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Excerpt from *The Grasshopper: Games, Life and Utopia* by Bernard Suits.
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DESIGNED BY NICOLE LAROCHE

for my husband, Kiyash,

who is better at every game than I am,

except for Werewolf

INTRODUCTION

Reality Is Broken

Anyone who sees a hurricane coming should warn others. I see a hurricane coming.

Over the next generation or two, ever larger numbers of people, hundreds of millions, will become immersed in virtual worlds and online games. While we are playing, things we used to do on the outside, in "reality," won't be happening anymore, or won't be happening in the same way. You can't pull millions of person-hours out of a society without creating an atmospheric-level event.

If it happens in a generation, I think the twenty-first century will see a social cataclysm larger than that caused by cars, radios, and TV, combined. . . . The exodus of these people from the real world, from our normal daily life, will create a change in social climate that makes global warming look like a tempest in a teacup.

— EDWARD CASTRONOVA,
Exodus to the Virtual World[1]

Gamers have had enough of reality.

They are abandoning it in droves—a few hours here, an entire weekend there, sometimes every spare minute of every day for stretches at a time—in favor of simulated environments and online games. Maybe you are one of these gamers. If not, then you definitely know some of them.

Who are they? They are the nine-to-fivers who come home and apply all of the smarts and talents that are underutilized at work to plan and coordinate complex raids and quests in massively multiplayer online games like *Final Fantasy XI* and the *Lineage* worlds. They're the music lovers who have invested hundreds of dollars on plastic *Rock Band* and *Guitar Hero* instruments and spent night after night rehearsing, in order to become virtuosos of video game performance.

They're the *World of Warcraft* fans who are so intent on mastering the challenges of their favorite game that, collectively, they've written a quarter of a million wiki articles about the fictional universe—creating a wiki resource nearly one-tenth the size of the entire Wikipedia.[2] They're the *Brain Age* and *Mario Kart* players who take handheld game consoles everywhere they go, sneaking in short puzzles, races, and minigames as often as possible, and as a result nearly eliminating mental downtime from their lives.

They're the United States troops stationed overseas who dedicate so many hours a week to burnishing their *Halo* 3 in-game service record that earning virtual combat medals is widely known as the most popular activity for off-duty soldiers. They're the young adults in China who have spent so much play money, or "QQ coins," on magical swords and other powerful game objects that the People's Bank of China intervened to prevent the devaluation of the yuan, China's real-world currency.[3]

Most of all, they're the kids and teenagers worldwide who would rather spend hours in front of just about any computer game or video game than do anything else.

These gamers aren't rejecting reality entirely. They have jobs, goals, schoolwork, families, commitments, and real lives that they care about. But as they devote more and more of their free time to game worlds, the *real* world increasingly feels like it's missing something.

Gamers want to know: Where, in the real world, is that gamer sense of being fully alive, focused, and engaged in every moment? Where is the gamer feeling of power, heroic purpose, and community? Where are the bursts of exhilarating and creative game accomplishment? Where is the heart-expanding thrill of success and team victory? While gamers may experience these pleasures occasionally in their real lives, they experience them almost constantly when they're playing their favorite games.

The real world just doesn't offer up as easily the carefully designed pleasures, the thrilling challenges, and the powerful social bonding afforded by virtual environments. Reality doesn't motivate us as effectively. Reality isn't engineered to maximize our potential. Reality wasn't designed from the bottom up to make us happy.

And so, there is a growing perception in the gaming community:

Reality, compared to games, is broken.

In fact, it is more than a perception. It's a phenomenon. Economist Edward Castronova calls it a "mass exodus" to game spaces, and you can see it already happening in the numbers. Hundreds of millions of people worldwide are opting out of reality for larger and larger chunks of time. In the United States alone, there are 183 million *active gamers* (individuals who, in surveys, report that they play computer or video games "regularly"—on average, thirteen hours a week).[4] Globally, the online gamer community—including console, PC, and mobile phone gaming—counts more than 4 million gamers in the Middle East, 10 million in Russia, 105 million in India, 10 million in Vietnam, 10 million in Mexico, 13 million in Central and South America, 15 million in Australia, 17 million in South Korea, 100 million in Europe, and 200 million in China.[5]

Although a typical gamer plays for just an hour or two a day, there are now more than 6 million people in China who spend at least twenty-two hours a week gaming, the equivalent of a part-time job.[6] More than 10 million "hardcore" gamers in the United Kingdom, France, and Germany spend at least

twenty hours a week playing.[7] And at the leading edge of this growth curve, more than 5 million "extreme" gamers in the United States play on average forty-five hours a week.[8]

With all of this play, we have turned digital games—for our computers, for our mobile phones, and for our home entertainment systems—into what is expected to be a $68 billion industry annually by the year 2012.[9] And we are creating a massive virtual silo of cognitive effort, emotional energy, and collective attention lavished on game worlds instead of on the real world.

The ever-skyrocketing amounts of time and money spent on games are being observed with alarm by some—concerned parents, teachers, and politicians—and eagerness by others—the many technology industries that expect to profit greatly from the game boom. Meanwhile, they are met with bewilderment and disdain by more than a few nongamers, who still make up nearly half of the U.S. population, although their numbers are rapidly decreasing. Many of them deem gaming a clear waste of time.

As we make these value judgments, hold moral debates over the addictive quality of games, and simultaneously rush to achieve massive industry expansion, a vital point is being missed. The fact that so many people of all ages, all over the world, are choosing to spend so much time in game worlds is a sign of something important, a truth that we urgently need to recognize.

The truth is this: in today's society, computer and video games are fulfilling *genuine human needs* that the real world is currently unable to satisfy. Games are providing rewards that reality is not. They are teaching and inspiring and engaging us in ways that reality is not. They are bringing us together in ways that reality is not.

And unless something dramatic happens to reverse the resulting exodus, we're fast on our way to becoming a society in which a substantial portion of our population devotes its greatest efforts to playing games, creates its best memories in game environments, and experiences its biggest successes in game worlds.

Maybe this sounds hard to believe. To a nongamer, this forecast might seem surreal, or like science fiction. Are huge swaths of civilization really

disappearing into game worlds? Are we really rushing headlong into a future where the majority of us use games to satisfy many of our most important needs?

