Lecture One – Game Design Overview – Read Chapter 1 and 2
A. What are Video games?
B. Game Elements
C. Doing Game Analysis
D. Designing a Video Game

What are Video games?

A video game is a form of entertainment that uses computers or consoles and that allows the player to interact with the game during play. What makes video games different than other kinds of entertainment is the participation of the player. Movies and television are passive forms of entertainment where the viewer is watching the show but not controlling any part of what is being presented. Video games must allow the player to interact with the game and, in most cases, make decisions.

Because video games have a much more complicated structure than other forms of entertainment, designing and creating video games requires a lot of different skills. These include not only traditional movie and television presentation skills (camera angles, framing, storytelling, etc) but also game design skills, programming skills, sound and music skills, and a lot of additional skills. While both movies and video games typically require a large number of people, those that work on video games will likely have a much broader set of skills.

The defining features of video games in contrast to other kinds of entertainment media include:

- The player is allowed to interact with the game and make decisions
- Video games can have a non-linear narrative structure
- Video games can be expandable in terms of time spent playing
- Video games can have different conclusions depending on how players interact with the game.
- Video games can allow multiple players to interact within the same game
While not all video games have all of these features, most video games include the player interaction feature.

**Game Elements**

Computer games are complex entities. One of the reasons is that computer games include a number of different elements that combine to makeup a computer game. These elements must all work together to be part of the finished computer game.

The major elements of a computer game are:

- Art assets including sound, art, videos, etc.
- Technology elements including computer software and game engines
- Game Design elements include the rules that the game follows and that circumscribe the players interaction to the game.
- Game Narrative elements which include the story and character descriptions that are expressed by the game.

All of these elements are part of a computer game and most fall under the review of the Game Designer. A Game Designer is much like the director of a movie. The game designer does not have to be an artist or programmer, but must understand what happens with these two parts of the final game. The Game Designer is primarily responsible for creating the Game Design elements.

Another responsibility of the Game Designer (aside from planning and organization) is to ensure that the art assets integrate with the other game elements. For example, if the game is set in the middle ages the various art and music and sound assets should match the tone and setting of the game.

The important elements in most games are the game design elements, which include the game mechanics and game systems.

- **Game Mechanics** – the set of rules and parameters that define how the player interacts with the game and how the game operates when played. These could include things like how much damage a sword does when hitting an enemy or how far a character can jump or how much it costs for a character can purchase items from the store. These foundational game mechanics must be designed into the game and balanced to work.

- **Game Systems** – these are design elements in the game that define what the player character will be doing or patterns of actions that the player will be following in order to progress through the game. For example a game might be designed so the player will find hidden tombs, solve puzzles, loot treasure, and get maps to other tombs. Many games have such built-in game systems that the player learns to follow as they play the game.

The Game Narrative, if the game has any kind of narrative element, will define the “story” that is told by the game. This story could be very structured in nature and have a beginning, middle, and end. Or the story could be defined by character definitions or environmental story telling elements. The game might be designed so the player can create their own story and play out their story within the game. In any case, the game designer will be responsible for ensuring that the story elements work and that they are supported by other elements of the game.

**Doing Game Analysis**

Analyzing games is an activity that most Game Designers must use to understand and create games. The purpose of Game Analysis is to evaluate a video game and identify the design and structure of the game. Identifying and documenting game elements from successful and not so successful games allows the game designer to compare their own design ideas against other games. It also provides the game designer with some ideas about game genres. Because many games fit into a common game genre players will expect games of the same genre to contain many of the same elements.
When doing a game analysis the game designer must be able to both play the game to get the game’s effect (the experience) and being able to pick out the game mechanics and game systems. This can be a difficult task. The game designer should do game analysis in a structured manner. There is no right or wrong way to perform game analysis as long as the information is retrieved. One way to go through the analysis process is:

