
Principles of Game Design

Prof. Charu Monga
Department of Design
IIT Delhi





Introduction to Game Design

Part of Process:

- Types of Games
- What is Game Design / Studies
- Elements of Game Design

Types of Games

Board Games

Card Games

Dice Games

Role Playing Games

Sports

Video Games

Educational Games etc.



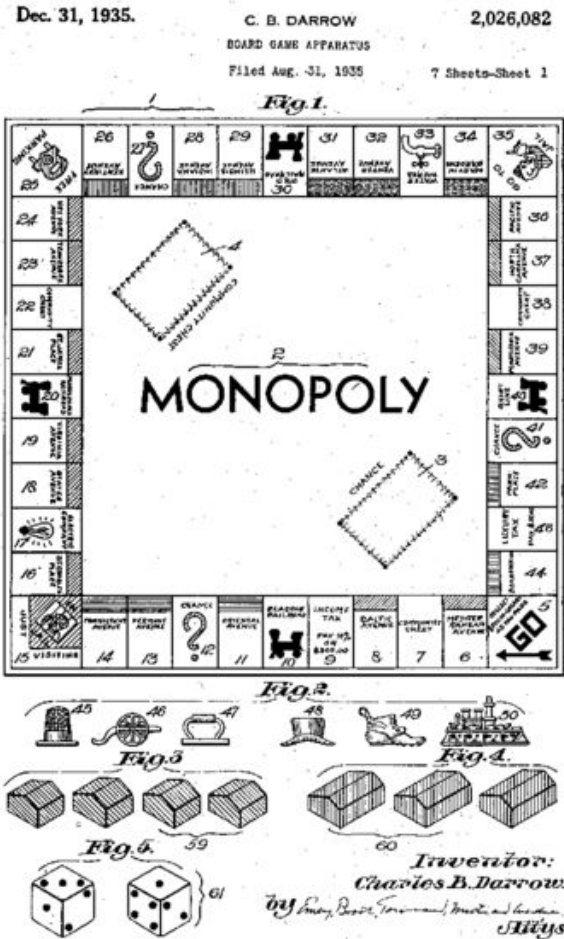
[illegible][illegible]

D1

Results

1114

● 1 1 1 1



Elements of Game Design

Gameplay: Interaction between the player and the mechanics and systems

Mechanics and systems: Rules and objects in the game

Player experience: How users feel when they're playing the game





Elements of Game Mechanics		
Quantity	Mechanics that can be represented as a number	Resource: Health, energy Currency: Gold, bells, coins Abstract: Time
Spatial	Mechanics that effect space	World: Position and rotation of objects Tangible: Collision, characters, props Intangible: Inventory, storage
State	Mechanics that apply additional rules	Player: Grounded, airborne, swimming Game: Running, jumping, teleporting Object: On, Off, open, close
Action	Mechanics that drive change	Resource: Health regain, shooting World: Running, jumping, teleporting Object: Unlock door etc.



Elements of Game Design

Rules: Guide the player on how the game should be played.

Space: The look and feel of a game come from its space.

Components: They are the part of your game like your Avatar, Blocks and Enemies.

Mechanics: They are the actions of the game like jumping or collecting.

Goals: They define the main core



What is Required?

- Solid Story
- Attractive Visuals
- Intuitive Controls
- Worthwhile Long-Term Goals
- Balancing Originality and Consistency
- Interesting and Relatable Characters



Rules: Direction

- Leading and directing the player's experience

- Focal Point:** Never allow the player to guess what they should focus on. At the same time, always allow secondary subject matter.

- Level design example:** Creating clear, apparent lines of sight.

- System design example:** Clearly defined plot points and objectives during game progression/user experience.



Anticipation

-Time is needed to inform the player that something is about to happen. Always factor in **Anticipation** when designing and implementing events and behaviors.

-**Level design example:** A train sound effect occurs before player sees train.

-**System design example:** An energy charge builds before the lightning attack occurs.