If so, it will not be the first time that such a mass exodus from reality to games has occurred. Indeed, the very first written history of human gameplay, Herodotus' *Histories*, the ancient Greek account of the Persian Wars—dating back more than three thousand years—describes a nearly identical scenario. While the oldest known game is the ancient counting game Mancala—evidence shows it was played during Egypt's age of empires, or the fifteenth to the eleventh centuries BC—it was not until Herodotus that anyone thought to record the origins or cultural functions of these games. And from his ancient text, we can learn a great deal about what's happening today—and what's almost certainly coming next.

It's a bit counterintuitive to think about the future in terms of the past. But as a research director at the Institute for the Future—a nonprofit think tank in Palo Alto, California, and the world's oldest future-forecasting organization—I've learned an important trick: to develop foresight, you need to practice hindsight. Technologies, cultures, and climates may change, but our basic human needs and desires—to survive, to care for our families, and to lead happy, purposeful lives—remain the same. So at IFTF we like to say, "To understand the future, you have to look back at least twice as far as you're looking ahead." Fortunately, when it comes to games, we can look even farther back than that. Games have been a fundamental part of human civilization for thousands of years.

In the opening book of *The Histories*, Herodotus writes:

> When Atys was king of Lydia in Asia Minor some three thousand years ago, a great scarcity threatened his realm. For a while people accepted their lot without complaining, in the hope that times of plenty would return. But when things failed to get better, the Lydians devised a strange remedy for their problem. The plan adopted against the famine was to engage in games one day so entirely as

> not to feel any craving for food . . . and the next day to eat and abstain from games. In this way they passed eighteen years, and along the way they invented the dice, knuckle-bones, the ball, and all the games which are common.[10]

What do ancient dice made from sheep's knuckles have to do with the future of computer and video games? More than you might expect.

Herodotus invented history as we know it, and he has described the goal of history as uncovering moral problems and moral truths in the concrete data of experience. Whether Herodotus' story of an eighteen-year famine survived through gameplay is true or, as some modern historians believe, apocryphal, its moral truths reveal something important about the essence of games.

We often think of immersive gameplay as "escapist," a kind of passive retreat from reality. But through the lens of Herodotus' history, we can see how games could be a *purposeful* escape, a thoughtful and active escape, and most importantly an extremely helpful escape. For the Lydians, playing together as a nearly full-time activity would have been a behavior highly adaptive to difficult conditions. Games made life bearable. Games gave a starving population a feeling of power in a powerless situation, a sense of structure in a chaotic environment. Games gave them a better way to live when their circumstances were otherwise completely unsupportive and uninhabitable.

Make no mistake: we are no different from the ancient Lydians. Today, many of us are suffering from a vast and primal hunger. But it is not a hunger for food—it is a hunger for more and better engagement from the world around us.

Like the ancient Lydians, many gamers have already figured out how to use the immersive power of play to distract themselves from their hunger: a hunger for more satisfying work, for a stronger sense of community, and for a more engaging and meaningful life.

Collectively, the planet is now spending more than 3 billion hours a week gaming.

We are starving, and our games are feeding us.

AND SO, in 2011, we find ourselves at a major tipping point.

We can stay on the same course. We can keep feeding our appetites with games. And we can watch the game industry continue to create bigger, better, and more immersive virtual worlds that provide increasingly compelling alternatives to reality.

If we stay this course, we will almost certainly see the exodus from reality continue. Indeed, we are already well on our way to a world in which many of us, like the ancient Lydians, spend half our time gaming. Given all the problems in the world, would it really be so bad to pass the coming decades as the Lydians did?

Or we could try to reverse course. We could try to block gamers' exit from reality—perhaps by culturally shaming them into spending more time in reality, or by trying to keep video games out of the hands of kids, or, as some U.S. politicians have already proposed, by heavily taxing them so that gaming becomes an unaffordable lifestyle.[11]

To be honest, none of those options sounds like a future I'd want to live in.

Why would we want to waste the power of games on escapist entertainment?

Why would we want to waste the power of games by trying to squelch the phenomenon altogether?

Perhaps we should consider a third idea. Instead of teetering on the tipping point between games and reality, what if we threw ourselves off the scale and tried something else entirely?

What if we decided to use everything we know about game design to fix what's wrong with reality? What if we started to live our real lives like gamers, lead our real businesses and communities like game designers, and think about solving real-world problems like computer and video game theorists?

Imagine a near future in which most of the real world works more like a game. But is it even possible to create this future? Would it be a reality we would be happier to live in? Would it make the world a better place?

When I consider this potential future, it's not just a hypothetical idea. I've

already posed it as a very real challenge to the one community who can truly help launch this transformation: the people who make games for a living. I'm one of them—I've been designing games professionally for the past decade. And I've come to believe that people who know how to make games need to start focusing on the task of making real life better for as many people as possible.

I haven't always been so sure of this mission. It has taken a good ten years of research and a series of increasingly ambitious game projects to get to this point.

Back in 2001, I started my career by working on the fringes of the game-design industry, at tiny start-up companies and experimental design labs. More often than not, I was working for free, designing puzzles and missions for low-budget computer and mobile phone games. I was happy when they were played by a few hundred people, or—when I was really lucky—a few thousand. I studied those players as closely as possible. I watched them while they played, and I interviewed them afterward. I was just starting to learn what gives games their power.

During those early years, I was also a "starving" graduate student—earning a PhD in performance studies from the University of California at Berkeley. I was the first in my department to study computer and video games, and I had to make it up as I went along, bringing together different findings from psychology, cognitive science, sociology, economics, political science, and performance theory in order to try to figure out exactly what makes a good game work. I was particularly interested in how games could change the way we think and act in everyday life—a question that, back then, few, if any, researchers were looking at.

Eventually, as a result of my research, I published several academic papers (and eventually a five-hundred-page dissertation) proposing how we could leverage the power of games to reinvent everything from government, health care, and education to traditional media, marketing, and entrepreneurship—even world peace. And increasingly, I found myself called on to help large companies and organizations adopt game design as an innovation strategy—from the World Bank, the American Heart Association, the National Academy

of Sciences, and the U.S. Department of Defense to McDonald's, Intel, the Corporation for Public Broadcasting, and the International Olympic Committee. You'll read about many of the games I created with these organizations in this book—and for the first time, I'll be sharing my design motivations and strategies.

