Ludology for Game Developer

456340-1
Fall 2010
9/13/2010
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Ludology?

- *Ludus* (Latin) = game
- *Logos* (Greek) = reason, science
- Ludology = Scientific analysis of games
- Ludology is a general term for studies and theories focusing on games
- Compare with 'narratology' = set of theories on narrative and narration

Historical studies of games

- Ludology extends to all kinds of games
- Early examples displaying ludological interests:
  - Stewart Culin, *Games of the North American Indians: v 1: Games of Chance & v 2: Games of Skill* (1907)
  - Johan Huizinga, *Homo Ludens: A Study of the Play-Element in Culture* (1938)
  - John von Neumann & Oskar Morgenstern, *Theory of Games and Economic Behavior* (1944)
  - Roger Caillois, *Man, Play and Games* (transl. in 1961)
  - E.M. Avedon & Brian Sutton-Smith, *The Study of Games* (1971)
- These studies try to find common, generic aspects across various forms and cultures of games and game play

Rise of game studies

- Game scholar Espen Aarseth (editor of gamestudies.org) declared 2001 as "year one" of game studies.
- There are earlier examples: Mary Ann Buckles' doctoral thesis on *Adventure* from 1985 the 1st
- However, these were scattered efforts
- Year 2001 marks the emergence of an *academic community* focused on studying *computer and video games*
- Ludology.org by Gonzalo Frasca, as its hub

Ludology defined

- Ludology is an *academic attitude to games*
- it requires a generic approach to games
- Ludological efforts aim to understand better
  - What games are
  - How they work
  - Why people play them
  - How to design more diverse and better games
- Market research, technology development, background research are often too case-specific to be regarded as representatives of ludology.

Design Research

- Design research
  - Design research is interested in integrating research methods and results into design and product development processes.
  - See Brenda Laurel (ed.) *Design Research: Methods and Perspectives* (2003) for introduction
- Game design research
  - Game design research is a means to apply ludology to practical game development tasks
  - Game design research is, thus, a development-oriented means to practice ludology.

Key Areas of Design Research

- Research *into* design
  - Traditional historical and aesthetic studies of art and design
- Research *through* design
  - Project-based, includes materials research and development
- Research *for* design
  - Creates objects and systems that display the results of the research and prove its worth

In terms of Ludology:

- Research *into* game design
  - Analyses of existing games, i.e. their designs, and how players engage with those designs, i.e. play the games
- Research *through* game design
  - Research into games that builds prototypes as its results
- Research *for* game design
  - The most fruitful area to cover in more detail

Origins of Game Design

- Early game design practices resemble the authoring of folk tales:
  - The game elements and rules evolve over time by the effort of countless nameless "designers"
- Game design has developed towards systematic practices, games designed on purpose
- Craft vs. Design
  - Characteristics of a *craft product*: combination of the methods and materials available as well as the situations in which the product has been used over a longer period of time
  - Characteristics of a *designed product*: the result of a trying to reach a design goal by using methods and materials available

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Making design principles explicit

- Some argue that designing games is an art, knack, or a mystical craft
- Game design does require talent and skill
- Yet Ludologists also believe that it is desirable to find and describe the basic features and patterns which can assist, guide, and inspire design work
- Game design research aims at
  - Making the principles of how to design explicit
  - Giving designers a conscious layer of self-evaluation
  - Making it easier to consciously break the principles and to seek new forms of expression
  - Creating vocabulary that enables communicating design ideas and teaching the trade

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Examples of Ludological Methods & Tools

- Many researchers and practitioners have developed methods and models to design games
- The following methods and models are all recently proposed and display the ludological attitude in practice

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Chris Crawford

- *Chris Crawford's "The Art of Computer Game Design"* (1984) may well be the first contemporary treatise with a strong ludological attitude
- Crawford identifies four common factors between all games:
  - Representation
  - Interaction
  - Conflict
  - Safety
- See also *Chris Crawford on Game Design* (2003)

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Greg Costikyan

- *Greg Costikyan "I Have No Words & I Must Design" (1994)*
- Identifies design choices that have to be made when games are designed
- And the main features necessary for games and that should be taken into account by game designers when making games:
  - Decision making
  - Goals
  - Opposition
  - Managing resources
  - Game tokens
  - Information

MDA Framework (1/2)

- *'Mechanics, Dynamics, and Aesthetics' Framework (2001), by Robin Hunicke, Marc LeBlanc and Robert Zubek*
- Employed in the Game Tuning Workshops held in Game Developers' Conferences since 2001
- MDA framework consists of three main components:
  - Mechanics that describe the parts of a game at the level of data representation and algorithms
  - Dynamics that describe the run-time behavior of the game
  - Aesthetics that describe desirable emotional responses evoked in the player during gameplay

MDA Framework (2/2)

- The Aesthetics can be broken up into more distinct components; '*Eight Forms of Fun* ':
  - Sensation, game as sensory pleasure
  - Fantasy, game as make-believe
  - Narrative, game as drama
  - Challenge, game as obstacle course
  - Fellowship, game as social framework
  - Discovery, game as uncharted territory
  - Expression, game as self-discovery
  - Submission, game as pastime.
- MDA's goal is to provide a framework to span between game design, development, game criticism and research

