

GAME DESIGN WORKSHOP

A Playcentric Approach to Creating Innovative Games

by Tracy Fullerton

with a foreword by Eric Zimmerman



5TH
EDITION



CRC Press
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Game Design Workshop

A Playcentric Approach to Creating Innovative Games

Fifth Edition

Tracy Fullerton



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Chapter 9

Playtesting

Playtesting is the single most important activity a designer engages in, and ironically, it is often the one that designers typically understand the least about. The common misconception is that playtesting is simple—just play the game and gather feedback. In reality, playing the game is only one part of a process that involves selection, recruiting, preparation, controls, and analysis.

Another reason that designers often fail to playtest properly is that there is confusion over its role within the game development process. Playtesting is not when the designer and her team play the game and talk about the features. That is called an internal design review. And playtesting is not having the quality assurance team go through and rigorously test each element of the software for flaws. That is quality assurance testing. And it is not when you have marketing execs sitting behind a two-way mirror watching a representative sample group play and discuss the game while a moderator asks them how much they would pay for this product. That is focus group testing. And it is not when you systematically analyze how users interact with your software by recording their mouse movements, eye movements, navigation patterns, etc. That is instrumented usability testing.

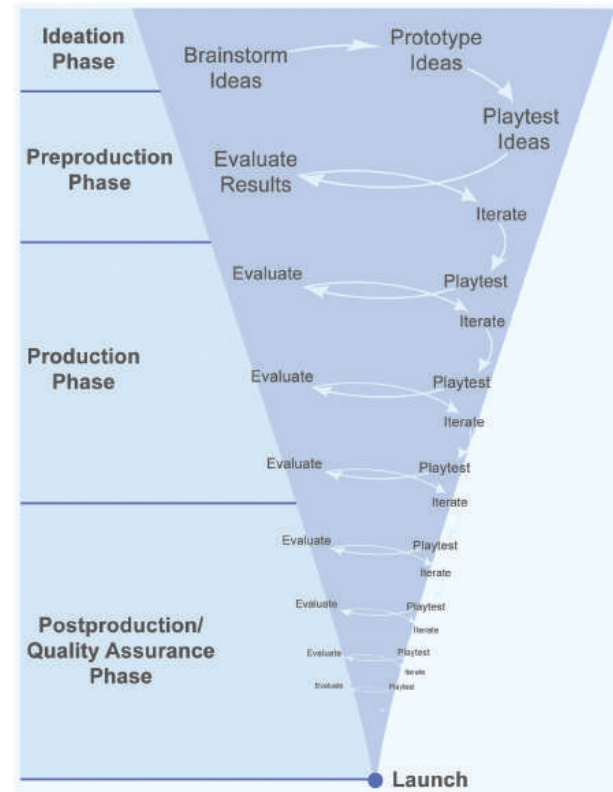
So what is playtesting? Playtesting is something that the designer performs throughout the entire design process to gain an insight into how players experience the game. There are numerous ways you can conduct playtesting, some of which are informal and qualitative, and others that tend to be more structured and quantitative. Many development teams combine methods of testing, creating hybrid techniques to help answer questions about how their game is working for players. For Halo 3, for example, Microsoft Game Studios conducted over 3000 hours of playtesting with more than 600 players in one of the most sophisticated playtesting facilities in the world.¹

User research pioneer Dennis Wixon, whose sidebar on “Metrics in Game Design” is on Page 320, uses the term “quantitative playtest” to refer to a specialized type of testing done at Microsoft in such an instance. In these tests, groups of up to 30 testers played a game for an hour and then filled in a long questionnaire including both quantitative and qualitative questions. This technique was applied to both Microsoft published game and competitive games published by other companies. The tests were generally run within a week of the game’s launch. Wixon says, “The intent was to quantify the first hour of experience which we thought was

important to understand. It proved very useful to studios who usually had an understanding of who their competitors were. In effect, we could show them data about their competitors strengths and weakness. It was also quite use if a studio was planning multiple releases. We could say, 'here are the strengths and weakness of your previous version'.²

Most professional games go through some level of playtesting, if not this extensive, either at their publisher's facilities or with an external testing group. Your game might have 10 or 20 playtesters, possibly playing in your garage. All of these are valuable and important tests that are performed at the level of facility available. But the one thing all of these forms of playtesting have in common is the end goal: gaining useful feedback from players to improve the overall experience of the game.

As you develop the game, other groups will perform other types of tests. The marketing people will try to determine who is going to buy the game and how many units can be sold. The engineering team will utilize the QA department to test for bugs and compatibility problems. The interface designers will employ a variety of tests to see if people can operate the game in the most efficient and user friendly way. If your game is launched online, the distribution team may even test after it is launched to see how it performs and ask for changes based on that testing. But as a designer, your foremost goal while you are developing the game is to make sure it is functioning the way you intended,



9.1 Model for playcentric game design: prototype, playtest, evaluate, and iterate

which includes meeting your experience goals, and making sure that it is internally complete, balanced, and fun to play. And this is where playtesting comes in.

PLAYTESTING AND ITERATIVE DESIGN

Recall that I said the primary role of the designer is as an advocate for the player. This does not just mean in the early stages of design; the game designer must keep that relationship with the players' needs and perspective throughout the design and production process. Often, as teams work at a project long days and nights

for months at a time, they forget the player in their own quest to make the game live up to their vision.

A continual iterative process of playtesting, evaluating, and revising is the way to keep the game from straying during that long arduous process of development. Of course, you cannot

keep changing the basic game design—after all, the goal is to release a product eventually. Figure 9.1 shows how the testing cycle gets tighter and tighter as production moves forward, signifying smaller and smaller design issues to solve and changes to make, so that you are not making fundamental or dramatic changes to the game as the process draws to a close. This method of continually testing your assumptions with players will keep your game on track throughout the production.

You might be thinking: But testing is an expensive process, isn't it? Wouldn't it be better to wait until we have a fully working game—say, about the time we have a beta product—and test

it then? That way, players will get the best experience. I cannot argue against this way of thinking strongly enough. By that time in the process, it is really too late to make any fundamental changes to your game. If the core gameplay is not fun or interesting at this point, you are stuck with it. You might be able to change some top-level features, but that is it.

I advise playtesting and iterating your design from the very moment you begin. And I can show you how to do it without much expense—just your own time and some volunteers. The expense you will save is the cost of changing your game at the very end of production or releasing a game that does not live up to its full potential.

RECRUITING PLAYTESTERS

Before you can playtest, you must have playtesters. But how do you begin and who should you trust? In the early stages, when you are creating your first prototype, the single best tester you have is yourself.

Self-Testing

As you build a working version of your game, you will naturally try it out repeatedly to understand how it functions. If you are collaborating with other designers on the prototype, you will self-test both as a group and as individuals. Self-testing is most valuable in the foundation stage of a prototype when you are experimenting with fundamental concepts. It is a large part of the process that enables you to design the core mechanics for the system. It is also where you create solutions to glaring problems with the play experience. Your goal at this stage is to make the game work, even if it is only a rough approximation of the final product. You will continue to self-test throughout the life of the project; however, as you progress and your game evolves, you will have to rely more and more on

outside testers to gain an accurate understanding of what it is you have created.

One good skill to learn that will make your self-tests more valuable is to try playing with a “beginner’s mind.” By this I mean clearing your mind, as much as possible, of what you know of the game and playing naively. The term beginner’s mind comes from Zen Buddhism, and it means trying to come to each situation you’re placed in as if it is the first time you are experiencing it. This may seem difficult at first, but it is something that you can learn to do, and it will serve you well as you self-test your prototypes over many iterations.

Exercise 9.1: Test It Yourself

Take either the digital game prototype that you developed in Exercise 8.8 or the physical prototype you created in Exercise 7.9 and playtest it yourself. Describe in detail what goes through your head as you play the game. Start a playtesting notebook in which you record all of the feedback you get from yourself and other testers.

Playtesting with Confidants

When you move past the foundation stage and the prototype is playable, test it with people you know well, such as friends and colleagues not on the design team. These people will bring fresh eyes to the project and will uncover things you have not considered. You might need to be present to explain the game to them when you begin. This is because the prototype will likely be incomplete in the structure stage. The goal is to get to a version that people can play without much intervention from you. You should be able to give playtesters the prototype, and they should have enough information to begin playing. With a physical prototype, this will require that you write a full set of rules. With a software prototype, the user interface will need to be in place, or you might need to provide some written rules.

When your game is playable and you have a clearly defined set of rules, you must wean yourself from your confidants. Testing with friends and family might feel like it works,

and it does in the early stages, but it won't suffice when the game matures. The reason is that your friends and family have a personal relationship with you, and this obscures their objectivity. You will find that most of them are either too harsh or too forgiving. It all depends on how they are used to interacting with you. Even if you believe that your confidants are providing balanced feedback, it is best not to rely too heavily on a small group of individuals. They will never give you the objective, broad criticism that you require to take your design to the next level.

Exercise 9.2: Test with Confidants

Now take your original prototype and give it to some confidants. Have them test it. Write down your observations as they play. Do your best to determine what they are thinking as they play the game without asking them any leading questions.



9.2 Friends and family playtest for a prototype of Flower at thatgame-company. Game designer Jenova Chen explains minimal information to get the game started

Playtesting with People You Do Not Know

It is often hard to show your incomplete game to strangers. It means taking criticism from people you have just met. But it is only through the process of inviting total strangers to play your game and criticize it that you will gain the fresh perspective and insight you require to improve your design. This is because outsiders have nothing to lose or gain by telling you honestly how they feel. They are also untainted by any knowledge of the game or personal ties. If you choose them carefully and provide the right environment, you will see that they can be as articulate and dedicated as your coworkers and confidants. There is no substitute for finding good playtesters. Make them an extension of your design process, and the results will become apparent immediately.

Finding the Ideal Playtesters

So how do you find these perfect playtesters who have never heard of you or your game? The solution is to tap into your community. You can recruit playtesters from your local high school, college, sports clubs, social organizations, churches, and computer user groups. The possibilities are endless. You can also find a broad demographic of recruits by posting online or putting an ad in a local paper. The more sources you try, the better your candidate pool will become. It is as simple as putting up a notice on an online server, such as a Discord server, in a college dorm, library, or recreation center. You will find that people want to be part of the process of creating a game, and if your invitation sounds attractive, you should not have trouble lining up testers.

