

## Unit 1 | Core Concepts

**DESIGN**



semiotics  
system  
signs  
context  
meaning  
representation

**4**

*Design is the successive application of constraints until only a unique product is left.*  
—Donald Norman, *The Design of Everyday Things*

## Introducing Design

"Design" is half of "game design." As a concept and as a practice, the idea of design sits at the center of an exploration of games and meaningful play. Yet it is difficult to define. Like the term *game*, *design* is a concept with many meanings, "Its definition depends on whether design is considered to be an idea, a knowledge, a practice, a process, a product, or even a way-of-being."<sup>1</sup> Lacking a neat consensus, is it possible, or even appropriate, to offer a general definition of design? Where do we go from here?

We could begin by listing familiar kinds of design practice: graphic design, industrial design, architecture, fashion design, textile design, urban planning, information architecture, design planning ... the list could go on. Each of these practices involves the "design" of something, be it an object (such as a chair or a typeface) or a plan (such as a transportation system or an identity system). What else do these practices share in common? People, of course. Each design practice has a human being at its core. Although this might seem obvious, it is an often overlooked basic feature of design. We think it is of particular importance to game designers, for people are at the heart of the games we create.

## Some Definitions of Design

Unfortunately, a list of design practices doesn't bring us closer to a general definition of design suited to our study of games. For precedents of such general definitions, we can look to design theory, as a way to map the territory of possible approaches. We have assembled a number of definitions within a comparative list, in order to emphasize their differences.

"The etymology of design goes back to the Latin *de* + *signare* and means making something, distinguishing it by a sign, giving it significance, designating its relation to other things, owners, users, or gods. Based on this original meaning, one could say: 'design is making sense (of things).'"<sup>2</sup> This definition places *making* (sense) at the center of design.

Richard Buchanan argues that "design is concerned with the conception and planning of all of the instances of the artificial or human-made world: signs and images, physical objects, activities

and services, and systems or environments." Such a perspective situates design within the *artificial*.<sup>3</sup>

Herbert Simon's definition emphasizes *action*, which is fundamentally related to his theories of management science: "Everyone designs who devises courses of action aimed at changing existing situations into preferred ones."<sup>4</sup>

John Heskett employs a more traditional definition, emphasizing the *visual appearance* of products as things: "design, the conception of visual form."<sup>5</sup>

George Nelson's definition emphasizes design as *communication*: "Every design is in some sense a social communication, and what matters is...the emotional intensity with which the essentials have been explored and expressed."<sup>6</sup>

Donald Schon regards design as a material conversation with the forms, substances, and concepts of a design problem as they are being used. His design approach is *process-driven* and *reflective*, emphasizing the iterative qualities of design. "In a good process of design, this conversation is reflective ... the designer reflects-in-action on the construction of the problem, the strategies of action, or the model of the phenomena, which have been implicit in his moves."<sup>7</sup>

Designer Emilio Ambasz gives a descriptive but intellectually powerful definition, emphasizing poetic *thought*: "It has always been my deep belief that architecture and design are both myth-making acts."<sup>8</sup>

Design historian Clive Dilnot suggests that design *transforms* by exploring the tension between the existing and the potential. "What design, as a mode of transformative action, allows us to see is how we negotiate the limits of what we understand, at any moment, as the actual. In design, in other words, we begin to see the processes whereby the limits of the actual are continually formed and re-formed."<sup>9</sup>

**Design as making; the artificial; action; visual appearance; communication; a reflective process; thought; transformation: each definition offers valid and useful ways of understanding**

the practice of design by focusing on particular qualities or characteristics. Taken as a whole, the definitions point to a range of concerns affecting designers and help to bring the field of design as a whole into view. But what about game design? Is there a definition that addresses game design's particular territory, the design of meaningful play? In order to answer this question, we must ask another: What is the "design" in *game design* and how is it connected to the concept of meaningful play? As an answer, we offer the following general definition:

**Design is the process by which a *designer* creates a *context* to be encountered by a *participant*, from which *meaning* emerges.**

Let us look at each part of this definition in relation to game design:

- The *designer* is the individual game designer or the team of people that creates the game. Sometimes, games emerge from folk culture or fan culture, so there may not be an individual designer or design team. In this case, the designer of the game can be considered culture at large.
- The *context* of a game takes the form of spaces, objects, narratives, and behaviors.
- The *participants* of a game are the players. They inhabit, explore, and manipulate these contexts through their play.
- *Meaning* is a concept that we've already begun to explore. In the case of games, meaningful play is the result of players taking actions in the course of play.

