/pubs/BBMK%20Yee.pdf) in Kafai, Y. B., Heeter, C., Denner, J., & Sun, J. Y. (Eds.). *Beyond Barbie® and Mortal Kombat: New perspectives on gender and gaming.* Cambridge: The MIT Press.

#### Play:

* The Sims
* Call of Duty or Metal Gears
* in your game response, consider the gender roles in the games, and ways that they may appeal or repel female players, refer to the readings

### Games & Society Debate

#### Reading:

*self-selected to prepare your position*

#### Assignment:

* Games & society debate

### Final game play session and observations

*we will invite outside players to test our games*

## Assignments & Grading

**due dates and grading**

|  |  |  |
| --- | --- | --- |
| assignment | due | pct |
| Participation & Professionalism Rubric | last class | 10% |
| Gaming autobiography | session 2 | 10% |
| Blog comments (3) | ongoing | 10% |
| Game response posts (8) | ongoing | 15% |
| Game pitch | session 5 | 15% |
| Game for learning analysis | session 7 | 20% |
| Game design proposal | last class | 20% |

### Participation & Professionalism Rubric

On the last day of class, students will turn in their “professionalism rubric”, a self-evaluation of their contributions to class. The rubric considers:

* attendance & punctuality
* in class participation
* online participation
* group participation
* promptness of assignments

### Gaming autobiography

You will create a 5 minute presentation with the theme: *my gaming autobiography*. Your presentation will consist of 1 title slide with your name, title of presentation, and then exactly 10 content slides. Plan to spend exactly 30 seconds on each slide — they will be set to auto-advance.

Your presentation should focus on how games have been influential in your life. Please don’t tell us every game you’ve ever played, rather consider key games (and other types of play) that have been meaningful to you in some way. You can include digital (video) games, as well as other games/play (such as athletics). You might talk about the social experience of playing the games, how playing them affected you, negative or positive consequences of play, etc.

Your presentation will be evaluated on several criteria:

* design: are slides visual appealing? do graphics contribute to the message? is text large enough to read? is their a coherent style that ties the presentation together? does the aesthetic support the speaker’s narrative?
* presentation style: how well does the speaker:
  + speak in a clear, loud voice. avoid “um”, “like”, etc
  + not read from slides (your design shouldn’t have slides that require reading)
  + use eye contact, voice, and body language for emphasis and to engage the audience
  + *appear* calm and well rehearsed
* reflection: take this opportunity to reflect on the role of games in your life. don’t just tell us that you played Angry Birds instead of working on a homework assignment last year.
* organization: your presentation should tell a story, with a good beginning, middle, and end. you should use the presentation to tell us something about yourself, and about how you understand games.
* originality & creativity: this is not an academic presentation, try to make it light, creative, and fun.

Presentations must be uploaded to the course website prior to the beginning of class. They must be either .odp or .ppt files. Because they will auto-advance, PDF files cannot be accepted. Keynote users should create a PPT and make sure it looks right.

### Game response posts

Students need to actively understand the key elements that make up a genre. Most weeks in the course, there will be a play assignment. Students will be asked to play a game (either in the lab or online) and to post a short game response of 300 words to the course website. A good game response will closely analyze the game to make a point about one or more:

* why is it successful or not, as a game
* internally, what learning principles does the game employ to help players become more expert in the game system?
* how might it be used to teach?
* for better or worse, what cultural messages are encoded in the game?
* you should try to refer the readings for the week (and previous readings) in your discussion of the games

Each student will be responsible for **8 game responses** during the semester.

### Game pitch

The game pitch is a short description of your game concept that will *sell* the idea. You do not need to have all of the details worked out for the pitch. Focus on the big ideas of your creative concept and the educational experience you are designing.

Things to keep in mind:

* how is the game used for learning
* the core features
* why is it engaging
* what learning principles it employs
* who is the audience (how/where/when will it be used)
* technical requirements and constraints
* feasibility of implementing your vision (if it require a team of 100 programmers and designers, breakthroughs in AI, and Hollywood actors for the talent — it is not very feasible)

You will have 10 minutes in class to present your pitch. Bring in anything you need to make a strong presentation: diagrams showing key interactions, art concepts that highlight the theme/aesthetics, screen shots or video from other games you draw upon, etc. You must post a 300 word pitch to the course website **prior to the class meeting**. After the pitches, you will choose which game you will work on developing during the semester. Students are strongly encouraged to work in pairs, but you may work on an individual design if you have the instructor’s permission.

