NICK

YEE

THE

PROTEUS

PARADOX

HOW ONLINE

GAMES AND

VIRTUAL WORLDS

CHANGE US—

AND HOW THEY

DON'T

CONTENTS

MIRROR, MIRROR ON THE WALL

I needed to create a mirror. I was a graduate student at Stanford University, and several undergraduates with graphics and programming backgrounds were helping me build a virtual room for a research study. Our initial idea would have required complicated trigonometric calculations based on the viewer's head position and what part of the room was visible behind him or her. The director of the Virtual Human Interaction Lab, Jeremy Bailenson, helped us cross this technical hurdle. Instead of using a reflective mirror, he suggested making a hole in the virtual room's wall. Through this hole, the viewer would see an adjoining, flipped replica of the room. And a digital doppelgänger in that flipped room would mimic the viewer's every movement. Virtual cloning triumphed over trigonometry, but we still had a problem: it was all too perfect. Instead of acting like a mirror, it looked like a stranger staring at you and mocking your movements from another room. With only a few days left before the study began, I had an idea. I added a translucent sheet of water stains in front of our mirror. With some grime, our mirror came together. Even in a virtual world, imperfection proved more believable.

In the lab experiment itself, we gave participants either an attractive

or an unattractive avatar. They would see their new virtual selves in the virtual mirror and then interact with a virtual stranger. Within sixty seconds of being given a new digital body, participants in attractive avatars became friendlier and shared more personal information with the stranger than participants in unattractive avatars. Changing avatar height had a similar effect: people given taller avatars became more confident than people given shorter ones. Crucially, these behavioral changes followed users even when they had left the virtual world. Those recently given attractive avatars selected more attractive partners in a separate offline task. As we create and endlessly customize our avatars, they in turn influence how we think and how we behave. Virtual worlds change and control us in unexpected ways.

Bailenson and I coined a term for this power of avatars: the Proteus Effect. In the *Odyssey*, Homer describes the sea god Proteus as being able to change his physical form at will:

> First he turned into a great bearded lion,
> and then to a serpent, then to a leopard, then to a great boar,
> and he turned into fluid water, to a tree with towering branches.[1]

Proteus encapsulates one of the promises of virtual worlds: the ability to reinvent ourselves, to be one and many at the same time. But in my research, I have cataloged the inadvertent ways in which virtual worlds control how we think and behave. And more often than not, these behavioral changes have unlikely sources—things that we wouldn't have expected to have power over us, such as our avatars' height or whether we can ask a preprogrammed city guard for directions when we're lost.

Every day, millions of people log into massively multiplayer online role-playing games (often referred to as MMORPGs or just MMOs),

like *World of Warcraft* or *EverQuest*, and interact with each other via fantasy characters of their own creation. These online games allow people from all over the world to embark on adventures together, exploring dark dungeons and finding magical treasures. At its peak, *World of Warcraft* had twelve million subscribers. In 2012, an estimated twenty million users had active monthly subscriptions to online games, the most common way of playing online games in North America and Europe. In Asia, online games use a free-to-play model instead of requiring monthly subscriptions and derive profit instead from selling premium items or services within the game. In China, at least two online games have recorded a peak concurrent usage of over two million gamers—*Fantasy Westward Journey* and *Zheng Tu Online*. And online games were expected to generate $6.1 billion in China alone in 2012. Virtual worlds designed specifically for kids have also done well in recent years. The free-to-play game *Club Penguin*, for example, had seven hundred thousand paying subscribers in 2007 when Disney purchased the company for $350 million.[2]

At first glance, these fantasy worlds could not be more detached from reality—after all, gnomes and dragons belong in storybooks. And indeed, when online games burst into the public consciousness in the early to mid-2000s, the media portrayed them as a seductive escape. In a 2006 article in the *Washington Post*, "Lost in an Online Fantasy World," Olga Kazan noted that online gamers "can be sorcerers or space pilots, their identities woven into a world so captivating, it is too incredible to ever leave. Unfortunately, some of them don't." A piece published the same year in the *San Francisco Chronicle* went further: "The Internet once was seen as a golden information superhighway transporting the next generation to the Promised Land. Now it may feel more like a minefield—seductive on the surface, but seeded with subterranean hazards." Even when academics

challenged the presumed dangers of online games, the counterargument was often still rooted in escapism. In his book *Synthetic Worlds,* economist Edward Castronova countered that escaping into virtual worlds is actually a positive and rational decision for some players: "And for those for whom Real Life: The Game is indeed joyless, the synthetic world evidently represents a game that has many of the same features but is more fun to play. Its use therefore represents a choice, a completely rationale one in fact."[3]

Many researchers have emphasized the hopeful promises of freedom and empowerment in virtual worlds and online games. In her 1995 book on textual virtual worlds, ethnographer and psychologist Sherry Turkle wrote that these new worlds "encourage us to think of ourselves as fluid, emergent, decentralized, multiplicitous, flexible, and ever in progress." Though Turkle's current work is more pessimistic, recent books on gaming argue even more strongly for similar potentials. Game designer Jane McGonigal's 2011 book *Reality Is Broken* has the tagline, "Why games make us better and how they can change the world," and argues that games can powerfully contribute to happiness and improve the quality of our lives. And anthropologist Bonnie Nardi wrote that online games allow "a release of creativity and a sense of empowerment in conditions of autonomy, sociality, and positive reward."[4]