Formal Abstract Design Tools

- *Doug Church, "Formal Abstract Design Tools" (1999)*
- Church proposes the Formal Abstract Design Tools (FADT) framework that aims for:
  - Precise definition and the ability to explain it to someone else
  - The focus on underlying ideas, not specific genre constructs
  - A common vocabulary

Formal Abstract Design Tools

- FADTs are created by identifying and collecting key aspects that make a particular game work
- Then abstracting and formalizing them into a FADT
- Church's analysis of *Super Mario 64* led to two FADTs:
  - *Intention* (forming a plan in response to one's understanding of the gameplay options and the current situation)
  - *Perceivable Consequence* (a clear reaction from the game as a result of the player's action).

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400 Project

- An attempt to formalize what Noah Falstein perceived as the basic rules of game design in an accessible way
- The rules consist of five parts
  - An imperative statement of the rule
  - A description of the domain of the rule
  - Rules which take precedence over the rule
  - Rules that the rule takes precedence over
  - A description of examples and counter-examples
- The rules are meant to be tools which can be used in different phases of the design process
- Difference to the Formal Abstract Design Tools is that the 400 Project rules are more structured and contain relationships to each other

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Ernest Adams & Andrew Rollings

- *Ernest Adams and Andrew Rollings on Game Design* (2003)
- The authors divide game design into three different areas
  - Core mechanics
  - Interactivity
  - Storytelling
  - Narrative
- Adams and Rollings support design also by categorizing different types of challenges:
  - *Pure challanges* (logic and inference, lateral-thinking, memory, intelligence-based, knowledge-based, pattern-recognition, etc.)
  - *Applied challenges* (races, puzzles, exploration, conflict, economies and conceptual challenges)

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Game Design Workshop

- Tracy Fullerton, Christopher Swain & Steven Hoffman: Game *Design Workshop: Designing, Prototyping, and Playtesting Games* (2004)
- They identify eight basic formal elements:
  - Players
  - Objective
  - Procedures
  - Rules
  - Resources
  - Conflicts
  - Boundaries
  - Outcomes
- Their design method is to use the formal elements to describe the current design and make sure that all aspects of a game design are taken into consideration

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Steffen P. Walz

- *Steffen P. Walz* has proposed and elaborated an approach to *game design based on applying the classic rhetoric models and rhetorical figures*
- The main thrust of Walz's approach is to explore how rhetoric as the science of persuasion can be applied to the design and analysis of games
- Three dimensions define the processes and strategies how the game designer persuades the players to play the game:
  - Identification
  - Systemic coupling
  - Symbolic coupling
  - Structural coupling
- Structural coupling: how the game designer can modulate the player's expectations, motives, needs, and actions in the game by structuring the levels of offers and demands the game provides to the player

Game Design Patterns

- *Bernd Kreimeier: "Case for Game Design Patterns" (2002)*
- Kreimeier articulates four basic aims of game design methods:
  - They should relate to game design
  - Have utility as a tool
  - Be abstract
  - Be formalized
- Inspired by Christopher Alexander's pattern approach to architecture
- Kreimeier developed an approach to game design based on the concept of game design patterns

Game Design Patterns

- *Staffan Björk and Jussi Holopainen: Game Design Patterns Project (2002)*
- They follow the basic principles of Alexander to describe invariant and recurrent characteristics of game design
- These are expressed as interdependent semiformal pattern descriptions
- *Patterns in Game Design* (2004): A collection of almost 300 patterns

Katie Salen & Eric Zimmerman

- Salen & Zimmerman's book *Rules of Play* (2004) introduces a number of theories and schemas for game design and studies
- They discuss all kinds of games from parlor games to video games
- *Meaningful play* and Johan Huizinga's *'Magic Circle' (play with make-believe rules)* are the key concepts
- Game design schemas are provided for understanding three aspects of games:
  - Formal (rules etc.)
  - Experiential (e.g. player behavior)
  - Cultural (social aspects)
- And to facilitate the design of meaningful play

Aki Järvinen

- *Games without Frontiers*, a Ph.D. study of game analysis and design methods
- Built on a theory of game elements
  - Systemic elements (components, procedures, environment)
  - Behavioral elements (players & contexts)
  - Compound elements (rules, game mechanics, theme, interface)
- The Game Game:
  - A card game that illustrates the theory
  - Works as a brainstorming/design tool
  - Players collect game elements in the form of cards and verbalize game designs based on their cards
  - Compare with Scott McCloud's *Understanding Comics*, a theory of comics in the form of a comic book

Summary

- Ludology is an attitude towards game design and development driven by a need to understand games in general terms
- Ludology finds practical applications both in academic studies of games and formal methods for game design
- Ludologists adapt psychology, architecture, play theory, design theory, information theory, semiotics, rhetorics, etc. for the purposes of game analysis and development
- Ludological attitude also points the way for finding common vocabularies and practices for game scholars and developers

Reference

- http://www.eng.auburn.edu/~sealscd/COMP4970/