CEIT706 Serious Games and Simulations: Theories and Applications Course Syllabus

Instructor : Dr. Kürşat Çağıltay

Email Address : kursat@metu.edu.tr

Telephone: 312 210 3683

Office : CEIT - Z 14

Course assistant: Turkan Karakus

E-mail: karakus@metu.edu.tr

Class Hours : Tuesday 13:40 - 16:30 (Seminar Room)

Course Description

Today computer gaming is one of the fastest growing areas of the Information Technologies industry. There is a significant amount of research base on the technical issues of gaming. However non-technical issues are not explored much. Understanding why people play games, why they like some games to others, how the game players interact with each other in gaming environment, what cognitive processes happen in game playing, how gaming approach can be applied to formal learning environments, societal impacts of games and gender issues are only some of the issues that need to be explored by researchers. It is obvious that understanding these processes is central to designing new media and tools that will support human use, augment human learning and enhance communication at the individual and the social levels.

This course will provide students with a sound introduction to the theories of gaming/simulations and examine cognitive/social factors and the design of computer games/simulations. So, the course will have a more psychological and social focus rather than a technical one. It will be organized around a collection of readings and real-world exercises. The format of this course based on reflective thinking. The lectures, presentations, discussion and other resources will be used to support the problems that students are working on throughout the semester.

Objectives

One of the main purposes of this course is to fertilize the discussion on what computer games are actually about, how they can be used for teaching/learning, how gaming affects gamers, how games affect our society, and how they can be used for more productive purposes. This course will help students build a solid foundation that helps them understand, the major issues of computer games and simulations.

Objectives of this course include:

1. Develop a theoretical understanding of cognitive, social and cultural aspects of computer games and simulations

2. Provide an understanding of the social, psychological, cultural and ethical issues associated with game design and use

3. Understand the origins and philosophy of games and video games in human history

4. Explain potentials of games on human psychology and learning

5. Inquire good and bad effects of video games and simulations on players and learners

6. Discover the areas that computer games can be used

7. Understand basic design elements of video games and suggest some design issues by using theoretical foundations

8. Evaluate the computer games with different perspectives

9. Understand the trends of video games and simulation research

10. Conduct a game research by considering the literature and analyze the data

11. Offer a set of first-hand experiences which augment conceptual understanding of course content

Assignments

Weekly Reflections

Each week you will read journal and book articles related that week's topic and answer several questions asked by instructor. All questions should be answered to show you understand the literature and combine the ideas to prove your arguments. Readings will be provided by course instructor but additional resources are welcome. You are supposed to write a reflection to answer the questions given one week before. Reflections should be 3 to 4 pages by using APA standards. At the end of your reflection you will ask three questions or discussion topics. After a short lecture, selected questions will be asked to whole class. You are supposed to actively participate in class discussions.

Game Review & Presentation & Leading Discussion

You will be analyzing a game considering one of the weekly topics of the course and present it at class. Two weeks before your presentation, you should suggest the game that you want to show, after getting approved from the instructor, you should provide the game installation files either bringing the files to the class or sending electronic resources. You also will provide two or three discussion issues related the game. All class is responsible to play the game and prepare their ideas about discussion question. In the class you will just show the game in 15 minutes and explain how the topic of the week is located in the game. And facilitate a discussion in the class.

Term Paper

In term paper you are supposed to show that you grasped the research trends and methods in simulation and gaming research. You will conduct a research and the paper will be data driven; you can use interviews, questionnaires and observations. Each week instructor will ask your ideas about your research till your research question and context is clarified. You should review the literature and write your paper in accordance with journal article's standard structure.

Grading

As stated before the course is organized around a collection of readings and real-world exercises. The format of this course is problem-centered. The lectures, presentations and other resources will be used to support the problems that students are working on throughout the semester.

Grading:

5%   Game review (selecting a game, providing install files, providing general overview)

10%   Presentation & leading discussion on reviewed game

10%   In class participation, weekly questions & comments (e-mail)

30%   Weekly reflections

45%   Term Paper

Plagiarism

This course will not allow academic dishonesty. Academic dishonesty includes submitting as one's own work prepared by others, assisting another student in academic dishonesty, and using quotes and ideas without giving references. Your reflections should be your original ideas. Please add the full reference of any sources (text, image or audio) if any. Any instances of plagiarism means zero point for related assignment. To make sure that you know in what cases you will make plagiarism you are supposed to take and pass a test which was offered by Indiana University. You can Access the test from

http://www.indiana.edu/~istd/overview.html

At first it provides a tutorial. Please check the tutorial, take test and get a certificate. Print the certificate fill related fields and turn it in the first week of the class.