1. Play through enough of the video game so you understand the basic game structure and mechanics. In this initial play through don’t worry about doing any detailed analysis. You might make notes but the goal of this first play through is to get the game experience.
2. Restart the game.
3. As you play the game make notes on the following items:
   a. How does the game present the game mechanics. Outline the starting game tutorials for the player. Does the game have a dedicated tutorial section or does the game use a playing tutorial technique.
   b. Identify the core game mechanics and record how the mechanics work within the game.
   c. Identify the core game systems and how the player participates in the system.
   d. Identify the sections that allow the player to make choices. For each of these choices record the outcome of different choices.
   e. Identify the game narrative and narrative progression. Record how are players presented with the narrative and if the narrative has multiple branches.
   f. Outline the general game structure (linear, open world, etc).
4. Identify the game as best fit to a game genre (FPS, RPG, Adventure, etc).
5. Write up your analysis into a document.

During an analysis play through you will likely not play the game as a regular game player. The reason for this is that you are investigating the game structure and not “playing” the game. For example, to understand how the game allows the player to make choices and to record the different options of each choice you will likely make choices in your analysis mode that you would not make in regular gameplay mode. Playing games in Analysis mode is often much slower than playing games in regular gameplay mode.

Another Game Analysis process is used to identify the game genre features of different kinds of video games. Game Genres describe types of video games such as Role Playing games and Adventure Games. These game genres will have a common set of features that are distinctive to that kind of game. When evaluating a game genre you will have to play a number of different games in the genre, do an analysis of each game, and compare the results. Look for common game mechanics and game structures. For example, adventure games tend to have a fairly linear structure and narrative with puzzles and exploration mechanics as part of the game. Role Playing games will have character development and leveling and may include a more open-world and quest game structure. These game genres will be explored in later lectures.

**Designing a Video Game**

How do you design a video game? This depends on the kind of game you are creating and a number of other factors. There are a number of different steps that game designers go through when designing a game. However, one of the important steps is playtesting and feedback. This means that at each stage in the game design process the game designer will ensure that what they have done works. This entails playtesting the section of the game being designed. The playtesting ensures that what has been created works and is engaging to potential players.

A. Create Game Proposal Document and playtest this document.
B. Create a Game Concept document and playtest this document.
C. Create a detailed game mechanic and game systems document.
D. Create a game Narrative document.
E. Create a game Structure document.
F. Create a game playthrough document (or a game storyboard document)
G. Create the additional game documents including the game art asset dictionary, game background documents, game systems documents, etc.

The basic idea of create a game is by moving from general to specific and testing at each step. As a result of the testing the game designer will go back and rework the document.

The Game proposal document is just a general concept document that presents the basic game concept, identifies what genre of game it resembles, and a very general description of the game narrative, core game mechanics, and core game systems. This document should not be longer than two pages and will serve as an initial game proposal. Based on this initial game document the designer can start working on the more detailed documents.

The game concept document is basically the Game Proposal document will details filled-in. This second level document should be done only after the initial game proposal document has been evaluated and “playtested” by circulating it to other people. In other words, asking if this sounds like a good idea for a game. Once the initial proposal document has been accepted the designer can move to the game concepts document.

Just like the initial proposal document, the game concept document would include sections for the game description, core game mechanics and systems, game structure and choices, and game narrative. These elements will still be very general at this stage of development but the game designer will want to fill out more details in each section. Again, like the proposal document, the concepts document will be vetted by others. However, at this stage, the proposed game elements that make the game fit a particular game genre should be identified. In addition, other games similar to the game being designed should be identified and analyzed.

Once the game concept document has been created and evaluated a set of detailed documents on game mechanics, game systems, game narrative, and game structure can be created. These will used the ideas in the first two documents to spell out in more detail the elements that will go into the game and make it interesting and fun to play.

The relative importance of these elements will have to be balanced by the game designer. For example, if the narrative is the most important part of the game then it will have to be balanced against the mechanics, systems, and structure. If the core mechanics are the most important part of the game then the other elements will have to be balanced against the mechanic.

Game Designs should be an advocate for the player. The designer should ensure that the game is fun to play (fun defined as engaging), the game keeps the player’s interests, the game explains itself to the player so they are not confused when learning to play the game and when they play the game.

