Thesis Game Framework

# Prototyping for Game

Prototyping is the name I use to describe a set of methods that use various means (paper & pencil, software, etc.) to model game mechanics and balance the play mechanics. As a game design tool, prototyping is best used during the design phase (or the phase where the design needs elaboration). Waiting long periods of time without a means to evaluate the game-play experience and the inability to rapidly make changes makes an iterative design process slow and cumbersome, prototyping offers the designer a way to create aspects of the game or a working model of the game.

1. Methods

There are several methods a designer can choose from to prototype his/her game design. The *software method* is prototyping your game's design by building it with software or supporting the prototype with software. The software method can be used to prototype both digital and analog game design. The *paper method* uses pieces from analog games, along with craft and office supplies to build prototypes. The *physical method* is a kind prototype created through acting, playing, props or pretending.

1. Time & Cost

The most significant difference between the methods is time, which for many also translates to money. Generally speaking, the software method takes the most amount of time and has the least amount of flexibility. Physical prototyping offers the greatest amount of flexibility and costs the least amount of time.

1. Fidelity Issues

Software prototyping for digital games has an advantage of higher fidelity to the eventual game, but when used for analog games has no fidelity. It can however be used as a method to simulate play and scenarios. Paper prototyping offers extremely high fidelity for analog games (e.g. board games, card games, etc.), but offers digital game less fidelity and requires "translation" from analog to digital. Physical prototypes often have low fidelity because the mechanics are not as explicit like in other methods.

1. Scope

Prototyping is used to make current design ideas explicit so that they can be evaluated and easily iterated upon, which can be more effective if you define the scope beforehand. The broader the scope of the prototype the longer it will take to create, and depending on the complexity of your game can also make balancing more difficult. Concepts like vertical slice, horizontal slice, core, progression, meta, individual game mechanics and play mechanics, are possible scopes for a prototype. Software prototypes tend to be best when dealing with limited scopes (e.g. core game mechanics). Pitfalls of software prototyping is that the scope is actually concerned with technology issues and not the game's design. Physical and paper prototypes can be tailored to any scope, the paper method tends to be better at formalizing the design.

1. Communication

Prototyping is one of the best ways to communicate a game's design, because your development team can play and experience the game's design.

1. Evaluation

Having a prototype allows the game designer to use evaluation design tools (e.g. play-testing) earlier in the development process.

<http://gamedesigntools.blogspot.com/2010/10/design-prototyping.html> (oktober 26,2010 - access 7/17/2014)

# Instructional Game Design Documentation

1. **Instructional Design**

* ***Audience Analysis:*** An analysis of the learner's current skills and how those skills map to the instructional content
* ***Entry Behaviors:*** Identification of the learning objectives the player must have mastered prior to playing the game in order to be successful. Any skills or knowledge identified as an entry behavior will not be covered in the game. It is a pre-requisite for the game.
* ***Instructional Goals:*** Broad educational goals for the game.
* ***Instructional Objectives:***Performance objectives for the game. It is very critical that instructional objectives are granular enough to allow for the diagnosing of instructional problems. At a minimum objectives should address (1) behavior to be measured, (2) conditions under which the behavior will be measured, and (3) a minimum level of achievement needed to master the objectives.
* ***Assessment Items:***Assessment items for each of the learning objectives should be created. It is important that each assessment item only tests a single instructional objectives. In the case of an educational game the assessment items are often constructed as in-game activities that map to specific learning objectives.
* ***Presentation Strategy:***With the audience analysis, learning objectives, and in-game learning assessments prepared, we can then concentrate on how to present the necessary instructional materials to the learner in a manner that will prepare them to successfully complete the assessments. In the case of most educational games, the presentation strategy will drive many of the gameplay decisions about the game. The game-mechanics and game narrative will reflect the presentation strategy.

1. **Game Design**

* ***Game Concept:***
  1. ***Game Description:*** This is a very broad description of the game.
  2. ***Genre:***What kind of game is it?
  3. ***Platform:*** Will this run on a PC, console, PDA, phone, etc.?
* ***Game Mechanics:***
  1. ***Core Gameplay:*** What actions will be available to the player consistently and how will those actions influence the world?
  2. ***Mode of play:*** How many different modes of play will be available in the game?
  3. ***Game Flow:***How will the player progress through the game be organized. Is the game broken into levels? What triggers the end of a level? How will in-game assessments be integrated into the flow of the game?
  4. ***Types of Characters:***How many different types of characters are there? How do they behave differently in the game?
  5. ***Gameplay Elements*:**What environmental elements exists in the game that add to the game play? Will there be items that act as a power-up? Etc. Are there different types of weapons?
* ***User Interface Functionality*:**What are the user interface items and what functionality is needed for each of the items. This includes screens and menus.
* ***Narrative*:**The back-story for the game and characters

