

**CHAPTER 1****Gaming Literacy**
Game Design as a Model for Literacy in the
Twenty-First Century**ERIC ZIMMERMAN****Introduction: Literacy and games from the inside-out**

Gaming literacy is an approach to literacy based on game design. My argument is that there is an emerging set of skills and competencies, a set of new ideas and practices that are going to be increasingly a part of what it means to be literate in the coming century. This essay's proposal is that game design is a paradigm for understanding what these literacy needs are and how they might be addressed. I look at three main concepts—systems, play, and design—as key components of this new literacy.

Traditional ideas about literacy have centered on reading and writing—the ability to understand, exchange, and create meaning through text, speech, and other forms of language. A younger cousin to literacy studies, *media literacy* extended this thinking to diverse forms of media, from images and music to film, television, and advertising. The emphasis in media literacy as it evolved during the 1980s was an ideological critique of the hidden codes embedded in media. Media studies' scholars ask questions like: Is a given instance of media racist or sexist? Who is creating it and with what agenda? What kinds of intended and unintended messages and meanings do media contain?

Literacy and even media literacy are necessary but not sufficient for one to be fully literate in our world today. There are emerging needs for new





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kinds of literacy that are simply not being addressed, needs that arise in part from a growing use of computer and communication networks (more about that below). Gaming literacy is one approach to addressing these new sorts of literacies that will become increasingly crucial for work, play, education, and citizenship in the coming century.

Gaming literacy reverses conventional ideas about what games are and how they function. A classical way of understanding games is the “magic circle,” a concept that originates with the Dutch historian and philosopher Johann Huizinga.¹ The magic circle represents the idea that games take place within limits of time and space, and are self-contained systems of meaning. A chess king, for example, is just a little figurine sitting on a coffee table. But when a game of chess starts, it suddenly acquires all kinds of very specific strategic, psychological, and even narrative meanings. To consider another example, when a soccer game or *Street Fighter II* (Capcom, 1992) match begins, your friend suddenly becomes your opponent and bitter rival—at least for the duration of the game. While many social and cultural meanings certainly do move in and out of any game (for instance, your in-game rivalry might ultimately affect your friendship outside the game), the magic circle emphasizes those meanings that are intrinsic and interior to games.

Gaming literacy turns this inward-looking focus inside-out. Rather than addressing the meanings that only arise inside the magic circle of a game, it asks how games relate to the world outside the magic circle—how game playing and game design can be seen as models for learning and action in the real world. It asks, in other words, not *What does gaming look like?* but instead: *What does the world look like from the point of view of gaming?*

It is important to be very clear here: gaming literacy is not about just any kind of real-world impact—it is a specific form of literacy. So for the sake of specificity, here are some things that gaming literacy is *not*:

- Gaming literacy is not about “serious games”—games designed to teach you subject matter, such as eighth-grade algebra.
- Gaming literacy is not about “persuasive games” that are designed to impart some kind of message or social agenda to the player.
- Gaming literacy is also not about training professional game designers, or even about the idea that anyone can be a game designer.

Gaming literacy is *literacy*—it is the ability to understand and create specific kinds of meanings. As I describe it here, gaming literacy is based on three concepts: *systems*, *play*, and *design*. All three are closely tied to game design, and each represents kinds of literacies that are currently not being





addressed through traditional education. Each concept also points to a new paradigm for what it will mean to become literate in the coming century. Together they stand for a new set of cognitive, creative, and social skills—a cluster of practices that I call *gaming literacy*.

I like the term “gaming literacy” not only because it references the way that games and game design are closely tied to the emerging literacies I identify, but also because of the mischievous double-meaning of “gaming,” which can signify exploiting or taking clever advantage of something. Gaming a system, means finding hidden shortcuts and cheats, and bending and modifying rules in order to move through the system more efficiently—perhaps to misbehave, but perhaps to change that system for the better. We can game the stock market, a university course registration process, or even just a flirtatious conversation. Gaming literacy, in other words, “games” literacy, bending and breaking rules, playing with our notions of what literacy has been and can be.

Systems

To paraphrase contemporary communication theory, a system is a set of parts that interrelates to form a whole. Almost anything can be considered a system, from biological and physical systems to social and cultural systems. Having a systems point of view (being *systems literate*) means understanding the world as dynamic sets of parts with complex, constantly changing interrelationships—seeing the structures that underlie our world, and comprehending how these structures function.