Home

Lecture Two – Game Systems – Read Chapter 3

A. Major Elements of Video Games
B. Game Mechanics
C. Game Systems
D. Game Levels
E. Game Design

There are a number of ways to analyze the structure of games. The textbook uses the following list as defining elements of video games as well as most other kinds of games:

- Players
- Objectives
- Rules
- Resources
- Conflict
Understanding such fundamental formal elements of games is useful if you are designing a game because you should make sure that it includes all of these elements. These are explained in more detail in Chapter 3 of the textbook.

Along with these defining elements there are some additional terms that define the structure and content of games. These are Game Mechanics, Game Systems, and Game Levels. These are at a higher level that the listed fundamental features but can be found in most games.

The term Game Mechanics refers to the rules, environmental limits, and defined actions by the player. Game Mechanics could include things like how much damage a bullet does, how high and far Mario can jump, how much stuff can a game character carry, what the effects of potions have on the player and others, and a lot of other in-game features. This term, game mechanics, is fairly broad and typically refers to a number of game elements.

Game Mechanics can be seen as unique to an individual game or general enough that they are adopted by different games. For example, the double-jump mechanic might be found in a number of different platform games. The rule that a character can only wield two or three guns is a game mechanic adopted by a number of first-person games. The game mechanic allowing a player to be restarted at a game checkpoint if they die is common across multiple games.

One of the reasons that some games use the same mechanic is that the game designers have learned that if they wanted their game to appeal to a wide audience or fit within a specific game genre, then they will implement common game mechanics (using the WASD keys to move and using the Mouse to point). Players that have learned how to play games similar to the one being designed will expect their experience to be transferred to the new game.

Game Mechanics define how the player plays the game. During game design there are typically a set of Core game mechanics that often appear in the game. These Core Game Mechanics are what the player does most of the time. For example in a Platformer game like Celeste some core mechanics would include jumping, double jumping, sliding off of snowy ledges and walls, jumping on-top of objects to collect these objects, and dying if falling on spikes. In games like the Witcher 3 a core mechanic might be collecting loot after killing people or monsters.
Look at the game Escape Goat 2 which was published several years ago. This is a 2D puzzle platformer game that allows the player to control a Goat. The core game mechanic of this game is puzzle solving. In order to solve puzzles the player must retrieve a key:

In order to retrieve the key the player must jump their goat from level to level. They can control the environment by moving blocks and jumping on buttons. The core game mechanics are jumping, double jumping, and interacting with the environment by pushing buttons.
For example, in this level the Goat cannot reach the key:
In order to reach the key the vertically mounted button must be pressed, which will realign the bricks in the room.
Now the Goat can get to the second button which will realign the room again.
This allows the Goat to get to the final button which provides access to the key.

These core game mechanics are what define the game and how the player will primarily interact with the game.

Along with game mechanics there are also core game systems. A core game system is a designed set of actions that the player will repeat to progress through the game. In the case of Escape Goat 2 these game systems include solving a set of problems to get the key, which allows the player to continue to the next level.

Other games have more complex game systems that allow the player to progress. These include game such as Grim Fandango which is an Adventure game that includes puzzles and exploration. The player must solve puzzles and engage in conversation with other characters to progress in the game. For example, early in the game the player must figure out how to get a work order for the auto repairman (a Demon) to fix a car so it can be driven by the Demon to a specific location. To get the work order signed the player must break into an office and reprogram an answering device. These puzzles are exploration and dialog based and not the same kind of puzzles as those found in games like Escape Goat 2. To progress through the game, the player must investigate the environment and solve puzzles. Game systems will likely include core game mechanics, but will often be the same system.

In another example, when playing the Witcher 3, the player will perform the game system:

1. Find a bounty posted on a Bounty Board
2. Hunt down the monster or person listed on the bounty
3. Return to the person posting the bounty and get paid
This game system is repeated by the player in the game. The trick for the game designer is to make such game systems interesting and fun to play while not making them seem like completely repetitive.