Weekly Topics and Readings

Week 1. History of Computer Games

- o Yilmaz, E., Cagiltay, K. (2005). History Of Digital Games in Turkey. *Authors & Digital Games Research association DIGRA.*
- o [The Video Game Revolution](video) (video). http://video.google.com/videoplay?docid=-472934898521884392#

Week 2. Philosophy of the Games

- o Huizinga, J. (1955). Homo Ludens A Study of the Play-Element in Culture. Beacon Press. Boston, USA
- o And, M. (2003). Oyun ve Bügü. İstanbul: Yapı Kredi Yayınları.
- o Caillois, R. (1958). *Les, jeux et les hommes (Man, play, and games).* Librairie Gallimard, Paris.

Week 3. Philosophy of the Computer Games

- o Jarvinen, A. (2007): Games without Frontiers, Theories and Methods for Game Studies and Design. PhD Thesis, University of Tampere, Finland.

- o Djaouti, D., Alvarez, J., Jessel, J.P., Methel, G. & Molinier, P. (2008). A Gameplay Definition through Videogame Classification, *International Journal of Computer Games Technology*, Vol. 2008, Article ID 470350, 7 pages, 2008. doi:10.1155/2008/470350

- o Elverdam, C. & Aarseth, E. (2007). Game Classification and Game Design: Construction Through Critical Analysis, Games and Culture, 2(1), 3-22

- o Juul, J. (2003). The Game, the Player, the World: Looking for a Heart of Gameness, Keynote presented at the Level Up conference in Utrecht, November 4th-6th 2003, revevied on September 2010, from http://www.jesperjuul.net/text/gameplayerworld/

Week 4. Psychology in the Games (Flow and motivation)

- o Chen, J. (2007). Flow in Games (and Everything Else). Communications of the ACM. 50(4), 31-34.
- o Csikszentmihalyi, M (1990). Flow : The Psychology of Optimal Experience. Harper Perennial, London.
- o Falstein, N. (2005). Understanding fun-the theory of natural funativity. In Rabin, S. (Ed), Introduction to Game Development

- Malone & Lepper (1987). Making Learning Fun: A Taxonomy of Intrinsic Motivations for Learning. In Snow, R. & Farr, M. J. (Ed), Aptitude, Learning, and Instruction Volume 3: Conative and Affective Process Analyses. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Snow, R., & Farr, M. Cognitive-conative-affective processes in aptitude, learning, and instruction: An introduction. In R. Snow & M. Farr (Eds.), Conative and affective process analysis (Vol. 3, 1987, pp. 1-10). Hillsdale, NJ: Erlbaum Associates.

Week 5.Player aggression, violence (emotional connections)

Mandatory readings

- Carnagey, N. L. & Anderson, C. A. (2004). Violent video game exposure and aggression. Minerva   Psichiatr.(45), p. 1-18.
- Goldstein, J. (2000). Effects of electronic games on children. Electronic Games. p.1-16
- Griffiths, M. (1999). Violent video games and aggression: A review of literature. Aggression and Violent Behavior, Vol. 4, No. 2, pp 203-212.
- Grodal, T. (2000). *Video Games and the Pleasure of Control*. in: D. Zillmann & Peter Vorderer, (Eds.). Media entertainment: The psychology of its appeal (pp 197-213). Mahwah, NJ: Lawrence Erlbaum Associates.
- Weber, R., Ritterfield, U. & Kostgina, A. (2006) Aggression and Violence as Effects of Playing Violent Video Games? In P. Vorderer & J. Bryant (Eds.), Playing Video Games: motives, responses and consequences (pp. 347-361). Mahwah, New Jersey: Lawrence Erlbaum Associates, Publishers.