As a key component of gaming literacy, systems can be considered a paradigm for literacy in the coming century. Increasingly, complex information systems are part of how we socialize and date, conduct business and finance, learn and research, and conduct our working lives. Our world is increasingly defined by systems. Being able to successfully understand, navigate, modify, and design systems will become more and more inextricably linked with how we learn, work, play, and live as engaged world citizens.

Systems-based thinking is about process, not answers. It stresses the importance of dynamic relationships, not fixed facts. Getting to know a system requires understanding it on several levels, from the fixed foundational structures of the system to its emergent, unpredictable patterns of behavior. Systems thinking thereby leads to the kinds of improvisational problem-solving skills that will be critical for creative learning and work in the future. In part, the rise of systems as an integral aspect of our lives is related to the increasing prominence of digital technology and networks. But systems literacy is not intrinsically related to computers. The key to





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systems literacy is about a shift in attitude, not about learning technological skills.

If systems are a paradigm for an emerging form of literacy, what is the connection to games? Games are, in fact, essentially systemic. Every game has a mathematical substratum, a set of rules that lies under its surface. Other kinds of media, art, and entertainment are not so intrinsically structured. Scholars debate, for example, the essential formal core of a film—is it the script? The pattern of the editing over time? The composition of light and shadow in a frame? There is not one correct answer. But with games, there is the clarity of a formal system—the rules of the game. This formal system is the basis of the structures that constitute a game's systems. More than other kinds of culture and media which have been the focus of literacy in the past, then, games are uniquely well-suited to teach systems literacy.

To play, understand, and—especially—design games, one ends up having to understand them as systems. Any game is a kind of miniature artificial system, bounded and defined by the game rules that create the game's magic circle. Playing a game well to see which strategies are more effective, analyzing the game's rules to see how they ramify into a player's experience, and designing a game by playtesting, modifying the rules, and playtesting again, are all examples of how games naturally and powerfully lend themselves to systems literacy.

Play

Games are systems because at some level, they are mathematical systems of rules. But if games were just math, we would never have the athletic balletics of tennis, the bluffing warfare of poker, or the deep collaboration of *World of Warcraft* (Blizzard, 2004). Play is the human effect of rules set into motion, in its many forms transcending the systems from which it emerges. Just as games are more than their structures of rules, gaming literacy is more than the concept of systems. It is also play.

There is a curious relationship between rules and play. In the classical sense of a game as a magic circle, rules are fixed, rigid, and closed. They are logical, rational, and scientific. Rules really do not seem like much fun at all. But when rules are taken on and adopted by players who enter the magic circle and agree to follow the rules, play happens. Play in many ways is the opposite of rules: as much as rules are closed and fixed, play is improvisational and uncertain. Yet in a game, these two opposites find a common home—gameplay paradoxically occurring only because of game rules.

In *Rules of Play*, Katie Salen and I define play as *free movement within a*





*more rigid structure.*² Imagine play as the “free play” of a gear or steering wheel: the loose movement in an otherwise rigid structure of interlocking parts. The free play of a steering wheel is the distance it can move without engaging with the drive shaft, axle, and wheels—the more rigid utilitarian structures of the car. This free play only exists because of the more inflexible, functional structures of the automobile. Yet it also exists *despite* those structures. A joke, for example, is funny because of how it plays with the structures of language, creating subtle ironies, or double-meanings, or vulgar inappropriateness. The free play humor of a joke exists in opposition to the more rigid structures of earnest, ordinary language—yet is utterly dependent on these very structures for its play.

Yet, play is far more than just play *within* a structure. Play can *play with* structures. Players do not just play games; they mod them, engage in meta-play between games, and develop cultures around games. Games are not just about following rules, but also about breaking them, whether it is players creating homebrew rules for *Monopoly* (Charles B. Darrow, 1933), hacking into their favorite deathmatch title, or breaking social norms in classics like “spin the bottle” that create and celebrate taboo behavior.

Although play exists outside of games, games do provide one of the very best platforms for understanding play—from free play within a structure to the transformative play that reconfigures that structure. Any instance of a game is an engine designed to produce play, a miniature laboratory for studying play *qua* play.