Another core game system is found in the new game Rage 2. In this game, which is an open-world FPS game, the player gets a notice of or discovers a bandit camp which then must be cleared out by killing all the bandits. Progressing through the game is done by performing this core game system. The problem, for the Rage 2 game, is that this activity is repeated over and over and soon becomes less engaging. Part of the problem is the lack of any kind of narrative linked to such activities or any distinguishing features of one camp over another.

As a game designer you will decide on what core game systems you want to add to the game. Since these will be done by the player over and over you should add features to the core game systems that make them interesting and engaging to the player.

Another important design element found in games is how the game is organized. This means what type of game structure has been designed into the game. For example, platform games tend to have a gated level structure so that the player completes a section of the game and then moves on to the next section. Adventure games tend to have episodes defined by the game narrative set in defined areas that the player must explore and go through before going to the next episode. Many Role-Playing games use an open-world structure allowing the player to explore a large area. In these kinds of games, the game structure is defined by a series of Quests that the player must complete to progress through the game.

The game designer must consider how the game will be organized and create some kind of organization structure. The purpose of game structures is to provide the player with some way to mark progress, approach challenges, and handle the various game elements. Games without defined structures are more difficult to approach than games with some kind of structure.

Of the various game genres the often used structures include:

- **Platform games** – these kinds of games are typically structured as a series of defined areas or screens that has a defined starting and ending area and that are gated (the player cannot go back to an already completed level).

- **Adventure games** – these kinds of games are typically structured as a series of “adventures” that are tied to the game narrative and, like platform games, have defined areas. Some adventure games are gated and others are more open-world. The game narrative is used as a defining feature of the game structure.

- **Role Playing games** – these kinds of games focus on player leveling and can be either linear (like adventure games) or open-world. These kinds of games are typically structured as what the player does and are organized by quests. Another organizing method is based on the player character’s leveling, which the player can use to measure their progress.

- **Strategy Games** – these kinds of games are organized by different methods. One way that strategy games are organized is by campaign. The player will engage in a series of campaigns.

- **Simulation Games** – simulation games can be organized around a variety of structure based on the game. For example, No Mans Sky is organized around worlds and resource management. Games such as Euro Truck Driver can be organized around jobs, while racing games can be organized around races.

- **Other Games** – there are a wide variety of games organized in many different ways.

When designing a game, the game structure and organization should be an important part of the overall game design.
Lecture Three – Game Narrative Elements – Read Chapter 4

A. Structure of Game Narrative
B. Narrative Plots and Game Design
C. Character development and character dialogs
D. Narrative and Game Design

One of the elements of games is the game narrative. This refers to the story presented by the game, the characters, the game world, and other elements that tell a story to the player. Modern games tend to include more narrative elements than older games because modern games can be more complex, include more elements, and can include presentation elements such as video and cut-scenes. Early game developers were primarily concerned with technology (the game engines) and gameplay while modern game designers must also consider how to create a game that tells a story.

The major difference between game narratives and regular narratives is with game narratives the player interacts with the narrative (in most cases, but not all). One of the main elements of games involve player choices. Games need to give the player choices and some way to interact with the game. This makes creating a structured game narrative difficult.

A regular narrative will have the following elements:

- Characters
- Plot
- Background and World information
- Conflicts and Resolutions

Narratives normally introduce main and secondary characters to the reader/viewer. These characters are either primary and followed for most or all of the game or are secondary and influence or are part of the narrative plot. In video games characters become very important because the player will either be a game character (the player-character) or will interact in some way with game characters (non-players characters – NPCs).

For different kinds of games, the characters will be introduced in different ways. If the game is primarily focused on game mechanics the player character and NPCs may be introduced through simple cut-scenes or even text. In narrative heavy games characters might be introduced in dialog interactions with NPCs, extensive cut-scenes, and even character-defining quests. Other game characters may be introduced and defined by having the player perform tasks for them, engage in dialog with them, and learn about them by finding information in the world.

Game characters, and especially players characters, are defined by the challenges they face and the choices they make. These choices will lead to consequences which will involve the player depending on how much the game character is identified with by the player. Establishing a game character can be tricky, but since the player is likely going to invest choices and playtime on their character, a well defined character in a game can be very powerful.

