

Game Design

10

Testing and Quality Assurance

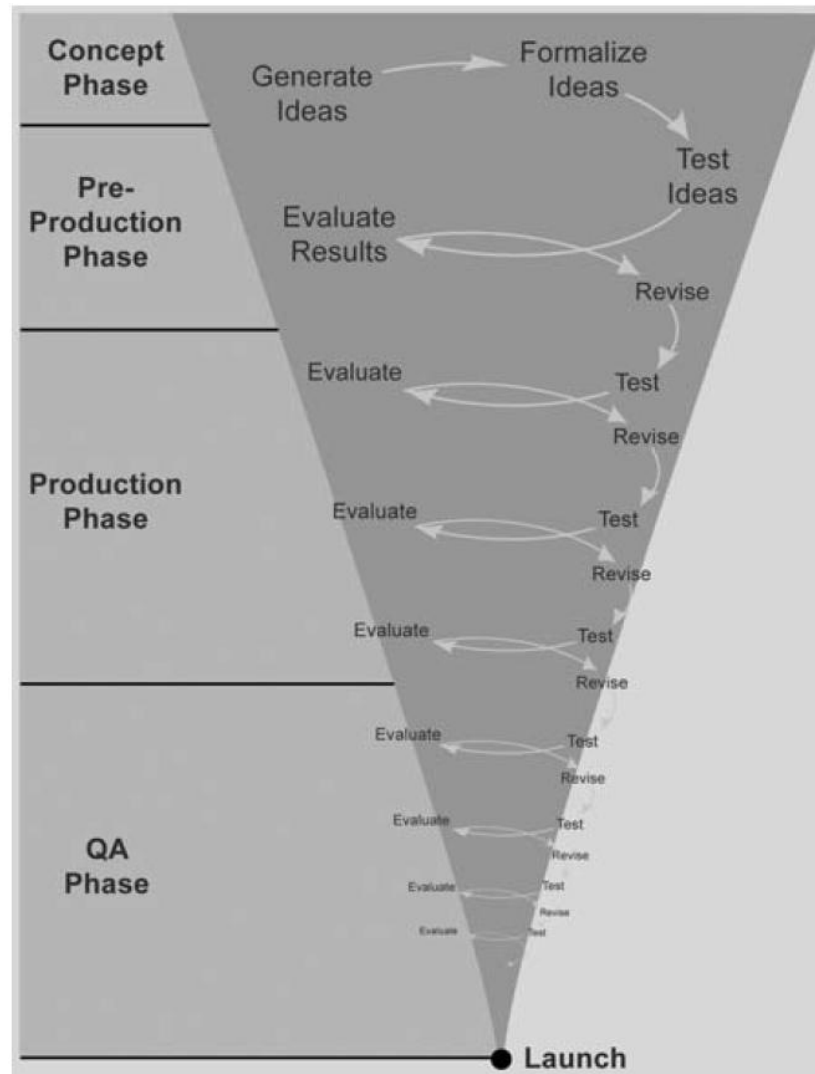
Testing vs. Quality Assurance

- They are not the same
 - Are we building the correct product vs.
 - Are we building the product correctly

Playtesting vs. Quality Assurance

- Playtesting is concerned with validating your game idea
 - Core gameplay, story arc, game systems, etc.
- QA is concerned with validating the end product
 - Non-functional testing – performance, security, stability, etc.
 - Functional testing – balance, completeness, correctness

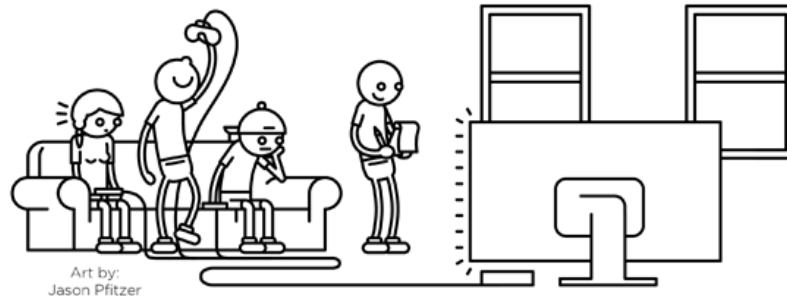
Iterative Game Design: Playtest, Evaluate, Revise



Playtesting

- One of the most important parts of game design
 - Also, one of the hardest to do well
- Playtesting is not having someone playing your game

PLAY/TEST



Playtesting

- Focused on user feedback, not on bugs
- Helps designers gauge the quality of games

Playtesting

- Requires exposing your work to criticism
 - Hesitancy to playtest
 - It's not ready yet
 - People don't understand my game
 - I won't get any new information
 - It's hard to show your creative work to others

Overcome Your Reticence

- NOT about your pride or your feelings
 - Playtesters WILL say (constructive) negative things about your game
 - Don't reject feedback
 - They will mention features that are not yet in the game but are on the way
 - Don't explain what will be in the game
- Your only goal is to make a good game, not to justify yourself

When to Playtest?