This connection between design and meaning returns us to the earlier discussion of meaningful play. Consider a game of Tag. *Without* design we would have a field of players scampering about, randomly touching each other, screaming, and then running in the other direction. *With* design, we have a carefully crafted experience guided by rules, which make certain forms of interaction explicitly meaningful. *With* design a touch becomes meaningful as a "tag" and whoever is "It" becomes the feared terror of the playground. The same is true of com-

puter games as well. As game designer Doug Church puts it, "The design is the game; without it you would have a CD full of data, but no experience."<sup>10</sup>

### Design and Meaning

When we ask what something "means," particularly in the context of design, we are trying to locate the value or significance of that instance of design in a way that helps us to make sense of it. Questions such as, "What does the use of a particular color mean on a particular product?" or "What does that image represent?" or "What happens when I click on the magic star?" are all questions of *meaning*. Designers are interested in the concept of meaning for a variety of reasons, not least of which is the fact that meaning is one of the basic principles of human interaction. Our passage through life from one moment to the next requires that we make sense of our surroundings—that we engage with, interpret, and construct meaning. This very human movement toward meaning forms the core of interaction between people, objects, and contexts.

Consider the act of greeting a friend on the street. A wave, a nod, a kiss on the cheek, a pat on the back, a warm hug, a firm handshake, and a gentle punch in the arm are all forms of interaction meaning, "Hello, my friend." As a participant in this scenario, we must make sense of the gesture and respond appropriately. If we fail to make sense of the situation, we have failed to understand the meaning of the interaction. Game designers, in particular, are interested in the concept of meaning because they are involved in the creation of systems of interaction. These systems then give rise to a range of meaning-making activities, from moving a game piece on a board, to waging a bet, to communicating "Hello, my friend" with other online characters in a virtual game world. This question of how users make sense of objects has led some designers, in recent years, to borrow insights and expertise from other fields. In particular, the field of semiotics has been instructive. Semiotics is the study of meaning and the process by which meaning is made. In the next few pages, we will take a slight detour into semiotics, in order to more carefully build our concept of meaningful play.

### Semiotics: A Brief Overview

*It is...possible to conceive of a science which studies the role of signs as part of life...We shall call it semiology (from the Greek semeion, "sign"). It would investigate the nature of signs and the laws governing them.—*

*Ferdinand de Saussure, Course in General Linguistics*

Semiotics emerged from the teachings of Ferdinand de Saussure, a Swiss linguist, in the early twentieth century. Originally formulated under the term *semiology*, Saussure's theory of language as a system of signs influenced many later currents of thought, including the anthropology of Claude Lévi-Strauss, the philosophy of Jacques Derrida, and the social mythology of Roland Barthes.<sup>11</sup> Each of these writers shared an interest in understanding how products of human culture, from languages to funeral rituals to games, could produce meaning.

In a general sense, semiotics is the study of how meanings are made. The question of what signs represent, or denote, is of central concern to the field. If a high society dinner party was framed as a semiotic system, for example, we would be interested in understanding the meaning of the different elements that make up the dinner party. We could look at the way the table-settings denote a space for eating. We could look at how the presence of fine china or silverware represents the idea of social class, or the representation of status in the arrangement of chairs around the table. We might look at how the event represents concepts such as "elegance," "power," "high-society," or "fine dining," or reference the idea of eating as an activity of survival, sensual pleasure, anxiety, or community. We might even consider what the act of attending the event represents or what it means to those who were not invited. Each of these perspectives contributes to our understanding of the dinner party as a system of meaning, one comprised of signs that refer to things familiar to us from the world "out there." But what do we mean when we say "sign"?

Semiotically speaking, people use *signs* to designate objects or ideas. Because a sign represents something other than itself, we take the *representation* as the *meaning* of the sign. The smell of

smoke (sign) represents the concept of "fire," for example, or the tallest piece in Chess denotes the "King." In the game Rock-Paper-Scissors, an outstretched hand means "paper," a fist means "rock," and two fingers spread in a V-shape means "scissors." Our capacity to understand that *signs represent* is at the heart of semiotic study.