The next step in recruiting is actually screening out and turning down applicants. You can only do this after you get enough applicants. What you should be looking for is a group of testers who are articulate enough to convey their opinions to you. If they cannot hold a decent conversation in an email or video chat, they probably won't be of much use. I do not expect you to be an expert in demographics or sampling, but it does not hurt to ask a few questions to help sort out which applicants are going to be useful and which are a waste of time. Questions can include: What are your hobbies? Why did you respond to my post? How often do you buy this type of game? If the tester is not a consumer of the type of game you are making, their feedback will be less useful.

Playtesting with Your Target Audience

The ideal playtester is someone who represents your target audience. You want testers who actually go out and spend their hard-earned money to buy games like yours. These people will give you far more relevant feedback than someone who would not be attracted to your game in the

first place. They will also be able to compare your game to others they have played and provide you with additional market research. And, most importantly, they know what they like and what they dislike, and they will be able to tell you this in excessive detail. When you tap into your audience, you will uncover a wealth of information and gain an insight into your game that no one else can provide.

Exercise 9.3: Recruiting Playtesters

Now it is time for you to recruit several total strangers to playtest your game prototype. Make sure that they are in your target audience. Set up a time with these playtesters to conduct the test. Exercise 9.4 will help you prepare to get the most from the session.

The more diverse a group you can recruit, the better. By diverse, I mean a broad range of people within your target audience. You want to tap people who play your games, but you do not want to focus on too narrow a section of your total audience. Your pool of testers should represent the entire spectrum of consumers of your product. Posting notices on discussion board for similar games is a great way to recruit testers.

If you are worried about people stealing your ideas, have them sign a nondisclosure agreement (NDA). This is a simple agreement where a person promises not to tell anyone about your product until it is released. In game companies, playtesters are typically paid in cash or free games. With independent games and personal projects, the testers are typically not paid, but they gain the satisfaction of contributing their thoughts.

The level of caution you take is up to you, but remember this: Do not be paranoid. The fact is that 99.99% of the people out there have no intention of stealing your ideas, and even if they

did, the vast majority would not know what to do with your game after they stole it. The benefits of using playtesters far outweigh the perils. In fact, the risk of using testers is negligible when compared to what else can go wrong during a production.

For most tests, you will need to recruit new playtesters so that you get fresh input, but later in the design process, you might want to bring some of your most articulate testers back in to gauge how they feel the game has progressed. You might even find that features that you removed or changed do not work as well, and these testers will be able to point that out. Figure 9.3 shows the various stages of prototyping and the types of playtesters you should involve at each stage.

Prototyping Stage	Playtest on Your Own	Playtest with Confidants	Playtest with Target Audience
1) Foundations	●		
2) Structure	●	●	
3) Formal Details			●
4) Refinement			●

9.3 Types of playtesters appropriate for each stage of prototyping

CONDUCTING A PLAYTESTING SESSION

So now that you have all these strangers in your office, living room, or in an online video room, what do you do with them? At this point, many game designers make a common mistake—they begin to tell players about their game, how it works, their plans for future developments, their hopes and dreams for the game. But this defeats much of the purpose of getting a fresh perspective on the game. Once you have told a playtester how the game is supposed to work, you can never go back and see their natural first impression. I tell my game design students to always keep in mind that “you don’t come in the box,” meaning that when the game goes out to the public, you won’t be there to explain it to each and every player.

Your role at this point is not that of the game designer but that of an investigator and observer who must give these playtesters access to the game, lead them through a useful playtest, record what they say and do, and, later, analyze their responses. Rather than telling players what to think about your game or explaining how it works, let them play it with no or minimal

explanation. Allow them to make mistakes. See how each person approaches the game. Maybe your rules are confusing. Provide answers if they get really stuck, but for the most part, let your testers figure it out. You will learn much more from the mistakes players make than you will if they play the game flawlessly based on your explanations.

The best way to run a playtest is to have an objective person run the test while you watch from behind a one-way glass or on a video feed. These days, many playtests are held online using tools like Zoom or Discord to share screens and video of the player’s reactions. A great way to use tools like these is to shut off your own video during the test so that you can watch, but not influence the player’s experience. If you are doing a test by yourself, you might not have the option of having an objective person run the session. The next-best solution to help control your impulse to talk too much is to create a test script. This script will keep you on track and remind you of your role as an observer. Your script should include at least the following sections and

WHY WE PLAY GAMES

by Nicole Lazzaro, President, XEOPlay, Inc.

Nicole Lazzaro is an award-winning interface designer and the leading authority on emotion and the fun of games. Her 17 years of research defined the mechanisms of emotion that drive play and reshaped the fun of over 40 million player experiences including, Myst, the Sims, Diner Dash, and smart pens. She has helped clients such as EA, DICE, Ubisoft, Monolith, Sony, PlayFirst, and Maxis explore new game mechanics and audiences. A frequent speaker, she enjoys sharing her research on why people play. Prior to founding XEODesign in 1992, Nicole earned a degree in cognitive psychology from Stanford University and worked in film.

To take games to the next level of emotional engagement, we at XEODesign wanted to know more about the role that emotions play in games. Since opening our labs in 1992, we have seen gamers get excited, angry, amazed, and even cry. We were curious as to what could be said of all computer games. How many emotions come from gameplay? Are emotions what makes games fun? To find out, we conducted research by watching people's faces as they play.

People play games in four ways. They enjoy the opportunity to master a challenge and to fire their imaginations. Games also offer a ticket to relaxation and an excuse to hang out with friends. Based on our research, each of these playstyles offers the player a distinct set of emotions that come from different ways of interacting with a game. Best-selling games such as Bejeweled, World of Warcraft (WOW), Halo, and Diner Dash tend to offer three out of the four types of fun, and players tend to rotate between these playstyles during a single play session.

We call these playstyles the "4 Fun Keys" (Hard Fun, Easy Fun, Serious Fun, and People Fun) because each is a collection of game mechanics that unlocks a different set of player emotions. Game designers cannot create the experience of play directly; instead they design rules that create the emotional response in the player. Like tasting chocolate or wine, each game has a unique emotion profile. The character of a fine wine comes from the way its flavor profile creates a variety of sensations over time, such as a nose, a head, and a nice long finish. Games are similar, only the emotion profile of games has more dimensions than beverages because the game offers opportunities for a distinct array of emotions based on player choice. In XEODesign's research, players do not want next-generation graphics. What creates next-generation player experiences (PX) is a range of emotions coming from four types of play.

"Games are a series of interesting choices." Sid Meier.

Game designers forget that emotions are more than the prize at the end of a stimulus-response-reward loop. Emotions involve goals and things that people care about and that happen before, during, and after choices. Emotions are not just for entertainment. Emotions around decisions shape the player experience before, during, and after a move in a game.

Emotions play five roles in games. Players **enjoy the sensations** that emotions create. Emotions **focus attention**; a boiling lava pit gets players' attention more than a city sidewalk. They **aid in decision making**; without the aid of emotional systems, people can logically compare the consequences of two options but cannot make the choice itself. For example, in Splinter Cell, the choice between certain death and escape via a narrow window ledge is easier to make than selecting a door in an empty office corridor. Emotions **affect performance**. The negative emotions in Battlefield 2 facilitate the type of repetitive behavior the game rewards: shoot the sniper and move on. The positive emotions from Katamari Damacy inspire creativity and problem solving, helping the player figure out how to roll their little sticky ball from the floor to up on a table. Finally, emotions **reward and motivate learning** because all games teach.

To learn about the most important emotions from play experiences, we observed the emotions that appeared on players' faces as they played their favorite games. Based on the work of psychologist Paul Ekman and others, there are seven emotions you can measure in the face: anger, fear, disgust, happiness, sadness, surprise, and curiosity. There is a reason why games feature boiling lava monsters, dark hallways, spewing blood, and narrow paths along cliffs. Fighting and survival horror games use these techniques to create the first three emotions. The other three facial emotions, including the 30 we have identified that come from gameplay, involve player decisions from other aspects of gameplay.

"I always know how my husband feels about a game. If he screams 'I hate it! I hate it! I hate it!' then I know two things. A) He's going to finish it. B) He's going to buy version two. If he doesn't say these things he will put it down after a couple of hours."

Games provide players with the opportunity for challenge and mastery. One of the most important emotions from games is *fiero*, an Italian word for the feeling of personal triumph over adversity. Overcoming obstacles, puzzles, levels, and boss monsters helps players feel like they won the Grand Prix. It is a big emotion and ironically requires the player to feel frustrated first. To feel *fiero*, games get the player so frustrated that they are almost ready to quit and then they succeed. Then there is a huge phase shift in the body. The players go from feeling very frustrated to feeling very good. Unlike films, games provide *fiero* directly from choices that players make themselves. A film will never hand the audience a Jet Ski to save the world from nuclear doom, but a game has to because in games, player choice matters. For a game to continue to offer *fiero* from Hard Fun, the difficulty must increase to match player skill. The best games offer options for new strategies rather than simply adding more obstacles in less time. For example, in *Diner Dash*, the trophy from winning level 4, such as a coffeemaker, changes the strategy for level 5.

"In real life if a cop pulled me over I'd stop and hand over my driver's license. Here I can run away and see what happens."

Beyond challenge, players also enjoy games for exploration, fooling around, and the sheer joy of interaction. Great games engage the imagination as well as the desire to achieve a goal from Hard Fun. Easy Fun is the bubble wrap of game design. Curiosity drives players to drive the track backward in *Gotham Racing*, put their Sims in the pool and pull out the ladders, and role play. Like improv theater, games offer players opportunities for emotions. In basketball, in addition to the score and making baskets, players enjoy dribbling or doing tricks like a Harlem Globetrotter. In *Grand Theft Auto 3*, players can drive any car they want, and the game offers other things such as plate glass store windows. The game leaves it to the player to see how the two interact. Games that respond to player choices off the path to a high score offer Easy Fun. For example, in *Halo*, when the Hard Fun is finished and all the aliens are gone, players enjoy the novelty of running around blowing things up or exploring a surrealistic ring world where the horizon curves up overhead. Players move between the Hard Fun and the Easy Fun of the game to prevent themselves from becoming too frustrated. The designers of *Myst* believe that the journey is the reward.

"I play after work to blow off frustration at my boss."

In Serious Fun, players play with a purpose. They use the fun of games to change how they think, feel, and behave or to accomplish real work. Through gameplay, players express or create value. People play *Dance Dance Revolution* to lose weight and *Brain Age* to make themselves smarter or ward off Alzheimer's. Players blow off workplace frustration, relieve boredom standing in line, and laugh themselves silly. Some choose to play games such as *Wii Sports* over violent games because it reflects their values. The repetition and collection mechanics in games like *Bejeweled* create emotions

and increase engagement in a visceral way. If, instead of rubies and diamonds, the player matched dirty broken glass and animal droppings, the game would feel very different to play. With Serious Fun, players feel good about the value that the game creates before, during, and after play.

