Games consist of a number of elements. These elements are found in most games (both electronic and paper) and are what game designers use to create the game. In this chapter the author looks in more detail at each of these elements.

The elements identified by the author are:

- Players – how the players interact with the game
- Objectives – these define what the players trying to accomplish in the game
- Procedures – the methods used by the player to achieve the game objectives
- Rules – these define the game objectives and the procedures used by the player to achieve the goals
- Resources – these game elements are used to accomplish goals and perform procedures
- Conflict – this happens when the player tries to accomplish goals within the game rules and procedures
- Boundaries – this is used to define the boundaries of the game
- Outcome – the parts of the game where objectives are reached and game elements come to some kind of resolution.

Players

When someone accepts the role of a player they participate in the game world and “agree” to abide by the game rules, structure, and objectives. At the start of a game the player needs to be “invited” into the game. This means that the game should include some entry-level section that gradually gives the player the chance to get into the game. This could be an initial cut-scene setting up the game narrative, or some simple task or level in order to get the player involved with the game.

Part of the game design is how games deal with single and multiple players. Normally, games are single players competing with the game system. Multiplayer games differ in structure to single player games and there are a variety of player interaction patterns that are found in games. These include:

- Single player vs game
- Player vs Player (PvP)
- Multiple Players vs Game – multiple players compete with the game and not each other and do not cooperate with each other
- Multilateral Competition – multiple players compete with each other
- Unilateral Competition – multiple players compete with a single player
- Cooperative play – multiple players cooperate against the game
- Team competition – teams compete against other teams

Objectives

Most games have objectives that are defined and achievable goals for players. These objectives are central to games because they result in player conflict, following procedures, and rules. Some issues with Game Objectives that game designers must deal with are:

- What objectives will the game have?
- How do these objectives impact the tone of the game?
- What kinds of objectives are typically found in different game genres?
- How do you handle multiple objectives?
- How do you present objectives to the player?
- How do you handle player-initiated objectives?

Game Objectives can be categorized into types. These are:
• Capture type Objective – the player must get/kill/destroy an objective. This is very common to many games and numerous examples can be found. For example, in an FPS game the objective may be to kill a commander, destroy a bunker, or destroy a tank.

• Chase type Objective – this objective is to chase or avoid an opponent. For example, a driving game may require the player to chase and overtake the leader and then elude the other cars to the finish line.

• Race Objective – this kind of objective is where the player must complete a defined area in order to be the first to reach the finish. Many games have this type of Objective, even those that don’t have this as a primary game mechanic. For example, in the Witcher 3 the game character can choose to engage in various horse races throughout the game.

• Alignment Objective – this kind of objective requires the player to align or position items in a particular way to achieve the objective. For example, in the game of Go the player must place their stones on the board in order to capture area.

• Rescue or Escape – this kind of objective requires the player to either rescue someone from a guarded place or escape from a guarded place. For example, some games use a stealth mechanic so the player must avoid enemies to escape or they must disguise themselves to rescue another character.

• Forbidden Act – this kind of objective is to get the players opponent to act outside their own self-interest. Not normally found in single player games.

• Construction – this kind of objective is for players to create or build items in order to get rewarded or achieve some other goal. For example, in Fallout 4 one of the goals is to collect resources to build settlements which can be used to protect the inhabitants.

• Exploration – this kind of objective has the player move their character to explore areas within the game. This objective could be for other purposes or it could just be for the novelty of exploration. No Man’s Sky is a game that creates interesting environments to invite the player to explore.

• Find Solution – this kind of objective is normally part of puzzle solving. For example, Portal is a puzzle game with objectives being to solve puzzles.

• Outwit – this kind of objective is similar to a puzzle solution objective, but typically involves multiple players. The objective is to defeat other players using strategy and knowledge. This is normally found in multiplayer games but there are single player games that have these kinds of objectives. The game Thronebreaker is a card-based RPG in which the player must win battles by playing cards.

**Procedures**

Procedures are what the player does as they play the game. The game designer must decide Who does a procedure, What the procedure is, Where does the procedure occur, When does the procedure take place, and How do players access the procedure.

Since Procedures are a central element to gameplay, the game designer must carefully consider these elements of game procedures. There are some general kinds of procedures normally found in games. These are:

• Starting Action – how to start a game or game structure
• Game Progression Actions – the procedures that happen in the core game loops (more about core game loops later)
• Special Actions – these are normally done to move to a new section of the game
• Resolving Actions – these are normally done upon completing objectives

When the game designer creates the procedures for the player, they must consider not only the input devices (controller, keyboard/mouse, VR) but also the Core Game Loops. These are systems (sets of defined procedures) that happen over and over during gameplay and that drive the game forward. For example, in a driving game the core game loop could be engaging in races, getting progress points, and upgrading the car. In RPG games it could be exploring Dungeons, fighting monsters, and collecting resources.

Rules

While Objectives and Procedures are core elements of games, Rules are also a core element. A rule defines the allowable actions of the player and constraints on the game world. For example, a rule could be that the player takes X amount of damage when fighting a monster if they have armor with a Y rating. Another rule could define how far a game character could jump or how fast they could run.

Some issues with implementing rules are:

• How to players learn the rules?
• How are rules enforced?
• How to rules apply to different situations?
• Are there patterns to set of rules?

When creating game rules there are a number of things to consider:

• How complex are the rules? Can the player be taught or understand the rules?
• How consistently are the rules applied?
• Can the rules be changed during the game?
• How are the rules applied to the game Procedures?