Similarly, understanding that signs mean "something to somebody" is at the core of any design practice. A graphic designer, for example, uses typographic signs (letterforms) representing words to design a book; a fashion designer uses silk as a sign representing "beauty" or "femininity" in a new spring line; a game designer uses the classes of Fighter, Wizard, Thief, and Cleric in a fantasy role-playing game to denote four kinds of player-characters within a game. Thus, signs are the most basic unit of semiotic study and can be understood as markers of meaning. As David Chandler notes,

We do not live among and relate to physical objects and events. We live among and relate to systems of signs with meaning. We don't sit on a complex structure of wood, we sit on a stool. The fact that we refer to it as a STOOL means that it is to be sat on; it is not a coffee table. In our interactions with others we don't use random gestures, we gesture our courtesy, our pleasure, our incomprehension, our disgust. The objects in our environment, the gestures and words we use, derive their meanings from the sign systems to which they belong.<sup>12</sup>

### Four Semiotic Concepts

The American philosopher and semiotician Charles S. Peirce defines a sign as "something that stands for something, to somebody, in some respect or capacity."<sup>13</sup> This broad definition recognizes four key ideas that constitute the concept of a sign:

1. A sign represents something other than itself.
2. Signs are interpreted.
3. Meaning results when a sign is interpreted.
4. Context shapes interpretation.

### A Sign Represents Something Other Than Itself

A sign represents something other than itself; it “stands for something.” The mark of a circle (O) in the game of Tic-Tac-Toe, for instance, represents not only an action by player “O” (as opposed to player “X”) but also the capture of a certain square within the game’s nine-square grid. Or consider the interaction between two players in a game of Assassin. A tap on the arm might represent “death” or “capture,” depending on the rules of the game. In either case, the tap is meaningful to players as something other than a tap.

This concept of a sign representing something other than itself is critical to an understanding of games for several reasons. On one hand, games use signs to denote action and outcome, two components of meaningful play. The marks of an “X” or “O” in Tic-Tac-Toe or the taps on the arms of players in a game of Assassin are actions paired with particular outcomes; these actions gain meaning as part of larger sequences of interaction. These sequences are sometimes referred to as “chains of signifiers,” a concept that calls attention to the importance of relations between signs within any sign system.

On the other hand, games use signs to denote the elements of the game world. The universe of Mario, for example, is constructed of a systems of signs representing magic coins, stars, pipes, enemies, hidden platforms, and other elements of the game landscape. The signs that make up the game world collectively represent the world to the player—as sounds, images, interactions, and text. Although the signs certainly make reference to objects that exist in the real world, they gain their symbolic value or meaning from the relationship between signs within the game. We can illustrate the idea of signs deriving meaning from *within* the context of a game with an example drawn from the history of Scrabble.

In late 1993, a campaign was initiated against Hasbro, the company that owns and distributes Scrabble, requesting that the company remove racial and ethnic slurs from *The Official Scrabble Players Dictionary* (OSPD). This rulebook of officially playable or “good” words contained, at that time, words such as

“JEW,” “KIKE,” “DAGO,” and “SPIC.” As a result of pressure from the Anti Defamation League and the National Council of Jewish Women, Hasbro announced that fifty to one hundred “offensive” words would be removed from the OSPD. As Stefan Fatsis writes in *Word Freak: Heartbreak, Triumph, Genius, and Obsession in the World of Competitive Scrabble Players*,

The Scrabble community went ballistic. A handful of players, notably some devout Christians, backed the decision. But a huge majority led by a number of Jewish players, accused Hasbro of censorship. Words are words, and banning them from a dictionary would not make them go away, they argued. Plus, the players tried to explain, the words as played on a board during a game of Scrabble are without meaning. In the limited context of scoring points, the meaning of HONKIE, deemed offensive in the OSPD, is no more relevant than the meaning of any obscure but commonly played word.<sup>14</sup>

Within the context of a game of Scrabble, words are reduced to sequences of letters—they literally do not have meaning as *words*. Rather, the letters are signs that have value as puzzle pieces that must be carefully arranged according to the rules of spelling. Thus, although the sequence of letters H-O-N-K-I-E has meaning as a racial slur *outside* of the context of a game of Scrabble, *within* it the sequence has meaning as a six-letter play worth a number of points on the board. Within Scrabble the chain of signifiers represent words stripped of everything except their syntactical relationships. Outside of Scrabble, however, the words represent racial animosity.