- As soon as possible
 - When the core gameplay is defined, playtest with pen and paper
 - As soon as you have shapes moving on a screen
 - When the prototype is (barely) working

[3]



What to Look For?

- Observe all the data
 - Not only words, but behavior
 - How players engage with your game
 - The order of feedback matters
 - What is important to players
 - You are naturally biased

Keep the Data

- Compare feedback over subsequent iterations
 - Did the issue become better or worse?
 - What is the trend?

You May Be Wrong!

- You might understand the core of your game differently
 - Playtesters might find some other part more engaging
 - The most valuable answer you can get
 - The earlier you make a change, the cheaper it is

Error must be repaired as soon as possible



REQ.

MODELING

IMPLEM.

CLIENT TESTING

How to Test?

- Talk as little as possible to your players
 - You might bias them
 - Do not explain your game before play
 - Observe what they want to do naturally

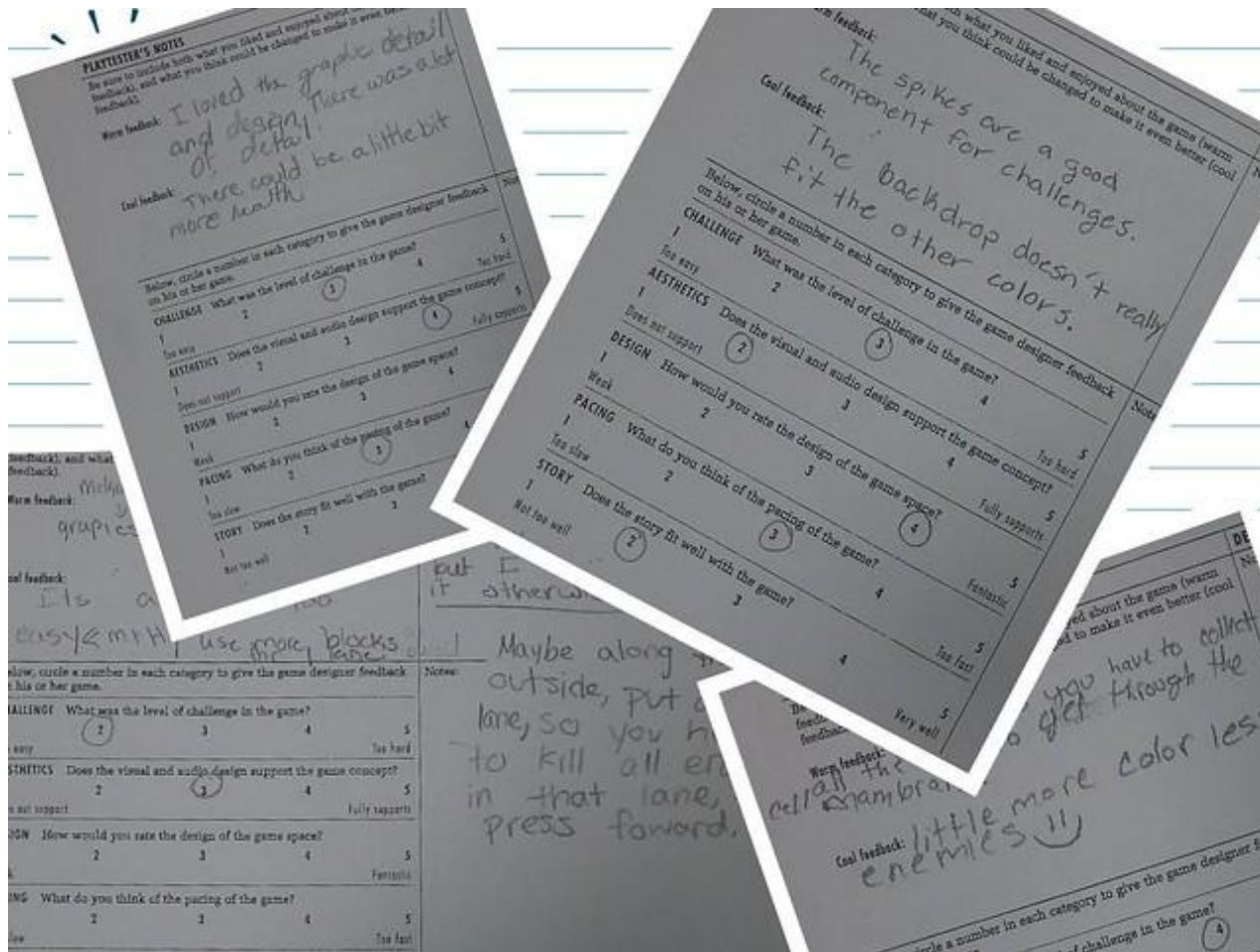
How to Test?

