the gamedesigninitiative at cornell university

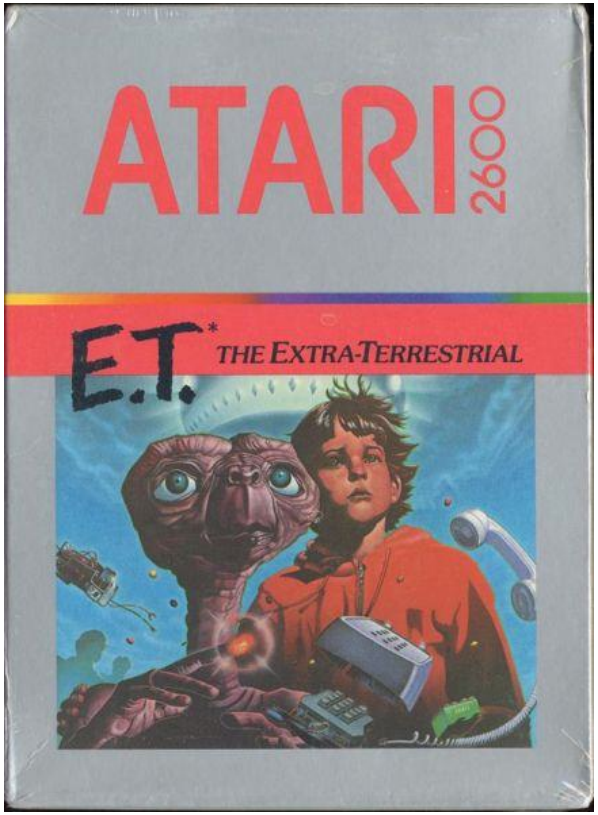
Lecture 24

Playtesting

Why Player Testing?

A good game no one can learn to play…

…is a bad game



TakeToday's Outline

- Questions to start with
- Different metrics of usability
- Conducting a user study
- Data collection/analysis

Questions to Start With

- Why are you conducting the test?
- What are you going to **learn**?
  - Sources of player difficulty?
  - Typical player strategies?
- How will you use the **results**?
  - Sometimes, to persuade or justify
  - Often, to iterate the design

Brainstorming Exercise

- What matters in a game?

- And how do you measure it?

Accessibility

- Players with disabilities is a neglected market
  - Many players have some colorblindness
  - Many deaf people are gamers
  - Blind gamers are not unheard of
- **Example**: *NanoEmpire*
  - Text based game made by James Senter at Cornell
  - 30k plays on Kongregate, but iOS version a flop
  - ... until blind community found they could play it

Colorblindness Fail: The Witness

Colorblindness Win: *Witcher 3*

Colorblind Mode Off

Highlights are traditional hues

Colorblind Mode On

Highlights are a much brighter palette

More General: Inventory in RPGs

- Good management is critical
  - Strategic access in combat
  - Bad UI is game breaking
- *Baldur's Gate*: Arrows
  - Ranged weapons use ammo
  - Could not type amount
  - Set with up/down arrows
- *Realms of Arkania*: Food
  - Feed multiple times daily
  - If do not eat, you starve
  - Drag food to avatar's lips

Quantitative Metrics

- Time to learn to use a game verb
- Time (ability) to complete a specific task/quest
- Usage (or lack of usage) of gameplay features
- Errors (how many, where)
- Player satisfaction (Likert scale)
- **Problem**: need many users for good stats

Qualitative Metrics

- What does the user say?
- Where/how do they run into trouble?
- What's the first reaction/impression?
- How would they describe the gameplay?
- Would they play it again? Recommend it?
- **Advantage**: More amenable to small groups

The Key Idea

- Put the challenge **where you want it**
  - Some things are meant to be difficult
  - If not explicitly a challenge, should be easy
- **Example**: Fast Travel
  - Allow the user to explore a vast world
  - But keeps constant travel from being boring
- Even bigger problem in educational games
  - Are they encountering the "right" challenges?

The User Study

- **Participants**
  - Who are you studying?
- **Artifact**(s)
  - What are you studying?
- **Tasks** and **scripts**
  - How do you plan to study?

- **Experimenter roles** & best practices
  - How are *you* involved in the study?

Participants: How Many?

- People's time is valuable
  - Theirs: how often do they want to play?
  - Yours: you have to administer the test
- Tests yield **diminishing returns**
  - Especially at prototyping stage
  - Rule of 5 (or 3) for qualitative results

Participants: Who?