Looking at chains of signifiers within a game means dissecting a game in order to view the system at a micro-level to see how the internal machinery operates. But entire games themselves can also be identified as signs. Viewing them from a macro—rather than micro—perspective allows us to look at games from the outside, seeing them as signs within larger sign systems. The game of Tic-Tac-Toe, for instance, could be seen as a sign representing childhood play, whereas the game of Assassin might stand for college mischief in the 1980s or the film *The 10<sup>th</sup> Victim*, which inspired the game.

### Signs Are Interpreted

Peirce's definition suggests that *signs are interpreted*; they stand for something *to somebody*. It was one of Saussure's fundamental insights that the meanings of signs are arrived at arbitrarily via cultural convention. The idea that the meaning of signs rests not in the signs themselves but in the surrounding system is critical to our study of games. It is people (or players), after all, who bring meaning to signs. As semiotician David Chandler notes,

There is no necessary reason why a pig should be called a pig. It doesn't look sound or smell any more like the sequence of sounds "p-i-g" than a banana looks, smells, tastes or feels like the sequence of sounds "banana." It is only because we in our language group agree that it is called a "pig" that that sequence of sounds refers to the animal in the real world. You and your circle of friends could agree always to refer to pigs as "squerdlishes" if you wanted. As long as there is general agreement, that's no problem—until you start talking about squerdlishes to people who don't share the same convention.<sup>15</sup>

Chandler's point has resonance when we consider players as active interpreters of a game's sign system. Children playing Tag during recess may change the sign for "home-base" from game to game, or even in the middle of a game, if circumstances allow. A tree in the corner of the playground might be used one day, or a pile of rocks another. Although a home base does have to possess certain functional qualities, such as being a touchable object or place, there is nothing special about the tree or rocks that make them "home base" other than their designation as such by the players of the game. Thus signs are essentially arbitrary, and gain value through a set of agreed upon conventions. Because "there is no simple sign = thing equation between sign systems and reality, it is we who are the active makers of meanings."<sup>16</sup>

### Meaning Results When a Sign Is Interpreted

Peirce's definition suggests that meaning results when a sign is interpreted; a sign stands for something, to somebody, *in*

*some respect or capacity*. Although this may seem like an obvious point it is important to note, for it calls attention to the outcome of the process by which signs gain value within a system. Consider sitting down to eat a bowl of soup at a formal dinner party and finding a pair of chopsticks next to the bowl. One response would be to disregard the chopsticks as a sign for "spoon," and instead ask the waiter for the missing utensil. Within this scenario we are interpreting a set of signs within the sign system representing "soup utensils," of which spoons—and not chopsticks—are part. Within this system, the sign for spoon has value, whereas the sign for chopstick does not.

Another example: If player A in a game of Rock-Paper-Scissors holds up three fingers in the shape of a "W" instead of two in the shape of a "V," she has failed to create a sign that has value, or meaning, within the rock, paper, scissors sign structure of the game. Player B might say, "What is that supposed to be?" in an attempt to infuse the sign with value within the system of the game. If player A responds, "Scissors," then player B has two choices. She can either accept the new sign as representative of "scissors" or she can reject the interpretation. If she accepts the new representation, the players have, in effect, added a new sign to the system; a three-fingered sign that now means "scissors."

### Context Shapes Interpretation

*Context* is a key component to our general definition of design. It also is a key component in the creation of meaning. Design is "the process by which a *designer* creates a *context* to be encountered by a *participant*, from which *meaning* emerges." This definition makes an explicit connection between context and meaning. When we speak of context in language we are referring to the parts of something written or spoken that immediately precede or follow a word or passage that serve to clarify its meaning. The phrase "I am lost," for example, can mean many different things depending on the context in which it is used. If a player of the text adventure game Zork says, "I am try-

ing to install the game and I am lost," we understand that she is having a difficult time making sense of the game's installation instructions. If that same player were to say, "I am in the second chamber and I am lost," we can ascertain that she is actually playing the game, has lost her way, and needs help navigating the fictional game space. In each instance the phrase "I am lost" is given context by the words it follows.