So why is play an important paradigm for literacy in this century? Systems are important, but if we limit literacy to structural, systemic literacy, then we are missing part of the equation. When we move from systems to play, we shift focus from the game to the players, from structures of rules to structures of human interaction. Games as play are social ecosystems and personal experience, and these dimensions are key aspects of a well-rounded literacy.

As our lives become more networked, people are engaging more and more with structures. But they are not merely inhabiting these structures—they are playing with them. A social network like Wikipedia is not just a fixed construct like a circuit diagram. It is a fuzzy system, a dynamic system, a social system, a cultural system. Systems only become meaningful as they are inhabited, explored, and manipulated by people. In the coming century, what will become important will not be just systems, but *human* systems.

A literacy based on play is a literacy of innovation and invention. Just as systems literacy is about engendering a systems-based attitude, being literate in play means *being playful*—having a *ludic attitude* that sees the world’s structures as opportunities for playful engagement. What does it





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mean to play with institutional language, with social spaces, or with processes of learning? When these rules are bent, broken, and transformed, what new structures will arise?

Play emerges from more rigid systems, but it does not take those systems for granted. It plays with them, modifying, transgressing, and reinventing. We must learn to approach problem-solving with a spirit of playfulness; not to resist, but to embrace transformation and change. As a paradigm for innovation in the coming century, play will increasingly inform how we learn, work, and create culture.

Design

The notion of design connects powerfully to the sort of creative intelligence the best practitioners need in order to be able, continually, to redesign their activities in the very act of practice. It connects as well to the idea that learning and productivity are the results of the designs (the structures) of complex systems of people, environments, technology, beliefs, and texts.³

If gaming literacy were simply about systems and play, it would be a literacy based on games, not game design. But design, the third component of gaming literacy, is absolutely key, and in many ways helps bring the traditional idea of literacy as understanding and creating meaning back into the mix. There are many definitions of design, but in *Rules of Play* Katie Salen and I describe design as *the process by which a designer creates a context, to be encountered by a participant, from which meaning emerges*.⁴

Design as the creation of meaning invokes the magic circle: designers create contexts that in turn create signification. Although design comes in many forms, from architecture to industrial design, games happen to be incredibly well-suited for studying how meaning is made. Outside the game of rock/paper/scissors, a fist can mean many things. But inside the game, that gesture is assigned a highly specific significance, a defined meaning within the lexicon of the game's language. The creation of meaning through game design is wonderfully complex. A game creates its own meanings (blue means enemy; yellow means power-up), but also traffics with meanings from the outside (horror film music in a shooter means danger is coming; poker means a fun evening with friends).

For a game designer, the creation of meaning is a second-order problem. The game designer creates structures of rules directly, but only indirectly creates the experience of play when the rules are enacted by players. As a game unfolds through play, metaplay, and transformative play, unexpected things happen, patterns that are impossible to completely predict. In this way, design is not about the creation of a fixed object. It is





about creating a set of possibilities. The audience is always at least one step removed from the designer. Games embody this aspect of design in a very direct and essential way; even the most straightforward game of chess or *The Sims* (Maxis Software, 2000) is about players exploring the possibilities that they are given by a designed object. In a game, design mediates between structure and play; a game system is designed just so that play will occur.

Over and above game design's affinity for the process of making meaning, it is also radically interdisciplinary. Making a game includes creating a formal system of rules, while also designing a human play experience for a particular cultural and social context. Game design involves math and logic, aesthetics and storytelling, writing and communication, visual and audio design, human psychology and behavior, and understanding culture through art, entertainment, and popular media. For video game design, computer and technological literacy become part of the equation as well.

As an exploration of process, as the rigorous creation of meaning, and as a uniquely interdisciplinary endeavor, game design represents multimodal forms of learning that educators and literacy theorists have been talking about for years, perhaps most significantly in the publications of the New London Group (quoted at the start of this section, above). Game design, as the investigation of the possibility of meaning, truly gets at the heart of gaming literacy, and ties together systems, play, and design into a unified and integrated process.

Conclusion: A Playful World

As we arrive in the early years of the twenty-first century, the world is becoming increasingly transformed by communications, transportation, and information technology that is shrinking our globe, making it a place of cultural exchanges both constructive and destructive. Existing models of literacy simply do not fully address reality in the world today.

Gaming literacy is certainly not the only way to understand the emerging literacy needs I have identified. But games and game design are one promising approach, making use of a cultural form that is wildly popular and wildly varied, both incredibly ancient and strikingly contemporary. And intrinsically playful as well.