Optional readings

- Anderson, C.A., & Dill, K.E. (2000). Video games and aggressive thoughts, feelings, and behavior in the laboratory and in life. Journal of Personality and Social Psychology, 78, 772-790.
- Wingrove, J., & Bond, A. J. (1998). Angry reactions to failure on acooperative computer game: The effect of trait hostility, behavioural inhibition, and behavioural activation. *Aggressive Behavior*, *24*, 27–36.
- Bensley, L., & Van Eenwyk, J. (2001). Video games and real-life aggression: Review of the literature. *Journal of Adolescent Health, 29*, 244-257.
- Colwell, J. & Payne, J. (2000) Negative correlates of computer game play in adolescents. *British Journal of Psychology*, **91**, 295–310
- Lynch, P. J., Gentile, D. A., Olson, A. A., & van Brederode, T. M. (2001). *The effects of violent video game habits on adolescent aggressive attitudes and behaviors*. Paper presented at the biennial conference of the Society for Research in Child Development, Minneapolis, MN
- Sherry, J. (2001). The effects of violent video games on aggression: A meta-analysis. Human Communication Research, 27, 409–431.

Week 6. Diversity in Game Culture (Age, gender, identity and culture issues in the games)

- o Williams, D., Martins, N., Consalvo, M., Ivory, J., 2009. The virtual census: Representations of gender, race and age in video games. New Media & Society 11 (5), 815-834
- o Weisman, S. (1983). Computer games for the frail elderly, *Gerontologist*, vol. 23 (4), pp. 361–363, 1983
- o Noble, R. , Ruiz, K., Destefano, M., and Mintz, J. (2003)."Conditions of Engagement in Game Simulation: Contexts of Gender, Culture and Age, *Level Up: Digital Games Research Conference*. Eds. Marinka C. & Joost R.DIGRA: Utrecht University, 2003.
- o Subrahmanyam K. & Greenfield, P.M. 1998. Computer games for girls: What makes them play? In Cassell, J. & Jenkins, (Ed.), *From Barbie to Mortal Combat: Gender and Computer Games*. Cambridge, MA: MIT Press

Week 7. Social Interaction and Online communities in Games and Virtual Environments (Social presence, online communication, learning communities)

- o Axelsson, A.-S., & Regan, T. (2002). *How Belonging to an Online Group Affects Social Behavior - a Case Study of Asheron's Call*. Redmond, Washington: Microsoft Research
- o Cole, H. & Griffiths, M. (2007) Social Interactions in Massively Multiplayer Online Role-Playing Gamers, Cyberpsychology & Behavior, Vol. 10, No. 4, pp. 575 – 583.
- o Manninen T. (2000) Interaction in Networked Virtual Environments as Communicative Action - Social Theory and Multi-player Games. In proceedings of CRIWG2000 Workshop, October 18-20, Madeira, Portugal, IEEE Computer Society Press
- o Tamborini, R., & Skalski, P. (2006). The role of presence in the experience of electronic games. In P. Vorderer & J. Bryant (Eds.), *Playing video games: Motives, responses, and consequences* (pp. 225–240). Mahwah, NJ: Lawrence Erlbaum Associates

Week 8. Learning in Games and virtual environments (Commercial games, simulations, serious games and virtual environments)

Mandatory readings

- o Becker, K. (2006). Pedagogy in Commercial Video Games. In D. Gibson, C. Aldrich & M. Prensky (Eds.), *Games and Simulations in Online Learning: Research and Development Frameworks*: dea Group Inc
- o Gee, J. P. (2005). Good video games and good learning. Phi Kappa Phi Forum. 2005;85(2), 33–7.
- o Lieberman, D. A. (2006). What can we learn from playing interactive games? In P. Vorderer & J. Bryant (Eds.), *Playing video games—Motives, responses, and consequences* (pp. 379–397). Mahwah, NJ: Lawrence Erlbaum Associates, Inc
- o Ritterfeld, U. & Weber, R. (2006). Video Games for Entertainment and Education. In P. Vorderer & J. Bryant (Eds.), Playing Video Games-Motives, Responses, and Consequences (pp. 399-413). Mahwah, NJ: Lawrence Erlbaum, Inc.

Optional readings
- o Pablo Moreno-Ger, Daniel Burgos, Javier Torrente: Digital games in e-Learning environments: current uses and emerging trends. Simulation & Gaming 40 (5), pp. 669-687.