- Not you (usually)
  - You have privileged knowledge
  - But okay in early stages
- Representative of target audience
  - *Actimates Barney* vs. *Grand Theft Auto*
  - Back up your concept document claims
- Someone(s) old, someone(s) new

Ethics and Benevolence

- Remember…
  - Your participants are real people
  - They are doing you a **favor**

Institutional Review Board

Stanford Prison Experiment

IRB Approval

Cornell University
Office of
Research Integrity and Assurance

East Hill Office Building, Suite 320
395 Pine Tree Road
Ithaca, NY 14850
p. 607-254-5162
f. 607-255-0758
www.irb.cornell.edu

Institutional Review Board for Human Participants

Notice of Course Activity Approval

To:	Erik Andersen
Date:	September 05, 2014
Protocol ID#:	1408004901
Protocol Title:	CS-4154

The above referenced Course Activity Project was reviewed by Cornell's Human Research Protection Program (HRPP) and approved for the inclusion of human participants in class assignments. This approval does NOT cover students doing research for theses, dissertations, journal articles, public presentations, or other means of disseminating generalizable knowledge gained from these assignments. Such projects require the individual student to complete his or her own Initial Approval Request form before beginning recruitment and data collection.

You or your students must ensure that the welfare of the research participants is protected and that methods used and information provided to gain subject consent are appropriate to the activity. You and your students should familiarize yourself with and conduct the research in accordance with the ethical standards of the Belmont Report: http://www.hhs.gov/ohrp/humansubjects/guidance/belmont.html

Please give a photocopy of this approval notice to each student in your class who will be conducting a human participant research project. Acceptance of these terms by students constitutes an understanding that data collection (and allusions to conclusions drawn from these data) from the project(s) covered solely by this approval may never be used for theses, dissertations, articles, or public presentations.

If you have any questions, please contact the IRB office at irbhp@cornell.edu or 254-5162.

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Artifacts: What is Tested?

- Working with incomplete product/prototype
  - Some stuff is clearly not finished
  - Do not want comments on unfinished bits
  - Be very clear of the scope of your test
- The Mechanical Turk
  - Can hide unfinished details with hacks or tricks
  - Great for AI in games (replace AI with human)
- Test should focus on **finished** details

Tasks & Scripts: Direction

- "Climb up to the blue square"
- "The game has put information in your codex. You may want to read it before continuing"
- "What do you think should happen if you go here, touch this, hit that?"
  - Example of **pre-interactive** direction
- "Just try things out, explore"
  - Sometimes **no direction** is direction

Tasks & Scripts: Design

- Directedness of tasks depends on **goal**
  - Do *you* know what you are looking for?
  - Are some goals more important than others?
- How long should tasks be?
  - When should you mercy-rule them?
- How long is the test/how many tasks?
  - User attention wanes over time
  - Do you want to order by priority?

Some Great Resources

- http://www.usability.gov
  - Standard government usability guidelines
- http://www.irb.cornell.edu
  - Ethical guidelines for usability testing
  - Covers all "human experiments" at Cornell
  - Professors need approval before research

Roles & Best Practices

- At least two testers
  - **Experimenter**: run the show
  - **Observer**(s): record what happens
- Be unobtrusive as possible
  - Will you be there when they play?
  - Your input will bias participants
  - But do not frustrate the user

The Study: Data Collection

- Notes
  - What did they say, what did they do?
- Videotape & Audio
  - To capture what you might have missed
  - Audio okay as long as the player thinks aloud
- Game state logs
  - Log the state of the game to a file
  - Can replay back as a cinematic

Think Aloud Method

- While you shut up, they should talk
  - About **everything** going on in their head
  - Gives you "inside the head" data
- Complements and explains observations
  - Separate player **failures** from **frustration**
  - Think of games like *Super Meat Boy*
- A little unnatural, may need reminders

Think-alouds

Think-alouds

Think-alouds

The Study: Data Collection

- **Questionnaires**
  - When? Is it a pretest or posttest?
  - Multiple choice vs. open-ended questions
- **Interviews**
  - Again, before or after?
  - Don't have to be super-formal

Questions and Answers

Questions and Answers

Do Not Take it Personally

- People will criticize the interface
- It can be sad watching people fail
- But **do not** coach them
  - This will bias your results
  - If you mercy rule them, move on

Post-Test Team Debrief

- Fresh observations taste better
  - Do not wait too long to debrief
  - But do not debrief with player in room
- Talk about each session post-session
  - Comparing results to previous sessions
  - But ignore sessions that are too old
- Talk about general issues every day

Problem Chart Spreadsheets

- **General Format**:
  - Statement of the problem
  - Observation(s) that prompted it
  - Estimated importance
  - Ease of fixing
- This allows you to prioritize
  - And also define "problem"
  - In games, some things should be hard.