Game pitches will be evaluated by the class and the instructor.

### Blog comments

*(3 total)*

Much of the professional and academic conversation about games takes place online, with some high profile blogs garnering substantial attention from this community. For this assignment, you will participate in the games blogophere. Find an interesting and recent blog post or discussion topic related to video games. Read the post and any previous discussion, and then post an original comment of your own. Return to the site to monitor the discussion, follow-up with any subsequent comments as necessary.

You do not need to use your real name or identification for your post, and there are no qualifications for what you say (e.g. you do not need to express a particular point of view or refer to our class our readings). The only criteria for what you write is that you craft a thoughtful post.

During the course of the semester, you must post responses to 3 different blog posts in order to complete this assignment. The original post should be no more than 7 days old when you comment. In order to get credit for your blog comments, post a link to your comment on our course website.

You are not limited to these sites, but you may find them as good starting points for this assignment:

* [Gamasutra](http://www.gamasutra.com/)
* [Game studies](http://gamestudies.org/)
* [Grand Text Auto](http://grandtextauto.org/)
* [Ian Bogost’s Blog](http://www.bogost.com/blog/)
* [Terranova](http://terranova.blogs.com/)
* [The Escapis](http://www.escapistmagazine.com/)

### Games & society debate

The class will be divided into two teams. One side will argue that games, as they exist today in our society, have a net harmful effect. This will be the **black team**. The black team may draw on the literature about games and violence, asocial behavior, negative stereotypes, etc. The other team, the **red team** will argue the opposite position: there is no reason to believe that games have a net negative effect on our culture.

Each team will prepare a 3 minute presentation:

1. opening statement
2. topics (1 topic for each team member)
3. closing statement

After the topic statements, the opposing team will have time for a 2 minute rebuttal.

### Game for learning analysis

You will choose a game to play extensively this semester (15+ hours), in order to evaluate the game for educational purposes. This analysis can take two forms. If the game can be readily implemented in the classroom, students can analyze what it can teach and what discussions can be used to focus learners. Students should consider when and how the game would be implemented.

For games that cannot be readily implemented—which might have to be re-designed or adjusted for the classroom—students should write about why the changes need to take place, and what the changes would be. Since not all teachers are game designers, and since games are expensive to produce, the goal of this paper is to let students think about how ready-made games can be used and adapted for different topics. (1600-2000 words)

Choose a game that you have extensive experience playing and analyze its structure and design in terms of its educational potential. Consider what the students can learn within the game that might translate to classroom learning goals. Indicate how the game could be used to integrate with other classroom projects and discussions. Describe when and how the game would be implemented.

Your essay should connect to course readings and, potentially, other articles that you find. You might want to consider Katie Salen’s 12 “Scenarios for Potential Uses of Gaming” (2011, pp 85-90) as a framework for thinking about how you would use your game to teach. When discussing why your game is useful for learning, it might help to refer to Jim Gee’s “36 Learning Principles”, in the appendix of *What video games have to teach us about learning and literacy*.

Your paper must be written as a formal, academic essay. Use the [APA format](http://isites.harvard.edu/icb/icb.do?keyword=apa_exposed) for citations and other elements. The final paper must be between 1600-2000 words. Upload your assignment to the course website or share it with the instructor through Google Docs.

Acceptable file formats: .rtf, .html, .txt, .odt, .doc/x, .pdf Unacceptable formats: .pages (Apple iWork), .wps (Microsoft Works), any other format not listed above

### Game design proposal

Kurt Squire describes endogenous games as games whose contexts and design are closely intertwined, as opposed to exogenous games, which serve as empty receptacles for bits of knowledge. We are all familiar with exogenous games. They are the trivia-type games that are popular on TV and in classrooms. They are popular in classrooms because they are easy to design and implement. However, they do not represent “good” games in the sense that they do not represent a meaningful ideological world.

Working individual or in teams of two, you will have the opportunity to design an original game for learning. Please not that *designing* is not the same as developing or implementing the game. Even though we are designing digital/video games, you do not have to create a digital game.

