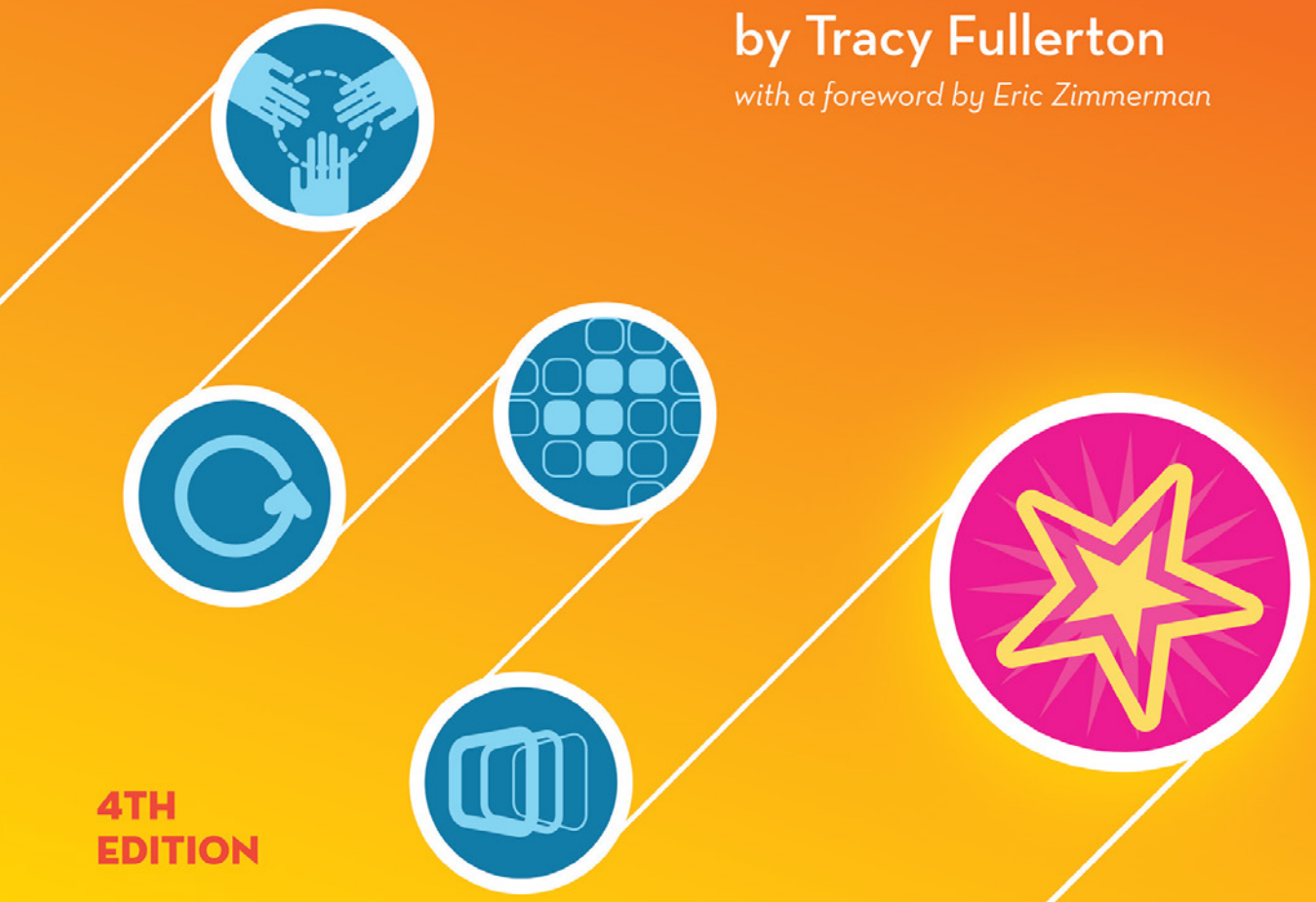
GAME DESIGN WORKSHOP

A Playcentric Approach to Creating Innovative Games

by Tracy Fullerton

with a foreword by Eric Zimmerman



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AN A K PETERS BOOK

Game Design Workshop

A Playcentric Approach to Creating Innovative Games

Fourth Edition

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Foreword

There is a connection. Every point in my life is connected to every other point. The connection is there. One need only imagine in full freedom.

—Peter Handke

There is magic in games.

Not magic like a level 19 fireball spell is magic. Not the kind of magic you get when you purchase a trick in a magic store. And not the kind of mystical experience that organized religion can go on about. No, games are magic in the way that first kisses are magic, the way that finally arriving at a perfect solution to a difficult problem is magic, the way that conversation with close friends over good food is magic.

The magic at work in games is about finding hidden connections between things, in exploring the way that the universe of a game is structured. As all game players know, this kind of discovery makes for deeply profound experiences. How is it possible that the simple rules of chess and Go continue to evolve new strategies and styles of play, even after centuries and centuries of human study? How is it that the nations of the entire world, and even countries at war with each other—at war!—can come together to celebrate in the conflict of sport? How do computer and videogames, seemingly so isolating, pierce our individual lives, and bring us together in play?

To play a game is to realize and reconfigure these hidden connections—between units on a game board, between players in a match, between life inside the game and life outside—and in so doing, create new meaning. And if games are spaces where meaning is made, game designers are the meta-creators of meaning, those who architect the spaces of possibility where such discovery takes place.

Which is where this book comes in. You are reading these words because you are interested in not just playing games, but making them. Take my word for it: *Game Design Workshop* is one of the very few books that can truly help you to make the games that you want to make. Those games bursting from your heart and your imagination. The ones that keep you up at night demanding to be designed. Games that are brimming with potential for discovery, for meaning, for magic.

Game Design Workshop presents, with sharp intelligence and an eye to the importance of the design process, tried-and-true strategies for thinking about and creating games. More than just fancy notions about how games work, *Game Design Workshop* is a treasury of methods for putting game design theories into practice. Tracy Fullerton has real experience making games, teaching game designers, and writing about game design. And I can honestly say that she has personally taught me a great deal about games. In the ambition of its scope and the value of its insights, you hold in your hands a unique text.

Why do we need a book like *Game Design Workshop*? Because despite the fact that games are so very ancient, are part of every culture, and are increasingly important in people's lives, we hardly know anything about them. We are still learning. What makes games tick? How do we create them? How do they fit into culture at large? The explosion of computer and videogames in recent decades has multiplied the complexity and the stakes of

such questions. For better or worse, questions like these don't have simple answers. And *Game Design Workshop* won't give them to you. But it can help you figure out how to explore them on your own, through the games you design.

We are living through the rebirth of an ancient form of human culture. Just as the 19th century ushered in mechanical invention, and the 20th century was the age of information, the 21st will be a century of play. As game designers, we will be the architects, the storytellers, and the party hosts of this playful new world. What a wonderful and weighty responsibility we have. To bring meaning to the world. To bring magic into the world. To make great games. And to set the world on fire through play.

Are you with me?

Eric Zimmerman

Preface

So much has changed in the game industry since I wrote the first edition of this book almost fifteen years ago. There has been an explosion in new platforms of play and an emergence of exciting new markets and genres of games. Today, it seems that everyone plays games, everywhere. The one constant I see in this world of change is the need for innovative game designers to realize the potential for play in all of these new platforms and places.

And so I offer this updated edition, with its strong focus still on learning the playcentric process of design and iteration, but enhanced with updated techniques and ideas that have sprung from today's industry, and filled with the perspectives of new designers who are on the front lines of facing today's design challenges and opportunities—designers such as Jane McGonigal, Ian Dallas, Dan Cook, Robin Hunicke, Randy Smith, Michael John, Elan Lee, Anna Anthropy, Christina Norman, and more. This edition includes sidebars on building inclusive teams, on emerging opportunities in independent design and publishing of games, on emotion-driven game design, on mobile games and virtual reality systems, on art games and social games, and on techniques for tuning games and using metrics to get the best player experience.

