Game and Learn:
An Introduction to Educational Gaming
10. The Design Perspective

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Starting Out
The Team

• Game Designer
• Education:
  • Content Specialist
  • Learning Specialist
• Production Manager
• Visual:
  • Graphic Artist
  • 3D Artist
• Sound:
  • Composer
  • Soundscape Designer
• Narrative:
  • Storyteller
  • Scriptwriter
• Programming:
  • Game Engine
  • Game Implementation
• Play Testers

The Decisions

• What is the game about?
• What will be the key elements of gameplay?
• What games in its genre will it resemble?
• What games in its genre will it be different from?
• What other games will it draw upon?
• What elements will be completely new to it?
• What will be the key elements of gameplay, again?
• What is the game’s narrative outline?
• What is the game about, again?
The definition of a pattern comprises:

- Its name;
- An illustrative picture;
- An introductory contextual paragraph, explaining how it helps complete other patterns;
- A summary of the problem;
- The development of the problem;
- The solution to the problem, describing the field of physical and social relationships needed to solve it;
- A diagram to aid in visualizing the solution;
- A final paragraph linking the pattern to other patterns in the language.

Alexander’s approach is fundamentally oriented towards people taking control of architecture by providing them with a process for developing an awareness of their own pattern languages.
The Game Design Pattern Template
(Björk & Holopainen)

- Name
- Description
  - Core Definition
  - General Description
  - Examples
- Using the Pattern
- Consequences
- Relations
  - Instantiates/Instantiated by
  - Modulates/Modulated by
  - Potentially Conflicting Patterns
- References
Pac-Man


Examples

**Collecting:**

The main actions performed in Pac-Man is moving and collecting pills.

**Collecting:**

Pac-Man has to gobble up all the pills to finish a level. While eating each pill is a very low-level goal, the goal for each level is the Collection of all pills.

**Consuming:**

In Pac-Man the pills are consumed by Pac-Man and ghosts can consume Pac-Man when he is not under the effect of the power-pill.

**Bugs:**

Pac-Man has the goal of avoiding the ghosts while collecting the yellow dots.

**Hierarchy of Goals:**

The rough goal hierarchy in Pac-Man is as follows: eat the pills while avoiding the ghosts, get the power pill while avoiding the ghosts, chase the ghosts and eat the pills while under the influence of the power-pill, finish levels by taking all pills on each level, and finally get into the high score list.

**Irreversible Areas:**

The ghost generator in the middle of the Pac-Man level is an example of an area the player controlling Pac-Man cannot enter.

**Power-Ups:**

The power pill in Pac-Man allows Pac-Man to hunt ghosts for a limited amount of time.

**Producer-Consumer:**

In Asteroids, the rocks are produced at the start of each level and are consumed by the player shooting at them. The same principle applies to many other games where the level progresses in terms of difficulty, e.g. consumables other game elements, like rocks in

Collecting

The action of collecting game elements from the game world.

Collecting is one of the most common activities in games. The collecting may be concrete by acquiring game elements around the game world and picking up game elements found or may be abstract by receiving game elements directly through actions or completing goals.

Examples

The game play is *Super Mario 64* and *Super Mario Sunshine* is based around the collections of stars which unlock new levels and drive the story forward.

The main actions performed in Pac-Man is moving and collecting pills.
The Process

The Game Design Process

- Frame your existing material in terms of similar games and their design patterns
- Develop your narrative structure
  - Include all key plot, character, event items
- Develop your game world structure
  - Use design patterns for both inspiration and control
  - Keep matching it back to the narrative structure
- Match both narrative and game world to your educational goals
Design Worksheets (Rollings & Adams)

Gameplay Worksheet

1. What types of challenges do you want to include in your game? Do you want to challenge the player’s physical abilities, his mental abilities, or both?

2. Game genres are defined in part by the nature of the challenges they offer. Have you selected a genre in advance, and if so, what does that imply for the gameplay? Do you intend to include any cross-genre elements, challenges that are not normally found in your chosen genre?

3. Does the game include implicit challenges (those that emerge from the design), as well as explicit challenges (those that you specify)?

4. If the game has a story, how does the story influence the gameplay, and vice versa? Do they operate in tandem, or are they effectively separate pieces?

5. If the player has an avatar, how does the gameplay influence the avatar’s appearance and capabilities?

6. Is the game’s collection of challenges a related group, or is it a compilation of unrelated elements? If the latter, does that have any effect on the player’s suspension of disbelief?

7. Given that not all players enjoy the same kinds of challenges, how does the game’s target audience influence the challenges it includes? What challenges will you deliberately exclude?

8. Will the player be required to face more than one challenge at a time? Which ones?

The Game Design Documents (Rollings & Adams)

• The High-Concept Statement
  
  • Used to “sell” the game, communicate quickly about it

• The Design Script
  
  • Used for actual game development, team coordination

  • Crucial as a way of keeping development clear, coordinated, and on track
The High-Concept Statement

- The central idea of the game
- Genre
- Key features
  - Include both game world and narrative structure aspects
  - Diagrams, sketches, screenshots are important here
- Design goals
- Target audience/player motivation
- Unique features

The Design Script

- Incorporates all the material from the High-Concept Statement, plus:
  - Complete narrative script
    - Include all atomic information, i.e., characters, story arcs, events, etc.
  - Complete gameworld specification
    - Relate items to design patterns
    - Make all narrative interaction clear
  - Design sketches and screenshots
  - Timelines for development
- As development progresses, this document will need to be updated
Resources Cited

• **Design Patterns:**

• **The Process:**
  or:
Hippasus

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