"People are addictive, not the game."

Games offer an excuse for social interaction and forming social bonds. Games that provide opportunities for players to cooperate, compete, and communicate offer People Fun with emotions that come from relationships such as amusement, *schadenfruede*, and *naches* (Yiddish for the pride and pleasure experienced when someone you helped succeeds). Massively multiplayer online games (MMOs) such as WOW connect people to compete, cooperate, and share. People playing in the same room express more emotions than those playing in separate rooms. In collocated group play, the game shrinks to the corner, and the whole room becomes the stage for play. Emotions feed off each other as players jostle each other, add content to the game, and outdo each other with witty put-downs. The most common emotion when people play together is amusement. Players laugh even at negative events. The most important emotion between people is love or the feeling of closeness and friendship between players. These social emotions also relate to computer characters, such as virtual pets in Nintendogs and WOW. Diner Dash combines Hard Fun and People Fun because to win, the player must keep restaurant customers happy. Emotions from playing with others are so strong that people play games they don't like, or they play games when they don't like playing games just for the opportunity to spend time with their friends. In subscription MMOs, as with all games strong in People Fun, players come for the content, but they stay for the connection they feel with other players.

To innovate and create more emotion, we must first develop both the language and the tools to design specific emotions around gameplay. A game's core value proposition involves player choice, and choices are impossible without emotion. This makes the design of emotion central to game design. Without emotion, players lack the motivation to play. By planning an emotion profile at the start of game design, a game designer can target specific emotions with different game mechanics. Prototyping and testing these mechanics with players can gauge the success of these decisions. Offering emotions from all four types of fun broadens the opportunity for player emotion in the game, not just in response to a game event; it is equally important to design the flow of emotions before, during, and after play. Games create emotions. By intentionally crafting and heightening emotions in player experiences in the future, games will evoke more emotions than movies.

perhaps several others, depending on the type of test you are doing.

Introduction (2-3 Minutes)

First, welcome the playtesters and thank them for participating. Introduce yourself—your name, occupation, a bit about what you are doing. Then give a brief explanation of the playtesting

process and explain how this will help you improve your game. If you are audio- or videotaping the session, let the players know and ask if they have any problems with this. Assure them that this is for your reference only and won't be shown outside the design team. Also, if you are using a special usability room (i.e., with one-way glass), let them know if there are other people watching the test from behind the glass.

Warm-Up Discussion (5 Minutes)

Develop several questions to find out about the games they play that are similar to your game, what they like about them, what their favorites are, etc. Some suggested questions are as follows:

- Tell me about some of the games you play.
- What do you like most about these games?
- Where do you go to play/find out about new games? Why there?
- What was the last game you purchased?

Play Session (15-20 Minutes)

Explain to the playtesters that they will be trying out a game that is still in development. The purpose of the session is to get their feedback on the experience. Make sure they understand that you are testing the game, not their skill. There are no wrong answers, and any difficulties they have in playing the game will help you improve your design.

There are two ways to proceed at this point. One is to leave the playtesters alone with the game and watch them play from behind a one-way glass or on a video feed if you are playing online. The other is to stay in the room and watch quietly from behind the playtesters. In either case, it is important to ask the playtesters to "think out loud" when they are playing. By this, I mean that you want to hear what choices they are making and what uncertainties they have when playing. For example, "I think this is the inventory button, so I'll click it. Oh, I guess it's not. Well then this one must be ... hmmm. Where is it?" You can see that by having a running monologue of what the player is thinking, you will learn a lot more about their expectations than if they were simply sitting quietly and clicking on buttons. If playtesters forget to think out loud—and they often do—you can gently remind them by asking them a question about what they are thinking.

You should let your playtesters play for at least 15-20 minutes while you observe them. If they play longer than this, they tend to get tired. If the testers have a tremendous amount of difficulty, you can give them help to move the session forward, but be sure to put in your notes where and why the problem occurred.

Discussion of Game Experience (15-20 Minutes)

After about 20 minutes, hopefully at the end of one or more levels, you will want to wrap up the play session and have a one-on-one discussion with the testers. You will want to develop a set of questions for this discussion that probe for overall appeal, interest level, and challenge level, and that check for understanding of game features. Some example questions are as follows:

- Overall, what were your thoughts about the game?
- What were your thoughts about the game mechanics?
- How did you feel about learning to play the game?
- What is the objective of the game?
- How would you describe this game to someone who has never played it before?
- Now that you have had a chance to play the game, is there any information that would have been useful to you before starting?
- Is there anything that you did not like about the game? If so, what?
- Was anything confusing? Please take me through what you found to be confusing.
- Would you recommend this game to others? Why or why not?

As your design process goes on, you will have more specific questions in this section regarding difficulty, progression of levels, look and feel, sound effects, music, tone, characters, etc. This

discussion should focus on the most important design questions you have at this point in the process.

Wrap-Up

Thank the playtesters for coming in. Make sure you keep their contact information so you can let them know when the game is finished. If you have a token gift, like a T-shirt for your game, you can give it to them now.

Exercise 9.4: Writing a Playtest Script

Write a script for the playtest session you set up in Exercise 9.3. Be sure to address areas of your game design that you have questions about. Do not lead or suggest ideas to the playtesters.

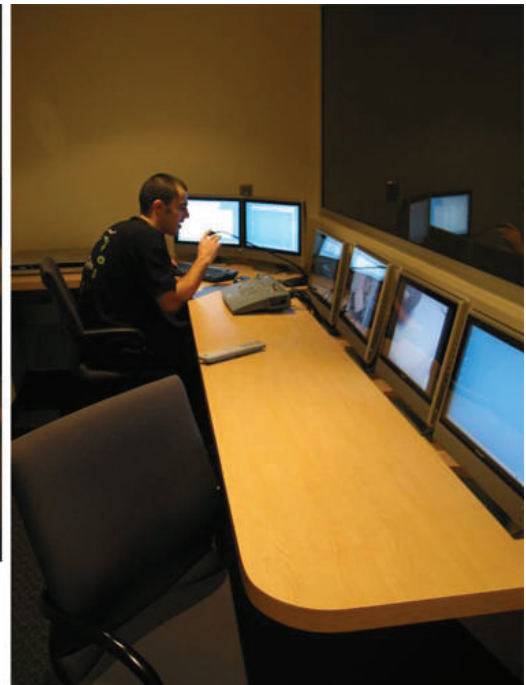
The most difficult part about this process will be learning to listen to the playtesters' feedback without responding to every point. You, as the designer, invariably feel a strong attachment to

whatever it is you have created. You have spent a lot of time and effort on your game and it is only natural to become defensive. I advise you to try to ignore your ego. If you are going to gain anything from a playtesting session, you have to learn to take feedback without emotional response. Do not answer criticisms, just write them down. Learn to listen carefully to what players are saying. Keep in mind that your goal is not to have these people tell you that they love the game but to discover what they do not like about it or do not understand. Far too many designers fail to learn to listen to criticism. They try to either answer any negative comments or make excuses for their game because taking the criticism is too painful.

If you refuse to take feedback, or if you lead your testers into saying what you want to hear, you will find that they will gladly fall in line. You invited them to play your game, and they do not want to upset you. They want to please you. And if you let them, they will tell you whatever it is that you want to hear. If you are determined to hear only good news, then that is what you will



9.4 Leading a playtest session, view from behind one-way glass





9.5 Playtesting sessions for physical prototypes: designers Matt Kassan and Richard Wyckoff give student designers feedback on their designs



get. It might make you feel like a genius, but it won't make your game any better. Instead, try to embrace the criticism you receive from your playtesters. Even if you feel awful remind yourself that you need to hear the problems because you cannot fix them if you do not know what they are. And it is better to hear the bad news now than later from a game critic. Do not let this chance slip past.

There are times when the criticism can get a bit heavy. If you are testing in a group, one tester might be particularly vocal and begin to sway the others. Many professional usability facilities isolate playtesters for this very reason. However, you might not have that luxury. It helps to make it clear at the beginning of the session that you are open to feedback and want everyone to be honest, but at the same time, there is a certain etiquette you would like the

testers to follow. Everyone should respect each other's opinions and allow each other a chance to speak. There is no right or wrong answer, and no tester should ever criticize another tester's ideas. If you lay down some good rules for the discussion at the outset, you should avoid most problems.

Most people want to be helpful, after all: that's why they volunteered. Before you take offense at the comments of a playtester, be sure to look in yourself for the answer. Are you being too sensitive? Is the criticism truly harmful, or is this person unaccustomed to giving feedback? How are the other testers reacting to this person? It's true that one bad seed can skew results, casting a negative spin on everything, but do not jump to conclusions. Your ultimate goal is to take what you are given and learn from it, not silence anyone who says something that you do not like.



9.6 Playtesting sessions for digital prototypes

You will make mistakes at first, but leading an effective playtest is a skill you should practice over and over. Becoming a good listener and maintaining objectivity when taking criticism is something that will help you throughout your career. The same skills can be applied to your production environment. In addition to playtesters, you need your team's input and constructive criticism, and the best way to elicit this is to make your entire production a safe environment where everyone is encouraged to speak their mind while being careful not to personally criticize each other. If you

apply the same rules described earlier to all of your group meetings, you will wind up with a far more productive and motivated team that feels invested in the product you are creating together.

Exercise 9.5: Playtesting Your Prototype

Conduct the playtesting you set up in Exercise 9.3. Use the playtesting script you wrote in Exercise 9.4 to keep the session on track. Take notes in your playtesting notebook from Exercise 9.1 recording feedback and problems.

METHODS OF PLAYTESTING

Most professional play testing takes place individually. It is a generally accepted rule that group dynamics are good for generating ideas but very bad for evaluating ideas. On the other hand, you might have no choice, depending on the nature of your prototype and environment,

so do not feel like you cannot playtest just because you do not have the perfect setup.

Here are a number of different ways you can structure your tests, each with their own positives and negatives, but one or more should work for the environment you have available.

HOW FEEDBACK FROM TYPICAL GAMERS CAN HELP AVOID DISAPPOINTING OUTCOMES

by Bill Fulton, Director of Online Services, Insomniac Games (a Sony Interactive Entertainment studio)

Bill Fulton is one of the pioneers of User Research in the games industry. He founded the User Research Group at Microsoft Game Studios in 1997 and led it until 2004 when he moved into game design. In 2008, he founded a game UX consultancy (RoninUX) that spread Games User Research throughout the games industry (his clients included Sony, EA, Disney, Wargaming, and Insomniac Games, among others). He also co-founded the Games User Research Special Interest Group of the IGDA, which now hosts yearly conferences for its 3500+ members. To learn more about games user research, see: <https://grux.org>.