Back when I wrote the first version of this book, there was a sense in the field that game design was not something that could be taught. You either had a "knack" for games or you didn't. Needless to say, I didn't agree. Fast-forward fifteen years and the sense is completely different. Now, game design programs, such as the one that I direct at USC, are seen as incubators for innovative ideas and people. The training that students get in such programs is coalescing into a set of best practices that turn out creative people who are able to work well on diverse teams, and who have strong design skills and understanding of how to create interesting game mechanics. Some of these programs have arisen in technical schools, some in art schools, and others in a staggering variety of disciplines that cross the humanities, arts, and sciences. Game design is everywhere.

Not only is everyone learning game design, but everyone is doing it. Today's schoolchildren are using construction games like Minecraft or SimCity to learn history and environmental awareness. Their love of games is leading them to learn critical skills like systems thinking and procedurality. They are modding and making and playing and learning and the boundaries between these things are no longer clear or important. What will the world look like in another fifteen years, when the children who grew up learning from and thinking in game systems become adults? What games will they want to play then? What systems will they engage with to learn more about the world? I can hardly wait to see.

The students who studied game design with me while I wrote the first three editions of this book have completely stunned me with their talent and vision. They have set new levels of aesthetic expectations for the field as a whole and are deeply embedded in the changes that will define the next generation of play. The games that I see coming out of the industry today, especially in the world of

experimental and independent designs, make me believe that this is only the beginning of the evolution of play that we will see, culturally, creatively, and commercially.

I am so thrilled to be part of this change, and to know that this book has inspired so many to follow the path of innovative game design. I can only hope that the students and designers who read this new edition will do so with the same passion and commitment as those who have done in the past fifteen years.

Play on!

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Introduction

One of the most difficult tasks people can perform, however much others may despise it, is the invention of good games.

—C.G. Jung

Games are an integral part of all known human cultures. Digital games, in all their various formats and genres, are just a new expression of this ancient method of social interaction. Creating a good game, as noted in the Jung quote above, is a challenging task, one that requires a playful approach but a systematic solution. Part engineer, part entertainer, part mathematician, and part social director, the role of the game designer is to craft a set of rules within which there are means and motivation to play. Whether we are talking about folk games, board games, arcade games, or massively multiplayer online games, the art of game design has always been to create that elusive combination of challenge, competition, and interaction that players just call "fun."

The cultural impact of digital games has grown to rival television and films as the industry has matured over the past three decades. Game industry revenues have been growing at a double-digit rate for years and have long eclipsed the domestic box office of the film industry, reaching 36 billion dollars in the U.S. in 2017.[1] According to a Pew Internet report, 97% of all American teens age 12–17 play computer, web, console, or mobile games. That's nearly *all* teens. Nearly one-third of those play games every day, and another one in five play games three to five days a week.[2] This may not be surprising behavior among teenagers, but the Entertainment Software Association also reports that the average age of game players is now 35 years old and that the average U.S. household owns at least one dedicated game console, PC, or smartphone.[3]

As both sales and cultural reach of games have increased, interest in game design as a career path has also escalated. Similar to the explosion of interest in screenwriting and directing that accompanied the growth of the film and television industries, creative thinkers today are turning to games as a new form of expression. Degree programs in game design are now available in major universities all over the world in response to student demand. The International Game Developers Association, in recognition of the overwhelming interest in learning to create games, has established an Education SIG to help educators create a curriculum that reflects the real-world process of professional game designers. There is a Game Education Summit held every year at the Game Developers Conference where best practices in teaching game design are shared. And GameCareerGuide.com provides information on schools, jobs, and student games to connect the study of game development to the practice of it. On their website, GameCareerGuide.com lists over 200 programs that offer game design courses or degrees in North America alone. There are over 400 programs listed worldwide.

In addition to my experience designing games for companies such as Microsoft, Sony, MTV, and Disney, I have spent over 20 years teaching the art of game design to students from a variety of different backgrounds and experience levels and have

established a world-recognized game design curriculum for the Interactive Media & Games program at the USC School of Cinematic Arts. In this time, I have found that there are patterns in the way that beginning designers grasp the structural elements of games, common traps that they fall into, and certain types of exercises that can help them learn to make better games. This book encapsulates the experience I have gained by working with my students to design, prototype, and playtest hundreds of original game concepts.

My students have gone on to jobs in all areas of the game industry, including game design, producing, programming, visual design, marketing, and quality assurance. A number of them have gone on to become prominent independent game developers, such as the team at thatgamecompany, which developed the hit downloadable title flOw from a student research project created at USC and then went on to create the critically acclaimed games Flower and Journey. Many more of them have gone to work for established companies, from Microsoft and Electronic Arts to Riot and Zynga. They are working on games as widely varied as Bioshock 2, Zynga Poker, League of Legends, What Remains of Edith Finch, and Kinect Star Wars. I have seen the method I present here prove to be successful over and over again with a wide variety of students. Whatever your background, your technical skills, or your reasons for wanting to design games, my goal with this book is to enable you to design games that engage and delight your players.

My approach is exercise driven and extremely nontechnical. This might surprise you, but I do not recommend implementing your designs digitally right away. The complexities of software development often hamper a designer's ability to see the structural elements of their system clearly. The exercises contained in this book require no programming expertise or visual art skills and so release you from the intricacies of digital game production while allowing you to learn what works and what does not work in your game system. Additionally, these exercises will teach you the most important skills in game design: the process of prototyping, playtesting, and revising your system based on player feedback.

There are three basic steps to my approach:

Step 1

Start with an understanding of how games work. Learn about rules, procedures, objectives, etc. What is a game? What makes a game compelling to play? Part I of this book covers these game design fundamentals.

Step 2

Learn to conceptualize, prototype, and playtest your original games. Create rough physical or digital prototypes of your designs that allow you to separate the essential system elements from the complexities of full production. Put your playable prototype in the hands of players and conduct playtests that generate useful, actionable feedback. Use that feedback to revise and perfect your game's design. Part II, starting on page 167, covers these important design skills.

Step 3

Understand today's rapidly changing industry and the place of the game designer in it. The first two steps give you the foundation of knowledge to be a literate and capable game designer. From there you can pursue the specialized skills used in the game industry. For example, you can pursue producing, programming, art, or marketing. You might become a lead game designer or perhaps one day run a whole company. Part III, starting on page 389, of this book covers the place of the game designer on a design team and in the industry.

The book is full of exercises intended to get you working on game design problems and creating your own designs. When you reach the end, you will have prototyped and playtested many games, and you will have at least one original playable project of your own. I emphasize the importance of doing these

exercises because the only way to really become a game designer is to make games, not just play them or read about them. If you think of this book as a tool to lead you through the process of design, and not just a text to read, you will find the experience much more valuable.

So if you are ready to get started, it's your turn now. Best of luck!

End Notes

1. Entertainment Software Association Press Release, January 18, 2018.
2. Pew Internet, "Teens, Video Games and Civics," September 16, 2008.
3. Entertainment Software Association, "Essential Facts about the Computer and Game Industry," June 2017.

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Part 1
Game Design Basics

Since there have been games, there have been game designers. Their names might have been lost to history, but at some point the first clay dice were thrown, and the first smooth stones were placed in the pits of a newly carved mancala board. These early inventors might not have thought of themselves as game designers—perhaps they were just amusing themselves and their friends by coming up with competitions using the everyday objects around them—but many of their games have been played for thousands of years. And although this history stretches back as far as the beginnings of human culture, when we think of games today, we tend to speak of the digital games that have so recently captured our imaginations.