The inspiration for this book came in the spring of 2008, when I was invited to deliver the annual "rant" at the Game Developers Conference, the most important industry gathering of the year. The rant is supposed to be a wake-up call, a demand to shake up the industry. It's always one of the most popular sessions at the conference. That year, the room was packed to standing-room capacity with more than a thousand of the world's leading game designers and developers. And in my rant, they heard the same argument you're reading here: that reality is broken, and we need to start making games to fix it.

When I finished, the applause and cheers took what seemed like forever to die down. I had been nervous that my rant would be rejected by my peers. Instead, it seemed to strike a chord with the industry. I started to get e-mails every single day from people who had heard about the rant or read the transcript online and wanted to help. Some were just starting out in the industry and had no idea how to go about doing it. Others were industry leaders who genuinely wanted to change the direction of games for good. Seemingly overnight, start-up companies were founded, capital was raised, and today there are hundreds of games in development that aspire to change reality for the better. I wouldn't dream of taking credit for this turn of events, of course. I was just lucky enough to be one of the first people to see it happening, and one of the strongest voices cheering it on.

In 2009, I was invited back to the Game Developers Conference to give a keynote address about what game developers needed to do over the next decade to reinvent reality as we know it. This time, I wasn't surprised to discover that some of the most popular sessions at the conference were about "games for personal and social change," "positive impact games," "social reality games," "serious games," and "leveraging the play of the planet." Everywhere I turned, I saw evidence that this movement to harness the power of games for good had already started to happen. Suddenly, my personal mission

to see a game developer win a Nobel Peace Prize in the next twenty-five years didn't seem so far-fetched.

When I look at the remarkable world-changing work game developers are starting to do, I see an opportunity to reinvent the ancient history of games for the twenty-first century.

Some twenty-five hundred years ago, Herodotus looked back and saw the early games played by the Greeks as an explicit attempt to alleviate suffering. Today, I look forward and I see a future in which games once again are explicitly designed to improve quality of life, to prevent suffering, and to create real, widespread happiness.

When Herodotus looked back, he saw games that were large-scale systems, designed to organize masses of people and make an entire civilization more resilient. I look forward to a future in which massively multiplayer games are once again designed in order to reorganize society in better ways, and to get seemingly miraculous things done.

Herodotus saw games as a surprising, inventive, and effective way to intervene in a social crisis. I, too, see games as potential solutions to our most pressing shared problems. He saw that games could tap into our strongest survival instincts. I see games that once again will confer evolutionary advantage on those who play them.

Herodotus tells us that in the past games were created as a virtual solution to unbearable hunger. And, yes, I see a future in which games continue to satisfy our hunger to be challenged and rewarded, to be creative and successful, to be social and part of something larger than ourselves. But I also see a future in which the games we play *stoke* our appetite for engagement, pushing and enabling us to make stronger connections—and bigger contributions—to the world around us.

The modern history of computer and video games is the story of game designers ascending to very powerful positions in society, effectively enthralling the hearts and minds—and directing the energies and attention—of increasingly large masses of people. Game designers today are extremely adept wielders of that power, no doubt more adept than any game designers in all of human history. They have been honing their craft and refining their tactics

for thirty years now. And so it is that more and more people are being drawn to the power of computer and video games—and finding themselves engaged by them for longer and longer periods of time, for greater and greater stretches of their lives.

Amazingly, some people have no interest in understanding why this is happening or figuring out what we could do with it. They will never pick up a book about games, because they're already certain they know exactly what games are good for—wasting time, tuning out, and losing out on real life.

The people who continue to write off games will be at a major disadvantage in the coming years. Those who deem them unworthy of their time and attention won't know how to leverage the power of games in their communities, in their businesses, in their own lives. They will be less prepared to shape the future. And therefore they will miss some of the most promising opportunities we have to solve problems, create new experiences, and fix what's wrong with reality.

Fortunately, the gap between gamers and nongamers is growing smaller all the time. In the United States, the biggest gaming market in the world, the majority of us are already gamers. Some recent relevant statistics from the Entertainment Software Association's annual study of game players—the largest and most widely respected market research report of its kind:

- 69 percent of all heads of household play computer and video games.
- 97 percent of youth play computer and video games.
- 40 percent of all gamers are women.
- One out of four gamers is over the age of fifty.
- The average game player is thirty-five years old and has been playing for twelve years.
- Most gamers expect to continue playing games for the rest of their lives.[12]

Meanwhile, the scientific journal *Cyberpsychology, Behavior, and Social Networking* reported in 2009 that 61 percent of surveyed CEOs, CFOs, and other senior executives say they take daily game breaks at work.[13]

These numbers demonstrate how quickly a gaming culture can take hold. And trends from every continent—from Austria, Brazil, and the United Arab Emirates to Malaysia, Mexico, New Zealand, and South Africa—show that gamer markets are emerging rapidly with similarly diverse demographics. Over the next decade, these new markets will increasingly resemble, if not completely catch up to, those in leading gamer countries like South Korea, the United States, Japan, and the United Kingdom today.

As games journalist Rob Fahey famously pronounced in 2008: "It's inevitable: soon we will all be gamers."[14]

We have to start taking this growing gamer majority seriously. We are living in a world full of games and gamers. And so we need to decide now what kinds of games we should make together and how we will play them together. We need a plan for determining how games will impact our real societies and our real lives. We need a framework for making these decisions and for shaping these plans. This book, I hope, could serve as that framework. It's written for gamers and for everyone who will one day become a gamer—in other words, for virtually every person on this planet. It's an opportunity to understand now how games work, why humans are so drawn to them, and what they can do for us in our real lives.

If you are a gamer, it's time to get over any regret you might feel about spending so much time playing games. You have *not* been wasting your time. You have been building up a wealth of virtual experience that, as the first half of this book will show you, can teach you about your true self: what your core strengths are, what really motivates you, and what make you happiest. As you'll see, you have also developed world-changing ways of thinking, organizing, and acting. And, as this book reveals, there are already plenty of opportunities for you to start using them for real-world good.

If you don't have a lot of personal experience with games yet, then this book will help you jump-start your engagement with the most important medium of the twenty-first century. By the time you're finished reading it, you'll be deeply familiar with the most important games you can play today—and be able to imagine the kinds of important games we will make and play in the years to come.