Problem Chart Spreadsheets

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Not unlike bug tracking!

Analyzing with purpose

- **What** is the ***biggest problem*** with our game
- **Why** is it wrong
- **How** might we improve it
- What is the ***second biggest*** problem
- Repeat as needed

A/B test analysis

- The ***biggest problem*** with our game is X
- ***We're not sure why it's wrong***
- Therefore we tried two conditions: A and B
- It turns out that A does better
- We speculate that A is better because _____
- Therefore we'll stick with A

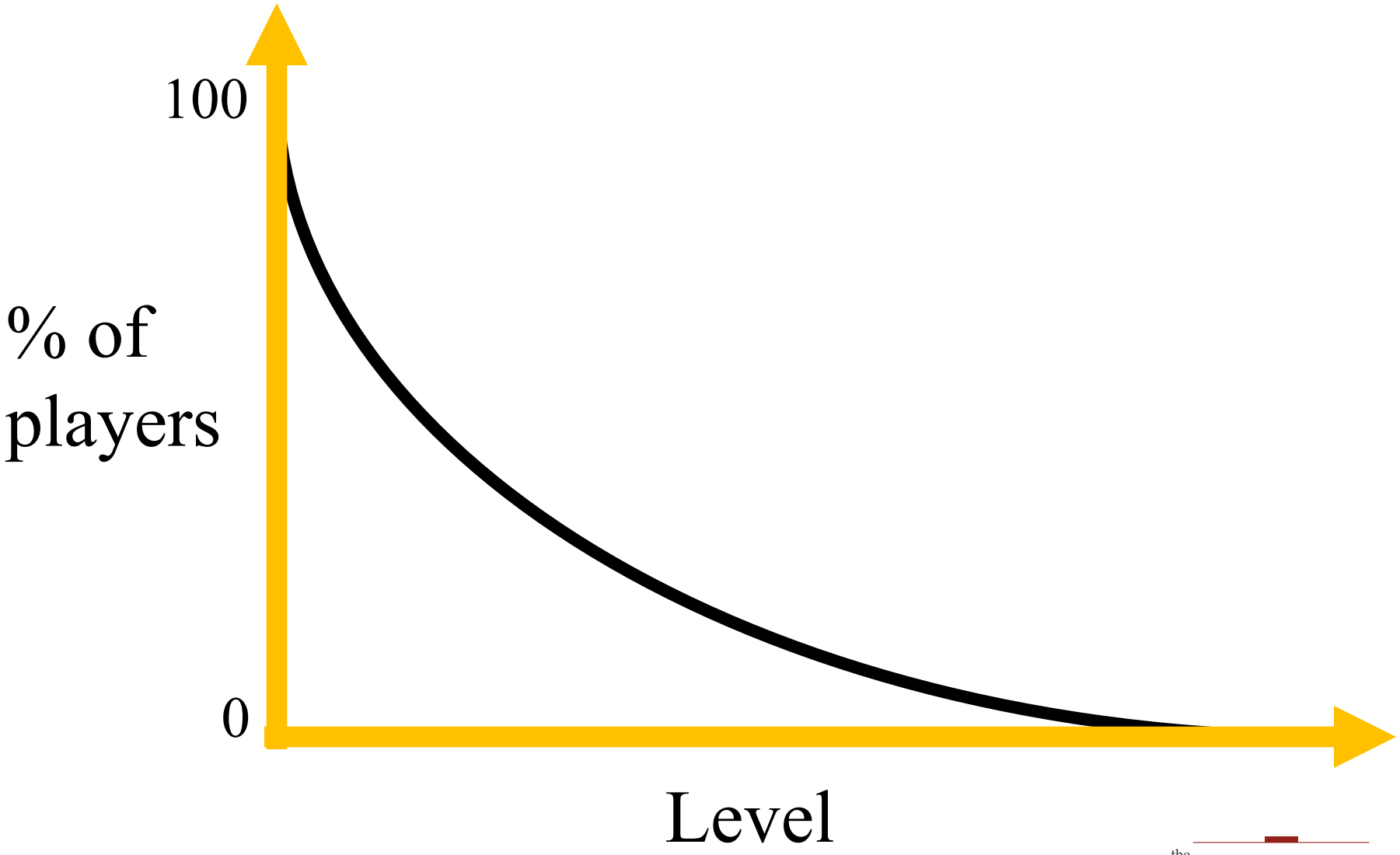
Implementing A/B Testing

- Have two settings: one for A and one for B
  - Should be modular enough to support both
  - Often a matter of swapping out a controller
- Randomly choose which one for each player
- Record the results of the playtest
  - Works best with quantitative measurements
  - Examples: engagement, player success, etc.
- Compare the two random samples