These digital games have the capacity to take us to amazing new worlds with fantastic characters and fully realized interactive environments. Games are designed by teams of professional game developers who work long hours at specialized tasks. The technological and business aspects of these digital games are mind-boggling. And yet, the appeal of digital games for players has its roots in the same basic impulses and desires as the games that have come before them. We play games to learn new skills, to feel a sense of achievement, to interact with friends and family, and sometimes just to pass the time. Ask yourself, why do you play games? Understanding your own answer, and the answers of other players, is the first step to becoming a game designer.

I bring up this long history of games as a prelude to a book primarily about designing digital games because I feel that it's important for today's designers to "reclaim" that history as inspiration and for examples of what makes great gameplay. It's important to remember that what has made games such a long lasting form of human entertainment is not intrinsic to any technology or medium but to the experience of the players.

The focus of this book will be on understanding and designing for that player experience, no matter what platform you are working with. It is what I call a "playcentric" approach to game design, and it is the key to designing innovative, emotionally engaging game experiences. In the first chapter of this section, I'll discuss the special role played by the game designer throughout the process: the designer's relationship to the production team, the skills and vision a designer must possess, and the method by which a designer brings players into the process. Then I will look at the essential structure of games—the formal, dramatic, and dynamic elements that a designer must work with to create that all-important player experience. These are the fundamental building blocks of game design, and they provide an understanding of what it takes to create great games.

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Chapter 1
The Role of the Game Designer

The game designer envisions how a game will work during play. She creates the objectives, rules, and procedures; thinks up the dramatic premise and gives it life; and is responsible for planning everything necessary to create a compelling player experience. In the same way that an architect drafts a blueprint for a building or a screenwriter produces the script for a movie, the game designer plans the structural elements of a system that, when set in motion by the players, creates the interactive experience.

As the impact of digital games has increased, there has been an explosion of interest in game design as a career. Now, instead of looking to Hollywood and dreaming of writing the next blockbuster, many creative people are turning to games as a new form of expression.

But what does it take to be a game designer? What kinds of talents and skills do you need? What will be expected of you during the process? And what is the best method of designing for a game? In this chapter, I'll talk about the answers to these questions and outline a method of iterative design that designers can use to judge the success of gameplay against their goals for the player experience throughout the design and development process. This iterative method, which I call the "playcentric" approach, relies on inviting feedback from players early on and is the key to designing games that delight and engage the audience because the game mechanics are developed from the ground up with the player experience at the center of the process.

An Advocate for the Player

The role of the game designer is, first and foremost, to be an advocate for the player. The game designer must look at the world of games through the player's eyes. This sounds simple, but you'd be surprised how often this concept is ignored. It's far too easy to get caught up in a game's graphics, story line, or new features and forget that what makes a game great is solid gameplay. That's what excites players. Even if they tell you that they love the special effects, art direction, or plot, they won't play for long unless the gameplay hooks them.

As a game designer, a large part of your role is to keep your concentration focused on the player experience and not allow yourself to be distracted by the other concerns of production. Let the art director worry about the imagery, the producer stress over the budget, and the technical director focus on the engine. Your main job is to make sure that when the game is delivered, it provides superior gameplay.

When you first sit down to design a game, everything is fresh and, most likely, you have a vision for

what it is that you want to create. At this point in the process, your view of the game and that of the eventual new player are similar. However, as the process unfolds and the game develops, it becomes increasingly difficult to see your creation objectively. After months of testing and tweaking every conceivable aspect, your once-clear view can become muddled. At times like this, it's easy to get too close to your own work and lose perspective.

Playtesters

It is in situations like these when it becomes critical to have playtesters. Playtesters are people who play your game and provide feedback on the experience so that you can move forward with a fresh perspective. By watching other people play the game, you can learn a great deal.

Observe their experience and try to see the game through their eyes. Pay attention to what objects they are focused on, where they touch the screen or move the cursor when they get stuck or frustrated or bored, and write down everything they tell you. They are your guides, and it's your mission to have them lead you inside the game and illuminate any issues lurking below the surface of the design. If you train yourself to do this, you will regain your objectivity and be able to see both the beauty and the flaws in what you've created.

Many game designers don't involve playtesters in their process, or, if they do, it's at the end of production when it's really too late to change the essential elements of the design. Perhaps they are on a tight schedule and feel they don't have time for feedback. Or perhaps they are afraid that feedback will force them to change things they love about their design. Maybe they think that getting a playtest group together will cost too much money. Or they might be under the impression that testing is something only done by large companies or marketing people.

What these designers don't realize is that by divorcing their process from this essential feedback opportunity, they probably cost themselves considerable time, money, and creative heartache. This is because games are not a form of one-way

1.1 Playtest group

communication. Being a superior game designer isn't about controlling every aspect of the game design or dictating exactly how the game should function. It's about building a potential experience, setting all the pieces in place so that everything's ready to unfold when the players begin to participate.

In some ways, designing a game is like being the host of a party. As the host, it's your job to get everything ready—food, drinks, decorations, music to set the mood—and then you open the doors to your guests and see what happens. The results are not always predictable or what you envisioned. A game, like a party, is an interactive experience that is only fully realized after your guests arrive. What type of party will your game be like? Will your players sit like wallflowers in your living room? Will they stumble around trying to find the coatroom closet? Or will they laugh and talk and meet new people, hoping the night will never end?

Inviting players "over to play" and listening to what they say as they experience your game is the best way to understand how your game is working. Gauging reactions, interpreting silent moments, studying feedback, and matching those with specific game elements are the keys to becoming a professional designer. When you learn to listen to your players, you can help your game to grow.

In Chapter 9 on page 277, when I discuss the playtesting process in detail, you'll learn methods and procedures that will help you hold professional-quality

1.2 More playtest groups

playtests and make the most of these tests by asking good questions and listening openly to criticism. For now, though, it's just important to know that playtesting is the heart of the design process explored in this book and that the feedback you receive during these sessions can help you transform your game into a truly enjoyable experience for your players.

Like any living system, games transform throughout their development cycle. No rule is set in stone. No technique is absolute. No particular scheme is the right one. If you understand how fluid the structures are, you can help mold them into the desired shape through repeated testing and careful observation. As a game designer, it's up to you to evolve your game into more than you originally envisioned. That's the art of game design. It's not locking things in place; it's giving birth and parenting. No one, no matter how smart, can conceive and produce a sophisticated game from a blank sheet of paper and perfect it without going through this process. And learning how to work creatively within this process is what this book is all about.

Exercise 1.1: Become a Tester

Take on the role of a tester. Go play a game and observe yourself as you play. Write down what you're doing and feeling. Try to create one page of detailed notes on your behaviors and actions. Then repeat this experience while watching a friend play the same game. Compare the two sets of notes and analyze what you've learned from the process.

Throughout this book, I've included exercises that challenge you to practice the skills that are essential to game design. I've tried to break them down so that you can master them one by one, but by the end of the book, you will have learned a tremendous amount about games, players, and the design process. And you will have designed, prototyped, and playtested at least one original idea of your own. I recommend creating a folder, either digital or analog, of your completed exercises so that you can refer to them as you work your way through the book.

Passions and Skills

What does it take to become a game designer? There is no one simple answer, no one path to success. There are some basic traits and skills I can suggest, however. First, a great game designer is someone who loves to create playful situations. A passion for games and play is the one thread all great designers have in common. If you don't love what you're doing, you'll never be able to put in the long hours necessary to craft truly innovative games.

To someone on the outside, making games might seem like a trivial task—something that's akin to playing around. But it's not. As any experienced designer can tell you, testing your own game for the ten thousandth time can become work, not play. As the designer, you have to remain dedicated to that ongoing process. You can't just go through the motions. You have to keep that passion alive in yourself, and in the rest of the team, to make sure that the great gameplay you envisioned in those early days of design is still there in the exhausting, pressure-filled final days before you lock production. To do that, you'll need to develop some other important skills in addition to your love of games and your understanding of the playcentric process.

