

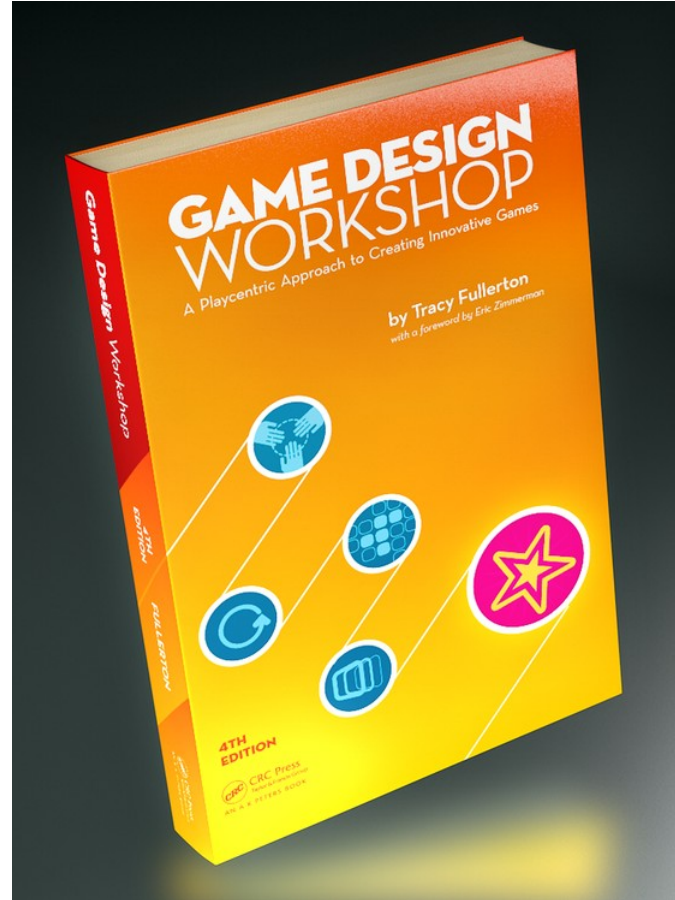
Computer Games Laboratory

Prototyping



Prototyping

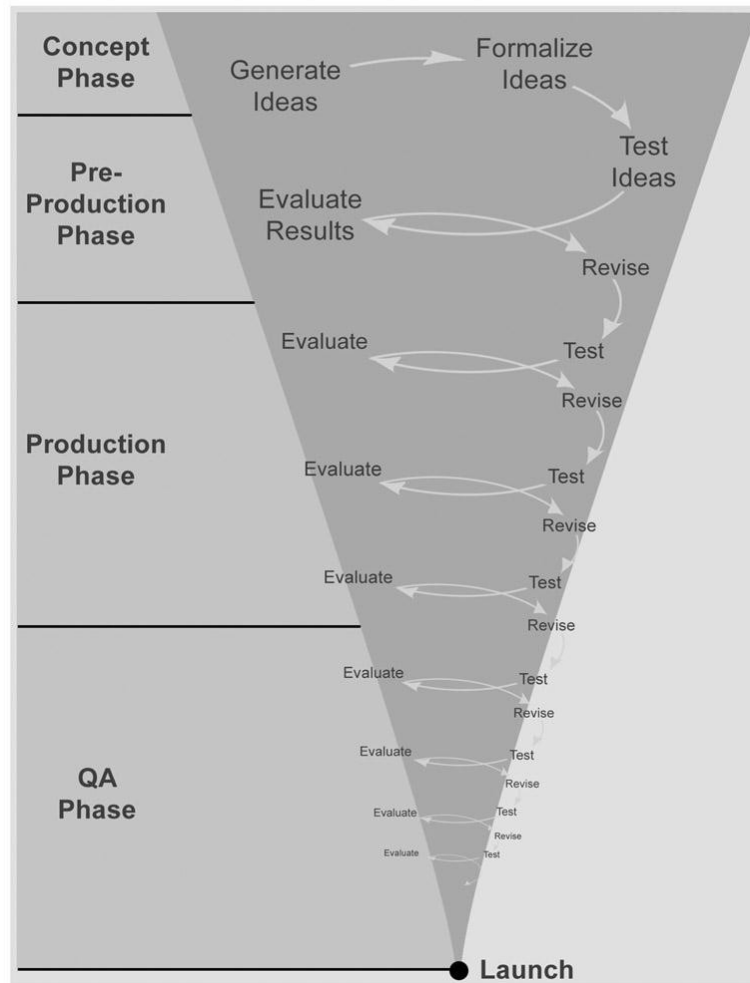
Recommended Reading:
Chapter on Prototyping



Prototyping

Why a prototype?

- “Creating a game without a prototype is like shooting a movie without a script.”
- Adds more to a game than a script or document: e.g., interactivity & exploration
- Facilitates fast iteration on the game idea and core mechanics



Prototyping

Something fast and cheap that allows you to answer a specific question about your game:

“Is your game idea fun?”