Like procedures, there are a number of different kinds of rules:

• Rules defining Game Objects and Characters - An important concept related to Rules in a game are Game Objects. These are things of importance to the game and likely have a defined State. An Objects State is the collection of game related information about the object. For example, suppose you are creating a Dungeons and Dragons kind of RPG and you want destructible objects. A Sword used for fighting might have a State that consists of its damage potential (how much damage it can do in battle), it level of repair (100% is fully repaired), and perhaps its cost if you wanted to sell it to a merchant. The player character could also have a state that includes health, items in inventory, level, name, and perhaps relationship with other characters.

Rules can apply not only to player procedures but also to game objects. A magic sword can only do X units of damage or a game character can only carry Y pounds of goods. In digital games such rules applied to objects and characters can get very complex but also needed for gameplay decisions. How is the game going to teach the player such rules?

• Rules restricting actions – these kinds of rules are used to control character and game object behaviors.

• Rules determining effects – these kinds of rules are structured as if/then rules. This means that if some condition happens then another condition happens. For example, the rule may specify that if your character loses all health then they will die and the player must restore from a checkpoint. Most games have a number of if/then rules.
Resources

Most games include some type of resources and resource management. The game designer must decide what resources to include in the game and how these are used during gameplay. In addition to resource use the game designer must also decide how the resources are acquired and managed. There are many examples of game resources used in games. For example, a combat FPS game likely includes some type of weapon management system. Carrying and switching between kinds of weapons is part of the gameplay. Other resources would include items like ammo, health, food, armor, and other items.

Two important features of game resources is that the resources should be useful and scarce. If the resource is not useful in some way then it should not be included in the game. Likewise, if the resources were plentiful then they could not be used for strategic purposes.

While many games use resources in similar ways, it is useful to consider game resources in a more abstract way. These include:

- Lives – many early platformer games used lives as a resource that players can lose in combat but that can get by collecting them in levels.
- Units – this is more abstract than lives and could represent many different types of resources such as power or other elements.
- Health – this is similar to lives but a bit more nuanced. Health resources could be used to enhance not only the ability of the player to survive, but to support stamina or resistance to the environment.
- Currency – this kind of resource is found in many games and is part of some kind of purchasing system. Currency could be the obvious type of coin or gold, but it could also be rare objects that are part of a currency related system of purchase and sale.
- Actions – these could be considered a resource in particular situations. Games that include turn-based combat might allow the player to move their character a set number of times (actions) before engaging in combat. Such actions could be a resource that is acquired and used.
- Power-ups – these kinds of resources are typically short-lived and are used to enhance some type of gameplay. For example, in the Witcher 3 various potions (which can be created through crafting) can be used to enhance gameplay.
- Inventory – this is an element of games that use resources and could be considered itself as a resource. For example, games that limit how much the player can carry might have a way to increase the carrying limit by completing objectives.
- Special Terrain – some games that implement map-based game objectives will use special areas on the map as resources. City or country building games might include map areas that include resources such as gold or timber that would be part of the game objectives.
- Time – this can be a game resource used to allow players to succeed in combat (faster gameplay) or prevent players from accomplishing goals. Normally, time-based resources are extra time or blocked time.

Conflict

Most games have some type of conflict in order to move the game forward. The player must overcome things in order to achieve game objectives. To overcome things the player must engage in various kinds of conflicts. The classic forms of conflicts are:

- Obstacles – these kinds of conflicts can include physical obstacles (walls, doors, mountains), logical obstacles (puzzles), resource obstacles (money, or health)
- Opponents – these kinds of conflicts are traditionally found in games. Opponents could be other players or in-game opponents such as bosses.
• Dilemmas – these kinds of conflicts are decision based and require the player to make choices to achieve objectives. For example, choosing how to allocate resources to fight a boss or which dialog choices to make to enlist help from other NPCs.

Boundaries

An important element in game design is game boundaries. This refers to an element of game structure and will affect a variety of other game elements. The boundaries in a game can be physical boundaries (areas that the player can and cannot go), or limited by dialog choices with main characters or limited by carryweight, money, etc. The point of boundaries is to not only control the player but to provide elements that affect the player decisions and choices. For example, the number of squares on a chessboard affect how many pieces are on the board and the number of possible moves. Likewise, a linear adventure game like Tomb Raider, since it has physical and story boundaries, affects gameplay and is much different than a game like the Witcher3 or Skyrim that are open-world games.

Game Outcome

Most games have some kind of outcome or finish state. The game should communicate to the player outcomes and objectives. The player should understand what outcomes can result and this outcome should be in question. There should be win/not win situations in the game in order to motivate the player. For example, Rogue Lite games normally include a fail state where the player, if they die, return to the start of the game or level.

Examples:

Chapter Three Exercises

A. Choose a game you are familiar with and create a document that contains the following points:
   a. The name of the game and the platform on which you played the game.
   b. Describe in detail three important objectives in this game.
   c. Describe in detail three different procedures that the player must perform in order to reach objectives.
   d. For each of the procedures you previously described outline the rules imposed by the game on these procedures.

B. Choose a game you are familiar with and create a document that contains the following points:
   a. The name of the game and the platform on which you played the game.
   b. List some of the minor and major Objectives in this game and how they are presented to the player.
   c. Describe in detail how Resources are handled in this game. This should include how players get resources, how they use resources, and how resources are managed in this game.
   d. Describe in detail how this game handles Conflicts in relation to Objectives.

C. Choose a game you are familiar with and create a document that contains the following points:
   a. The name of the game and the platform on which you played the game.
   b. Identify how the game uses Boundaries to define the gameplay. List some examples of these uses of boundaries.
   c. Identify how the game communicates outcomes to the player and how these outcomes affect gameplay.