Briar Lee Mitchell

Game Design
ESSENTIALS

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for Richard and Adam

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ABOUT THE AUTHOR

Briar Lee Mitchell, MA, runs Star Mountain Studios, www.starmountainstudios
.com, a successful gaming company, with her partners, Richard Sternberg and
Adam Ryan. They produced an online video game with Joe Perry of Aerosmith,
Genie Joe and the Axeman, and *Apparitions* with Jason Hawes and Grant Wilson,
the Ghost Hunters and founders of The Atlantic Paranormal Society (TAPS).

Briar is also on the faculty at the Art Institute, teaching game art, animation,
and VFX techniques for TV, film, and games.

Briar began work as an illustrator in 1977 and has degrees from the University
of Toledo (Ohio, BA in art) and the University of California, San Francisco (MA in
medical and biological illustration).

She worked in conjunction with Lucasfilm on the very first interactive videodisc
for the Smithsonian, titled *The Life and Times of Albert Einstein*. The videodisc
and a portrait she painted of Albert Einstein are still at the Smithsonian.

Briar joined the Society of Illustrators of Los Angeles (SILA) in 1992 and
served as president for two years. Through her association with SILA, she
became a member of the Air Force Art Program; she traveled around the world
with the Air Force to document its work in paintings that have been inducted
into the National Archives in Washington, DC. Her travels have taken her to

Asia, the South Pacific, New Zealand, and as far away as McMurdo Station at the South Pole along with noted director/producer James Cameron.

You can view Briar's work for environments at `www.paisleyshark.com` and her medical/forensic work at `www.medicalart-briarlee.com`. You can contact Briar at `briarlee@aol.com`.

In the photo with Briar is Bardy, an amazing Labrador who is her partner in K9 Search and Rescue.

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INTRODUCTION

We have played games for thousands of years, to learn how to improve military skills, increase math and business abilities, learn new talents, sharpen old ones, and just have fun. Games are an integral part of being human, and there seems to be a game to fit each of our many different interests. Games have evolved right along with humans, and their development has been influenced strongly by culture and technology.

The gaming experience changed remarkably with the introduction of video games in the 1960s and 1970s, when intrepid inventors built them and made them available for everyone to enjoy. As technology has bloomed and the Internet has radically changed everyone's life, the growth of games, with their inventive use of this technology, continues to enthrall gamers in ever-increasing numbers.

Faster animation, more detailed graphics, and advanced sophistication in sound contribute to creating gameplay that is intriguing, compelling, and addictive. Consumers are spending more money and time on games, whether on a console, their home computer, or a mobile device or phone. There is no abatement in the desire to play, which means opportunities for those of us who love both playing and creating games.

Game makers have evolved to embrace the constantly improving technology to bring us more sophisticated and compelling games to play. Their efforts appear seamless to the gamer, but the work behind the scenes requires a huge array of skills and teamwork.

I hope this book will be an inspiration to those of you on the starting line of finding your way into the intriguing world of making games.

Who Should Read This Book

This book is for people who are interested in computer games and what goes into making them, folks who might want to segue into this field, and students in game art.

What You Will Learn

You'll gain a great understanding of how games are made and the importance of gameplay style. You'll get practical advice on creating characters, props, environments, and interfaces. The book also provides practice working with visuals,

audio, navigation, and interfaces. Throughout, you'll learn to keep gameplay at the forefront, which is what any successful game maker does.

In addition to learning about making games, you'll learn a great deal about the industry. When you finish this book, you'll know more about the roles and pipelines involved in the production of games and be able to refine your own ideas about what you want to do in the industry.

If you have an interest in making games or working in the industry and you just aren't sure where to start, there is a lot of information here to help you understand how games are made, who does what during production, and methods for distributing and marketing games.

Reader Requirements

If you have an interest in computer games, enjoy playing them, and might like to make them, those are all the requirements you need.

What Is Covered in This Book

Game Design Essentials is written to help people who have an interest in creating games and may wish to segue into this field, and for students already in school. The book's web page is located at www.sybex.com/go/gamedesignessentials, where you can download files mentioned in the book and additional documents.

Chapter 1: Game Design Origins   In order to understand how games are designed and created today, you'll examine their historical origins. This chapter includes a look at some of the earliest games known to man and how their design and gameplay are apparent in modern productions.

Chapter 2: Gameplay Styles   This chapter examines what gameplay styles are and how important they are to a successful product. Too often, new game makers focus on the look of the game, when in fact the most important component of a successful game is gameplay. You'll study elements that make up good gameplay and review the major categories of gameplay style.