- Not something that eventually morphs into a game
- Not something using the same technology as the production code
- Not meant to impress others
- Rather some form of scientific exploration

Prototype

Only fundamental mechanics (formal elements)

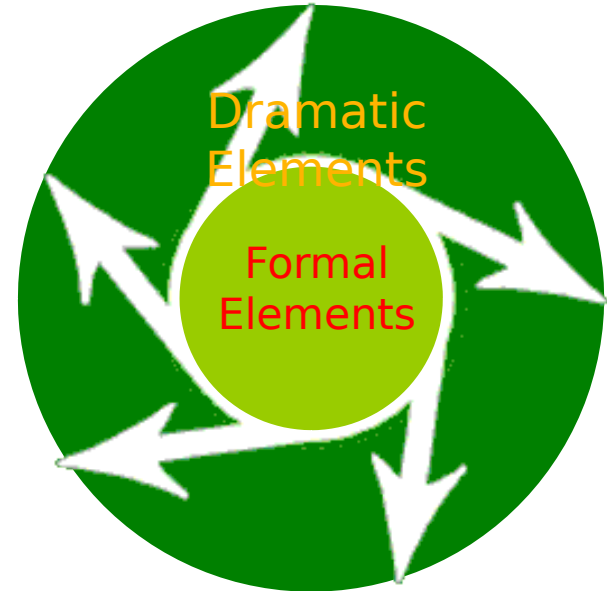
Considers player(s) and the computer

Rough approximation of artwork and features

Focus on gameplay, abstract from

Part of the production process

Extensible, instrument for radical changes



Purpose

Do not create a prototype to show something about the game

- Rather validate or disprove some concept
- Low effort

Test idea early on, before spending lots of effort on implementation

Prototypes don't generate ideas, they **validate** them

Find upsides and downsides

Avoid expensive coding efforts & mental restrictions from code

Experiment, persuade and inspire ...

Purpose

Define **core gameplay elements** in purest form

Test game mechanics and user experience

Learn whether core mechanics hold interest of players

Investigate balance of rules (too restrictive, too loose, too few, too many)

Discover play patterns and emergent behavior specific to your game

Does not need to be a complete game by itself

Question to be answered by the prototype

A good question is **concise** and can be answered in a fairly **unambiguous** way

Ask yourself where you need understanding

- Not necessarily full game
- Focus on central gameplay component(s)

Can be about game design, or any other aspect of the game

- How to make things look heavy by coloring
- Can I control a pen via my phone
- Does this sound bring me into the mood, etc.

Do not try to ask for a good game idea via a prototype

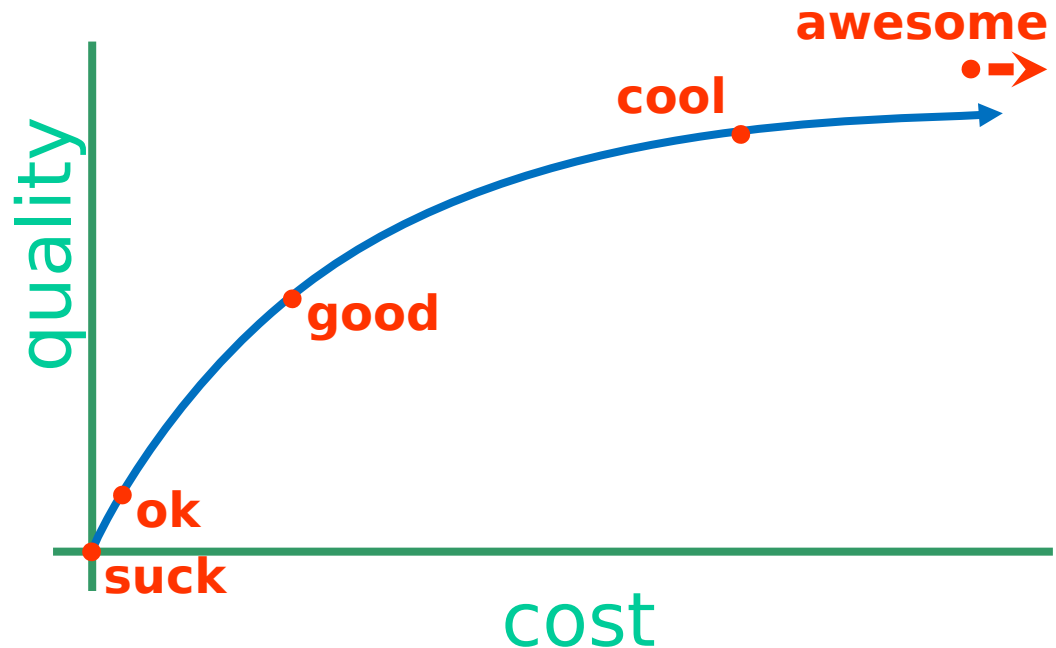
Decompose a big problem into smaller tractable ones

Measure the quality of a prototype

Find relevant characteristics:

- Interactivity
- Robustness
- Usability
- Beauty
- Performance
- Agility
- etc. ...