Communication

The most important skill that you, as a game designer, can develop is the ability to communicate clearly and effectively with all the other people who will be working on your game. You'll have to "sell" your game many times over before it ever hits the store shelves: to your teammates, management, investors, and perhaps even your friends and family. To accomplish this, you'll need good language skills, a crystal-clear vision, and a well-conceived presentation. This is the only way to rally everyone involved to your

1.3 Communicating with team members

cause and secure the support that you'll need to move forward.

But good communication doesn't just mean writing and speaking—it also means becoming a good listener and a great compromiser. Listening to your playtesters and to the other people on your team affords fresh ideas and new directions. Listening also involves your teammates in the creative process, giving them a sense of authorship in the final design that will reinvest them in their own responsibilities on the project. If you don't agree with an idea, you haven't lost anything, and the idea you don't use might spark one that you do.

What happens when you hear something that you don't want to hear? Perhaps one of the hardest things to do in life is compromise. In fact, many game designers think that compromise is a bad word. But compromise is sometimes necessary, and if done well, it can be an important source of creative collaboration.

For example, your vision of the game might include a technical feature that is simply impossible given the available time and resources. What if your programmers come up with an alternative implementation for the feature, but it doesn't capture the essence of the original design? How can you adapt your idea to the practical necessities in such a way as to keep the gameplay intact? You'll have to compromise. As the designer, it's your job to find a way to do it elegantly and successfully so that the game doesn't suffer.

Teamwork

Game production can be one of the most intense collaborative processes you'll ever experience. The interesting and challenging thing about game development teams is the sheer breadth of types of people who work on them. From the hardcore computer scientists, who might be designing the AI or graphic displays, to the talented illustrators and animators who bring the characters to life, to the money-minded executives and business managers who deliver the game to its players, the range of personalities is incredible.

1.4 Team meeting

As the designer, you will interact with almost all of them, and you will find that they all speak different professional languages and have different points of view. Overly technical terms may not translate well to artists or the producer, while the subtle shadings of a character sketch might not be instantly obvious to a programmer. These are generalizations, of course, and many team members may come from multidisciplinary backgrounds, but you can't always count on that. So a big part of your job, and one of the reasons for your documents and specifications, is to serve as a sort of universal translator, making sure that all of these different groups are, in fact, working on the same game.

Throughout this book, I often refer to the game designer as a single team member, but in many cases, the task of game design is a team effort. Whether there is a team of designers on a single game or a collaborative environment where the visual designers, programmers, or producer all have input to the design, the game designer rarely works alone. In Chapter 12 on page 391, I will discuss team structures and how the game designer fits into the complicated puzzle that is a development team.

Process

Being a game designer often requires working under great pressure. You'll have to make critical changes to your game without causing new issues in the process. All too often, a game becomes unbalanced as attempts are made to correct an issue because

the designer gets too close to the work and, in the hopes of solving one problem, introduces a host of new problems. But, unable to see this mistake, the designer keeps making changes, while the problems grow worse, until the game becomes such a mess that it loses whatever magic it once had.

Games are fragile systems, and each element is inextricably linked to the others, so a change in one variable can send disruptive ripples throughout. This is particularly catastrophic in the final phases of development, where you run out of time, mistakes are left unfixed, and portions of the game are amputated in hopes of saving what's left. It's gruesome, but it might help you understand why some games with so much potential seem D.O.A.

The one thing that can rescue a game from this terrible fate is instilling in your team the need for good processes from the beginning. Production is a messy business; it is where ideas can get convoluted and objectives can disappear in the chaos of daily crises. But good process, using the playcentric approach of playtesting, and controlled, iterative changes, which I'll discuss throughout this book, can help you stay focused on your goals, prioritize what's truly important, and avoid the pitfalls of an unstructured approach.

Exercise 1.2: D.O.A.

Take one game that you've played that was D.O.A. By D.O.A., I mean "dead on arrival" (i.e., a game that's no fun to play). Write down what you don't like about it. What did the designers miss? How could the game be improved?

Inspiration

A game designer often looks at the world differently from most people. This is in part because of the profession and in part because the art of game design requires someone who is able to see and analyze the underlying relationships and rules of complex systems and to find inspiration for play in common interactions.

When a game designer looks at the world, he often sees things in terms of challenges, structures, and play. Games are everywhere, from how we manage our money to how we form relationships. Everyone has goals in life and must overcome obstacles to achieve those goals. And, of course, there are rules. If you want to win in the financial markets, you have to understand the rules of trading stocks and bonds, profit forecasts, IPOs, and so forth. When you play the markets, the act of investing becomes very similar

1.5 Systems all around us

to a game. The same holds true for winning someone's heart. In courtship, there are social rules that you must follow, and it's in understanding these rules and how you fit into society that helps you to succeed.

If you want to be a game designer, try looking at the world in terms of its underlying systems. Try to analyze how things in your life function. What are the underlying rules? How do the mechanics operate? Are there opportunities for challenge or playfulness? Write down your observations and analyze the relationships. You'll find there is potential for play all around you that can serve as the inspiration for a game. You can use these observations and inspirations as foundations for building new types of gameplay.

Why not look at other games for inspiration? Well, of course, you can and you should. I'll talk about that in just a minute. But if you want to come up with truly original ideas, then don't fall back on existing games for all your ideas. Instead, look at the world around you. Some of the things that have inspired other game designers, and could inspire you, are obvious: personal relationships, buying and selling, competition in the workplace, and on and on. Take ant colonies, for example: They're organized around a sophisticated set of rules, and there's competition both within the colonies and between competing insect groups. Well-known game designer Will Wright made a game about ant colonies in 1991, SimAnt. "I was always fascinated by social insects," he says. "Ants are one of the few real examples of intelligence we have that we can study and deconstruct. We're still struggling with the way the human brain works. But if you look at ant colonies, they sometimes exhibit a remarkable degree of intelligence."[1] The game itself was something of a disappointment commercially, but the innate curiosity about how the world works that led Wright to ant colonies has also led him to look at ecological systems such as the Gaia hypothesis as inspiration for SimEarth or psychological theories such as Maslow's Hierarchy of Needs as inspiration for artificial intelligence in The Sims. Having a strong sense of curiosity and a passion for learning about the world is clearly an important part of Wright's inspiration as a game designer.

What inspires you? Examine things that you are passionate about as systems; break them down in terms of objects, behaviors, relationships, and so forth. Try to understand exactly how each element of the system interacts. This can be the foundation for an interesting game. By practicing the art of extracting and defining the games in all aspects of your life, you will not only hone your skills as a designer, but you'll open up new vistas in what you imagine a game can be.

Exercise 1.3: Your Life as a Game

List five areas of your life that could be games. Then briefly describe a possible underlying game structure for each.

Becoming a Better Player

One way to become an advocate for players is by being a better player yourself. By "better," I don't just mean more skilled or someone who wins all the time—although by studying game systems in depth, you will undoubtedly become a more skilled player. What I mean is using yourself and your experiences with games to develop an unerring sense for good gameplay. The first step to practicing any art form is to develop a deep understanding of what makes that art form work. For example, if you've ever studied a musical instrument, you've probably learned to hear the relationship between the various musical tones. You've developed an ear for music. If you've studied drawing or painting, it's likely that your instructor has urged you to practice looking carefully at light and texture. You've developed an eye for visual composition. If you are a writer, you've learned to read critically. And if you want to be a game designer, you need to learn to play with the same conscious sensitivity to your own experience and critical analysis of the underlying system that these other arts demand.