If you're not already a gamer, it's entirely possible that you still might not become the kind of person to spend hours in front of a video game. But by reading this book, you will better understand the people who do. And even if you would *never* play computer or video games, let alone make one, you can benefit enormously from learning exactly how good games work—and how they can be used to fix real-world problems.

Game developers know better than anyone else how to inspire extreme effort and reward hard work. They know how to facilitate cooperation and collaboration at previously unimaginable scales. And they are continuously innovating new ways to motivate players to stick with harder challenges, for longer, and in much bigger groups. These crucial twenty-first-century skills can help all of us find new ways to make a deep and lasting impact on the world around us.

Game design isn't just a technological craft. It's a twenty-first-century way of thinking and leading. And gameplay isn't just a pastime. It's a twenty-first-century way of working together to accomplish real change.

Antoine de Saint Exupéry once wrote:

> As for the future, your task is not to see it, but to enable it.

Games, in the twenty-first century, will be a primary platform for enabling the future.

SO LET ME describe the particular future that I want to create.

Instead of providing gamers with better and more immersive alternatives to reality, I want all of us to be responsible for providing the world at large with a better and more immersive reality. I want gaming to be something that everybody does, because they understand that games can be a real solution to problems and a real source of happiness. I want games to be something everybody learns how to design and develop, because they understand that games are a real platform for change and getting things done. And I want families, schools, companies, industries, cities, countries, and the whole world to come

together to play them, because we're finally making games that tackle real dilemmas and improve real lives.

If we take everything game developers have learned about optimizing human experience and organizing collaborative communities and apply it to real life, I foresee games that make us wake up in the morning and feel thrilled to start our day. I foresee games that reduce our stress at work and dramatically increase our career satisfaction. I foresee games that fix our educational systems. I foresee games that treat depression, obesity, anxiety, and attention deficit disorder. I foresee games that help the elderly feel engaged and socially connected. I foresee games that raise rates of democratic participation. I foresee games that tackle global-scale problems like climate change and poverty. In short, I foresee games that augment our most essential human capabilities—to be happy, resilient, creative—and empower us to change the world in meaningful ways. Indeed, as you'll see in the pages ahead, such games are already coming into existence.

The future I've described here seems both desirable and plausible to me. But in order to create this future, several things need to happen.

We will have to overcome the lingering cultural bias against games, so that nearly half the world is not cut off from the power of games.

We need to build hybrid industries and unconventional partnerships, so that game researchers and game designers and game developers can work with engineers and architects and policy makers and executives of all kinds to harness the power of games.

Finally, but perhaps most importantly, we all need to develop our core game competencies so we can take an active role in changing our lives and enabling the future.

This book is designed to do just that. It will build up your ability to enjoy life more, to solve tougher problems, and to lead others in world-changing efforts.

In **Part I: Why Games Make Us Happy**, you'll go inside the minds of top game designers and game researchers. You'll find out exactly which emotions the most successful games are carefully engineered to provoke—and how these feelings can spill over, in positive and surprising ways, into our real lives and relationships.

In **Part II: Reinventing Reality**, you'll discover the world of alternate reality games. It's the rapidly growing field of new software, services, and experiences meant to make us as happy and successful in our real lives as we are when we're playing our favorite video games. If you've never heard of ARGs before, you may be shocked to discover how many people are already making and playing them. Hundreds of start-up companies and independent designers have devoted themselves to applying leading-edge game design and technologies to improving our everyday lives. And millions of gamers have already discovered the benefits of ARGs firsthand. In this section, you'll find out how ARGs are already starting to raise our quality of life at home and at school, in our neighborhoods and our workplaces.

Finally, in **Part III: How Very Big Games Can Change the World**, you'll get a glimpse of the future. You'll discover ten games designed to help ordinary people achieve the world's most urgent goals: curing cancer, stopping climate change, spreading peace, ending poverty. You'll find out how new participation platforms and collaboration environments are making it possible for anyone to help invent a better future, just by playing a game.

Ultimately, the people who understand the power and potential of games to both make us happy and change reality will be the people who invent our future. By the time you finish reading this book, *you* will be an expert on how good games work. With that knowledge, you'll make better choices about which games to play and when. More importantly, you'll be ready to start inventing your own new games. You'll be prepared to create powerful, alternate realities for yourself and for your family; for your school, your business, your neighborhood, or any other community you care about; for your favorite cause, for an entire industry, or for an entirely new movement.

We can play any games we want. We can create any future we can imagine.

Let the games begin.

PART ONE

Why Games Make Us Happy

One way or another, if human evolution is to go on, we shall have to learn to enjoy life more thoroughly.

—MIHÁLY CSÍKSZENTMIHÁLYI[1]

CHAPTER ONE

What Exactly Is a Game?

Almost all of us are biased against games today—even gamers. We can't help it. This bias is part of our culture, part of our language, and it's even woven into the way we use the words "game" and "player" in everyday conversation.

Consider the popular expression "gaming the system." If I say that you're gaming the system, what I mean is that you're exploiting it for your own personal gain. Sure, you're technically following the rules, but you're playing in ways you're not meant to play. Generally speaking, we don't admire this kind of behavior. Yet paradoxically, we often give people this advice: "You'd better start playing the game." What we mean is, just do whatever it takes to get ahead. When we talk about "playing the game" in this way, we're really talking about potentially abandoning our own morals and ethics in favor of someone else's rules.

Meanwhile, we frequently use the term "player" to describe someone who manipulates others to get what they want. We don't really trust players. We have to be on our guard around people who play games—and that's why we might warn someone, "Don't play games with me." We don't like to feel that someone is using strategy against us, or manipulating us for their personal

amusement. We don't like to be played with. And when we say, "This isn't a game!," what we mean is that someone is behaving recklessly or not taking a situation seriously. This admonishment implies that games encourage and train people to act in ways that aren't appropriate for real life.

When you start to pay attention, you realize how collectively suspicious we are of games. Just by looking at the language we use, you can see we're wary of how games encourage us to act and who we are liable to become if we play them.

But these metaphors don't accurately reflect what it really means to play a well-designed game. They're just a reflection of our worst fears about games. And it turns out that what we're really afraid of isn't games; we're afraid of losing track of where the game ends and where reality begins.

If we're going to fix reality with games, we have to overcome this fear. We need to focus on how real games actually work, and how we act and interact when we're playing the same game *together*.

Let's start with a really good definition of *game*.