We can also understand context in relation to the idea of *structure*, which in semiotics refers to a set of regulations or guidelines that prescribe how signs, or elements of a system, can be combined. In language, for example, we refer to structure as *grammar*. The grammatical rules of a sentence create a structure that describes how words can and cannot be sequenced. We might refer to these rules as *invisible structure*, as we are not always aware that they are there. In games, this concept of grammar takes the form of game rules, which create a structure for the game, describing how all of the elements of the game interact with one another. Structure (in language or games) operates much like context, and participates in the meaning-making process. By ordering the elements of a system in very particular ways, structure works to create meaning. The communication theorist David Berlo uses the following example to explain how structure supports interpretation:

Structure:

*Most smoogles have comcom*

We don't know what smoogles and comcom are, but we still know something about them: we know that a smoogle is something countable and can be referred to in the plural, unlike, say, water or milk. We know that smoogles is a noun and not a verb. We know that more than one smoogle is referred to in this sentence. We know that comcom is a noun and that it is a quality or thing which most smoogles are claimed to have. We still don't know what is referred to, but the formal properties of English grammar have already provided us with a lot of information.<sup>17</sup>

Although the structure of any system does provide information that supports interpretation, context ultimately shapes meaning. In the following example, Berlo shows how structure and context work together to aid interpretation:

Context:

*My gyxpyx is broken*

From the structure of the language you know that gyxpyx is a noun. You know that it's something that it makes sense to refer to as broken.

*One of its keys is stuck*

Now we're getting a bit closer—a gyxpyx is maybe a typewriter, calculator, or musical instrument; at any rate it's something that has keys.

*and I think it could do with a new ribbon, as well*

Well, that pretty well clinches it. We're still left with the question of just what the difference is between a typewriter and a gyxpyx or why this person has the odd habit of referring to typewriters as gyxpyxes, but we can be reasonably sure already that a gyxpyx is something typewriter-like.<sup>18</sup>

Berlo goes on to note that the meaning we have for gyxpyx comes partly from the structure. We know it is a noun and we know it can be broken, that it has keys and a ribbon. But structure can only take us so far in our search for meaning; context must often be called upon to complete the quest. Consider the experience of playing a game of Pictionary with friends. Much of the guessing that occurs early in a turn relies on structure to provide clues. A player attempting to draw "Frankenstein" may begin by drawing a head and eyes, as a means of establishing the structure of the human form. This structure helps players to make guesses such as "eyes," "face," or "head," but it soon becomes clear that more information is needed. In response, the player at the drawing board may begin to create a context for the head by drawing a large body with outstretched "zombie" arms, stitch marks denoting surgical scars, and a Tesla coil

crackling in the background. Although players might not initially understand what these marks represent (the stitches might just look like squiggly lines), the context created by the other elements of the drawing supply the marks with the meaning they would otherwise lack. Once the players recognize the context “zombie” or “monster,” the stitch marks become “scars” and Frankenstein is brought to life.

This relationship between structure, context, and meaning tells us that the act of interpretation relies, in part, on the movement between known and unknown information. Players of Pictionary, for example, will often come across a sign for which they don’t have a meaning (stitch marks) within the context of signs for which they do (zombie or monster). The meanings that are known and familiar generate other meanings due to the formal relations between the known and the unknown signs. Keep in mind that the actual elements that constitute structure and context are fluid. The drawing of a head might operate as structure early in the guessing period (if it is the first thing drawn), but when it serves to help identify the squiggles, it becomes part of context.

To design is to create *meaning*. Meaning that can thrill and inspire. Meaning that moves and dances and plays. Meaning that helps people understand the world in new ways. Designers sculpt these experiences of meaning by creating not just one isolated signifier but by constructing whole systems of interlocking parts. As Saussure points out, in language the value of one sign only arises in relation to other signs. In Rock-Paper-Scissors the concept “rock” has identity only in opposition to the concepts “paper” or “scissors.” The meaning of a sign does not reside within the sign itself, but from the surrounding system of which it is part. The meaningful play you provide for your players emerges from the designed system of a game—and how that game interacts with larger social and cultural systems. What is it that game designers design? *Systems*. This is the key concept we introduce in the next chapter.