The following chapters in this section look at the formal, dramatic, and dynamic aspects of games. Together, the concepts in these chapters form a set of tools that you can use to analyze your gameplay experiences and become a better, or more

articulate, player and creative thinker. By practicing these skills, you will develop a game literacy that will make you a better designer. Literacy is the ability to read and write a language, but the concept can also be applied to media or technology. Being game literate means understanding how game systems work, analyzing how they make meaning, and using your understanding to create your own game systems.

I recommend writing your analysis in a game journal. Like a dream journal or a diary, a game journal can help you think through experiences you've had and to remember details of your gameplay long afterwards. As a game designer, these are valuable insights that you might otherwise forget. It is important when writing in your game journal to try to think deeply about your game experience—don't just review the game and talk about its features. Discuss a meaningful moment of gameplay. Try to remember it in detail—why did it strike you? What did you think, feel, do, and so forth? What are the underlying mechanics that made the moment work? The dramatic aspects? Perhaps your insights will form the basis for a future design, perhaps not. But, like sketching or practicing scales on a musical instrument, the act of writing and thinking about design will help you to develop your own way of thinking about games, which is critical to becoming a game designer.

Exercise 1.4: Game Journal

Start a game journal. Don't just try to describe the features of the game, but dig deeply into the choices you made, what you thought and felt about those choices, and the underlying game mechanics that supports those choices. Go into detail; look for the reasons *why* various mechanics of the game exist. Analyze why one moment of gameplay stands out and not another. Commit to writing in your game journal every day.

Creativity

Creativity is hard to quantify, but you'll definitely need to access your creativity to design great games. Everyone is creative in different ways. Some people come up with lots of ideas without even trying. Others focus on one idea and explore all of its possible facets. Some sit quietly in their rooms thinking to themselves, while others like to bounce ideas around with a group, and they find the interaction to be stimulating. Some seek out stimulation or new experiences to spark their imaginations. Great game designers like Will Wright tend to be people who can tap into their dreams and fantasies and bring those to life as interactive experiences.

Another great game designer, Nintendo's Shigeru Miyamoto, says that he often looks to his childhood and to hobbies that he enjoys for inspiration. "When I was a child, I went hiking and found a lake," he says. "It was quite a surprise for me to stumble upon it. When I traveled around the country without a map, trying to find my way, stumbling on amazing things as I went, I realized how it felt to go on an adventure like this."[2] Many of Miyamoto's games draw from this sense of exploration and wonder that he remembers from childhood.

Think about your own life experiences. Do you have memories that might spark the idea for a game? One reason that childhood can be such a powerful inspiration for game designers is that when we are children, we are particularly engrossed in playing games. If you watch how kids interact on a playground, it's usually through gameplaying. They make games and learn social order and group dynamics from their play. Games permeate all aspects of kids' lives and are a vital part of their developmental process. So if you go back to your childhood and look at things that you enjoyed, you'll find the raw material for games right there.

Exercise 1.5: Your Childhood

List ten games you played as a child, for example, hide and seek, four square, and tag. Briefly describe what was compelling about each of those games.

1.6 You Don't Know Jack

1.7 Beautiful katamari and tamakorogashi

Creativity might also mean putting two things together that don't seem to be related—like Shakespeare and the Brady Bunch. What can you make of such a strange combination? Well, the designers of You Don't Know Jack used silly combinations of high- and low-brow knowledge like this to create a trivia game that challenged players to be equally proficient in both. The result was a hit game with such creative spark that it crossed the usual boundaries of gaming, appealing to players old and young, male and female.

Sometimes creative ideas just come to you, and the trick is to know when to stand by a game idea that seems far-fetched. Keita Takahashi, designer of the quirky and innovative hit game Katamari Damacy, was given an assignment while working at Namco to come up with an idea for a racing game. The young artist and sculptor wanted to do something more original than a racing game, however, and says he just "came up with" the idea for the game mechanic of a sticky ball, or katamari, that players could roll around, picking up objects that range from paper clips and sushi to palm trees and policemen. Takahashi has said inspiration for the game came from sources as wildly different as the paintings of Pablo Picasso, the novels of John Irving, and Playmobil brand toys, but it is also clear that Takahashi has been influenced by Japanese children's games and sports such as tamakorogashi (ballroller) as a designer and is thinking beyond digital games for his future creations. "I would like to create a playground for children," he said. "A normal playground is flat but I want an undulating one, with bumps."[3]

I recently designed a game about Henry David Thoreau's time at Walden Pond. I was inspired by his writings and by the thought that underlying his philosophical experiment was an interesting set of rules that he was "playing by" when he set out to "live deliberately." The game took ten years to make and required a deep commitment to the original idea over those years. When we started making it, the idea of an indie game "about" something like a philosopher's experiment in living was considered somewhat strange and new. Today, personal games, and games about ideas or experiences, are relatively common, especially in the indie space.

Our past experiences, our other interests, our relationships, and our identity all come into play when trying to reach our creativity. Great game designers find a way to tap into their creative souls and bring forth the best parts in their games. However you do it, whether you work alone or in a team, whether you read books or climb mountains, whether you look to other games for inspiration or to life experiences, the bottom line is that there's no single right way to go about it. Everyone has a different style for coming up with ideas and being creative. What matters is not the spark of an idea but what you do with that idea once it emerges, and this is where the playcentric process becomes critical.

A Playcentric Design Process

Having a good solid process for developing an idea from the initial concept into a playable and satisfying game experience is another key to thinking like a game designer. The playcentric approach I will illustrate in this book focuses on involving the player in your design process from conception through completion. By that I mean continually keeping the player experience in mind and testing the gameplay with target players through every phase of development.

Setting Player Experience Goals

The sooner you can bring the player into the equation, the better, and the first way to do this is to set "player experience goals." Player experience goals are just what they sound like: goals that the game designer sets for the type of experience that players will have during the game. These are not features of the game but rather descriptions of the interesting and unique situations in which you hope players will find themselves. For example, "players will have to cooperate to win, but the game will be structured so they can never trust each other," "players will feel a sense of happiness and playfulness rather than competitiveness," or "players will have the freedom to pursue the goals of the game in any order they choose."

Setting player experience goals up front, as a part of your brainstorming process, can also focus your creative process. Notice that these descriptions do not talk about how these experience goals will be implemented in the game. Features will be brainstormed later to meet these goals, and then they will be playtested to see if the player experience goals are being met. At first, though, I advise thinking at a very high level about what is interesting and engaging about your game to players while they are playing and what experiences they will describe to their friends later to communicate the high points of the game.

Learning how to set interesting and engaging player experience goals means getting inside the heads of the players, not focusing on the features of the game as you intend to design it. When you're just beginning to design games, one of the hardest things to do is to see beyond features to the actual game experience the players are having. What are they thinking as they make choices in your game? How are they feeling? Are the choices you've offered as rich and interesting as they can be?

Prototyping and Playtesting

Another key component to playcentric design is that ideas should be prototyped and playtested early. I encourage designers to construct a playable version of their idea immediately after brainstorming ideas. By this I mean a physical prototype of the core game mechanics. A physical prototype can use paper and pen or index cards or even be acted out. It is meant to be played by the designer and her friends. The goal is to play and perfect this simplistic model before a single programmer, producer, or graphic artist is ever brought onto the project. This way, the game designer receives instant feedback on what players think of the game and can see immediately if they are achieving their player experience goals.