The Problem

Compared to the giddy expectations of the developers at the kick-off of a project, most games are disappointing: commercially, critically, or both. After all, few people set out to spend that much time and money to produce a game resulting in ambivalent reviews and low sales. Solving this problem is one of the holy grails of game development because it would remove substantial risk from making games.

The Traditional Analysis of This Problem and the Solution

Why does this disappointment happen? The traditional analysis of the problem is that teams are too close to their game to see it objectively, much the way that many parents seem to believe their child is above average. Because of this analysis, myriad ways to get feedback from fellow game development professionals (coworkers, publishers, journalists, playtest teams, etc.) have sprung up. While the traditional analysis has some merit, and the solution to combat the problem is quite useful, it doesn't seem to explain (or fix) the whole problem. Most games still fail to find critical or commercial success.

An Alternative Analysis and Solution

An alternative analysis for why games don't live up to the expectations of the developer is that professional game developers aren't like the people for whom they are designing the game: typical gamers. Game developers are so knowledgeable about games and game development that they have a hard time designing for the typical gamer who knows comparatively little about games (see Figure 1 for an illustration).

This situation of game developers being very unlike typical gamers suggests that when the game is fun for the developers, it might not (yet) be fun for typical gamers, who might find it too hard or might not find the fun that is in the game. This is similar to the way that modern art is often unappreciated by anyone without a degree in art history. But to make games for the masses, it is the responsibility of the game developer to show typical gamers how to have fun with the game.

Many publishers and developers have come to see the problem this way, and they have engaged marketing research firms to do focus tests on the game to combat this problem. But often the goal of the focus test is to learn how to sell the game, not how to make the game more fun and accessible for more players. Furthermore, focus tests are often done too late in development to make many changes to the game. Because of the constraint of schedule and emphasis on selling as opposed to improving the game and time, many game developers are mixed about focus testing.

User Testing from an HCI Perspective

Getting feedback from consumers for the purpose of improving products is a major goal of the field of usability, a subset

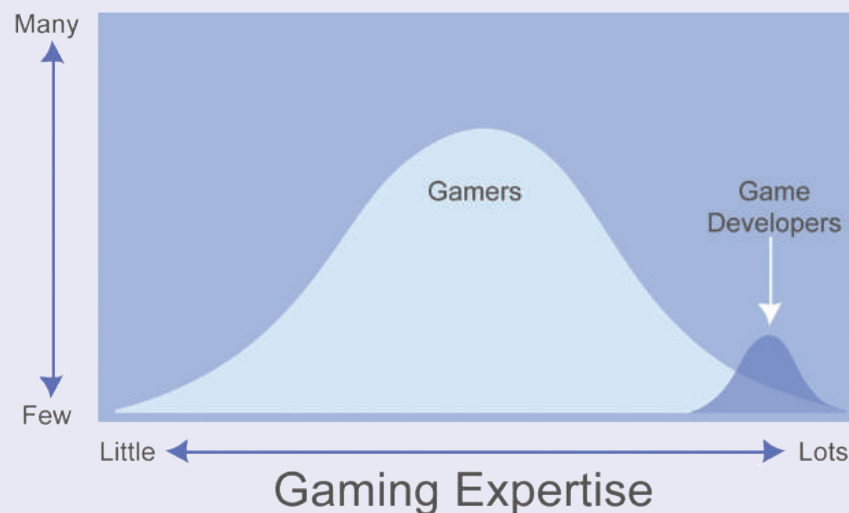


Figure 1

Gaming expertise: a comparison of hypothetical distributions of gaming expertise for typical gamers and typical game developers. This figure illustrates how all game developers know more about games than all but the most dedicated gamers. The point of this figure is to show how game developers can't simply make games that are only accessible to people like themselves if they want to make a game that the majority of gamers can understand and enjoy.

of the human-computer interaction (HCI) field. Most major software companies have usability departments staffed with HCI professionals. The games industry has been slow to adopt this practice.

This is changing; the use of HCI professionals in game development is gaining greater acceptance. One major game publisher has been doing some form of usability work on games since 1998, but other game publishers and developers are beginning to employ usability professionals as a way to make their games more fun. As more game developers and publishers do usability testing on their games in development, the typical quality of games from those developers and publishers will only get better.

An Example of User Testing from Age of Empires 2: Age of Kings

Age of Empires 2 (AoE2) is an excellent example of how user testing from an HCI perspective can improve games. The first AoE game was both a critical and commercial hit. In fact, it sold so well that the only way the sequel (AoE2) could sell any better would be if it expanded beyond the kinds of gamers who played the first AoE.

The developers and publisher decided to aim for the stars and make the game accessible to nongamers. AoE2 would be a game that someone who had never played a computer game would be able to pick up and play. This was a lofty goal because AoE2 is a complicated game, and nongamers lack the background to learn the game on their own. We also knew from testing that the first AoE was a difficult game to learn for some experienced gamers.

To achieve this level of accessibility, it would be necessary to provide a robust tutorial and do a great deal of user testing. The details of the testing are better described in a different article, but the following anecdote from the final test of the tutorial gives a bit of flavor.

The final test of the tutorial was done on a Saturday at 10 a.m. At 9 a.m., I noticed an elderly lady (maybe in her 70s or 80s) waiting outside the building. I thought she was lost or looking for someone, but it turned out that she had been scheduled for the test. I was surprised, but she technically fit the kind of people we were looking for (never played a retail computer game, could operate a computer, was older than 40), so I let her in. I apologized for her being given the wrong time for the test, but she told me that she was told 10 a.m. was the time, “but always showed up an hour early for appointments.”

I was a little concerned that she might be put off by the nature of the game (build a nation, raise an army, destroy your neighbors), and offered that she could leave if she wanted to. But she thought the idea of testing a game was “interesting” because her grandkids played them, and she wanted to be helpful. So we let her go through the test like all the other middle-aged folks. It was a bizarre sight to see dozens of parent and grandparent types playing Age of Empires 2 in the lab.

After they had completed the tutorial, they were instructed to play a random map game against the computer. Toward the end of the test, I went by the elderly lady and saw that she had the semblance of a nation going—she had several villagers collecting all four resources, and she had many of the right buildings built (barracks, granary, mining, etc.). When the Mongol hordes came over the hill and invaded her nation, she did several things right—she hid her villagers and started to build a (woefully inadequate) army. Unfortunately, she was too slow and got overrun; Age of Empires 2 had just crushed grandmother’s nation. When I escorted her from the lab, I asked her what she thought. She said she could see how her grandkids would like it, but the game wasn’t her “cup of tea.”

While the grandmother didn’t enjoy the game, after completing the tutorial she was able to understand the basics of the game and responded reasonably to being attacked. This was a dramatic improvement over the original AoE, where sometimes even experienced gamers got stuck and couldn’t figure out the game without going to the manual. The reliance on testing AoE2’s tutorial with real people, not just paid game industry professionals, resulted in a game that almost anyone can pick up and play.

In the end, AoE2 sold dramatically more units than did the first version, in large part due to improvements to the game that stemmed from doing user testing throughout the development of the game.



9.7 More playtesting sessions for physical prototypes: Steve Ackrich, head of production at Activision and gaming analyst Neal Robison give student designers feedback on their designs

- *One-on-one testing:* As described in the previous test script, you sit down with individuals and watch over their shoulders, from behind a one-way glass, or online using a screen-sharing tool like Zoom or Discord, as they play the game. You take notes and ask them questions both before and after the session.
- *Group testing:* You get a group of people and allow them to play your game together. This works best for physical prototypes, but it is also useful for digital prototypes if you have access to a lab with several computers. You observe the group and ask questions as they play.
- *Feedback forms:* You give each person who tests your game a standard list of questions to answer after playing and then compare the results. This is a very good method for getting quantitative feedback. Professional testing facilities, like Microsoft Game Studios,

use digital forms that feed into a database of user responses and allow them to generate reports for analyzing the data. You can do this too, if you like, using online tools such as SurveyMonkey.com, Qualtrics, or even a Google survey.

- *Interview:* You sit down face to face with the playtesters and give them an in-depth oral interview after the playtesting session. This is not a discussion; it is more of a verbal quiz.
- *Open discussion:* You conduct either a one-on-one discussion or a group discussion after a round of playtesting and take notes. You can either promote a freeform discussion or have a more structured approach where you guide the conversation and introduce specific questions.
- *Metrics:* As playtesting becomes integrated into the design process as well as the post-launch process of online games, new tools and techniques are being developed for gathering information about how players engage with games. At Zynga, for example, metrics are collected on all game sessions. This data is then analyzed to show what features players are using and those they are not. This information is then used to tune games and add and subtract features. Dealing with metrics might be beyond your level of expertise, but it is good to know about such techniques because they will undoubtedly be an important part of your experience as you become a professional game designer.

You can combine the previous approaches to fit your game and your space. For example, you can have players play a game together and have a group discussion afterward, but before the discussion ask each person to fill out a feedback form individually. You will be surprised how differently people respond between the individual form and the group dynamic.

Over time, you will find out which methods work best for you at each stage of testing. My goal is to encourage you to test no matter what

A PRIMER FOR PLAYTESTING: DON'T FOLLOW THESE RULES!

by Nathalie Pozzi and Eric Zimmerman

Nathalie Pozzi is an architect, whose projects cross the boundaries of architecture, installation, and art, exploring the critical intersection of space, light, material, and culture. Eric Zimmerman is a game designer and a 20-year veteran of the game industry. He co-founded Gamelab, an award-winning NYC-based studio and is the co-author with Katie Salen of Rules of Play. Currently, he is a professor at NYU Game Center. Nathalie and Eric's game collaborations have produced playable installations that have appeared in Paris, Berlin, Dublin, Moscow, Los Angeles, and at the Museum of Modern Art in New York City.

During our 2012 residency at the University of the Arts Berlin, we spent the summer with Graduate Fellows playtesting projects from theater, architecture, sound installation, games, philosophy, and more. This essay outlines the playtesting methodology we used by suggesting possible “rules” for structuring your own playtests.

What is Playtesting?

Playtesting is a methodology borrowed from game design where unfinished projects are tested on an audience. A playtest happens when people come together to try out a work in progress. The next steps for changing the project are based on the results of the playtest.

Playtesting is also an attitude towards the creative process, an approach that emphasizes problem-solving through iteration and collaboration with members of your audience.