Announce Change

- Communicate all changes to the player. This short step occurs between Anticipation and the event itself.
- A good rule of thumb is degree of rarity. If a change occurs a hundred times in an hour, the announcement may not be required. However, if the change occurs five times throughout the entire game experience, a number of visual cues could be needed.
- Be diligent in knowing what changes the player should be aware of at the correct time and on the correct event.
- Level design example:** "Cast-off" animations trigger when the player's character boards the ship.
- System design example:** An on-screen notification occurs when quest criteria have been completed



Behavior

-Believable Events and Behavior: Every event or behavior must occur according to the logic and expectations of the player. Every action, reaction, results, emotion and conveyance must satisfy the players' subconscious acceptance test.

-This tackles the player's expectations, both conscious and unconscious. This is where common design theories are addressed such as player choice, reward and payoff, etc.

-Level design example: Place destructible objects near an explosive object. This way, the explosion looks more believable.

-System design example: Weaker enemies run away when the advantage shifts in the player's favor.

-Story example: Villagers are more upbeat and react positively after the player has overpowered the dragon.



Overlapping Events and Behaviour

-Dynamic is lost if only one **change** occurs at a time. Discover the right amount of events to occur at any given moment of time.

-**Level design example:** Providing the player the ability to build from an appropriate list of structures.

-**System design example:** The linebacker points to direct fellow players, the defensive end shifts over, the quarterback points and calls out football jargon and the crowd cheers louder because it's third down. All this occurs before the snap.

-**Story Example:** The king is on his deathbed while his war is being waged and he has yet to announce an heir. Simply make parallel events.



Physics

-The player's primary logic operates within the known possibilities of physics. Keep in mind gravity, weight, mass, density, force, buoyancy, elasticity, etc. Use this as the starting point, but do not be limited by it.

-Level design example: Ensuring a hole in the floor is the correct size for the correct purpose. Whether it is part of the path of level progression, or simply for visual aesthetics.

-System design example: A spark particle effect occurs when the player's vehicle scrapes the side of the concrete wall.



Sound

-Ask yourself, "What sound does it make when _____ happens?" "Is the sound appropriate?" "Is the sound necessary?" "Does it benefit the experience or hinder it?" If players close their eyes, the sound alone should still achieve the desired effect.

-Level design example: Flies in swamp level make a sound when close to the camera.

-System design example: A proximity system where sound effects volume fluctuates depending on distance of game assets.

-Can very well implemented in the board games scenario also.



Progression

-Pacing: Keep in mind the desired sense of urgency, the rate in which events occur, the level of concentration required and how often events are being repeated. Spread out the moments of high concentration, mix up the sense of urgency, and change things wherever possible to achieve the proper affect.

-Level design example: Create areas for the player to admire the expansive view, versus areas where the player feels claustrophobic.

-System design example: Create long, powerful attacks versus short, light attacks.



Environment

- Spacing:** Understand how much space is available both on-screen and in-world, recognize the spatial relationship between elements and take into account the effects of modifying those spaces.
- Level design example: Lay out the appropriate amount of space for the appropriate number of enemies to maneuver correctly also mapping of negative and positive spaces.
- System design example: Navigation



Foundation

-Player: How does the player interact with everything that has been designed? More than just device input, address how the player contributes to the experience. If it's a good idea and you're able to convey it correctly but the player is not into it, change it or scrap it!

-Level design example: Setting up the player in hopes of making them jump out of their seat.

-System design example: Orchestrating progression so that the player feels empowered, determined, anxious, etc.



Communication

-Its the appropriate team member correctly aware of the objective? Are the appropriate developers clear on the solution? If it's a good idea but you can't communicate it correctly, it might as well be a bad idea because it's very likely that the user won't even understand the whole concept.

-Level design example: Using the elements of the environment so the player is compelled to travel in the correct direction.