The Four Defining Traits of a Game

Games today come in more forms, platforms, and genres than at any other time in human history.

We have single-player, multiplayer, and massively multiplayer games. We have games you can play on your personal computer, your console, your handheld device, and your mobile phone—not to mention the games we still play on fields or on courts, with cards or on boards.

We can choose from among five-second minigames, ten-minute casual games, eight-hour action games, and role-playing games that go on endlessly twenty-four hours a day, three hundred sixty-five days a year. We can play story-based games, and games with no story. We can play games with and without scores. We can play games that challenge mostly our brains or mostly our bodies—and infinitely various combinations of the two.

And yet somehow, even with all these varieties, when we're playing a game,

we just know it. There's something essentially unique about the way games structure experience.

When you strip away the genre differences and the technological complexities, all games share four defining traits: a *goal*, *rules*, a *feedback system*, and *voluntary participation*.

The **goal** is the specific outcome that players will work to achieve. It focuses their attention and continually orients their participation throughout the game. The goal provides players with *a sense of purpose*.

The **rules** place limitations on how players can achieve the goal. By removing or limiting the obvious ways of getting to the goal, the rules push players to explore previously uncharted possibility spaces. They *unleash creativity* and *foster strategic thinking*.

The **feedback system** tells players how close they are to achieving the goal. It can take the form of points, levels, a score, or a progress bar. Or, in its most basic form, the feedback system can be as simple as the players' knowledge of an objective outcome: "The game is over when . . ." Real-time feedback serves as a *promise* to the players that the goal is definitely achievable, and it provides *motivation* to keep playing.

Finally, **voluntary participation** requires that everyone who is playing the game knowingly and willingly accepts the goal, the rules, and the feedback. Knowingness *establishes common ground* for multiple people to play together. And the freedom to enter or leave a game at will ensures that intentionally stressful and challenging work is experienced as *safe* and *pleasurable* activity.

This definition may surprise you for what it lacks: interactivity, graphics, narrative, rewards, competition, virtual environments, or the idea of "winning"—all traits we often think of when it comes to games today. True, these are common features of many games, but they are not *defining* features. What defines a game are the goal, the rules, the feedback system, and voluntary participation. Everything else is an effort to reinforce and enhance these four core elements. A compelling story makes the goal more enticing. Complex scoring metrics make the feedback systems more motivating. Achievements and levels multiply the opportunities for experiencing success. Multiplayer and massively multiplayer experiences can make the prolonged play more

unpredictable or more pleasurable. Immersive graphics, sounds, and 3D environments increase our ability to pay sustained attention to the work we're doing in the game. And algorithms that increase the game's difficulty as you play are just ways of redefining the goal and introducing more challenging rules.

Bernard Suits, the late, great philosopher, sums it all up in what I consider the single most convincing and useful definition of a game ever devised:

> Playing a game is the voluntary attempt to overcome unnecessary obstacles.[1]

That definition, in a nutshell, explains everything that is motivating and rewarding and fun about playing games. And it brings us to our first fix for reality:

FIX #1: UNNECESSARY OBSTACLES

Compared with games, reality is too easy. Games challenge us with voluntary obstacles and help us put our personal strengths to better use.

To see how these four traits are essential to every game, let's put them to a quick test. Can these four criteria effectively describe what's so compelling about games as diverse as, say, golf, Scrabble, and *Tetris*?

Let's take golf to start. As a golfer, you have a clear goal: to get a ball in a series of very small holes, with fewer tries than anyone else. If you weren't playing a game, you'd achieve this goal the most efficient way possible: you'd walk right up to each hole and drop the ball in with your hand. What makes golf a game is that you willingly agree to stand really far away from each hole and swing at the ball with a club. Golf is engaging exactly because you, along with all the other players, have agreed to make the work more challenging than it has any reasonable right to be.

Add to that challenge a reliable feedback system—you have both the objective measurement of whether or not the ball makes it into the hole, plus the tally of how many strokes you've made—and you have a system that not only allows you to know when and if you've achieved the goal, but also holds out the hope of potentially achieving the goal in increasingly satisfying ways: in fewer strokes, or against more players.

Golf is, in fact, Bernard Suits' favorite, quintessential example of a game—it really is an elegant explanation of exactly how and why we get so thoroughly engaged when we play. But what about a game where the unnecessary obstacles are more subtle?

In Scrabble, your goal is to spell out long and interesting words with lettered tiles. You have a lot of freedom: you can spell any word found in the dictionary. In normal life, we have a name for this kind of activity: it's called typing. Scrabble turns typing into a game by restricting your freedom in several important ways. To start, you have only seven letters to work with at a time. You don't get to choose which keys, or letters, you can use. You also have to base your words on the words that other players have already created. And there's a finite number of times each letter can be used. Without these arbitrary limitations, I think we can all agree that spelling words with lettered tiles wouldn't be much of a game. Freedom to work in the most logical and efficient way possible is the very *opposite* of gameplay. But add a set of obstacles and a feedback system—in this case, points—that shows you exactly how well you're spelling long and complicated words in the face of these obstacles? You get a system of completely unnecessary work that has enthralled more than 150 million people in 121 countries over the past seventy years.

Both golf and Scrabble have a clear win condition, but the ability to win is not a necessary defining trait of games. *Tetris*, often dubbed "the greatest computer game of all time," is a perfect example of a game you cannot win.[2]

When you play a traditional 2D game of *Tetris*, your goal is to stack falling puzzle pieces, leaving as few gaps as possible in between them. The pieces

fall faster and faster, and the game simply gets harder and harder. It never ends. Instead, it simply waits for you to fail. If you play *Tetris*, you are *guaranteed* to lose.[3]

On the face of it, this doesn't sound very fun. What's so compelling about working harder and harder until you lose? But in fact, *Tetris* is one of the most beloved computer games ever created—and the term "addictive" has probably been applied to *Tetris* more than to any single-player game ever designed. What makes *Tetris* so addictive, despite the impossibility of winning, is the intensity of the feedback it provides.

As you successfully lock in *Tetris* puzzle pieces, you get three kinds of feedback: *visual*—you can see row after row of pieces disappearing with a satisfying poof; *quantitative*—a prominently displayed score constantly ticks upward; and *qualitative*—you experience a steady increase in how challenging the game feels.