1. **Art**

* ***User Interface*:**What do the screen elements and menus actually look like? This should include the color scheme, resolution, fonts, etc.
* ***Gameplay Elements*:** What do the game elements look like? This includes sketches of the characters and the setting for the game.
* ***Sound and Music:*** Identifies any needed music and sound effects

1. **Programming**

* ***Special Technical Requirements:***Details any technical requirements that are beyond the norm for a game. If the game will rely heavily on networking or use a special type of rendering technique, it should be noted here.
* ***Game Engine:*** Will a particular game engine be used?
* ***Rendering:*** How will rendering and light be handled?
* ***Artificial Intelligence:*** How will AI be handled?
* ***Physics:*** How will physics be handled?
* ***Gameplay code:*** How will gameplay specific code be handled?
* ***Instructional data tracking and analysis:***Are there any data tracking requirements for the instructional aspects of the game? How will that be done? Do we need to interface the game to a database? Do we need to send performance data via the network in real-time or can we batch it after the gameplay session?

1. **Instructional Data Analysis**

* ***Data analysis model:***How will the data generated during the gameplay session be analyzed?

<http://www.e-games.tech.purdue.edu/DesignDoc.asp> (Purdue University access: 17/7/2014)

# Game Document

1. ***High Concept Document***

*High concept document* berfungsi untuk menginformasikan kepada produseratau *publisher* tentang game yang akan dibuat. Dokumen ini berisikan tentang ide-ide kunci dari game yang panjangnya tidak melebihi 2-4 halaman.

1. ***Game Treatment Document***

*Game treatment document* berfungsi untuk mempresentasikan game dalambentuk *outline* kepada pihak yang ingin tahu tentang game yang ingin kita buat. *Game treatment document* disusun sedemikian rupa supaya dapat memuaskan rasa ingin tahu dan merangsang rasa antusias kepada game yang dibuat. *Game treatment document* juga memiliki tujuan untuk dapat membuat desain lebih mendalam, dapat membuat *prototype* yang nantinya akan diteruskan menjadi game utuh. Dokumen ini masih berbentuk simple, bisa berbentuk brosur yang memuat semua ide dasar dari game yang akan dibuat.

1. ***Character Design Document***

*Character design document* secara spesifik digunakan untuk merekam desaindari karakter yang muncul dalam game yang akan dibuat, seringkali berbentuk *avatar.* Tujuan utama dari dokumen ini adalah untuk menggambarkanpenampakan dari karakter, dan *move-set* dari karakter itu sendiri, yaitu kumpulan animasi yang mendokumentasikan gerakan-gerakan karakter, baik yang sengaja karakter tersebut lakukan (berjalan, berlari, dan melompat), ataupun gerakan tidak sengaja karakter tersebut lakukan (terkena pukulan, jatuh, dan animasi lainnya). Dokumen ini berisikan *concept* *art* dari karakter dengan berbagai macam pose dan juga ekspresi muka.

1. ***World Design Document***

*World design document* adalah dasar pembuatan semua seni grafis dan audioyang menggambarkan *game world* dari *game* yang akan dibuat. Dokumen ini berisikan tentang informasi latar tentang macam macam benda yang ada di dunia tersebut. *World design document* juga mendokumentasikan suasana, gaya estetika, dan sifat emosi dari dunia tersebut.

1. ***Flowboard***

*Flowboard* adalah persilangan dari *flowchart* dan *storyboard,* dimana *storyboard* adalah dokumen linier yang digunakan untuk merencanakan serangkaian gambar sesuai jalan cerita, dan *flowchart* digunakan *programmer* untuk mendokumentasikan algoritma. Jadi dapat disimpulkan bahwa *flowboard* mengkombinasikan dua ide tersebut untuk mendokumentasikan struktur dari game.

1. ***Story and Level Progression Document***

Dokumen ini merekam cerita skala besar dari *game* yang akan dibuat, dan bagaimana kemajuan dari setiap satu *level* ke *level* selanjutnya. Dokumen ini berisi tentang garis besar pengalaman *player* dalam memainkan game yang akan dibuat.

1. ***Game Script***

*Game script* mendokumentasikan rules dan *core-mechanics* dari game. *Game script* dapat membuat kita tahu bagaimana memainkan game, danmenspesifikasikan peraturan permainan secara mendetail.