I am not as optimistic. Instead of an escape from the drudgeries of the physical world, many online gamers describe their gameplay as an unpaid second job. And instead of freedom and empowerment in online games, I found quite the opposite: superstitious behaviors such as ritual dances pervade online games; a gamer's offline nationality can be a matter of virtual life and death; and false gender stereotypes are being made true when we play online games. Even when we believe we are free and empowered, our offline politics and

cognitive baggage prevent us from changing. And where we think we are fully in control, unique psychological levers in virtual worlds (such as our avatars) powerfully change how we think and behave. This is the Proteus Paradox. Without a more careful look how these spaces do and do not change us, the promises of virtual worlds and online games are being subverted.

Video gamers no longer form a fringe subculture; these games are rapidly converging with many aspects of our everyday lives. Not only are millions of people spending on average twenty hours per week in these online games, business corporations are increasingly exploring how the psychological principles from gaming can be harnessed for corporate work. The consulting company Gartner has predicted that by 2014, 70 percent of Global 2000 companies will have at least one application that incorporates gaming mechanisms. Games are also where people have started to form long-term relationships. Ten percent of online gamers have physically dated someone they first met in a virtual world. Games are becoming an integral part of our lives— they are where we play, where we work, and where we fall in love. But technology isn't a neutral tool that simply bends to our will. When we adopt new gadgets, those gadgets help shape how we think, behave, and interact with one another. As millions of people spend increasing amounts of time in online games and virtual worlds, we need to be vigilant about whether these new environments are fulfilling their promises of freedom and reinvention, and if they're not, we need to find a way to change them.

The first part of the book provides an introduction to online games and dispels some myths about who plays. In the second part, I focus on different aspects of online games that challenge their promises of freedom and escape. We'll look at superstitions, stereotypes, the

work of dragon-slaying, and falling in love. And in the final part, I move from an explanation of how virtual worlds don't change us to describing the unexpected ways that they do. In this section, I describe how virtual worlds come with a unique set of psychological tools—whether it's our avatars or the rules of death—that can modify our attitudes and behaviors. I end the book with my thoughts on the possible trajectories of virtual worlds and what it might take to change our current course.

Many of this book's findings come from web survey data from more than fifty thousand online gamers. The questions I asked ranged from basic demographics to gameplay motivations, from how players fell in love to how they picked the names for their characters. I ran new surveys every few months, and thousands of players would respond over a weekend. Findings would fuel new questions and directions. I often started exploring a topic with open-ended questions—"Tell me how you fell in love in the game"—and once I got a handle on the range of responses, I would use more focused, multiple-choice questions to gather quantitative data. The Internet also gave me a way to share my research findings and engage with gamers. I created a research blog, the Daedalus Project (I have a penchant for names from Greek mythology), that cataloged the survey results and publicized new surveys. The project was active from 2003 to 2009. In this book, I share many player stories from the Daedalus Project, allowing players' own voices to explain why these online games are so engaging and unforgettable. To improve the readability of these narratives, I have expanded all acronyms of game titles and corrected minor typos. At the end of each player quotation, I include the game that player was actively playing when they took the survey. Thus, players with multiple online gaming careers may mention a game title in their response other than the one explicitly noted. In the

latter part of the book, I also present my findings from lab studies and large-scale data analysis of in-game data. I describe these projects in detail separately when they are introduced.[5]

I wrote this book with a diverse audience in mind, presuming expertise in neither online gaming nor the social sciences but with an eye toward highlighting the many intersections between these two areas. We'll see how one psychologist's experiments with pigeons help us understand superstitions in online games and ask why we need virtual chairs if our virtual bodies never get tired. Rather than focusing on abstract theory or gamer jargon, this book leverages provocative findings from a wide range of data sources: player narratives and statistics from online surveys, results from psychology experiments, and analysis of in-game data logs. Whether it's gnomes in love or the consequences of virtual death, each chapter delves into a different aspect of online gaming to help readers understand what these virtual worlds are about and why they matter. For readers who are unfamiliar with online games, a glossary of online gaming terms is provided at the end of the book.

Gamers already familiar with online games will learn about the many psychological mechanisms that influence their behavior in games: why superstitions are so pervasive or how your avatar can change the way you interact with other people. They will also learn the many statistics of gameplay behavior documented, such as the percentage of men and women who gender-bend—inhabiting an avatar of the opposite gender. Nongaming parents and spouses of gamers will find a guided cultural tour of online games addressing who plays these games, whether gaming addiction is real, and what collaboration and love mean in these virtual worlds. And game designers and analysts will understand why gamers don't always play by the rules—for example, creating their own in the case of supersti-

tions, and how to process and make sense of the wealth of data available in their game logs.

This book is about more than games. It questions what it means to be human in a digital world and how technology changes who we are, how we live, and how we form relationships.