This variety and intensity of feedback is the most important difference between digital and nondigital games. In computer and video games, the interactive loop is satisfyingly tight. There seems to be no gap between your actions and the game's responses. You can literally see in the animations and count on the scoreboard your impact on the game world. You can also feel how extraordinarily attentive the game system is to your performance. It only gets harder when you're playing well, creating a perfect balance between hard challenge and achievability.

In other words, in a good computer or video game you're always playing on the very edge of your skill level, always on the brink of falling off. When you do fall off, you feel the urge to climb back on. That's because there is virtually nothing as engaging as this state of working at the very limits of your ability—or what both game designers and psychologists call "flow."[4] When you are in a state of flow, you want to stay there: both quitting *and* winning are equally unsatisfying outcomes.

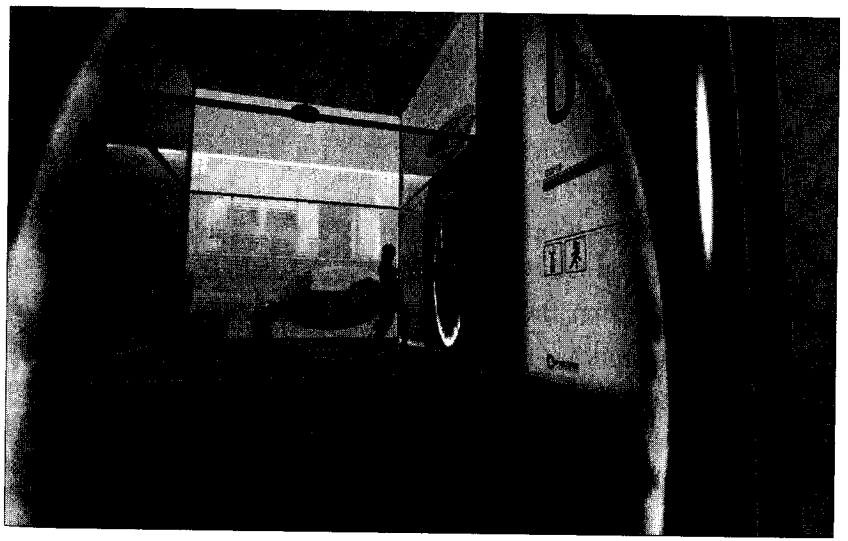
The popularity of an unwinnable game like *Tetris* completely upends the stereotype that gamers are highly competitive people who care more about winning than anything else. Competition and winning are *not* defining traits of games—nor are they defining interests of the people who love to play them.

Many gamers would rather keep playing than win—thereby ending the game. In high-feedback games, the state of being intensely engaged may ultimately be more pleasurable than even the satisfaction of winning.

The philosopher James P. Carse once wrote that there are two kinds of games: *finite games*, which we play to win, and *infinite games*, which we play in order to keep playing as long as possible.[5] In the world of computer and video games, *Tetris* is an excellent example of an infinite game. We play *Tetris* for the simple purpose of continuing to play a good game.

LET'S TEST OUR proposed definition for a game with one final example, a significantly more complex video game: the single-player action/puzzle game *Portal*.

When *Portal* begins, you find yourself in a small, clinical-looking room with no obvious way out. There is very little in this 3D environment to interact with: a radio, a desk, and what appears to be a sleeping pod. You can shuffle around the tiny room and peer out the glass windows, but that's about



Screenshot from the first room of *Portal*.
(Valve Corporation, 2007)

it. There's nothing obvious to do: no enemies to fight, no treasure to pick up, no falling objects to avoid.

With so few clues for how to proceed, your goal at the start of the game is simply to figure out what your goals are. You might reasonably guess that your first goal is to get out of the sealed room, but you can't really be sure. It would seem that the main obstacle you face is that you have no idea what you're supposed to be doing. You're going to have to learn how to advance in this world on your own.

Well, not completely on your own. If you poke around the room enough, you might think to pick up a clipboard lying on the desk. This movement triggers an artificial intelligence system to wake up and start speaking to you. The AI informs you that you are about to undertake a series of laboratory tests. The AI does not tell you what you are being tested on. Again, it's up to you, the player, to figure it out.

What you eventually discover as you continue to play is that *Portal* is a game about escaping from rooms that operate according to rules you are unaware of. You learn that each room is a puzzle, increasingly booby-trapped, and the game requires you to understand more and more complex physics in order to get out. If you don't teach yourself the physics of each new room—that is, if you don't learn the rules of the game—you'll be stuck there forever, listening to the AI system repeat herself.

Many, if not most, computer and video games today are structured this way. Players begin each game by tackling the obstacle of *not knowing what to do* and *not knowing how to play*. This kind of ambiguous play is markedly different from historical, predigital games. Traditionally, we have needed instructions in order to play a game. But now we're often invited to learn as we go. We explore the game space, and the computer code effectively constrains and guides us. We learn how to play by carefully observing what the game allows us to do and how it responds to our input. As a result, most gamers never read game manuals. In fact, it's a truism in the game industry that a well-designed game should be playable immediately, with no instruction whatsoever.

A game like *Portal* turns our definition of a game on its head, but doesn't destroy it. The four core elements of goals, rules, feedback, and voluntary participation remain the same—they just play out in a different order. It used to be that we were spoon-fed the goal and the rules, and we would then seek feedback on our progress. But increasingly, the feedback systems are what we learn first. They guide us toward the goal and help us decode the rules. And that's as powerful a motivation to play as any: discovering exactly what is possible in this brand-new virtual world.

I THINK it's fair to say that Suits' definition, and going forward *our* definition, holds up remarkably well against these diverse examples. Any well-designed game—digital or not—is an invitation to tackle an unnecessary obstacle.

When we understand games in this light, the dark metaphors we use for talking about games are revealed to be the irrational fears they really are. Gamers don't want to game the system. Gamers want to play the game. They want to explore and learn and improve. They're volunteering for unnecessary hard work—and they genuinely care about the outcome of their effort.

If the goal is truly compelling, and if the feedback is motivating enough, we will keep wrestling with the game's limitations—creatively, sincerely, and enthusiastically—for a very long time. We will play until we utterly exhaust our own abilities, or until we exhaust the challenge. And we will take the game seriously because there is nothing trivial about playing a good game. The game *matters*.

This is what it means to act like a gamer, or to be a truly *gameful* person. This is who we become when we play a good game.