Week 9. Design Issues of the Games (Basic game elements, narration, storytelling, scenario development, game genre selection)

- o Barry, I. (2005). Game Design. In Rabin, S. (Eds). Introduction to Game Development (pp. 99-160). Hingham, MA: Charles Rive Media, Inc

- o Adams, E. (2010). Fundamentals of Game Design (2nd Ed). New Riders: Berkeley, CA. Chapter 12 - General Principles of Level Design

- o Gunder, A. (2003). As if by magic: On Harry Potter as a novel and a computer game. In M. Copier & J. Raessens (Eds): Level up: Digital games research conference. Utrecht: Utrecht University.

- o Dondlinger, M. J. (2007). Educational video game design: A review of the liter- ature [Electronic Version]. Journal of Applied Educational Technology, 4, 21-31

Week 10. Design Methods of the Games (Game design methodologies, participatory game design, user centered design)

- o Pagulayan, R. J., Keeker, K., Wixon, D., Romero, R. L., & Fuller, T. (2003). User-centered design in games. In J. A. Jacko & A. Sears (Eds.), The Human-Computer Interaction Handbook: Fundamentals, EvolvingTechnologies and Emerging Applications (pp. 883-906). Mahwah, NJ: Lawrence Erlbaum Associates

- o Kaplan Akilli, G. & Cagiltay, K. (2006). An Instructional Design/Development Model for the Creation of Game-like Learning Environments: The FIDGE Model, In M. Pivec (Ed.), Affective and emotional aspects of human computer interaction: Game-based and innovative learning approaches (pp. 93-112). Amsterdam, Netherlands: IOS Press.

- o Scaife, M. and Rogers, Y. (1999). Kids as informants: Telling us what we didn't know or confirming what we knew already, in A. Druin (Ed.), The design of children's technology (pp.29-50).Morgan Kaufmann, San Francisco, CA

Week 11. Usability Evaluation of the Games (Human Game Interaction, Usability, playability, heuristic evaluation of play, computer game criticism, game play analysis)

- Federoff, M.A. (2002). Heuristics and Usability Guidelines for the Creation and Evaluation of Fun in Video Games. MS Thesis, Department of Telecommunications, Indiana University, Bloomington, Indiana, USA, 2002

- Laitinen, S. (2005, Jun 6). Better Games Through Usability Evaluation and Testing. retrieved from http://www.gamasutra.com/features/20050623/laitinen_02.shtml

- Cornett S. (2004). The Usability of Massively Multiplayer Online Roleplaying games: Designing for New Users. Proceedings of the SIGCHI conference on Human factors in computing systems, 6(1), pp 703-710

- Jørgensen, A.H. (2004). Marrying HCI/Usability and Computer Games: A Preliminary Look. In Proceedings of NordiCHI. pp. 393-396.

Week 12. Games and ethical issues.

- Sicart, M. (2009). the Ethics of Computer Games, MIT Press:Cambridge, MA (Chapter 2)

- Sicart, M. (2009). the Ethics of Computer Games, MIT Press:Cambridge, MA (Chapter 4)

- Zagal, J. P. (2009). Ethically Notable Videogames: Moral Dilemmas and Gameplay, Proceedings of Digital Games Research Association (DiGRA), retrieved on April, 20 2010 from http://www.digra.org/dl/db/09287.13336.pdf

Week 13. Trends & issues and future of educational game and simulations research (trends in conferences, journal papers, meta analyses)

- Students will search the articles.

Additional Resources

Games, Learning and Society Conference

http://www.glsconference.org/2010/

You can reach abstracts of past conferences

Women in Games Conference

http://www.womeningames.com/

There are variety of resources related gender differences in gaming

Digital Games Research Association Conference

http://www.digra.org/dl

you can reach abtracts or full papers of DIGRA conference presentations

Journal of Simulation and Gaming

http://online.sagepub.com

You can access the articles via METU's library

Computers in Human Behavior

http://www.sciencedirect.com

You can access the articles via Science Direct database (METU library supports it)

Games, Gamers and Gaming Culture.
http://www.knowledge.hut.fi/projects/games/gamelinks.html

http://www.igda.org

http://www.ludology.org/

http://gamestudies.org/