So how does one take action to promote gaming literacy? At Gamelab, the independent game development company I founded in 2000 with Peter Lee, we have begun a number of gaming literacy projects. We are building Gamestar Mechanic—funded by the MacArthur Foundation and created in collaboration with the GAPPS group at the University of Wisconsin-Madison—a computer program that will help youth learn about game





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design by letting them create and modify simple games. We have also just announced the creation of the Gamelab Institute of Play. With Katie Salen as the Executive Director, the Institute will promote gaming literacy through educational programs and advocacy.

What does gaming literacy mean for game players and game makers? The good news is that games, so often maligned, have much to offer our complex world. And not just so-called “serious games” with explicit educational goals, but *any* game. Gaming literacy can help us feel good about what we do by playing games, making games, studying games, modding games, and taking part in gaming communities. As literacy scholar James Paul Gee likes to say, “video games are good for your soul.”

Gaming literacy turns the tables on the usual way we regard games. Rather than focusing on what happens inside the artificial world of a game, gaming literacy asks how playing, understanding, and designing games all embody crucial ways of looking at and being in the world. This way of being embraces the rigor of systems, the creativity of play, and the game design instinct to continually redesign and reinvent meaning.

It is not that games will necessarily make the world a better place. But in the coming century, the way we live and learn, work and relax, communicate and create, will more and more resemble how we play games. While we are not all going to be game designers, game design and gaming literacy offer a valuable model for what it will mean to become literate, educated, and successful in this playful world.

No Essay is an Island

The ideas in this essay are not just my own, but are part of a growing conversation that can be heard across universities, commercial game companies, grade-school classrooms, non-profit foundations, and in other places where game players, game makers, scholars, and educators intersect.

Although I have been a game designer and game design theorist for more than a decade, I began to rigorously connect game design and literacy through my interaction with the GAPPS group (now called GLS), a collection of scholars at the University of Wisconsin-Madison that includes Jim Gee, Rich Halverson, Betty Hayes, David Shaffer, Kurt Squire, and Constance Steinkuehler. I was privileged to be invited to a series of conversations with this stimulating group, about games and literacy, sponsored by the Spencer Foundation. In 2006, during the third of these three meetings, the term “gaming literacy” emerged from our conversations as a concept that could reference growing connections between games, learning, literacy, and design.

I am greatly indebted to game designer, scholar, and educator Katie





Salen for our ongoing collaborations, including the textbook *Rules of Play: Game Design Fundamentals* (Katie also attended that third Spencer meeting). My ideas on game design and learning have also been shaped by my work with the amazing staff at Gamelab, especially my co-founder Peter Lee, and former Gamelab game designers Frank Lantz and Nick Fortugno. Connie Yowell at the MacArthur Foundation also has been instrumental in bringing together scholars, artists, educators, and designers to exchange ideas, including the commission of important foundational research by the polymedia scholar Henry Jenkins. The specific formulations in this book were first instantiated in a talk I gave at Vancouver's Simon Fraser University, in January 2007, and this text received valuable feedback from Jim Gee, Katie Salen, Kurt Squire, and Constance Steinkuehler.

So thanks to everybody. I go to this trouble to highlight some of my sources in order to emphasize the newness of these ideas and the collaborative way that they are emerging from a thick soup of scholarship, debates, and collaborations. This kind of dialog is very much in the spirit of gaming literacy itself, and I encourage you to take part in the conversation as well. Some of the best places to get involved include: the Games, Learning, and Society conference held annually at the University of Wisconsin-Madison (www.glsconference.org); the Serious Games Initiative (www.seriousgames.org); the Education SIG of the International Game Developers Association (www.igda.org/education); and the ongoing dialogs about digital media literacy on the MacArthur Foundation website at <http://community.macfound.org/openforum>.

Notes

1. Johan Huizinga, *Homo Ludens* (New York: Roy, 1950), 10.
2. Katie Salen and Eric Zimmerman, *Rules of Play* (Cambridge: MIT Press, 2004), 304.
3. The New London Group, "A Pedagogy of Multiliteracies: Designing Social Futures," *Harvard Educational Review* 66, no.1 (Spring 1996): 60–92.
4. Katie Salen and Eric Zimmerman, *Rules of Play* (Cambridge: MIT Press, 2004), 41.