Some of the main reasons that well defined game characters can be very effective is that the player invests her/his self into the character by making choices. Especially with first-person games, where the player is part of the game, the player will make choices as the game character and will see the results of their choices. Another reason is that the player, particularly in role playing games, may spend fifty or sixty hours playing as a character. Much longer than a movie and perhaps a book. Given this active nature of game characters, either playing a character or making decisions that affect other game characters, games can be a very effective way to present narrative characters to the player.

Modern games typically use either first or third person perspectives. This will affect how the player game character is introduced and developed. With first-person games the player is placed directly into the game. The means that the player character is more directly tied to the player. While the player will inhabit a first person game they may be less interested in character development because the game presents various situations and decisions that the player (as
themselves) will make. Third person games include a character that is much more independent from the player. That is, the player will be playing the (third person) character rather than directly participating in the game (first person).

The plot is the game story. In books and movies the story has a fixed structure that cannot change as the reader/viewer engages with the narrative. However, in games where the player is given choices, the narrative must be flexible enough to accommodate such choices. This means that the game designer must create a plot that might have multiple endings based on the player choice or that allows multiple paths through the narrative but still ending up with the same endings. In either case the designer must make the plot easy to understand by the player and fairly easy to present by using the various game structures.

When creating a game narrative the game designer may or may not want to start with a completely worked out plot. The problem with trying to create a detailed game narrative and game characters and then designing the game to fit the narrative and characters is that there will likely be a lot of changes during the course of the game development. These changes may make it difficult to preserve the game narrative and characters as initially envisioned. Often, it is better to have some general game narrative structure and some character sketches rather than trying to create the game around a pre-defined plot.

Another element to traditional narratives is that the reader/viewer should be given a sense of place within the narratives world. This often means that traditional narratives will include background information, scenes establishing the world and history, and information that helps make sense of the main characters actions. Games that use narrative should also include these techniques to perform what is called world building. This is where the player is given information about the game world, its history and settings. This kind of information can be used in a variety of ways from adding texture to the game world, to presenting puzzles or quests, to filling out the main player character.

Environmental information can be presented in a number of ways. This includes written (posters, books, etc), voice (recordings), and videos. As the player explores the world the game designer can include this environmental information for the player to find and experience. The order and kind of such information may be critical to the game plot or to various character development and should be carefully considered before including with the game.

If game presents a structured narrative without allowing the player to interact or make choices then the game becomes just a container for a pre-written story. He player is not given a chance to change the course of the story and their interactions and decisions won’t affect the outcome of the game. In order to make the game engaging it must present the character with decisions and choices.

Adding player choices to a narrative-driven game can be very difficult because it can break a highly structured narrative. Games should give the player choices and have consequences for their decisions that affect the game. The problem with choices is that the game narrative may not be able to handle player choices. To keep the player feeling in control the game can do on or both of the following:

- Allow the player to make choices about how to get to the next narrative point.
- Allow the player to make choices but have such choices result in multiple narrative outcomes.

The first option preserves player choices in the game and may include some intermediate game outcomes, but the basic narrative structure is preserved. The outcomes of the player choices won’t substantially change the structure and outcome of the game. In this case the player may feel as if their choices don’t really matter since the results of their choices don’t really change the game. The same ending always happens and the possibility of replaying the game goes down.

The second option allows the player to make choices that will affect the structure and outcome of the gameplay. In this case there may be multiple endings to the game based on which choices the player made during the game. While this option allows the player a much more robust choice system and makes the player feel more in control of the game, it can present problems to the game designer. Creating a structured game with multiple endings can be tricky and prone
to failure. Game mechanics, game systems must be designed to support different paths through the game and done so that the player feels that their choices matters.

