

Game Design

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Draft

Design Dictionary (Wörterbuch Design)
Editors, Tim Marshall and Michael Erlhoff
Publisher: Birkhäuser Verlag
Forthcoming Fall 2007

Game Design: a definition

Game design is a complex, multilayered design activity, whereby systems of meaning (games) are created through the design of rule sets resulting in play. As products of human culture, games fulfill a range of needs, desires, pleasures, and uses. As products of design culture, games reflect a host of technological, social, material, formal, and economic concerns. Because rules, when enacted by players, are embodied as the experience of play game design can be considered a second-order design problem. A game designer only indirectly designs the player's experience by directly designing the rules of play.

The real domain of Game Design is the aesthetics of interactive systems. As dynamic systems, games produce contexts for interaction with strategic and quantifiable outcomes. This interaction is often digitally mediated (videogames are played on computers, consoles, or other digital platforms) but not always, as much of the knowledge basic to the practice of game design applies to the design of non-digital games as well. Long before computers existed designing games meant creating dynamic systems for players to inhabit. All games, from Chess or Go to The Sims and beyond are spaces of possibility for players to explore. Designing this space is the focus of game design. Game designers design gameplay, conceiving and designing systems of rules that result in meaningful experiences for players.

While it would be very challenging to describe the fundamental principles of game design, an abbreviated list can help establish the groundwork for an understanding of this highly interdisciplinary practice. Fundamentals include understanding design, systems, and interactivity, as well as player choice, action, and outcome. They include complexity and emergence, game experience, procedural systems, and social game interaction. Finally, they include the powerful connection between the rules of a game and the play the rules create, the pleasures games invoke, the ideologies they embody, and the stories they tell.

- Rules are a fundamental part of any game. Defining the rules of a game and the myriad ways the rules fit together is a key part of a game designer's practice. When rules are combined in specific ways, they create forms of activity for players, called "play." Play is an emergent property of rules: rules combine to create behaviors that are more complex than their individual parts.
- Because games are dynamic systems, they respond and change in response to decisions made by players. The design of the rules that guide how, when, and why a player interacts with the system, as well as the kinds of relationships that exist between its parts, forms the basis of a game design practice.
- Game design is the design of systems of meaning. Objects within games derive meaning from the system of which they are part. Like letters in the alphabet, objects and actions within a game gain meaning through rules that determine how all of the parts relate. A game designer is responsible for designing the rules that gives these objects meaning.
- Games are made up of game components, which include all of the objects that make up a game world. Components include game characters or markers, the game board, the scoring system, and other objects defined as part of the game system. Game designers must choose which components make up the game, and assign behaviors and relationships to each of these components. Behaviors are simply kinds of rules that describe how an object can act. A game character might be able to run or jump, which are two different kinds of behavior. A door might be assigned an "invisible" behavior, which means that it cannot be seen on screen.
- Game design—when done well—results in the design of meaningful play. Meaningful play in a game emerges from the relationship between player action and system outcome; it is the process by which a player takes action within the designed system of a game and the system responds to the action. The meaning of an action in a game resides in the relationship between action and outcome. The relationship between actions and outcomes in a game are both discernable and integrated into the larger context of the game. Discernability means that

a player can perceive the immediate outcome of an action. Integration means that the outcome of an action is woven into the game system as a whole.

- Players want to feel like the choices they make in the game are strategic and integrated. Game designers must design the rules of a game in such a way that each decision a player makes feels connected to previous decisions, as well as to future decisions encountered in the course of play. Degrees of randomness and chance are two tools that a game designer has at their disposal to balance the amount of strategic choice a player has in a game. Choice is related to the goal of a game, which is often composed of smaller sub-goals a player must meet to win the game. All games have a win or loss condition, which indicates what must be achieved in order to end the game. Because all games must have some kind of quantifiable outcome to be considered a game by traditional definitions, defining the win and loss states for a game is critical feature of a game's design.
- Game design models player interaction on several levels: human-to-human interaction, human-to-technology interaction, human-to-game interaction, and defines the interface between all three. A game designer must address different types of interaction in a game:
 - The Core mechanics are the experiential building blocks of player interactivity, which represent the essential moment-to-moment activity of the player, something that is repeated over and over throughout the game. During a game, core mechanics create patterns of behavior, and is the mechanism through which players make meaningful choices. Mechanics include activities like trading, shooting, running, collecting, talking, capturing territory, etc. Game design relies on the design of compelling, interactive core mechanics.
 - Interaction between the player and an input device allows the player to control elements within the game space. Design of the input device is connected to the design of the game interface, which organizes information and allows a player to play the game. A game interface can be simple or complex, but should always provide a player with access to the elements and activities of the game.
 - Interaction between different game components is defined by rules that describe what happens when these components interact. Does the ball (component) bounce (rule) off the wall (component), or smash (rule) a hole (object) in it?
- Game design uses an iterative design process: a game is designed through an iterative sequence of modifications to the rules and to the behaviors of game components. Game design follows a cycle of design—playtest—evaluate—modify—playtest—evaluate—modify. It is through iteration that game designers achieve the right balance between challenge, choice, and fun.
- Game designers tune or balance their game, so that it is not too easy or too hard for players to play, and work to create just the right amount of challenge. All games are made up of challenges or obstacles a player must overcome in order to reach the goal's set forth by the game rules.
- Game design involves the design of resources, or game components used by players during the game. Resources can include things like money, health, land, items, knowledge, or ammunition, for example. In some games, resources are parts of systems known as game economies, which determine how resources are managed and circulated, and how many of each resource might exist within a game. The word "economy" does not necessarily refer to currency, but to any collection of pieces, points, cards, creatures, or other items that form the system of a game. A game economy is a set of parts that are won or lost, traded or brokered, hidden and revealed, hoarded or stolen away. In defining economies, game designers must consider both the formal make-up of the economy and how players interact with it.
- Games reward players in many different ways, which is one way that a game communicates, or gives feedback to a player about their performance. Game designers have to make decisions about the kinds of rewards they want in their game, on both a moment-to-moment level (did

the player know that they killed the monster?) and on a game level (did the player know they won? Or that they raced faster than the last time they played?).

- A highly interdisciplinary endeavor, game design involves collaboration between experts in graphic design (visual design, interface design, information architecture), product design (input and output devices), programming, animation, interactive design (human computer interaction), writing, and audio design, as well as experts in content areas specific to a game. Game designers must know how to speak the “language” of each of these fields, in order to see the possibilities and constraints of their design. The intersection of constraints from each area with the rules of play shape the game in innumerable ways and drive the design process forward.
- Game design requires the design of a possibility space, exemplified through the design of both a system of rules, and a space in which the game is played. The design and organization of space is of central concern to game designers. What kinds of activities and interactions does the game space encourage or discourage? Do players hang out, trade goods, or race through at breakneck speed? What strategic and storytelling opportunities does the space afford, and what forms of navigation does it support? Game spaces allow for and restrict player action, whether the wide-open cityscapes of *Grand Theft Auto*, or the grooved tracks of *Frequency* and *Amplitude*. As representational systems with spatial dimensions, games give players a chance to build meaning through spatialized interaction. Pass Go, collect \$200. Type “N” to move North. Use the D-Pad to control the camera. B-7, hit: You sunk my battleship!
- Technology plays a large role in determining the nature and qualities of game spaces. From text-based adventure games and vector-drawn space fields to real-time rendered, physics-enabled 3D, the affordances and limitations of technology determine a great deal about how game spaces are depicted and inhabited. Technology informs space informs design.

***Many of these ideas were developed out of my work with Eric Zimmerman on *Rules of Play: Game Design Fundamentals*.