- Find where the players are looking most of the time
 - Important things
 - Things that are more complicated to process and understand

How to Test?

- Do not lead testers
- Encourage testers to think out loud
- Create a survey
 - Ask for grading (e.g. from 1 to 10)
 - Require as little free text as possible
 - But do leave room for comments

How to Test? [2]



How to Test?

- Make testing comfortable
 - The player must be able to walk away at any point
 - Find where people give up on the game
 - Your game does not only compete with other games, but with all other books, videos, etc.

Playtest Results [1]

IN-GAME OBSERVATIONS

[Your thoughts as you watch the testers play]

IN-GAME QUESTIONS

[Questions you ask the testers as they play]

1. Why did you make that choice?
2. Does that rule seem confusing?
3. What did you think that would do?
4. What is confusing you?

POSTGAME QUESTIONS

[Questions you ask the testers after they have played]

General questions

1. What was your first impression?
2. How did that impression change as you played?
3. Was there anything you found frustrating?
4. Did the game drag at any point?
5. Were there particular aspects that you found satisfying?
6. What was the most exciting moment in the game?
7. Did the game feel too long, too short, or just about right?

Formal elements

1. Describe the objective of the game.
2. Was the objective clear at all times?
3. What types of choices did you make during the game?
4. What was the most important decision you made?
5. What was your strategy for winning?
6. Did you find any loopholes in the system?
7. How would you describe the conflict?
8. In what way did you interact with other players?
9. Do you prefer to play alone or with human opponents?
10. What elements do you think could be improved?

Dramatic elements

1. Was the game's premise appealing to you?
2. Did the story enhance or detract from the game?
3. As you played, did the story evolve with the game?
4. Is this game appropriate for the target audience?
5. On a piece of paper, graph your emotional involvement over the course of the game.
6. Did you feel a sense of dramatic climax as the game progressed?
7. How would you make the story and game work better as a whole?

Procedures, rules, interface, and controls

1. Were the procedures and rules easy to understand?
2. How did the controls feel? Did they make sense?
3. Could you find the information you needed on the interface?
4. Was there anything about the interface you would change?
5. Did anything feel clunky, awkward, or confusing?
6. Are there any controls or interface features you would like to see added?

End of session

1. Overall, how would you describe this game's appeal?
2. Would you purchase this game?
3. What elements of the game attracted you?
4. What was missing from the game?
5. If you could change just one thing, what would it be?
6. Who do you think is the target audience for this game?
7. If you were to give this game as a gift, who would you give it to?

REVISION IDEAS

[Ideas you have for improving the game]

Who to Test With?

- Test with everyone
 - Value of the tests varies
 - You are the worst tester
 - If you think the difficulty of your game is good, then it's too hard
 - Family and friends – second worst testers
 - Hardcore players – a niche
 - Good testers are people without preconceptions or biases

Quality Assurance

- Is the game functional?
 - Can it be played by someone without prior knowledge?
 - Does the game progress?
- Is the game complete?
 - Are there dead ends?
 - Are there exploits or loopholes?
 - Are the rules clear in all circumstances?