But this definition leads us to a perplexing question. Why *on earth* are so many people volunteering to tackle such completely unnecessary obstacles? Why are we collectively spending 3 billion hours a week working at the very limits of our ability, for no obvious external reward? In other words: *Why do unnecessary obstacles make us happy?*

When it comes understanding how games really work, the answer to this question is as crucial as the four defining traits.

How Games Provoke Positive Emotion

Games make us happy because they are hard work that we choose for ourselves, and it turns out that almost nothing makes us happier than good, hard work.

We don't normally think of games as hard work. After all, we *play* games, and we've been taught to think of play as the very opposite of work. But nothing could be further from the truth. In fact, as Brian Sutton-Smith, a leading psychologist of play, once said, "The opposite of play isn't work. It's depression."[6]

When we're depressed, according to the clinical definition, we suffer from two things: a *pessimistic sense of inadequacy* and a *despondent lack of activity*. If we were to reverse these two traits, we'd get something like this: *an optimistic sense of our own capabilities* and *an invigorating rush of activity*. There's no clinical psychological term that describes this positive condition. But it's a perfect description of the emotional state of gameplay. A game is an opportunity to focus our energy, with relentless optimism, at something we're good at (or getting better at) and enjoy. In other words, *gameplay is the direct emotional opposite of depression.*

When we're playing a good game—when we're tackling unnecessary obstacles—we are actively moving ourselves toward the positive end of the emotional spectrum. We are intensely engaged, and this puts us in precisely the right frame of mind and physical condition to generate all kinds of positive emotions and experiences. All of the neurological and physiological systems that underlie happiness—our attention systems, our reward center, our motivation systems, our emotion and memory centers—are fully activated by gameplay.

This extreme emotional activation is the primary reason why today's most successful computer and video games are so addictive and mood-boosting. When we're in a concentrated state of optimistic engagement, it suddenly becomes biologically more possible for us to think positive thoughts, to make social connections, and to build personal strengths. We are actively conditioning our minds and bodies to be happier.

If only hard work in the real world had the same effect. In our real lives, hard work is too often something we do because we *have* to do it—to make a living, to get ahead, to meet someone else's expectations, or simply because someone else gave us a job to do. We resent that kind of work. It stresses us out. It takes time away from our friends and family. It comes with too much criticism. We're afraid of failing. We often don't get to see the direct impact of our efforts, so we rarely feel satisfied.

Or, worse, our real-world work isn't hard enough. We're bored out of our minds. We feel completely underutilized. We feel unappreciated. We are wasting our lives.

When we don't choose hard work for ourselves, it's usually not the right work, at the right time, for the right person. It's not perfectly customized for our strengths, we're not in control of the work flow, we don't have a clear picture of what we're contributing to, and we never see how it all pays off in the end. Hard work that someone else requires us to do just doesn't activate our happiness systems in the same way. It all too often doesn't absorb us, doesn't make us optimistic, and doesn't invigorate us.

What a boost to global net happiness it would be if we could positively activate the minds and bodies of hundreds of millions of people by offering them better hard work. We could offer them challenging, customizable missions and tasks, to do alone or with friends and family, whenever and wherever. We could provide them with vivid, real-time reports of the progress they're making and a clear view of the impact they're having on the world around them.

That's *exactly* what the game industry is doing today. It's fulfilling our need for better hard work—and helping us choose for ourselves the right work at the right time. So you can forget the old aphorism "All work and no play makes Jack a dull boy." All good gameplay *is* hard work. It's hard work that we enjoy and choose for ourselves. And when we do hard work that we care about, we are priming our minds for happiness.

The right hard work takes different forms at different times for different people. To meet these individual needs, games have been offering us increasingly diverse kinds of work for decades now.

There's **high-stakes work**, which is what many people think of first when

it comes to video games. It's fast and action oriented, and it thrills us with the possibility not only of success but also of spectacular failure. Whether we're driving hairpin turns at top speeds in a racing video game like the *Gran Turismo* series or battling zombies in a first-person shooter game like *Left 4 Dead*, it's the risk of crashing, burning, or having our brains sucked out that makes us feel more alive.

But there's also **busywork,** which is completely predictable and monotonous. Busywork generally gets a bad rap in our real lives, but when we choose it for ourselves, it actually helps us feel quite contented and productive. When we're swapping multicolored jewels in a casual game like *Bejeweled* or harvesting virtual crops in a social game like FarmVille, we're happy just to keep our hands and mind occupied with focused activity that produces a clear result.

There's **mental work**, which revs up our cognitive faculties. It can be rapid-fire and condensed, like the thirty-second math problems in Nintendo's *Brain Age* games. Or it can be drawn-out and complex, like the simulated ten-thousand-year conquest campaigns in the real-time strategy game *Age of Empires*. Either way, we feel a rush of accomplishment when we put our brains to good use.

And then there's **physical work**, which makes our hearts beat faster, our lungs pump harder, our glands sweat like crazy. If the work is hard enough, we'll flood our brains with endorphins, the feel-good chemical. But more importantly, whether we're throwing punches in *Wii Boxing* or jumping around to *Dance Dance Revolution*, we just enjoy the process of getting ourselves completely worn out.

There's **discovery work**, which is all about the pleasure of actively investigating unfamiliar objects and spaces. Discovery work helps us feel confident, powerful, and motivated. When we're exploring mysterious 3D environments, like a vast city hidden in the sea in the role-playing shooter game *BioShock*, or when we're interacting with strange characters, like the fashionable undead teenagers who populate Tokyo in the handheld battle game *The World Ends with You*, we relish the chance to be curious about anything and everything.

Increasingly in computer and video games today there's **teamwork,** which emphasizes collaboration, cooperation, and contributions to a larger group. When we carve out special duties for ourselves in a complex mission like the twenty-five-player team raids in *World of Warcraft*, or when we're defending our friends' lives in a four-player cooperative game of the comic adventure *Castle Crashers*, we take great satisfaction in knowing we have a unique and important role to play in a much bigger effort.

Finally, there's **creative work.** When we do creative work, we get to make meaningful decisions and feel proud of something we've made. Creative work can take the form of designing our homes and families in the *Sims* games, or uploading video karaoke performances of ourselves to the *SingStar* network, or building and managing an online franchise in the *Madden NFL* games. For every creative effort we make, we feel more capable than when we started.