Your **game proposal** must contain the following elements:

1. Title
2. Overview (200 words)
3. Learning goals & educational theory (500 words)
4. Research: a report on other similar games, games and studies that informed your decision (500 words)
5. Rules: the rules of you game\_biography
6. Interface & artwork: to make your proposal more powerful, you should include sketches of key screens and interactions, you may (optionally) include drafts of designs and other artwork that contribute to the game aesthetics

In addition, you must come prepared to run a test of your game on the last day of class. This can be a paper test, but you need to bring everything that you need in order to try out the game.

## Bibliography

Aarseth, E. (2001). [Computer game studies, year one.](http://www.gamestudies.org/0101/editorial.html)

Aarseth, E. (2003). [Playing research: Methodological approaches to game analysis.](http://hypertext.rmit.edu.au/dac/papers/Aarseth.pdf)

Bogost, I. (2005). [Procedural literacy: Problem solving with programming, systems and play.](http://www.bogost.com/downloads/I.%20Bogost%20Procedural%20Literacy.pdf) *Telemedium*, Winter/Spring, 32-36.

Costikyan, G. (1994) [I have no words & I must design](http://www.costik.com/nowords.html).

deHaan, J., Reed, W. M., & Kuwada, K. (2010). The effect of interactivity with a music video game on second language vocabulary recall. *Language Learning & Technology*, 14(2), 74-94.

Duke, R. (2000). A personal perspective on the evolution of gaming. *Simulation & Gaming*, 31(1), 79-85.

Ferguson, C. J. (2010). [Video games and youth violence: A prospective analysis in adolescents](http://www.tamiu.edu/~cferguson/Video%20Games%201%20Year.pdf). *Journal of Youth and Adolescence*.

Frasca, G. (1999). [Ludology meets narratology: Similitudes and differences between (video)games and narrative](http://www.ludology.org/articles/ludology.htm).

Halverson, R. (2005). [What can K-12 school leaders learn from video games and gaming?](http://www.innovateonline.info/index.php?view=article&id=81) *Innovation, 1(6)*.

Juul, J. (2001). [Games telling stories? A brief note on games and narratives](http://www.gamestudies.org/0101/juul-gts/). *The International Journal of Computer Game Research*

Keegan, M. (2002). How did the bad students do so well? *International Journal of Instructional Media*, *29(3)*, 269-273.

Lenhart, A., Jones, S., & Macgill, A. R. (2008). [Adults and video games](http://www.pewinternet.org/Reports/2008/Adults-and-Video-Games/1-Data-Memo.aspx).

Lenhart, A., Kahne, J., Middaugh, E., Macgill, A. R., Evans, C., & Vitak, J. (2008). [Teens, video games and civics](http://www.pewinternet.org/Reports/2008/Teens-Video-Games-and-Civics.aspx).

Squire, K. (2002). [Cultural framing of computer/video games](http://www.gamestudies.org/0102/squire/). *Game Studies, 2(1)*.

Squire, K. (2006). From content to context: Videogames as designed experience. *Educational Researcher*, *35(8)*, 19-29.

## Game Study Center

The Game Study Center in Harvey 104 has 2 LCD TVs connected to a PS3, Wii, and 2 XBox 360s with Kinect. In addition, Windows laptops are available for PC Games. Android tablets and iPads will soon be available to play mobile games for those platforms.

**Spring 2012 Semester, Open Hours:**

* Monday, 2:30pm-4:15pm
* Tuesday, 2:30pm-4:15pm
* Wednesday, 2:30pm-6:15pm
* Thursday, 2:30pm-4:15pm

#### XBox 360 Games

* Big Bumpin’
* Call of Duty
* Dance Central (Kinect)
* Deus Ex Human Revolution
* Elder Scrolls IV: Oblivion
* Final Fantasy XIII
* Gears of War
* Kinect Adventures! (Kinect)
* Mass Effect 2
* WWE Raw vs Smackdown 2008 (Demo)

#### PS3 Games

* Grand Theft Auto IV
* Little Big Planet
* Portal 2
* L.A. Noire

#### Windows PC Games

* Dawn of Discovery
* Civilization V
* SimCity 4

#### Wii Games

* Wii Sports
* Wii Resort

#### Game donations

*Donations and loans are welcome for any of the above systems. Special thanks to Tom J. for helping to expand our collection.*

Send games to:

Matt Curinga, School of Education  
Adelphi University  
1 South Ave  
Garden City, NY 11530