Quality Assurance

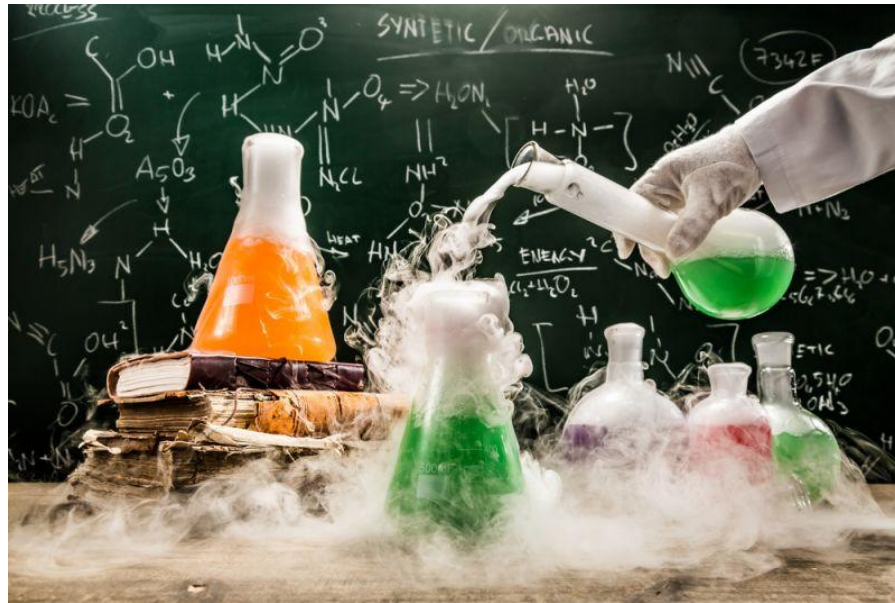
- So, you want to be a game tester?
 - As in, provide QA for games
- The dream job, right?
 - Play games all day
 - Repeat until you break stuff
 - Report and carry on playing

Quality Assurance



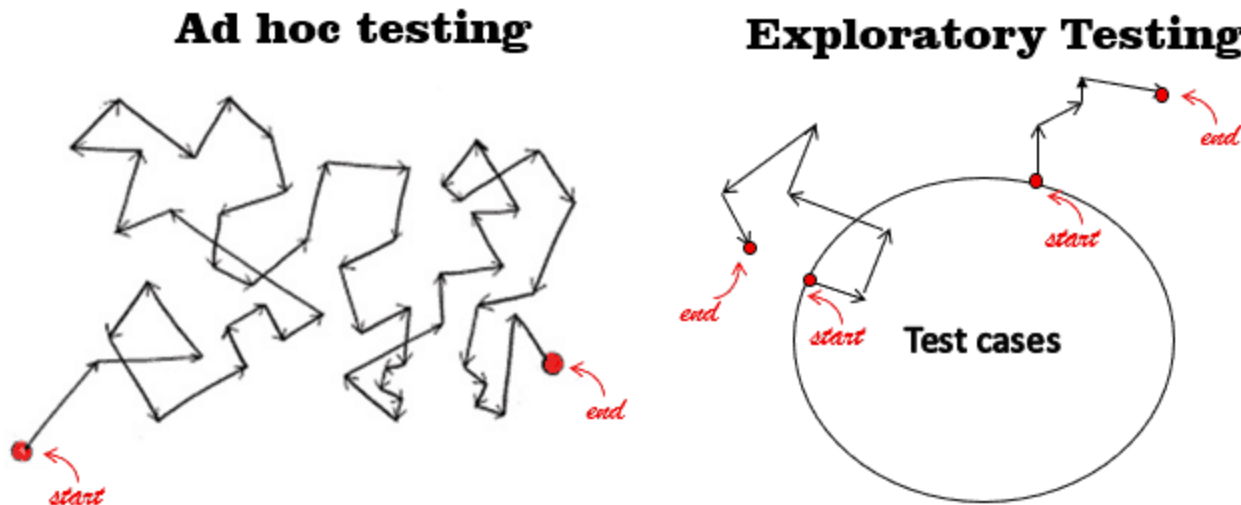
Quality Assurance

- Quality Assurance for games is much more than just playing games
- Game testing is a science



How Testing Works

- Ad-hoc testing – play until you break the game
 - Rare in industry
 - QA engineers don't play aimlessly
 - Test scenarios in a test plan



Professional Testing

Professional testing means finding the least amount of test cases which will check the most amount of system features.



Professional Testing

- **Test Strategy** – which contains what type of technique to follow and which part of the game to test
- **Test Plan** – contains "what to test", "how to test", "when to test", "who to test"
- **Test Scenario** is a name given to test case.
- **Test Case** specifies a testable condition to validate functionality.

Why Do We Test?