HIGH-STAKES WORK, busywork, mental work, physical work, discovery work, teamwork, and creative work—with all this hard work going on in our favorite games, I'm reminded of something the playwright Noël Coward once said: "Work is more fun than fun."

Sure, this sounds mildly absurd. Work more fun than fun? But when it comes to games, this is measurably and demonstrably true, thanks to a psychology research method known as "experience sampling."

Psychologists use the experience sampling method, or ESM, to find out how we really feel during different parts of our day. Subjects are interrupted at random intervals with a pager or by text message and asked to report two pieces of information: what they're doing and how they feel.[7] One of the most common findings of ESM research is that what we think is "fun" is actually mildly depressing.

Virtually every activity that we would describe as a "relaxing" kind of fun—watching television, eating chocolate, window-shopping, or just chilling out—doesn't make us feel better. In fact, we consistently report feeling worse afterward than when we started "having fun": less motivated, less confident, and less engaged overall.[8] But how can so many of us be so wrong about what's fun? Shouldn't we have a better intuitive sense of what actually makes us feel better?

We certainly have a strong intuitive sense of what makes us feel bad, and

negative stress and anxiety are usually at the top of the list. ESM researchers believe that when we consciously seek out relaxing fun, we're usually trying to reverse these negative feelings. When we seek out passive entertainment and low-engagement activities, we're using them as a counterbalance to how stimulated and overwhelmed we feel.

But by trying to have easy fun, we actually often wind up moving ourselves too far in the opposite direction. We go from stress and anxiety straight to boredom and depression. We'd be much better off avoiding easy fun and seeking out *hard fun*, or hard work that we enjoy, instead.

Hard fun is what happens when we experience positive stress, or *eustress* (a combination of the Greek *eu*, for "well-being," and *stress*). From a physiological and a neurological standpoint, eustress is virtually identical to negative stress: we produce adrenaline, our reward circuitry is activated, and blood flow increases to the attention control centers of the brain. What's fundamentally different is our frame of mind.

When we're afraid of failure or danger, or when the pressure is coming from an external source, extreme neurochemical activation doesn't make us happy. It makes us angry and combative, or it makes us want to escape and shut down emotionally. It can also trigger avoidance behaviors, like eating, smoking, or taking drugs.[9]

But during *eustress*, we aren't experiencing fear or pessimism. We've generated the stressful situation on purpose, so we're confident and optimistic. When we choose our hard work, we enjoy the stimulation and activation. It makes us want to dive in, join together, and get things done. And this optimistic invigoration is way more mood-boosting than relaxing. As long as we feel capable of meeting the challenge, we report being highly motivated, extremely interested, and positively engaged by stressful situations. And these are the key emotional states that correspond with overall well-being and life satisfaction.

Hard fun leaves us feeling measurably better than when we started. So it's no surprise, then, that one of the activities for which ESM subjects report the highest levels of interest and positive moods both during *and* afterward is when they're playing games—including sports, card games, board games, and computer and video games.[10] The research proves what gamers already know:

within the limits of our own endurance, we would rather work hard than be entertained. Perhaps that's why gamers spend less time watching television than anyone else on the planet.[11]

As Harvard professor and happiness expert Tal Ben-Shahar puts it, "We're much happier *enlivening* time rather than killing time."[12]

THERE'S ONE MORE important emotional benefit to hard fun: it's called "fiero," and it's possibly the most primal emotional rush we can experience.

Fiero is the Italian word for "pride," and it's been adopted by game designers to describe an emotional high we don't have a good word for in English.[13] Fiero is what we feel after we triumph over adversity. You know it when you feel it—*and* when you see it. That's because we almost all express fiero in exactly the same way: we throw our arms over our head and yell.

The fact that virtually all humans physically express fiero in the same way is a sure sign that it's related to some of our most primal emotions. Our brains and bodies must have evolved to experience fiero early on the human timeline—and, in fact, neuroscientists consider it part of our "caveman wiring." Fiero, according to researchers at the Center for Interdisciplinary Brain Sciences Research at Stanford, is the emotion that first created a desire to leave the cave and conquer the world.[14] It's a craving for challenges that we can overcome, battles we can win, and dangers we can vanquish.

Scientists have recently documented that fiero is one of the most powerful neurochemical highs we can experience. It involves three different structures of the reward circuitry of the brain, including the mesocorticolimbic center, which is most typically associated with reward and addiction. Fiero is a rush unlike any other rush, and the more challenging the obstacle we overcome, the more intense the fiero.

A GOOD GAME is a unique way of structuring experience and provoking positive emotion. It is an extremely powerful tool for inspiring participation and motivating hard work. And when this tool is deployed on top of a network,

it can inspire and motivate tens, hundreds, thousands, or millions of people at a time.

Anything else you think you know about games, forget it for now. All the good that comes out of games—every single way that games can make us happier in our everyday lives and help us change the world—stems from their ability to organize us around a voluntary obstacle.

Understanding that this is how games really work can help us stop worrying about how people might game our systems, and inspire us to start giving them real, well-designed games to play instead. If we actively surround ourselves with people playing the same game that we are, then we can stop being so wary of "players" playing their own game. When we know what it really means to play a good game, we can stop reminding each other: *This isn't a game*. We can start actively encouraging people instead: This *could* be a game.

CHAPTER TWO

The Rise of the Happiness Engineers

I'm not the first person to notice that reality is broken compared with games, especially when it comes to giving us good, hard work. In fact, the science of happiness was first born thirty-five years ago, when an American psychologist by the name of Mihály Csíkszentmihályi observed the very same thing. In 1975, Csíkszentmihályi published a groundbreaking scientific study called *Beyond Boredom and Anxiety*. The focus of the study was a specific kind of happiness that Csíkszentmihályi named *flow*: "the satisfying, exhilarating feeling of creative accomplishment and heightened functioning."[1] He spent seven years researching this kind of intense, joyous engagement: when and where do we experience it most, and how can we create more of it?

Csíkszentmihályi (pronounced *cheek-SENT-me-high*) found a depressing lack of flow in everyday life, but an overwhelming abundance of it in games and gamelike activities. His favorite examples of flow-inducing activities were chess, basketball, rock climbing, and partner dancing: all challenging endeavors with a clear goal, well-established rules for action, and the potential for in-