When is Playtesting Useful?

Playtesting can help develop any kind of work that involves interaction between a created experience and a participatory audience. Although many of the ideas of playtesting come from game design, they can be applied in any field.

What Does Playtesting Look Like?

Playtesting can look like any number of things. At the University of the Arts, we met as a group on a regular basis and shared works in progress. We would spend about 30–60 minutes interacting with and discussing one project—perhaps in a studio space, perhaps outdoors in a park or on the street—and then move on to the next.

Isn't Playtesting the Same as User Testing/Editing/Rehearsal/Critique?

Yes and no. Playtesting is not discipline-specific and versions of it can be found in many practices. The style of playtesting we outline here comes from game design and is particularly relevant for projects that involve direct audience interaction.

THE “RULES”

.....before you playtest

A. Playtest before You Think You Are Ready

You always playtest a work in progress, not a finished design. That means you should playtest as early as you possibly can—usually much earlier than you think you should. It is much much better to playtest your ugly prototype than to wait and playtest a more polished project. A playtest is not a presentation. If you feel ready and comfortable to present and playtest your design, you have waited too long—it is probably too late to make substantial changes. Train yourself to overcome your discomfort and playtest as early in the process as you possibly can.

Is it too early for you to playtest? If the answer is yes, then playtest anyway.

B. Strategize for Early Playtesting

Figure out how to create a working prototype far in advance of any final deadline. This is often a question of tactical implementation. Can you make a paper prototype of a digital project? Can you scale down a work meant for 100 participants to something you can playtest with a dozen? Rather than plan your entire project in advance, focus instead on what is needed to enable the next playtest.

Simplify your project so that you can playtest today.

C. Know Why You Are Playtesting

Enter into every playtest with a concrete idea about what you want to learn and what questions you hope the playtest will answer. Narrowing what you want the playtest to investigate can help you simplify your project and playtest sooner. Generating research questions in advance will also help you structure the playtest itself. If you are doing things right, your playtest will raise issues and questions that you did not anticipate. However, you should still go into every playtest with a clear agenda.

What is the one key question that you want your playtest to answer?

D. Prepare Variations

Go into a playtest with different versions of your project to try out. This allows you to make the most out of the playtest session, and it also helps you to improvise and try out new ideas during the playtest. Variations might mean different sets of game rules to play, software settings to cycle through, or contexts for a performance. Variations give you options if something breaks down, and they let you do comparisons to see which variation works best. One tip: change as little as possible each time (only one element) so that you can understand better the exact effects of your change.

What can you change to try out different variations of your project?

E. Be Grateful to Your Playtesters

Whoever is playtesting your project is doing you a big favor. They are donating their time and attention for the sole purpose of helping you with your unfinished project. Playtesting is hard. But no matter how much stress and uncertainty you might have about the project, try to maintain a feeling of gratitude toward your playtesters. Be happy they are there and be sure to let them know how thankful you are for their time.

Take a deep breath and say thanks.

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F. Design the Learning Experience

Remember to design the way that people will learn about your project. If you are creating a complicated interactive system, the experience of learning how to understand and interact with the system is an important part of the overall design problem.

Does your playtest address the learning process?

G. Blame Yourself, Not Your Playtesters

Remember to warn your playtesters that they will be interacting with an unfinished, rough version of what will at some later point be a smoother experience. Be sure to tell them that if they are frustrated or confused, it is not their fault—it is your fault for not designing a better experience for them. It's okay for them to be confused—after all, the most valuable part of the playtest is not what they do understand, but what they don't.

Never make your playtesters feel foolish.

H. Know Your Testers

What do you need to know about your playtesters before the playtest begins? If you are meeting them for the first time or don't know them very well, talk with each person and take notes that will help put their reaction to your project in context. Playtesters come in many varieties. For example, the learning curve of a hardcore gamer is very different than someone without deep experience in a particular game genre.

Do you know who your playtesters are?

I. Don't Explain

Put the project ahead of the theory. Resist the temptation to explain the ideas and intentions behind your project to your playtesters. Instead, let them interact with the LEAST possible explanation from you in advance. By explaining your ideas beforehand, you are ruining the chance to see the authentic reactions that your project provokes. It is hard to hold back and not explain. But by forcing your project to carry your ideas (rather than your explanation), you are challenging your work to be better.

Is it possible not to say anything before the playtest starts?

J. Take Notes

In game design, we often prepare a sheet of paper for each playtester, with questions written out and room to take notes. The notes page is structured to facilitate what you need to know BEFORE, DURING, and AFTER each playtest. During a discussion, taking notes will help to elicit better feedback—if your testers see you taking notes, they will be more likely to give you detailed and thoughtful answers.

Prepare a notes sheet and use it. It is worth the extra effort.

....during a playtest

K. Be Selfish

The purpose of your playtest is not for your playtesters to have fun. It is for you to learn what does and does not work about your project. If you try too hard to give playtesters a good time, you will lose the opportunity to get the hard truth from

them. Don't be afraid to show your playtesters something broken and half-finished. That is, in fact, the entire premise of the playtest.

Don't worry about being entertaining.

L. Encourage Your Playtesters to Talk Aloud

If it is possible for your project, ask your playtesters to talk out loud about their thoughts and feelings as they interact with your work. A "think-aloud" playtester can give you valuable insight into how they are perceiving and interpreting the details of your project. Let your playtesters tell you why they are doing what they are doing and what they think is happening as a result. This may require that you periodically remind them to vocalize.

Don't be shy about reminding your playtesters to think aloud.

M. Notice Everything

Prepare on your notes sheet the categories of the main things you want to observe, such as when players seemed frustrated, what makes them laugh, or how many times they tried and failed before they gave up. Keep track of how long it took to run the playtest, which variations your testers preferred, and any other important information. Try to take notes on everything that you can—otherwise, you will be at the mercy of your selective memory, which will cast everything in the best possible light.

Are you noticing everything—or just what you want to see?

N. Shut Up

While you are observing the playtest, say as little as possible. You will feel an overwhelming urge to help out your playtesters, to tell them what to do and what they are doing wrong. But you must do everything you can not to interfere. Their mistakes and misunderstandings are extremely useful: You must let them explore the project on their own. If they are completely confused, step in and assist them, but in general, you should do everything you can to shut up. If you tell them what to do, you lose the main purpose of the playtest, which is to see how OTHER people react to your project. Learning to shut up during a playtest requires discipline.

Can you shut up—not a just little, but really, completely, shut up?

O. See the Big Picture

As your playtesters interact with your project, remember not just to focus on the workings of your designed system. Try to see the human element at play. What are the emotional responses of your playtesters, what is their body language, how are they interacting with each other? Seeing the bigger picture can help you understand when your audience is engaged and when they are bored. It is easy to focus too much on what you designed, rather than on the effect it is having.

Stay focused on the impact of the project, not just the project itself.

P. Don't Be Afraid of Data

One way to get objective about your playtest is to record data and put it in a spreadsheet. Every project has data to collect: At what moments did everyone fall silent? How many steps did each participant take as they walked through the space? If you are working in software, the program can record important user input, such as time spent in different areas of the experience. Otherwise, just remember to record the data in your notes. Too much data can be overwhelming to interpret, but tracking the right data can be incredibly valuable.

What is the data that will answer your key questions?

Q. Answer a Question with a Question

When playtesters ask you how something works, or what something means, it is probably because they are confused. Rather than explain it to them, you can answer their inquiry with a question of your own. Don't tell them what the blue button does—instead, ask them what they think it does, or even better, what they think it **SHOULD** do. It's more important to get them to speculate about your project than for you to explain it to them. Their opinions are more valuable than yours.

Every time a playtester asks you something, ask them something back.

R. Hunger for Failure

One of the attitudes that helps with playtesting is to yearn for your project to fail. Of course, we all want successful results, but unsuccessful moments are much more useful. If you are only looking for the successes, you will remember the smiles and laughter and think that your project is in perfect shape (we call this the "happy face syndrome"). But you need to cultivate a desperate hunger to focus on what is not working properly. Otherwise, your project will never get better.

Are you enjoying the successful moments too much and ignoring the failures?

....after a playtest

S. Discuss What Happened

After the playtest, talk about the experience with your playtesters. Use your notes sheet to structure the conversation. Begin with very specific questions, such as what was most difficult for them to understand about the project, or why they reacted to a particular aspect of the design. Finish with more general questions, such as what they liked best about the experience or what they would change to make it better.

The more concrete your questions, the more useful answers you will get.

T. Put Feedback into Context

It can be useful to distinguish between expert and nonexpert testers. Experts are familiar with what it means to make a project like yours. Nonexperts aren't. When getting critical feedback from nonexperts, remember that they are the patient and you are the doctor—you can take their suggestions as symptoms of what is and isn't working in the project, rather than as directions for the next steps in your design. If someone tells you to tear down a room and make it bigger, they are really telling you that it feels small. Rather than take their advice, perhaps just rearrange the furniture. Don't expect your players to understand all of the ramifications of every suggestion they make.

Ask for feedback, but don't take suggestions literally.

U. Collaborate with Your Playtesters

One of the most thrilling moments of playtesting is collaborating with your playtesters—brainstorming with them, trying out their ideas, and seeing how the changes affect your project. Plan your playtest session so that you have time to experiment with new ideas as they emerge through the playtesting itself. They are seeing the project with fresh eyes and so their ideas are often better than yours.

Embrace shared authorship with your playtesters.

V. The Cruelly Honest Playtest

Playtests represent moments of truth—when your brilliant ideas may all come crashing down. Playtests are truthful because they are a safe place to simulate your final context. When your project is completed, you probably won't be there to explain away all of the problems and defend your intentions. In a playtest, you get to cruelly see whether your ideas actually work in practice. Part of the playtest attitude is building up your pain tolerance and coming to enjoy the hard truth of the playtest.

Face the truth of your playtest, even if it hurts.

W. Embrace the Unexpected

Never forget that play is half of playtest. Being playful means being open to unexpected, happy accidents. Let go of the way you want your work to be used or interpreted. Be open to the strange new things people do with your project. Accidents are for those who are ready to take advantage of them.

If things don't go as planned, you may be on to something better.

X. The Playtest's the Thing

The playtesting process is as important as the actual project you are making. If you can manage to get the process right, then you will find that the problems in your project begin to solve themselves.

Forget what you are making. Focus on how you make it.

Y and Z. Break These Rules

There is no single magic solution that will solve every problem you encounter. So you need to create the process that works for you. Don't follow these "rules." They are not meant to be followed—they are meant to be twisted, modified, broken, and refashioned into something new. The best playtest is the one you invent yourself.

your limitations are. If none of the structures on my list work for you, then think creatively and come up with your own methods. Try some of these different processes if you can. You will see

how each method produces different results, and you will broaden your testing techniques and experience.