This might sound like common sense, but in the industry today, much of the testing of the core game mechanics comes later in the production cycle, which can lead to disappointing results. Because many games are not thoroughly prototyped or tested early, flaws in the design aren't identified until late in the process—in some cases, too late to fix. People in the industry are realizing that this lack of player feedback means that many games don't reach their full potential, and the process of developing games needs to change if that problem is to be solved. The work of professional user research experts like Nicole Lazzaro of XEODesign and Dennis Wixon of Microsoft (see their sidebars on pages 282 and 303) is becoming more and more important to game designers and publishers in their attempts to improve game experiences, especially with the new, sometimes inexperienced, game players that are being attracted to platforms like smartphones or tablets. You don't need to have access to a professional test lab to use the playcentric approach. In

Designers You Should Know

The following is a list of designers who have had a monumental impact on digital games. The list was hard to finalize because so many great individuals have contributed to the craft in so many important ways. The goal was not to be comprehensive but rather to give a taste of some designers who have created foundational works and who it would be good for you, as an aspiring designer yourself, to be familiar with. I'm pleased that many designers on the list contributed interviews and sidebars to this book.

Shigeru Miyamoto

Miyamoto was hired out of industrial design school by Nintendo in 1977. He was the first staff artist at the company. Early in his career, he was assigned to a submarine game called Radarscope. This game was like most of the games of the day—simple twitch-game play mechanics, no story, and no characters. He wondered why digital games couldn't be more like the epic stories and fairy tales that he knew and loved from childhood. He wanted to make adventure stories, and he wanted to add emotion to games. Instead of focusing on Radarscope, he made up his own beauty-and-the-beast-like story where an ape steals his keeper's girlfriend and runs away. The result was Donkey Kong, and the character that you played was Mario (originally named Jumpman). Mario is perhaps the most enduring character in games and one of the most recognized characters in the world. Each time a new console is introduced by Nintendo—starting with the original NES machine—Miyamoto designs a Mario game as its flagship title. He is famous for the wild creativity and imagination in his games. Aside from all the Mario and Luigi games, Miyamoto's list of credits is long. It includes the games Zelda, Starfox, and Pikmin.

Will Wright

Early in his career, in 1987, Wright created a game called Raid *on* Bungling Bay. It was a helicopter game where you attacked islands. He had so much fun programming the little cities on the islands that he decided that making cities was the premise for a fun game. This was the inspiration for SimCity. When he first developed SimCity, publishers were not interested because they didn't believe anyone would buy it. But Wright persisted, and the game became an instant hit. SimCity was a breakout in terms of design in that it was based on creating rather than destroying. Also, it didn't have set goals. These things added some new facets to games. Wright was always interested in simulated reality and has done more than anyone in bringing simulation to the masses. SimCity spawned a whole series of titles, including SimEarth, SimAnt, SimCopter, and many others. His game The Sims is currently the bestselling game of all time, and Spore, his most ambitious project yet, explores new design territory in terms of user-created content. See "A Conversation with Will Wright by Celia Pearce" on page 183.

Sid Meier

Legend has it that Sid Meier bet his buddy, Bill Stealey, that within two weeks he could program a better flying combat game than the one they were playing. Stealey took him up on the offer, and together they founded the company Micro Prose. It took more than two weeks, but the company released the title Solo Flight in 1984. Considered by many to be the father of PC gaming, Meier went on to create groundbreaking title after groundbreaking title. His Civilization series has had a fundamental influence on the genre of PC strategy games. His game Sid Meier's Pirates! was an innovative mix of genres—action, adventure, and role-playing—that also

blended real-time and turn-based gaming. His gameplay ideas have been adopted in countless PC games. Meier's other titles include Colonization, Sid Meier's Gettysburg!, Alpha Centauri, and Silent Serv.

Warren Spector

Warren Spector started his career working for board game maker Steve Jackson Games in Austin, Texas. From there, he went on to the paper-based role-playing game company TSR, where he developed board games and wrote RPG supplements and several novels. In 1989, he was ready to add digital games to his portfolio and moved to the developer ORIGIN Systems. There, he worked on the Ultima series with Richard Garriott. Spector had an intense interest in integrating characters and stories into games. He pioneered "free-form" gameplay with a series of innovative titles, including Underworld, System Shock, and Thief. His title Deus Ex took the concepts of flexible play and drama in games to new heights and is considered one of the finest PC games of all time. See his "Designer Perspective" interview on page 27.

Brenda Romero

Brenda Romero began her career at Sir-tech Software as part of the Wizardry role-playing team, where she worked her way up from testing to designer for Wizardry 8. While at Sir-tech, she also worked on the Jagged Alliance and Realms of Arkania series before moving to Atari to work on Dungeons & Dragons. Throughout her career, she has been a passionate advocate for diversity in the industry and was awarded the Ambassador Award from the Game Developers Conference as well as a special British Academy for Film and Television Arts award for her contributions to the industry. On page 88, she discusses her groundbreaking analog game series The Mechanic Is the Message.

Richard Garfield

In 1990, Richard Garfield was an unknown mathematician and part-time game designer. He had been trying unsuccessfully to sell a board game prototype called RoboRally to publishers for seven years. When yet another publisher rejected his concept, he was not surprised. However, this time the publisher, a man named Peter Adkison doing business as Wizards of the Coast, asked for a portable card game that was playable in under an hour. Garfield took the challenge and developed a dueling game system where each card in the system could affect the rules in different ways. It was a breakthrough in game design because the system was infinitely expandable. The game was Magic: The Gathering, and it singlehandedly spawned the industry of collectible card games. Magic has been released in digital format in multiple titles. When Hasbro bought Wizards of the Coast in 1995 for $325 million, Garfield owned a significant portion of the company. See his article "The Design Evolution of Magic: The Gathering" on page 219.

Amy Hennig

Amy Hennig began her career in the game industry working as an artist and animator on games for the NES. While she was working at Electronic Arts as an artist on Michael Jordan: Chaos in the Windy City, the lead designer left the project and Hennig landed the job. Later, she moved to Crystal Dynamics, where she was director, producer, and writer for Legacy of Kain: Soul Reaver. She is well known for her work as a game director and writer on some of the most successful titles in the industry, including the Uncharted series for

Naughty Dog and Sony. She has been awarded two Writers Guild of America Video Game Writing Awards in addition to numerous other awards for her work on the Uncharted games. She describes her writing work on this series as being on the "bleeding edge" of the genre of cinematic video games.

Peter Molyneux

The story goes that it all started with an anthill. As a child, Peter Molyneux toyed with one—tearing it down in parts and watching the ants fight to rebuild, dropping food into the world and watching the ants appropriate it, and so on. He was fascinated by the power he had over the tiny, unpredictable creatures. Molyneux went on to become a programmer and game designer and eventually the pioneer of digital "god games." In his breakout title, Populous, you act as a deity lording it over tiny settlers. The game was revolutionary in that it was a strategy game that took place in real time, as opposed to in turns, and you had indirect control over your units. The units had minds of their own. This game and other Molyneux hits had a profound influence on the real-time strategy (RTS) games that were on the horizon. Other titles he has created include Syndicate, Theme Park, Dungeon Keeper, and Black & White.

Gary Gygax

In the early 1970s, Gary Gygax was an insurance underwriter in Lake Geneva, Wisconsin. He loved all kinds of games, including tabletop war games. In these games, players controlled large armies of miniatures, acting like generals. Gygax and his friends had fun acting out the personas of different pieces on the battlefield such as commanders, heroes, and so forth. He followed his inclination of what was fun and created a system for battling small parties of miniatures in a game he called Chainmail. From there players wanted even more control over and more character information about the individual units. They wanted to play the role of single characters. Gygax, in conjunction with game designer Dave Arneson, developed an elaborate system for role-playing characters that was eventually named Dungeons & Dragons. The D&D game system is the direct ancestor of every paper-based and digital RPG since then. The system is directly evident in all of today's RPGs, including Diablo, Baldur's Gate, and World of Warcraft.