Chapter 3: Core Game Design Concepts   This chapter walks through the first steps of writing a game and takes you from concept to script to Game Design Document to pitch. You'll learn how to prepare the synopsis, establish the goals, and write a logline. Chapter 3 covers essential information about describing the look and functionality of characters, props, and environments and about creating lore.

Chapter 4: Visual Design   This chapter covers the basics of how to begin designing characters, props, environments, and interfaces from concept to finished art. Information provided includes methods for working on original work, how to find inspiration, and the impact gameplay style and demographics have on designing visuals for a game.

Chapter 5: Detailed Development of Visuals   Chapter 4 discussed some of the initial visuals created for a game. This chapter provides more detailed descriptions for creating 3D models, color, texture, and lighting. In addition, the chapter provides an overview of design graphics.

Chapter 6: Navigation and Interfaces   Navigation, when referencing game design, deals with how the player can move through a game. This includes adjusting visuals and sound, where to find interactive elements in the game, and how to move about the world being created. An interface is what allows a gamer to interact with the game. This chapter examines some of the types of interfaces typical to games, including diegetic and non-diegetic.

Chapter 7: Designing Levels and the Game Design Document   The levels reviewed in this chapter have to do with where the player is in the game world, and what they experience while they are there. You'll learn how to plot out a physical area for a game and then understand how game makers plan events. The Game Design Document (GDD) is a written tome that game makers create, which contains everything related to the game from initial log line to the full, finished list of assets that have been or need to be created for the project.

Chapter 8: Sound   Sound for games helps to define the mood for the project and can telegraph changes in the gameplay. The chapter explains how musical scores are created and describes the methods audio designers use to create sound effects.

Chapter 9: Job Descriptions, Game Tracking, and Legal Issues   This chapter reviews a variety of jobs and their duties, along with how they relate to large versus small productions. In addition, game pipelines and how they work with regard to tracking a production are discussed. The chapter also covers legal issues related to game production and game marketing, such as trademarks, copyright, and standards.

Chapter 10: Distribution and Marketing   Game sales have increased tremendously over the past few years, surpassing even the feature film industry. As methods for playing games through the Internet, home computer systems, and so on have increased, so have the methods for marketing games. This chapter looks at some of those unique methods, such as in-game advertising and advergames.

Appendix A   This appendix contains the answers to the review questions from each chapter.

Appendix B   This appendix is about getting started in the field. It provides information on education, internships, entry-level positions, and a wealth of resources for networking and staying current. The appendix also provides detailed information about preparing a flatbook, a reel, and other materials you may need as you apply for jobs and internships.

Appendix C   This appendix contains an excerpt from the Game Design Document (GDD) for *Red Harvest* from Bedlam Games. This excerpt shows you the kind of information and the level of detail found in a GDD.

Game Design Origins

In order to understand how game design has evolved, let's take a look back at their origins, to get some insight into how games today are planned and executed. Looking beyond your own knowledge base is the core of learning, and that is what this book is aimed at doing—helping you learn how games are designed and made.

There is no doubt that human beings enjoy games. According to Hudson Square Research, game-sale revenue surpassed that of films in the United States in 2005 and became a global phenomenon in 2008, exceeding film sales. Game revenue in 2011 reached $48.9 billion. You can read more at `http://www.videogamesblogger.com/2008/04/09/global-videogame-sales-surpass-movie-industry-in-2008.htm`. Literally thousands of games have been developed and played for millennia, with the oldest known one, *The Royal Game of Ur* (2500 BC), chronicling the start of it all in recorded history. We play games for fun, we play them to learn, and we play them to be competitive.

In this chapter, we'll take a look at how gaming evolved and how many of the core principles are still applicable in today's games.

▶ **What is a game?**

▶ **History: going way back**

▶ **Going electronic**

▶ **And now we are digital**

What Is a Game?

If we define a *game* as an activity that brings pleasure, that definition is too broad. Many things can bring pleasure, like reading, cooking, or engaging in conversation with a good friend. However, if you combine an activity with a challenge and a set of rules, then you have the basics of what makes a game. The challenge is to reach the end goal—to win—using the game components and the rules for using them.

Some games require elaborate playing pieces and richly constructed environments, either virtual or practical; however, some games can be played verbally or by thinking through the demands of the game to achieve the win. Rhyming games, for example, don't need tangible elements. When I was a child, taking long road trips with my family, my mother sought to distract us from getting bored and unruly by having us play the *I Spy* game. The rules were simple: watch the other cars on the road and try to "spy" as many different license plates as possible, or color or make of car, or just convertibles or motorcycles, and so on.