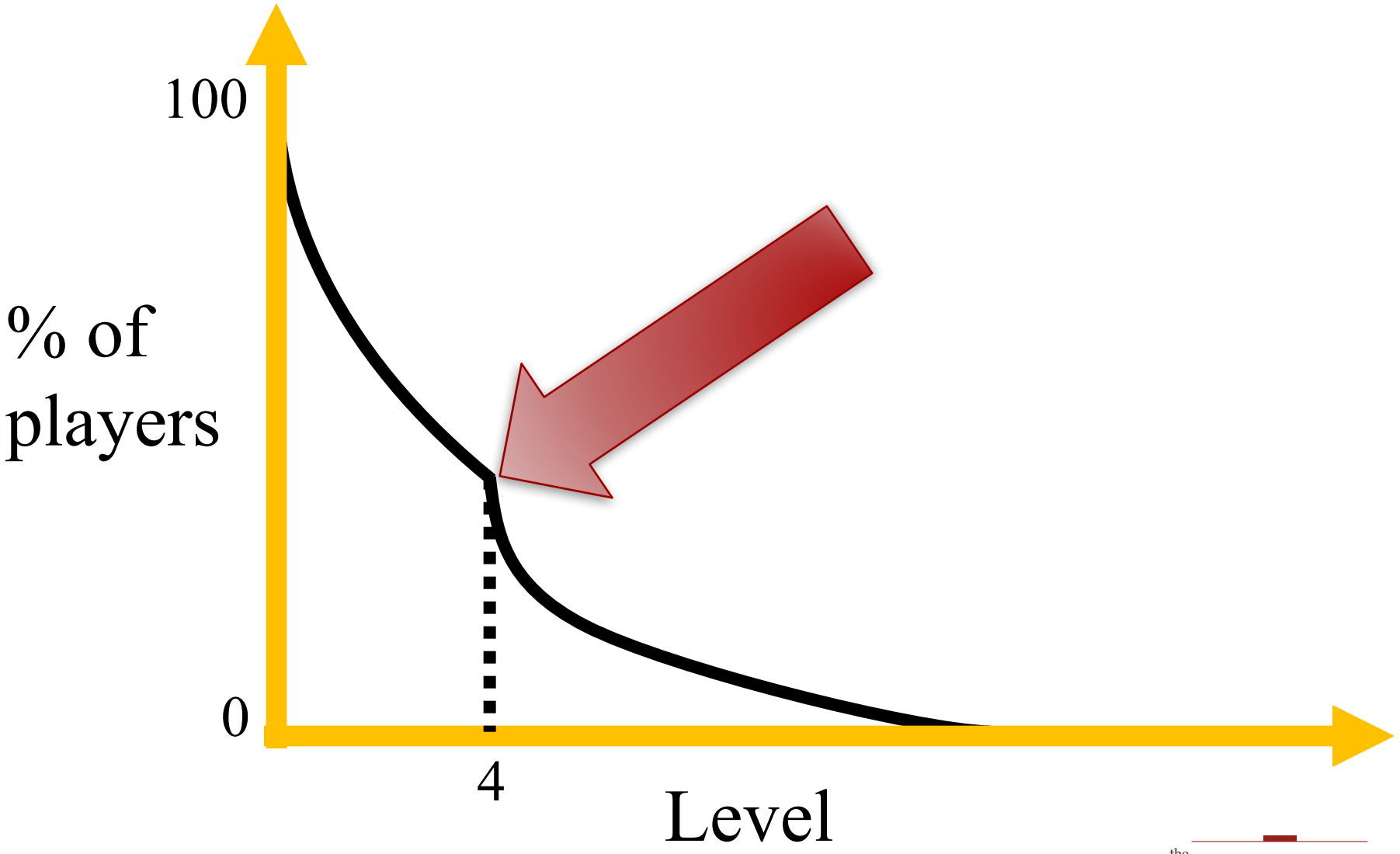
A/B Testing: Burndown Chart

After *x* levels/seconds, how many people are playing?