Richard Garriott

Richard Garriott—a.k.a. "Lord British"—programmed his first game right out of high school in 1979. It was an RPG called Akalabeth. He sold it on his own through a local computer store in Austin, Texas. The packaging for this first version was a Ziploc bag. Akalabeth later got picked up by a publisher and sold well. Garriott used what he learned to create Ultima, one of the most famous game series of all time. The Ultima titles evolved over the years—each successive one pushing the envelope in terms of both technology and gameplay—eventually bringing the world of the game online. Ultima Online, released in 1997, was a pioneering title in massively multiplayer online worlds. Garriott continues to push the boundaries of online gaming with work on the science fiction MMO Tabula Rasa.

Dona Baily

Dona Baily was a young programmer in 1981 who, along with Ed Logg, created the classic arcade video game Centipede. At the time, when Baily joined Atari's coin-op division, she was the only woman employed there. When given a notebook of ideas for possible games to program, all of which involved "lasering or frying

things," she chose a short description of a bug winding down the screen because, she said, "it didn't seem bad to shoot a bug." Centipede went on to become one of the most commercially successful games from the arcade era's golden age.

Gerald Lawson

Gerald Lawson was an electronic engineer known for his work in the 1970s, designing the Fairchild Channel F video game system and inventing the video game cartridge. The Fairchild Channel F console, while not a commercially successful product, introduced the idea that game software could be stored on swappable cartridges for the first time. Prior to the Channel F, most game systems had the game software programmed into the architecture of the hardware, so games could never be added to or updated. Lawson's invention was so novel that every cartridge he produced had to be approved by the FCC before distribution as new product. Quickly, his invention became the standard for all future game consoles. Lawson was one of the few African-American engineers working in the industry at that time.

Chapter 9, I describe a number of methods you can use on your own to produce useful improvements to your game design.

I suggest that you do not begin production without a deep understanding of your player experience goals and your core mechanics. This is critical because when the production process commences, it becomes increasingly difficult to alter the software design. Therefore, the further along the design and prototyping are before the production begins, the greater the likelihood of avoiding costly mistakes. You can ensure that your core design concept is sound before production begins by taking a playcentric approach to the design and development process.

Iteration

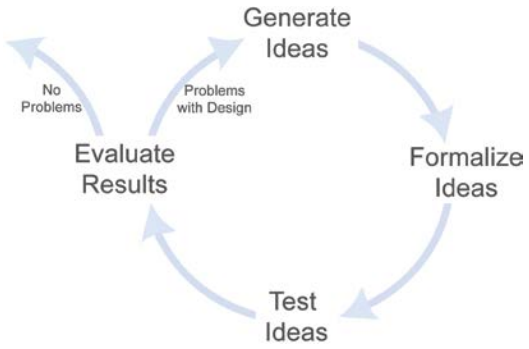
By "iteration" I simply mean that you design, test, and evaluate the results over and over again throughout the development of your game, each time improving upon the gameplay or features, until the player experience meets your criteria. Iteration is deeply important to the playcentric process. Here is a detailed flow of the iterative process that you should go through when designing a game:

- Player experience goals are set.
- An idea or system is conceived.
- An idea or system is formalized (i.e., written down or prototyped).
- An idea or system is tested against player experience goals (i.e., playtested or exhibited for feedback).
- Results are evaluated and prioritized.
- If results are negative and the idea or system appears to be fundamentally flawed, go back to the first step.
- If results point to improvements, modify and test again.
- If results are positive and the idea or system appears to be successful, the iterative process has been completed.

As you will see, this process is applicable during every aspect of game design, from initial conception through final quality assurance testing.

Step 1: Brainstorming

- Set player experience goals.
- Come up with game concepts or mechanics that you think might achieve your player experience goals.
- Narrow the list down to the top three.
- Write up a short, one-page description for each of these ideas, sometimes called a treatment or concept document.



1.8 Iterative process diagram

- Test your written concepts with potential players (you might also want to create rough visual mock-ups of your ideas at this stage to help communicate the ideas).

Step 2: Physical Prototype

- Create a playable prototype using pen and paper or other craft materials.
- Playtest the physical prototype using the process described in Chapters 7 and 9.
- When the physical prototype demonstrates working gameplay that achieves your player experience goals, write a three- to six-page gameplay treatment describing how the game functions.

Step 3: Presentation (Optional)

- A presentation is often made to secure funds to hire the prototyping team. Even if you do not require funding, going through the exercise of creating a full presentation is a good way to think through your game and introduce it to team members and upper management for feedback.
- Your presentation should include demo artwork and a solid gameplay treatment.
- If you do not secure funding, you can either return to step 1 and start over again on a new concept or solicit feedback from your funding sources and work on modifying the game to fit their needs. Because you have not yet invested in extensive artwork or programming, your costs so far should be pretty reasonable, and you should have a great deal of flexibility to make any changes.

Step 4: Software Prototype(s)

- When you have your prototyping team in place, you can begin creating rough digital models of the core gameplay. Often, several software prototypes are made, each focusing on different aspects of the system. Digital prototyping is discussed in Chapter 8 beginning on page 241. (If possible, try to do this entirely with temporary graphics that cost very little to make. This will save time and money and speed up the process.)
- Playtest the software prototype(s) using the method process described in Chapter 9.
- When the software prototype(s) demonstrate working gameplay that achieves your player experience goals, move on to develop plans for the full feature set and levels of the game.

Step 5: Design Documentation

- While you have been prototyping and working on your gameplay, you have probably been compiling notes and ideas for the "real" game. Use the knowledge you've gained during this prototyping stage to develop a full list of goals for the game, which are documented in a way that is useful and accessible for the team.
- Recently, many designers have moved away from creating large static documents for this purpose, moving instead toward online groupware like wikis and smaller, as-needed form documentation because of the flexible, collaborative nature of modern design processes. The design documentation that comes out of your production process should be thought of as a collaboration tool that changes and grows with production.

Step 6: Production

- Work with all team members to make sure your goals are clear and achievable and that the team is on board with the priorities for these goals.

The Iterative Design Process

by Eric Zimmerman, game designer and professor, NYU Game Center

Eric Zimmerman is a game designer and a twenty-year veteran of the game industry. Eric cofounded Gamelab, an award-winning New York City-based studio that helped invent casual games with titles like Diner Dash. Other projects range from the pioneering independent online game SiSSYFiGHT 2000 to tabletop games like the strategy board game Quantum and Local No. 12's card game The Metagame. Eric has also created game installations with architect Nathalie Pozzi that have been exhibited in museums and festivals around the world. He is the coauthor with Katie Salen of Rules of Play and is a founding faculty and arts professor at the NYU Game Center. Also see his article with Nathalie Pozzi on playtesting methods on page 293.

The following excerpt is adapted from a longer essay entitled "Play as Research," which appears in the book Design Research, edited by Brenda Laurel (MIT Press, 2004). It appears here with permission from the author. Iterative design is a design methodology based on a cyclic process of prototyping, testing, analyzing, and refining a work in progress. In iterative design, interaction with the designed system is the basis of the design process, informing and evolving a project as successive versions, or iterations, of a design are implemented. This sidebar outlines the iterative process as it occurred in one game with which I was involved—the online multiplayer game SiSSYFiGHT 2000.

What is the process of iterative design? Test, analyze, refine. And repeat. Because the experience of a player cannot ever be completely predicted, in an iterative process design, decisions are based on the experience of the prototype in progress. The prototype is tested, revisions are made, and the project is tested once more. In this way, the project develops through an ongoing dialogue between the designers, the design, and the testing audience.

In the case of games, iterative design means playtesting. Throughout the entire process of design and development, your game is played. You play it. The rest of the development team plays it. Other people in the office play it. People visiting your office play it. You organize groups of testers that match your target audience. You have as many people as possible play the game. In each case, you observe them, ask them questions, then adjust your design and playtest again.