One of my favorite games that can be played without pieces, *The Six Degrees of Kevin Bacon*, is a trivia game based on the philosophical concept of six degrees of separation. This concept, proposed by Frigyes Karinthy, holds that everyone is linked to everyone one else in the world through a chain of no more than six people. In February 1994, during an interview with *Premiere Magazine*, Bacon commented that he had worked with everyone in Hollywood. The movie *Six Degrees of Separation*, based on Karinthy's premise and the play written by John Guare, debuted around the same time, prompting people to associate Bacon with that phenomenon.

Games can be played individually, one on one, or in groups. Our fascination with games has grown to be a global phenomenon extending beyond traditional board and card games to small and efficient handheld units, personal computers, powerful home-entertainment systems, and the Internet, where millions of gamers can log in with high-speed connections to play everything from simple games of solitaire to massive multiple-player competitions in real time. Figure 1.1 shows one type of competition where gamers come from all over the world to compete with one another in online games that are broadcast on enormous Jumbotrons to fans who come just to watch them play. What is fascinating about this image is that the majority of people at the event are so intrigued with the gameplay that they come just to watch others battle it out. Gaming has become so large in some instances that, as you see in the picture, it has become a spectator sport.

Games are designed to entertain, to teach, and to spark the spirit of competition. As far as entertaining games go, several top sellers vie for the crown of being the most popular, including *Mario Bros., Halo, The Legend of Zelda, Grand Theft Auto,* and *Metroid Prime.* The reigning champ for entertaining games, according to GamePro, is *Windows Solitaire*—the single-player version. This casual game has been played by millions of people.

One remarkable example of an educational game is *Oregon Trail*, dreamed up over 40 years ago by three student teachers in Minnesota. Don Rawitsch, Bill Heinemann, and Paul Dillenberger created the landmark game that traces the 2,000-mile path traveled by pioneers in the old West from Independence, Missouri to Willamette Valley, Oregon.

FIGURE 1.1 World Cyber Games

For many players, *Oregon Trail* was their introduction to the world of digital games, and it still holds the record for the most sales for an educational game. Fans of the game watched it grow from a small game designed to help students learn history in the Minnesota school system to a game played on multiple platforms today including Windows, iPhone, iPod Touch, and Facebook. Players travel the route, and along the way they must keep track of their resources and deal with many hazards such as bad weather, rough terrain, and poor health. The last of these spawned one of the most popular catch phrases of the game: "You have died of dysentery."

Prestige or financial gain can be associated with how well you do at playing games. People who play online games where scores are tracked compete not only at playing the game but also with each other to see who can achieve the highest score. Gamblers playing games of chance like poker, roulette, and craps can achieve both notoriety and tremendous financial gain—or, in some cases, devastating losses.

In order to understand how and why games came about, it's critical to grasp some of their core principles, such as rules, chance, and the elements used to design them. Understanding some of this background will also shed light on

the broad range of game types. Simply trotting out names of games and a brief description of the products won't help you understand why certain games or trends in gaming developed the way they did.

Why Are There Rules?

To say that a game has *rules* is another way of saying there is a structure to adhere to in order to understand how the player can compete and win. The term *rules* sounds stifling, but in the world of gaming, it's the very framework that allows the player to master the gameplay.

This isn't to say that every single game has rules; however, some people would argue that having rules is one of the definitions of what a game is. Other gamers prefer to design and/or play more freeform games that don't rely on rules. All games must have some sort of *game mechanic* in order to be created, so if you eliminate that as a definition of rules, then technically there are games without rules, and there are games that can be played differently from the intended set of goals laid out by the developers.

Game mechanics are basically the building blocks of the game design. For example, in *World of Warcraft*, mana for spells is a game mechanic. The game uses the concept of mana to define how many spells a player can cast. Combine that with the game mechanic of "spirit" to define how fast a player replenishes their mana. Mechanics and rules are pretty closely entwined. Mechanics tend to be more subtle, behind-the-scenes rules, though they can also be pretty large and noticeable, like games that are turn-based—a turn is a game mechanic to control the amount of action a player can do in a given situation. Games without rules are primarily *sandbox games*, where you're typically given a world and some direction and then set free to do as you will. To allow you to act freely, a lot of variety in game mechanics is built into these games. A term for that is *emergent gameplay*: basically, making the world interactive enough that the player can do things the designers hadn't originally intended.

Designer Will Wright creates games that fall into this sandbox category. Take a look at his creation, *The Sims*, which is essentially an ecology god game. You're given all the tools to affect the makeup of a planet, and you watch how it evolves and what sorts of life forms thrive. Everything in the world, from the buildings to the weather to the beings that inhabit it, is decided on by the player.

Will Wright commented on the way he played *Grand Theft Auto: San Andreas*, explaining that he didn't play the game as the designers intended, which would have involved stealing cars and doing missions to build a criminal empire. He instead played as though his character was a homeless guy wandering around the city and trying to survive.