THE PLAY MATRIX

One valuable playtesting tool you can use is the play matrix. I developed the play matrix to help playtesters and students give context to their discussions about game systems.

The horizontal axis of the play matrix is a continuum between skill and chance. The vertical axis is a continuum between mental calculation and physical dexterity. I chose these two

continua because they are core aspects of interactive experiences, and all games can be plotted along them. Think about the game of chess. It is a game of pure strategy, a type of skill. There is absolutely no chance involved. So on the skill versus chance continuum, it would be plotted to the far left. It is also a game of pure mental calculation. There is no physical dexterity required

to play the game. So on the mental calculation versus physical dexterity continuum, it is plotted at the very top. When chess is plotted on both of these dimensions at the same time, it appears in the top left corner.

Now let's think about the game of blackjack. It involves chance, but the outcome is not determined purely by chance. It therefore falls somewhere to the right of center on the continuum. No dexterity is required to play, so it plots at the top of the mental calculation versus physical dexterity line.

Exercise 9.6: The Play Matrix

Now it is your turn to use the play matrix. Plot a popular type of video game, such as *The Last of Us*, *Call of Duty*, or *Ridiculous Fishing*, on the play matrix. Compare this to a game like *Twister* or *Pin the Tail on the Donkey*. Now try plotting a board game like *Monopoly*, *Risk*, or *Clue*. Describe the differences and similarities between the three types of games. What does the play matrix show you?

The play matrix is not an absolute system that produces the same results every time. Different people might have different opinions on where games plot, which is okay. Everyone's opinion has value. It is best to use the play matrix as a tool for stimulating discussion and analyzing gameplay. The goal is to get your playtesters to think about the game and verbalize their feelings.

Figure 9.9 shows the play matrix with several games plotted in each quadrant. Can you see patterns in the types of games that fall in different quadrants? Many popular video games fall in the lower left (physical + skill). Many popular board games and turn-based video games fall in the upper left (mental + skill), many gambling games fall in the upper right (mental + chance), and many games for very young children fall in the lower right (physical + chance).

Exercise 9.7: Plotting Your Favorite Games

Take five of your favorite games and plot them on the play matrix. Describe what pattern you see. What does this tell you about yourself?

When conducting a playtesting session, it is sometimes helpful to ask your testers to plot your game on the matrix. Then follow by asking them these questions: (1) Is the outcome of the game determined more by chance or by the skills of the players? (2) Is the outcome determined more by mental skill or physical dexterity? Ask playtesters if they would move the game more toward one quadrant or another; what would they prefer? Different audiences often gravitate toward one quadrant of gameplay even if they enjoy different genres. For example, players who enjoy strategy games from the upper left corner might also gravitate toward other mental + skill-based play, such as trivia or puzzles. Young children often gravitate toward games in the lower right, focusing on physical + chance, but as they get older, they choose games requiring mental + chance.

If players are dissatisfied with your game, they might be able to verbalize it by placing games they do enjoy in other quadrants. Ask yourself what game variables you could change to move the play experience toward a quadrant



9.8 The play matrix

		Skill	Chance
Mental Calculation		Go chess Civilization Warcraft Starcraft Tetris	poker backgammon blackjack Chutes and Ladders
		Physical Dexterity	Unreal Halo basketball football Dance Dance Revolution

9.9 The play matrix including games

with games your target audience enjoys. For example, you might want to move from the upper right (mental + chance) to upper left (mental + skill).

The solution might be to change a variable determined by chance into a variable determined by player choice. In a physical prototype, this

might be accomplished by removing dice from the system and replacing them with cards that a player can choose to play. In an electronic game, this might be accomplished by giving the player a choice of where to start or what weapons to use instead of randomly generating them.

TAKING NOTES

As mentioned, it is imperative to keep notes of your playtests. You think you will remember all of the comments later on, but what you will really remember is those comments you expected to hear or wanted to hear. If you do not keep notes, you will lose all the really important details of the playtesters' reactions. These notes should be filed chronologically in a notebook or folder or entered into a database. Each time you conduct a test, write down the date of the test, all feedback gathered from your testers, and any of your own observations.

Figure 9.10 is a form you can use to capture observations and playtester comments. It is broken into three parts: (1) in-game observations, which are thoughts that you write down while the testers are playing the game; (2) postgame

questions, which are questions that are designed to help elicit opinions about the key aspects of a game system; and (3) revision ideas, which is a space for you to articulate ideas for making the game better.

This form is not intended to be used instead of a test script but rather in addition to it. The script keeps the session on track; the form is a place to take notes. If you like, you can merge these two lists so that your script has room to take notes and a list of all your questions.

You might be asking yourself right now, "What should I be testing for?" Don't worry—that is the subject of the next two chapters. For now, these are just example questions you might ask of your playtesters. After you have gone through Chapters 10 and 11, you can create your own

9.10 Observations and Playtester Comments

In-Game Observations

[Your thoughts as you watch the testers play.]

In-Game Questions

[Questions you ask the testers as they play.]

1. What did you feel as your turn ended?
2. Does the navigation seem confusing?
3. Why did you move to that location?
4. Why are you pausing there?

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 thing about 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 exciting?
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 or awkward?
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.]

questions that are specifically geared for your own game.

You will find that sometimes not all of the questions on the form will be relevant. For example, if you are testing for interface flaws, then data about the overall play experience might be less important to capture. I encourage you to tailor this form to your specific needs. Many of the questions will be unique to a game, so it is important for you not to rely on my questions but to create your own. Questions designed to get at issues that you have with your particular game will be the most valuable to you.

A good way to begin is to identify key areas of your game you need input on and create questions geared to get feedback on those

areas. Write down more questions than you plan to use and then rank them in order of importance. Then group the top questions by type as I did in Figure 9.10. You can develop your own categories of questions and structure. It really comes down to the type of information you wish to gather and how your playtesting sessions are structured.

One thing to avoid is getting carried away and overwhelming your playtesters. If you ask someone 20 or more questions in a row, they will become exhausted and might stop answering accurately. Remember, it is not the number of questions you ask but the quality of the responses.

BASIC USABILITY TECHNIQUES

Asking questions is a vital part of conducting a playtesting session, but there are other methods for eliciting good responses. Some of these include techniques commonly employed in usability labs. Usability research involves real people using products and giving their feedback before those products are marketed to the public. In the next sections I have listed three techniques that you can apply to game testing.

Do Not Lead

You will learn the most from your testers by quietly observing them play. If playtesters ask a question, respond by asking them to describe what they think they should do. If they reach an impasse while playing, then you have identified something important that needs to be fixed.

Remind Testers to Think Out Loud

As previously discussed, you should ask your testers to explain to you what they are thinking

as they play. Their commentaries will provide a window into their expectations and choices as they play your game. Most people are not used to thinking out loud, so you might have to help them get started and remind them throughout the test.

Quantitative Data

In addition to taking notes on what players like and do not like, on what they pick up quickly and have difficulty grasping, use feedback forms to generate data that shows trends. After a playtest session, you can use this quantitative data to prioritize the severity of issues.

Some game companies work with professional usability experts who might employ more sophisticated methods and use special facilities for playtesting. If you have the budget, this can be extremely beneficial. Not only do professional labs tend to produce superior results, but you can learn from the process and apply some of their methodology to your in-house playtesting sessions.

METRICS IN GAME DESIGN

by Dennis Wixon

Dennis Wixon recently retired from an associate professor position in the Interactive Media and Games Division of the School of Cinematic Arts at USC. Previously he managed Games User Research at Microsoft. Jerome Hagan is a user research lead at Microsoft Studios User Research. He conducted the user research described the Crackdown example. Ramon Romero is an experience director at NetEase games. He presented the work described here at GDC in 2008. Currently, Dennis is an independent consultant, specializing in user research and management.

Metrics can be very useful in helping game design teams realize their vision. Most game design teams share a passionate commitment to user experience. Metrics can help them understand that experience and assess if players are experiencing the game as the team envisions it. One of the riskiest assumptions that a design team can make is that users will respond to the game as they do. While it's useful for team members to play a game and provide feedback, that feedback cannot fully substitute for testing with the intended audience of the game.

One way to look at designing a game is that it is a process that makes a vision real. A team often begins with a vision of their game. That vision has many parts and may be expressed in many ways. One way in which it can be expressed is stating the intent for the user experience. For example, we may say we want users to feel excitement, accomplishment, fear, enjoyment, or some more complex experience like transcendence. It's critically important that team have a shared way of understanding how well their game is creating that experience among users. Metrics provide one way of doing that.

For example, if a team wants to know how difficult a puzzle is for the intended audience, the best approach is to collect metrics from users. The team may be very experienced in designing puzzles of given levels of difficulty. But the only way to be sure that a puzzle is as difficult as you expect it to be is to test it. There are two classes of metrics that can be used. The first is behavioral: measuring things that people do. The second is attitudinal: measuring things that people report. Either kind of metric can be simple or complex.

Measuring What People Do

An example of a commonly used simple behavioral metric is what proportion of people succeeded at a task. It could be our puzzle, or any task in the game. This metric is relatively straightforward to collect; just give a set of people a task or puzzle and ask them to complete it. That set can be small (as few as 5 people) or large (thousands of players). The test situation can be carefully controlled, (in a lab, with no distractions) or can be ecological (a beta version played at home). Beyond the overall test condition, various other decisions need to be made. Can users play as long as they want? Or do we stop them after a predefined period of time or a certain number of attempts? If we plan to intervene, when will that intervention occur? What will that intervention be? It could be a direct prompt or a subtle hint. In the lab, an observer could initiate help after a period of time or a number of trials or could wait until the user asks. In a field test, the system could intervene automatically to provide a hint.

Each of these characteristics of the test reflects an opportunity to collect data. If the user initiates a request for a prompt, we could note both the time the user tried to complete the task and the simple fact that they asked for a prompt. In that case, we have two metrics: time to hint and the fact that a hint was given or not. These are both behavioral metrics. They are based on things the user does and they could be used to measure the challenge of the puzzle.

If no users could figure out the puzzle without asking for a prompt and they worked for on average an hour to try to solve the puzzle before asking—then we know something about how difficult this puzzle is for users. The implications of that knowledge depend on what the design team intended. If the design team thought most users would solve the problem

within 10 minutes without a prompt, then expectations were clearly not met. In other words, the puzzle was more difficult than intended. It may be time to redesign the puzzle.