This iterative process of design is radically different from typical retail game development. More often than not, at the start of the design process for a computer or console title, a game designer will think up a finished concept and then write an exhaustive design document that outlines every possible aspect of the game in minute detail. Invariably, the final game never resembles the carefully conceived original. A more iterative design process, on the other hand, will not only streamline development resources, but it will also result in a more robust and successful final product.

Case Study: SiSSYFiGHT 2000

SiSSYFiGHT 2000 is a multiplayer online game in which players create a schoolgirl avatar and then vie with three to six players for dominance of the playground. Each turn, a player selects one of six actions to take, ranging from teasing and tattling to cowering and licking a lolly. The outcome of an action is dependent on other players' decisions, making for highly social gameplay. SiSSYFiGHT 2000 is also a robust online community. You

can play the game at www.sissyfight.com. In the summer of 1999, I was hired by Word.com to help them create their first game. We initially worked to identify the project's play values: the abstract principles that the game design would embody. The list of play values we created included designing for a broad audience of nongamers, a low technology barrier, a game that was easy to learn and play but deep and complex, gameplay that was intrinsically social, and, finally, something that was in line with the smart and ironic Word.com sensibility.

These play values were the parameters for a series of brainstorming sessions interspersed with group play of computer and noncomputer games. Eventually, a game concept emerged: little girls in social conflict on a playground. While every game embodies some kind of conflict, we were drawn toward modeling a conflict that we hadn't seen depicted previously in a game. Technology and production limitations meant that the game would be turn based, although it could involve real-time chat.

When these basic formal and conceptual questions had begun to be mapped out, the shape of the initial prototype became clear. The very first version of SiSSYFiGHT was played with Post-it Notes around a conference table. I designed a handful of basic actions each player could take, and acting as the program, I "processed" the actions each turn and reported the results back to the players, keeping score on a piece of paper.

Designing a first prototype requires strategic thinking about how to most quickly implement a playable version that can begin to address the project's chief uncertainties in a meaningful way. Can you create a paper version of your digital game? Can you design a short version of a game that will last much longer in its final form? Can you test the interaction pattern of a massively multiplayer game with just a handful of players?

In the iterative design process, the most detailed thinking you need at any moment is that which will get you to your next prototype. It is, of course, important to understand the big picture as well: the larger conceptual, technical, and design questions that drive the project as a whole. Just be sure not to let your design get ahead of your iterative research. Keep your eye on the prize, but leave room for play in your design, for the potential to change as you learn from your playtesting, accepting the fact that some of your assumptions will undoubtedly be wrong.

The project team continued to develop the paper prototype, seeking the balance between cooperation and competition that would become the heart of the final gameplay. We refined the base rule set—the actions a player can take each turn and the outcomes that result. These rules were turned into a specification for the first digital prototype: a text-only version on IRC, which we played hot-seat style, taking turns sitting at the same computer. Constructing that early, text-only prototype allowed us to focus on the complexities of the game logic without worrying about implementing interactivity, visual and audio aesthetics, and other aspects of the game.

SiSSYFiGHT 2000 Interface

While we tested gameplay via the text-only iteration, programming for the final version began in Director, and the core game logic we had developed for the IRC prototype was recycled into the Director code with little alteration. Parallel to the game design, the project's visual designers had begun to develop the graphic

language of the game and chart out possible screen layouts. These early drafts of the visuals (revised many times over the course of the entire development) were dropped into the Director version of the game, and the first rough-hewn iteration of SiSSYFiGHT as a multiplayer online game took shape, inspired by Henry Darger's outsider art and retro game graphics.

As soon as the web version was playable, the development team played it. And as our ugly duckling grew more refined, the rest of the Word.com staff was roped into testing as well. As the game grew more stable, we descended on our friends' dot-com companies after the workday had ended, sitting them down cold in front of the game and letting them play. All of this testing and feedback helped us refine the game logic, visual aesthetics, and interface. The biggest challenge turned out to be clearly articulating the relationship between player action and game outcome: Because the results of every turn are interdependent on each player's actions, early versions of the game felt frustratingly arbitrary. Only through many design revisions and dialogue with our testers did we manage to structure the results of each turn to unambiguously communicate what had happened that round and why.

SiSSYFiGHT 2000 Game Interfaces

When the server infrastructure was completed, we launched the game to an invitation-only beta tester community that slowly grew in the weeks leading up to public release. Certain time slots were scheduled as official testing events, but our beta users could come online anytime and play. We made it very easy for the beta testers to contact us and e-mail in bug reports.

Even with this small sample of a few dozen participants, larger play patterns emerged. For example, as with many multiplayer games, it was highly advantageous to play defensively, leading to standstill matches. In response, we tweaked the game logic to discourage this play style: Any player that "cowered" twice in a row was penalized for acting like a chicken. When the game did launch, our loyal beta testers became the core of the game community, easing new players into the game's social space.

In the case of SiSSYFiGHT 2000, the testing and prototyping cycle of iterative design was successful because at each stage we clarified exactly what we wanted to test and how. We used written and online questionnaires. We debriefed after each testing session. And we strategized about how each version of the game would incorporate the visual, audio, game design, and technical elements of the previous versions, while also laying a foundation for the final form of the experience.

To design a game is to construct a set of rules. But the point of game design is not to have players experience rules—it is to have players experience play. Game design is therefore a second-order design problem in which designers craft play, but only indirectly, through the systems of rules that game designers create. Play

arises out of the rules as they are inhabited and enacted by players, creating emergent patterns of behavior, sensation, social exchange, and meaning. This shows the necessity of the iterative design process. The delicate interaction of rule and play is something too subtle and too complex to script out in advance, requiring the improvisational balancing that only testing and prototyping can provide.

In iterative design, there is a blending of designer and user, of creator and player. It is a process of design through the reinvention of play. Through iterative design, designers create systems and play with them. They become participants, but they do so in order to critique their creations, to bend them, break them, and refashion them into something new. And in these procedures of investigation and experimentation, a special form of discovery takes place. The process of iteration, of design through play, is a way of discovering the answers to questions you didn't even know were there. And that makes it a powerful and important method of design. SiSSYFiGHT 2000 was developed by Marisa Bowe, Ranjit Bhatnagar, Tomas Clarke, Michelle Golden, Lucas Gonze, Lem Jay Ignacio, Jason Mohr, Daron Murphy, Yoshi Sodeka, Wade Tinney, and Eric Zimmerman.

- Staff up with a full team and plan a set of development "sprints" for each of the goals in your plan. Evaluate your game as a team after each sprint to make sure you are still on target with your player experience goals.
- Don't lose sight of the playcentric process during production—test your artwork, gameplay, characters, and so forth as you move along. As you continue to perform iterative cycles throughout the production phase, the problems you find and the changes you make should get smaller and smaller. This is because you resolved your major issues during the prototyping phases.
- Unfortunately, this is the time when most game designers actually wind up designing their games, and this can lead to numerous problems related to time, money, and frustration.

Step 7: Quality Assurance

- By the time the project is ready for quality assurance testing, you should be very sure that your gameplay is solid. There can still be some issues, so continue playtesting with an eye to usability. Now is the time to make sure your game is accessible to your entire target audience.

As you can see, the playcentric approach involves player feedback throughout the production process, which means you'll be doing lots of prototyping and playtesting at every stage of your game's development. You can't be the advocate for the player if you don't know what the player is thinking, and playtesting is the best mechanism by which you can elicit feedback and gain insight into your game. I cannot emphasize this fact enough, and I encourage any designer to rigorously build into any production schedule the means to continually isolate and playtest all aspects of their game as thoroughly as possible.

Prototypes and Playtesting in the Industry

In the game industry today, designers often skip the creation of a physical prototype altogether and jump straight from the concept stage to writing up the design. The problem with this method is that the software coding has commenced before anyone has a true sense for the game mechanics. The reason this is possible is because many games are simply variations on standard game mechanics, so the designers have a good idea of how the game