Evaluate quality/cost per characteristic



Prototyping techniques

“Paper” / Physical prototypes

- Good for testing game mechanics
- quick to produce
- cannot convey game experience and action

Storyboard and animatics

- Captures user experience
- useful for communicating ideas

Software prototypes

Hardware prototypes (i.e., manufacturing processes)

Physical prototypes - Step 1: Foundation

Restrict yourself to the fundamentals

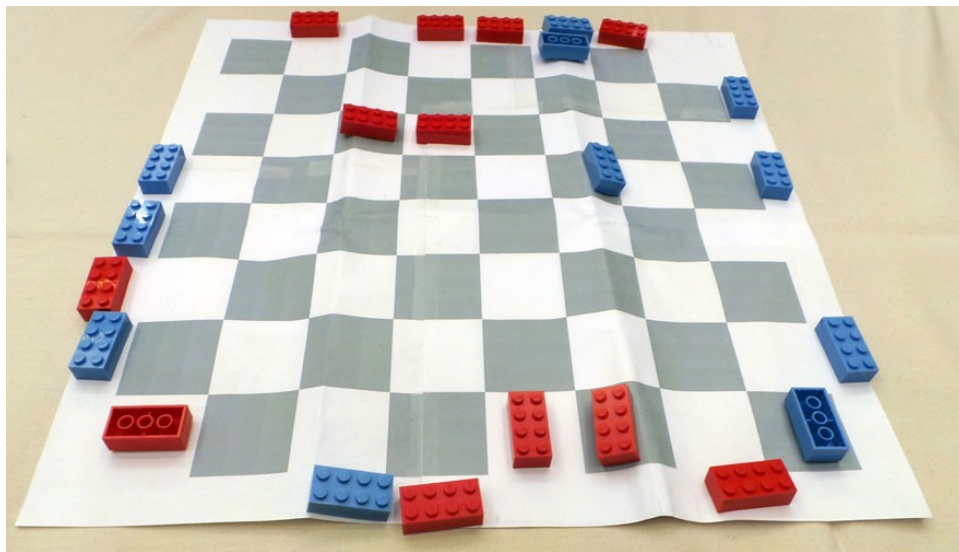
Don't try to be too detailed

Look for the easiest, cheapest way to get it

“Whatever works” ...

Design the basic game objects and mechanics

- Cards, paper, pens
- toys, game pieces, lego
- etc.

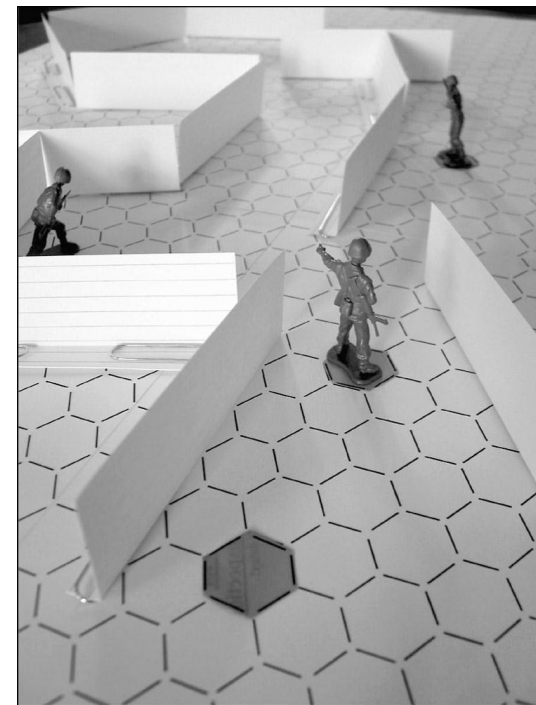


Physical prototypes - Step 1: Foundation

Example: first-person shooter

Core gameplay: simultaneous action

Accomplish with action cards



Physical prototypes - Step 2: Skeleton

Prioritize what is most essential and refine

- Number of spaces player can move
- Procedures for turning
- Hit and miss rules for shooting

Build upon foundation with structure to support essential parts of game

- Scoring system
- Hit points

Physical prototypes - Step 3: Formal Details

Add rules and features for a fully functional fun game

Focus on most important formal elements

- Is objective interesting and achievable
- Is player interaction ideal
- Are there missing rules

Test each rule individually to determine if it is critical or not

- Hit percentage, health scoring,...

Physical prototypes - Step 4: Refinement

You have a playable system

Play, tweak, play, tweak, play, tweak,...

Question smaller and smaller details

Especially: Is the game fun?

Add new features one at a time

Questions?

Milestone #2

Physical prototype, no code

Presentation & Report:

- Prototype live (video or images/slides if necessary)
- Changes from prototype