This example illustrates a characteristic of metrics. They make explicit both what the team intended and how the players were performing with respect to that intention. Scientists call this “operationalizing a concept,” which really means specifying exactly what we mean by the concept by defining how it is measured. In this case, the difficulty of the puzzle is operationalized by the time it took to solve it and the proportion of people who asked for help. If we all agree on how to “operationalize” puzzle difficulty, then we can decide on how difficult we want a puzzle to be and measure the difficulty with intended users.

Measuring What People Report

A second class of metrics is attitudinal metrics. These measure player reaction to or opinion about a game. Collecting this type of metric requires that the design devise a method for asking the users for their reactions to a game. Unlike behavioral metrics, they are not automatic or unobtrusive. They require that the players be asked a clear question.

Taking the example of our puzzle, we could ask players to judge how difficult they found the puzzle. The effectiveness of this type of question depends on several factors. Obviously, the question should be posed in an unbiased way. Players should be able to rate the puzzle as either easy or difficult. Second, it should be clear to the players that they are rating their own experience of the puzzle—how difficult did *you* find the puzzle? Third, it’s very useful to know what led the players to rate the puzzle as easy or difficult. Asking this question provides valuable information to help the team address any problem in the puzzle.

This kind of question is called an “open-ended” question. An example would be “What about the puzzle made it easy or difficult for you?” In this case, the metric and the rating of difficulty by players let the team know if the puzzle has the effect on the players that the team intends; for example, it was moderately difficult for these players. The open-ended question helps the team make an informed guess about why players are rating the puzzle as easy or difficult. The team can also construct a set of questions that ask the user to rate factors that make the puzzles easy or difficult. These could include factors like the clarity of any hints, the time allotted to solve the puzzle, the similarity between this puzzle and other puzzles in the game or others.

Like any attitudinal measure, the “score” reflects the user perception of these factors. Those perceptions may or may not be “accurate,” but if the questions are well constructed and the test participants are appropriately selected, then the answers do reflect how players see these factors.

Attitudinal metrics are most effective when they are part of a standardized program of data collection. A standardized program of data collection will allow the team to compare scores on various games and assess more sophisticated intentions. For example, if we have data from other games or from previous versions of this game, then we can test a more complex or sophisticated intent, for example, “we would like people to rate our puzzles as more challenging than competitor A or more challenging than the last version of this game.”

These two types of measures, behavioral and attitudinal, work very well when used together. In general, the success of a game depends on how users play it and how they feel about playing it. The following example illustrates how both behavioral and attitudinal metrics can help improve a game.

Case Study: Crackdown

Crackdown is a popular game on the Xbox platform. It is offered both as a retail game and a downloadable game. It was developed by Real Time Worlds and published by Microsoft. In the game, the hero fights to bring law and order to a fictional Pacific City, which is controlled by three crime bosses. The game is a sandbox game in which the player can choose

her own path through the quests. It has sold over 1.5 million copies and been positively reviewed. It was extensively tested by the Games User Research team at Microsoft, and those tests contributed greatly to its success.

The tests included Microsoft's "standard" playtest. In these tests, players play the game for a limited period of time and then complete an extensive questionnaire. The questionnaire collects user reaction to the game with both quantitative and open-ended questions. One of the questions asks users to rate the game in terms of how much fun it was to play.

In initial playtesting, Crackdown scored 3.8 on a five-point scale, which is about average for a game of this type. However, in response to a qualitative question about what made the game fun, several users mentioned a type of power-up: the "agility orb." In other words, many users noted that increasing the capabilities of the protagonist was what made the game fun. These comments led the research team to wonder if players who earned more agility orbs found the game more fun. The research team had also collected data on the final state of each user's avatar so they could determine how many agility orbs each test participant had collected. They compared the fun rating with the number of agility orbs.

This is a relatively straightforward analysis method called cross-tabs. The result was that we found that people who had given the game a high fun score also had many power-ups. This result provides empirical support for the users' answers to the open-ended question "What made this game fun?" That is, those users who earned more power-ups found the game more fun.

As a result of this finding, the research team made several recommendations: the first was that more agility orbs be added in the early stages of the game, the second that more and clearer cues be provided to the user so that they would notice the orbs, and the third that more accessible tall buildings be added in the early stages of the game so that the user could experience the fun of jumping with increased agility.

The final standard playtest ended up scoring a 4.2 fun rating, which was in the top third of games and a significant improvement from the early score. For the downloadable demo version of the game, the team wanted to help players experience the fun of the game even earlier than in the full game. To do so, the team looked closely at questionnaire and behavioral data they had collected and found the following: players started having the most fun about three hours into the game. So, the team accelerated protagonist skill advancement so players reached the same level in 30 minutes rather than 3 hours.

For the playable demo, the changes led to a fun score of 4.5, which was one of the highest ever achieved by any game (among literally hundreds of games in the data set). Crackdown was released to positive reviews and went on to become one of Microsoft's more successful downloadable games.

Conclusion

Several important lessons about metrics can be derived from the Crackdown example. First, any metric becomes much more useful if it can be compared to a set of metrics. In this case, Microsoft had an extensive set of results from previous tests of similar games. That informed the team that the initial scores were about average and led them to look for improvements.

The second lesson is that qualitative and quantitative metrics can be used together to help produce insights. In this case, looking at the qualitative results showed that people were explaining what made the game fun for them was power-ups.

Third, collecting behavioral data from each user, that is, how many agility orbs they had collected, allowed for the comparison of this performance measure (behavior) with a fun rating (evaluation). This comparison (cross-tabs) confirmed the expected association and led to the recommendations with respect to the agility orbs. Finally, the fact that the game was commercially and critically successful is an excellent case study of how research and design can work together to make a successful game.

The use of metrics in game design is likely to increase in the foreseeable future. There are many reasons for this, including examples such as the Crackdown study, which shows the value of metrics in the design process. Also, metrics are increasingly simple to collect, especially for online games, and there is tremendous interest regarding data metrics for these games. And, as games move beyond entertainment into areas like education and healthcare, research data will be needed not only to build effective games but to assess and demonstrate that effectiveness. Overall, we can expect to see much greater use of metrics in the future, and can look forward to a time when the use of these metrics is as critical to the development process as quality assurance.

DATA GATHERING

So far, I have mostly discussed how to obtain qualitative feedback, but you might also want to go after detailed quantitative feedback, such as recording the time it takes someone to read the rules, counting the number of clicks it takes to perform a certain function, or tracking the speed at which a player advances in level. You might also ask testers to rate the ease of use of the game as a whole or of certain features. Or, you might ask them to rank order several options to see which ones are most preferred.

If you use a rating system, be sure to limit the range of the scale to five choices, and provide positive and negative anchor points at the ends and a neutral center point. So, from our end of session questions on page 318, you might ask about the game's appeal by stating: "Overall, the game is appealing to me," and then providing a positive anchor of "strongly agree" at "5," a negative anchor of "strongly disagree" at "1" and a neutral center point at "3."

This kind of scale is called a "Likert scale" and it can be used to measure player attitudes about many subjective aspects of your game. The important things to remember about creating Likert scale questions are to make sure you format them as a value statement, and provide a balanced and symmetrical set of choices for the user to evaluate. Five choices is the optimum,

with one strongly positive choice, one positive choice, one neutral choice, one negative choice and one strongly negative choice.

The type of data you gather depends upon the problems you wish to solve. If the game feels clunky and people are taking too long to get started, then measuring the time they spend on each procedure to determine where the trouble spot might be is a good approach. However, if the problem is that the game does not feel dramatic enough, a series of qualitative questions might produce superior results. In addition, quantitative and qualitative questions can be used in a single questionnaire.

Exercise 9.8: Gathering Data

Go back to your original prototype and think of three pieces of quantitative data you can measure that will answer three clearly defined questions you have about the gameplay.

If you are successful at gathering quantitative data, you might suddenly find yourself buried in numbers. It is nice to have data on every conceivable aspect of your game, but if you do not know how to interpret the numbers, they are not much use. I recommend that you conduct your

data gathering with clearly defined objectives in mind. Before you set out to measure something, write down your assumptions and purpose. What is most important to know? Then structure your test to answer that question. For example, you might feel that a certain feature in the game is causing a problem, so you design an experiment that measures the time it takes people to reach a specific point in the game with and without that feature. You might also combine this with a qualitative approach where you ask the testers how they feel about the new feature. The combination of the qualitative and quantitative should give you the answers you need.

As I mentioned above, the use of game metrics is becoming more and more integrated into the design and distribution of games. Companies like Zynga have created in-house tools to track player activity, but there are also third-party analytic tools, like those built into the Unity game engine, that offer data collection for games, which allows developers to track how many people use a game, how actively they use it, whether they invite others to play, and other custom data points that allow the developers to improve the game over time. As games become more like services, this kind of ongoing use of metrics after launch to track player engagement can make the game more fun as well as more profitable.

In terms of metrics used during the development period, however, it is important to understand their strength and weaknesses. Dennis Wixon discusses this in his sidebar bar on page 320. Wixon was the founding manager of the user research group at Microsoft Game Studios, where his group created custom software tools to record game data during playtesting sessions. The developers then use specialized tools and visualization software to help analyze this data and determine the effectiveness of different game elements and features. One type of visualization is called a

heat map and visualizes data in the form colors. So, for example, the number of player deaths can be easily seen on the area of a level. The ability to visualize such information is very important for level designers. If a particular area is a death-trap for players, there may be a systemic reason. Heat maps may be customized to visualize many different types of data, for example, where players have explored in the map, quests activated or completed, resources picked up, and so forth. This information can be used to adjust the design of the map for better play outcomes.

In addition to visualization of data culled from gameplay, other types of data that can be collected during the design process include information from eye-tracking devices, galvanic skin response, heart rate, blood pressure, and other physical markers. These can measure changes in physical excitement, tension, and other physiological changes in players while engaging with the game. However, they do not measure the quality of those physiological changes. In other words, they can tell you that the players are excited but not whether that “excitement” is positive (joy) or negative (frustration).

Although analysis of data from emerging techniques like this is a powerful tool, it is not a replacement for the designer’s creative judgment on how to tweak game variables. This is because data can be misleading. If playtesters are new to the game, they might not be playing as efficiently as they could because they have not learned the subtleties of the system yet. Or, at the other end of the spectrum, if the testers are experienced with the game, they might have set opinions about how to proceed and not see an innovative way of playing. And physiological data is subject to very different interpretations by those observing. The bottom line with all game metrics is that they are a good tool that should be used in combination with other playtesting methods to have the best overall results.