Burndown Chart



Unexpected Drop



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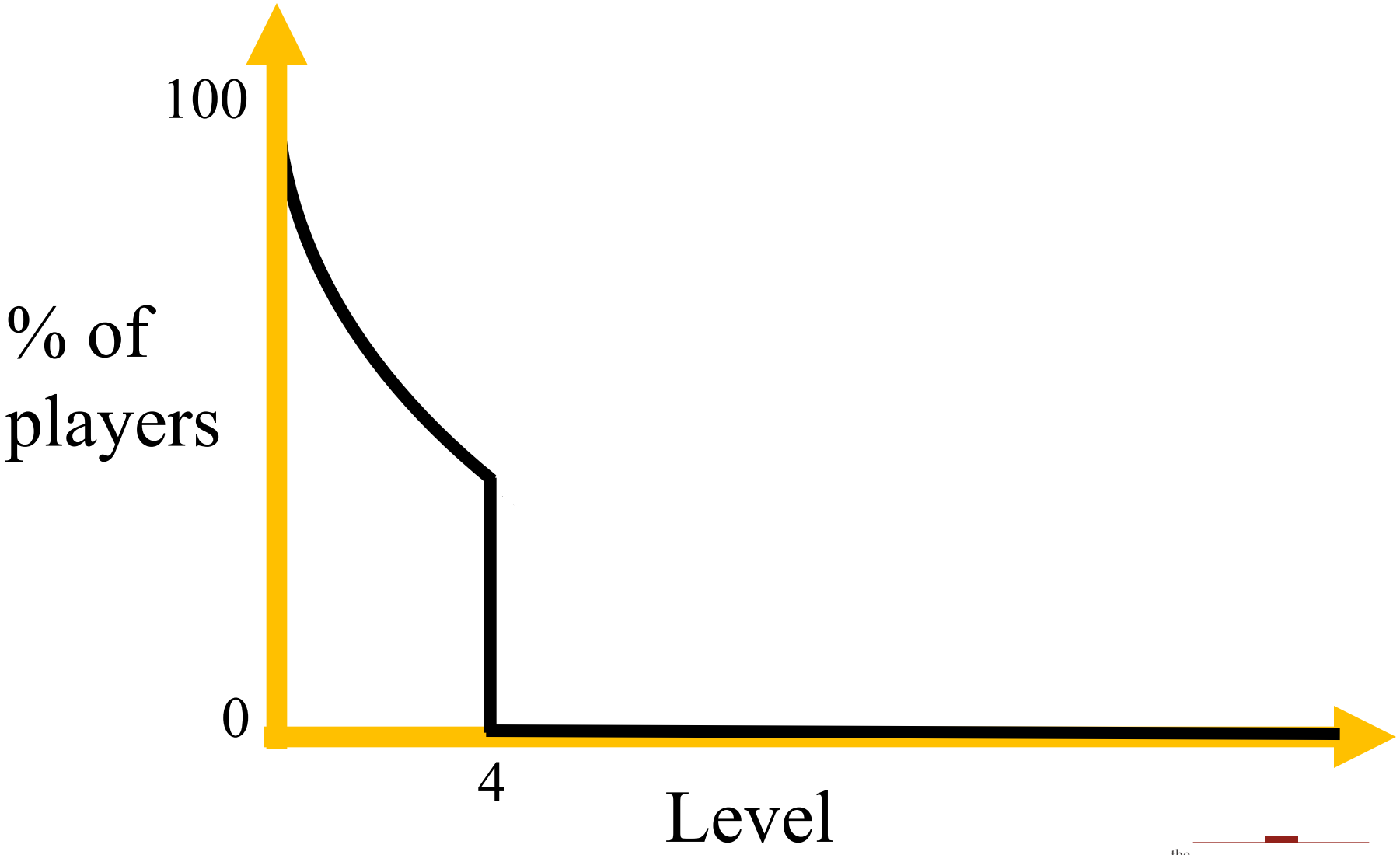

Summary

- Find representative users
- Have a plan for your test
- Let the player play
- Observe and notice
- Summarize and act
- Rinse and repeat: **frequently**

A Worthy Goal

- Make a test plan (5-10 minutes)
  - Your artifacts
  - Welcome script
  - Task or two
  - A couple of questions to ask
- Meet with another group
  - Swap members for testing once as a twice
  - Debrief as a group, and with both groups
  - About specific game, about testing overall