## Notes

1. Alain Findeli, “Moholy-Nagy’s Design Pedagogy in Chicago, 1937–46.” In *The Idea of Design, A Design Issues Reader*, edited by Victor Margolin and Richard Buchanan (Cambridge: MIT Press, 1995), p. 29.
2. Klaus Krippendorff, “On the Essential Contexts of Artifacts or on the Proposition that ‘Design is Making Sense (of Things):’” In *The Idea of Design, A Design Issues Reader*, p. 156.
3. Richard Buchanan, “Wicked Problems in Design Thinking.” In *The Idea of Design, A Design Issues Reader*, p. 6.
4. Herbert Simon, *The Sciences of the Artificial* (Cambridge: MIT Press, 1968), p. 55.
5. John Heskett, *Industrial Design* (New York: Oxford University Press, 1980), p. 7.
6. Richard Buchanan, “Wicked Problems in Design Thinking.” In *The Idea of Design, A Design Issues Reader*, p. 8.
7. Donald A. Schon, *The Reflective Practitioner: How Professionals Think in Action* (New York: Basic Books, 1983), p. 79.
8. Emilio Ambasz, *Emilio Ambasz: The Poetics of the Pragmatic* (New York: Rizzoli International Publications, 1988), p. 24.
9. Clive Dilnot, *The Science of Uncertainty: The Potential Contribution of Design Knowledge*, p. 65–97. Proceedings of the Ohio Conference, Doctoral Education in Design, October 8–11, 1998. Pittsburgh School of Design. Carnegie Mellon University.
10. Doug Church, “Formal Abstract Design Tools.” <[www.gamasutra.com](http://www.gamasutra.com)>, July 16, 1999.
11. Ellen Lupton and J. Abbott Miller, “Laws of the Letter.” In *Design, Writing, Research: Writing on Graphic Design* (New York: Princeton Architectural Press, 1996), p. 55.
12. Daniel Chandler, *Semiotics for Beginners*. <[www.aber.ac.uk/~dgc/semiotic.html](http://www.aber.ac.uk/~dgc/semiotic.html)>.
13. Charles S. Peirce: *Selected Writings*, ed. P. O. Wiener (New York: Dover, 1958), p. 37.
14. Stefan Fatsis, *Word Freak: Heartbreak, Triumph, Genius, and Obsession in the World of Competitive Scrabble Players* (Boston: Houghton Mifflin, 2001), p. 149.
15. Daniel Chandler, *Semiotics for Beginners*. <[www.aber.ac.uk/~dgc/semiotic.html](http://www.aber.ac.uk/~dgc/semiotic.html)>.
16. Mick Underwood, CCMS. <<http://www.cultsock.ndirect.co.uk/MUHome/cshtml/semiomean/semio1.html>>.
17. Ibid.
18. Ibid.



## Design SUMMARY

- There are many general definitions of design. Each emphasizes different aspects of the vast range of design practices.
- Our definition of design emphasizes the creation of meaningful experience:
  - **Design** is the process by which a **designer** creates a **context** to be encountered by a **participant**, from which **meaning** emerges.
- **Semiotics** is the study of meaning. It is primarily concerned with the question of how signs represent, or denote.
- People use **signs** to designate objects or ideas. Because a sign represents something other than itself, we take the **representation** as the **meaning** of the sign.
- Charles Pierce identifies four semiotic concepts:
  1. A sign represents something other than itself.
  2. Signs are interpreted.
  3. Meaning results when a sign is interpreted.
  4. Context shapes interpretation.
- **A sign represents something other than itself:** In a game, gestures, objects, behaviors, and other elements act as signs. In the game *Assassin*, a tap denotes a "kill."
- **Signs are interpreted:** A sign stands for something *to somebody*. Meaning emerges in a game as players take on active roles as interpreters of the game's signs.
- **Meaning results when a sign is interpreted:** A sign stands for something to somebody *in some respect or capacity*. The meaning of a sign emerges from relationships between elements of a system.
- **Context shapes interpretation:** *Context* is the environment of a sign that affects interpretation. The related phenomenon of *structure* also shapes interpretation. Structure is a set of rules or guidelines that prescribe how signs can be combined.