- To find bugs and glitches in games
 - The game model has already been playtested and validated



Documenting Bugs

- Testing actually starts in earnest when something breaks
- On finding a bug:
 - Describe what happened
 - Where
 - When
 - Try to explain why (by means of deduction rather than knowledge of the game code)

The Scientific Method

- Your job as a tester is to
 1. Gather evidence
 2. Form hypotheses
 3. Test hypotheses

STEPS IN SCIENTIFIC METHOD

(1). Asking a Question

(2). Formulation of Hypothesis

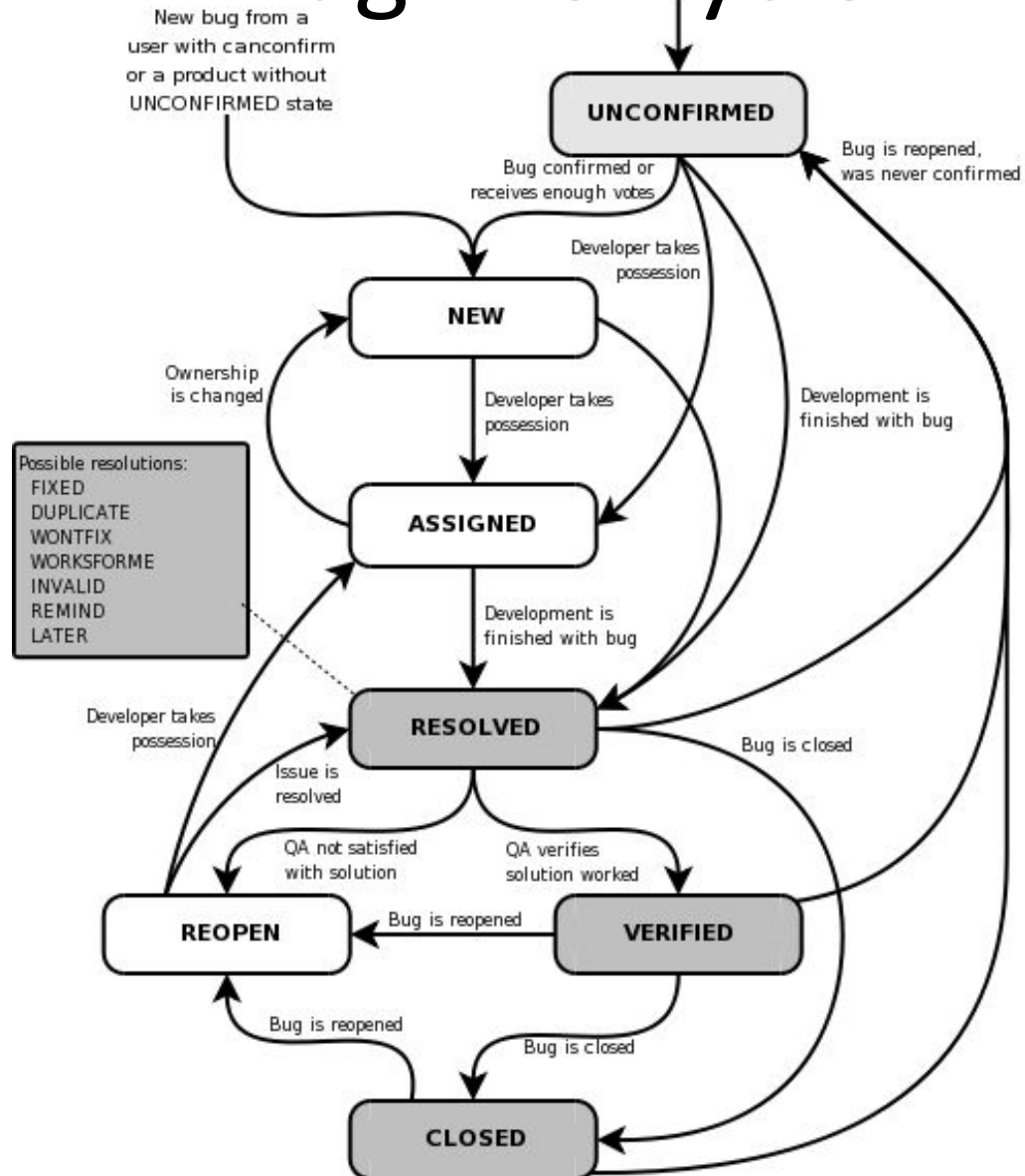
(3). Design of Experiments

(4). Logical Reasoning

(5). Testing of Hypothesis

(6). Formulation of Theory

Bug Life Cycle



Determining the Source of a Bug - Repro Steps

1. Duplicate the bug
 - Determine the exact state of the game
 - Determine the sequence of events leading to the bug
2. Change or remove events one by one
3. Find the least number of steps that leads to the bug
4. Hand off the bug to the dev team

Bibliography

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