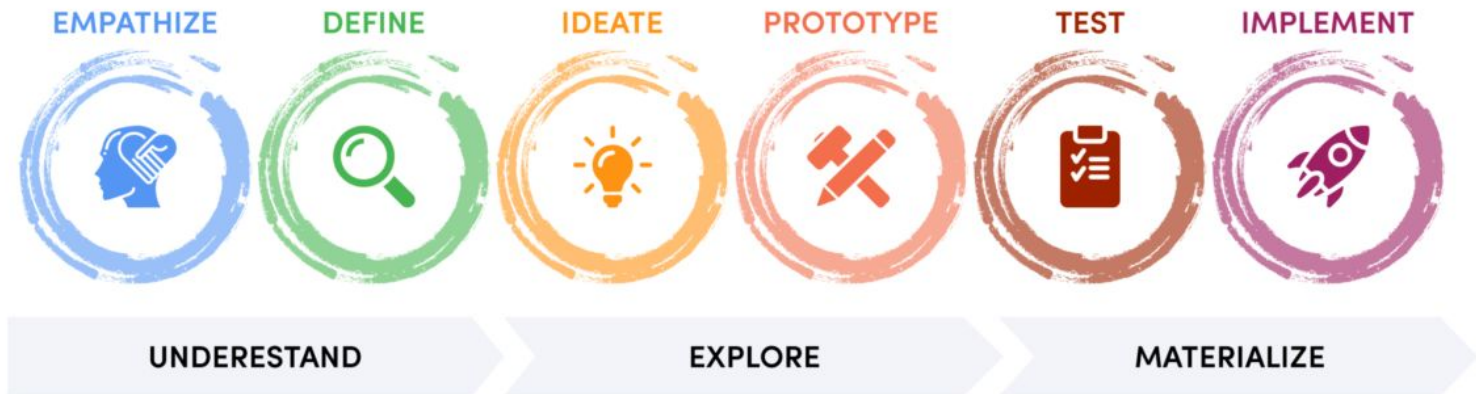
-System design example: Using visual cues so the player learns when to punch rather than kick, jump rather than strafe, etc.



Appeal

- When addressing anyone, ask yourself, "Does this draw the audience in?"
- Level design example: Running down the street is not fun, but running down the street while being pursued by secret agents is.
- System design example: Punching can be fun but when the camera shakes on impact, it's even more fun.

Stages: Design Thinking



Examples

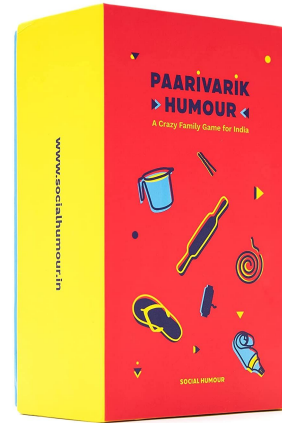
The **Walk of Life** game is premised upon the ancient Indian card game called Ganjifa, which derives its narrative from Dashavatar, the ten earthly incarnations of the Hindu god Vishnu. The avatars can also be considered as the evolution of mankind: from fish to amphibian, to mammal, to human, and to a deity. The play manifests into an introspective exercise that holds the players accountable for their actions and intent. It allows players to equalize their existing debts and deeds of their Bad Karma with Good Karma. The act of playing this reflective game builds into a community that is vulnerable yet comforting.



[Folktales Thukral & Tagra Walk Of Life Educational Game for Kids age 8Y+ Educational Board Games Board Game - Thukral & Tagra Walk Of Life Educational Game for Kids age 8Y+ . shop for Folktales products in India. | Flipkart.com](#)

Examples

Social Humour is the ultimate game of charades, word guessing and tons of fun. It develops critical skills – this game helps everyone practice their focus, memory, and reflex skills.



[Buy Social Humour: Paarivarik Humour | Parivarik Humour | A Crazy Family Charades Mashup Card Game - The Ultimate Family Party Game! - Board Games for Family Night with Adults and Kids! Online at Low Prices in India - Amazon.in](#)

Examples

Pandemic Legacy in the original Pandemic, in this version each player takes on a specific role to limit the spread of four viruses across the globe and research a cure. But then things ... change. As you play more games in the season, the viruses mutate, rules change, cities rise and fall, and new character options and abilities (and penalties) come into play. Each session is different from the one before because game modifications are permanent and carry over between sessions. The continuous gameplay creates the feeling of a coherent, evolving story, and we were always curious (and terrified) to find out what would happen next.



Examples

Parks Game is about celebration of the US National Parks featuring illustrious art from Fifty-Nine Parks.

In PARKS, players will take on the role of two hikers as they trek through different trails across four seasons of the year. While on the trail, these hikers will take actions and collect memories of the places your hikers visit. These memories are represented by various resource tokens like mountains and forests. Collecting these memories in sets will allow players to trade them in to visit a National Park at the end of each hike.

Each trail represents one season of the year, and each season, the trails will change and grow steadily longer.

[Parks Game : Target](#)





Let's Plan the Task!