TEST CONTROL SITUATIONS

A tool for improving the efficiency of your play-testing sessions is to utilize controlled game situations. A controlled game situation is when you lay down parameters that force players to test a specific portion of the game mechanics, such as:

- The end of the game
- A random event that rarely takes place
- A special situation within a game
- A particular level of a game
- New features

You can set up to test different aspects of your game independently of one another during different prototyping stages. In the foundation stage, you can test basic functionality without worrying about balancing or fairness. In later stages, you might want to test for loopholes and dead ends. Or you can focus sessions on the accessibility of the interface or navigation system.

This type of controlled test situation is vital because it allows your testers to repeatedly

experience an event under a variety of conditions. For example, let's say you were designing Monopoly, and you wanted to test the "going to jail" feature. Instead of waiting for it to happen by chance, you could force this event to occur and see the results under various conditions. How does going to jail affect a player who owns very little property versus another player who owns a vast amount of property? You might choose to start the game in the middle with the player already in jail, then play for 30 minutes and observe what takes place. Then repeat the experiment with a change in the player's financial position.

Exercise 9.9: Test Control Situations

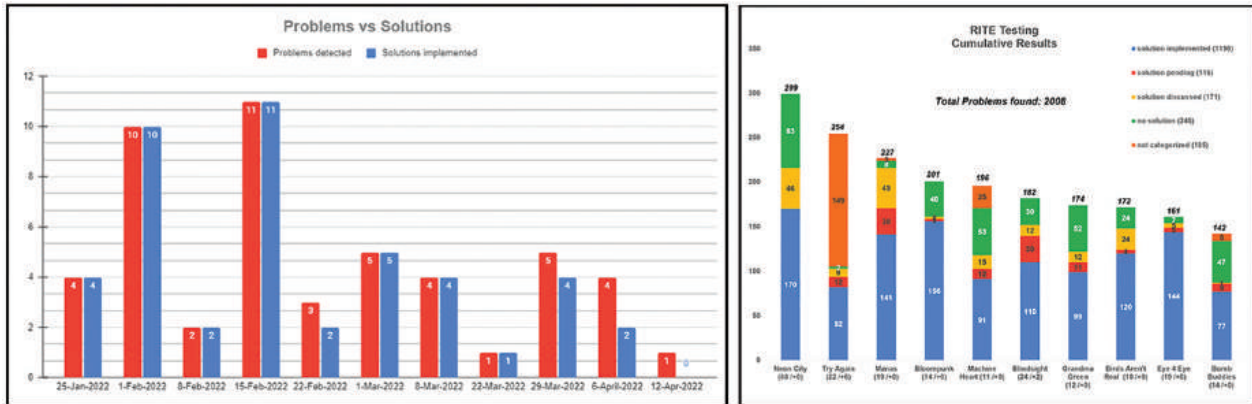
Create three test control situations for the original prototype that you created. Describe the purpose of each control and how it functions. Then try it out and make note of your observations.

RAPID ITERATIVE TESTING AND EVALUATION

How often you should test your prototype and the number of players you should test with are questions you may be asking as you think about playtesting your game prototype. A method called Rapid Iterative Testing and Evaluation, or RITE, can offer some useful insights. The RITE method, proposed by researchers including Dennis Wixon, suggests that testing with 4-5 participants will uncover about 80 percent of the problems that have a high likelihood of being discovered.³ You may be surprised that this number is so small, but it is because the issues are highly discoverable. Issues that are less discoverable (for whatever reason) will require more testers to find. But testing your game with small

groups regularly, tracking issues clearly, and getting those issues to the team in time for them to implement solutions, will allow you to solve issues that many of your players will encounter.

Figure 9.11 shows two diagrams from student playtesting teams at USC Games under the mentorship of Dennis Wixon. The left image shows the testing progress for one student game project over a semester. The red bars are problems detected each week, the blue bars are solutions implemented each week. As can be seen, this project team worked hard to implement solutions on pace with their testing schedule, so that each week a new iteration of the project could be tested.



9.11 RITE Testing Charts

On the right is an image of cumulative testing results from a cohort of projects at USC Games. Each project is represented by a column showing the total number of issues discovered over a semester, the solutions implemented (in blue), solutions discussed (in yellow), pending (in red), not categorized (in orange), and no solution (in green). Issues that have “no solution” may be issues that didn’t require a solution, such as problems with the test itself, the script, or other issues that the team has decided not to implement a solution for. In this diagram, having more issues is not a good or a bad thing, but what is important is the relationship between issues found and issues solved or pending. So, while the Neon City team has discovered the most issues, they also have a significant number of solved or non-issues. The Blindsight team has discovered fewer issues, and has solved a significant number of them, but also has quite a few pending.

Tracking your team’s progress on discovering and solving issues can allow you to objectively see how testing has affected your design and give the team a sense of momentum. It can also keep you on pace solving and re-testing the design of your game. Keep in mind that every solution you implement and re-test has the possibility of fixing the issue, but it also may cause new issues in the design, which is why you need to continue to do rapid iterative tests and evaluations throughout the process.

You do not have to have your testers start from the beginning and play the game all the way through. You can start at any point: beginning, middle, or end. You can make one of your players grossly more powerful than the others and see what happens. This type of testing is not about being fair to your testers or making sure that they enjoy the game. It is about seeing what happens under various conditions. Many of these are rare cases and need to be forced so that they materialize at key moments in the game. This way you can see how it affects the gameplay. Does it ruin the experience? Or is it a nice surprise?

Also, when testing, your time is limited, and some games take hours to play. If you do not have the time, you will find yourself relying on test control situations almost every session. One of the most common control situations is starting a game near the end. To do this, you set up the prototype to simulate where players would be in the final conflict. You define the parameters to create the type of ending that you want to test, and then you start the session from this control point and study how the end game plays out. Because it is a controlled situation, you might be able to test the end game four times in one hour.

This is one of the reasons that cheat codes exist for electronic games. They are tools that the game developers use so that the team can test controlled situations. For example, the designers

of a real-time strategy game might find it helpful to have a cheat code for turning off the fog of war. This would allow them to better monitor the AI for the computer-controlled units, while a cheat code for infinite resources would allow them to test how the game plays with the

maximum number of units. It has become a tradition among game developers to leave some of the cheat codes in the final releases of game titles. One reason is so that players can have fun experimenting with different game situations that would otherwise be impossible.

PLAYTESTING PRACTICE

I have found that it is easier for designers to learn the process of playtesting by using a game that they have no emotional connection with—it is easier to be objective when your design skills are not on the line. So, for the next few exercises, I will take a simple, familiar game and use it to demonstrate the essence of playtesting. As I do this, much of what I discussed earlier will become apparent, and some new concepts will be introduced.

Connect Four

For this exercise, we're going to use a children's strategy game called Connect Four. There is an image of the game in Figure 3.21 on page 78 for reference if you're not familiar with it. In this simple game, two players take turns dropping red and black checkers into a vertical grid. The first player to get four of their units in a row (horizontally, vertically, or diagonally) wins the game.

1. Create the prototype

First, you need to create a simple prototype for Connect Four. To do this with pen and paper, draw a grid, seven squares wide by six squares tall, on a piece of paper. One player will use a black pen to represent black units on the grid and a second player will use a red pen to represent red units. Make sure to have a stopwatch handy to time your playtest sessions. Next, decide who goes first. Each player, on his turn, chooses a column in which to place a unit. He then draws units at the bottom of the chosen column as if gravity

dropped them from the top. Units stack on top of one another when they "land" in the grid.

2. Prepare your questions and script

Write down the questions you plan to ask in advance and prepare a script for the session.

3. Recruit testers

Go out and find two playtesters.

4. Playtesting

Introduce your testers to the game and let them begin playtesting.

5. Alternate the grid size

Play according to the previous description a few times. Use your stopwatch and mark how long each game takes to resolve next to the game grid. Next, draw the game grid at 9×8 instead of 7×6 . Play this a few times using the same rules. What happens to the play experience in the 9×8 version? What happens to the time it takes to resolve? Which version is more interesting? Why? Does changing the grid size give you ideas for changing other variables?

6. Alternate the objective

Go back to a 7×6 grid, and this time change the objective, so that winning requires connecting five in a row. Play this a few times. What happens? Does changing the objective give you ideas for changing other variables as well? For example, you might find that a 7×6 grid is too small. If so, try the "connect five" version on the 10×8 grid.

7. Alternate turn procedure

Now go back to the original rules (that is, Connect Four on a 7×6 grid). This time change the turn procedure. Players can now place two units on each turn; the second unit must be placed in a different column than the first unit. Play the new version of the game. What happens? How does this change affect the players' strategies? Is the game still balanced?

8. Alternate number of players

Go back to the original rules (that is, Connect Four on a 7×6 grid). This time, change the number of players to three—you can act as the third player yourself if you do not have another playtester. Use a third color for the new player. Take turns as usual and play the new version of the game. What happens? How does this change affect the players' strategies? How does it affect the social dynamics of the game?

Final Analysis

Clearly, changing system variables has a direct effect on the play experience, and the only way

to determine this effect is through playtesting. How do these alternate versions compare with the original? How did each change affect the player experience?

Compile your notes and analyze your results. What changes would you make to the game of Connect Four as a result of this playtesting session? Do your notes point to any conclusions?

The previous exercise exposes you to the basics of playtesting and iterating on the fly. This works great if you are testing a physical prototype like the Connect Four game we created. However, the same process can also take place over a series of tests as you change and iterate your digital prototype. I used the Connect Four example so that you could quickly and easily see the change in the game experience over several iterations. Understanding and practicing this iterative process of playtesting and revising over and over is fundamental to the creation of good games. In the exercises for the next two chapters, you will test your own original game in the same way—though it might take longer than the Connect Four example—as you iterate and improve your design over a number of playtests.

CONCLUSION

As you can see, playtesting is an involved task, but it is a critical part of game design that cannot be rushed through or sidelined. Your job as a designer is to make sure playtesting remains at the heart of the game design and development process. As soon as you let it slip into the background, then you give up your chance to see your game as the players will see it when they play for the first time.

Playtesters are your eyes and your ears. They allow you, as the designer, to keep your finger on the pulse of the game, even after you

have played it hundreds of times. If you learn to listen to your playtesters and analyze what they are saying, you will be able to see the game mechanics for what they are, not what you want them to be or imagine they should be. And that is the key to good design. It is understanding what it is you have created and being able to make it even better, not in one flash of brilliance, but step-by-step over months and even years. If you can master this process, then you have mastered one of the key skills to being a great game designer.

FURTHER READING

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END NOTES

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