Branching narrative games are created as a series of choices at critical points in the game. Often, dialog choices are timed so the player must make quick decisions. This allows the player to make a stronger investment in their game character and take responsibility for their characters progression and outcome. The problem with branching narrative game is to decide what player decision change the course of the narrative. If every player choice changed the game narrative, the game designer would quickly be faced with a completely unmanageable set of choices and narrative options. As a result, the designer must limit the number of possible choices and outcomes, but still make the player feel that they are making significant decisions.

Examples - Characters:

Game characters are more important in games than traditional narratives since game plots and narratives may be changeable and will be easier for the player to connect with than the overall game plot. For games that have a strong narrative structure the game designer will want to:

- Present the game character as soon as possible.
- Give the game character choices early and at regular intervals.
- Show the player that the game character progresses as a result of the player choices
- Develop the game characters personality by actions rather than exposition.

Along with player characters many games include secondary characters. These secondary characters are either opponents, allies, or neutral. Opponents are often seen at irregular times and might be bosses or other major characters. Most of the regular non-player characters that don’t merit a complex personality and backstory can be introduced and passed over. Allies can either be direct supporters or companions or can be distant and not often seen, such as Kings or Queens sending the player on a quest. Neutral characters might be found in the course of the game as bystanders or temporary allies or opponents.

In terms of important non-player characters, the game designer should characters should:

- Define NPCs by actions rather than exposition
- Allow NPCs to participate in player decisions
- Use NPCs, either through dialog or exposition, to present parts of the game narrative.

As examples, look at three strong narrative games, the Witcher 3, Bioshock, and Bioshock Infinite. The Witcher 3 is a third-person game and the game character is controlled by the player. Bioshock is a first-person game and the player inhabits the game character with little definition. In Bioshock Infinite the game is a first person game and the game character has a much more defined character (Booker). The game narrative in the Witcher 3 is structured as a role playing game and involves a series of quests. In the Bioshock series the narrative is much more linear in format and the player is taken from place to place by the game narrative.

The main difference is that with the Bioshock games the game character is defined by the game narrative and with the Witcher game the character is defined by their interaction with the world and with other NPCs. The Bioshock games have almost no decision points that would change the direction or outcome of the game while the Witcher has a number of choice points that will change the direction and outcome of the game. However, with the Witcher game the game character is already defined by the history and the world narrative and, while the game character can be leveled up, the fundamental character features cannot be changed.

Another first person game that is closer to the Witcher in format is the Fallout series starting with Fallout 3. This game uses either the first or third person perspective and allows the player to inhabit the game, make decisions that change game direction and outcomes, and level up as they play the game. What is similar to Bioshock is that the game character has few pre-defined narrative features, which does not limit the player in how the experience the game.
Examples – Game Plot:

Narratives typically have some kind of plot. The plot is the narrative outline which includes the story elements, conflicts, discoveries, etc. Most narrative plots have some general similarities which are:

- Introduction and setting the stage (Act 1)
- Conflict and choices (Act 2)
- Resolution and tying up loose ends (Act 3)

Game plots will likely have a similar structure. The first part, Act 1, will normally consist of introducing the main characters and game characters, introducing the game world, outlining the conflicts to come, and teaching the player how to play the game. This first section is used not only as a plot element but also as a game tutorial section.

The second part to the game plot is where most of the game takes place. This is where the game character has goals and conflicts, engages in exploration, has adventures, etc. These activities will (mostly) progress the plot by presenting new plot points to the player, providing additional narrative, etc. There could be a number of sub-plots and other elements in the game narrative but they are likely presented in this section.

The third part to the game plot is Act 3 where various game endings and plot resolutions are presented. This is where a branching game might include multiple endings based on the choices made by the player in Act 2.

As with character development, game plot should be presented by actions rather than expositions. That is, the game character may learn a new plot element by completing a quest rather than reading a document. Structuring plot progression so that it meshes with gameplay can be a challenge to game designers. The primary element for plot progression should be player choice. This invents the player in the game and, while allowing for the player to make decisions, also moves the game plot forward.

Allowing player choices to become part of the game plot means that either the player is given the illusion of controlling the game narrative and player decisions don’t affect the outcome, or the results of player choices in Act 2 will result in different outcomes in Act 3. The decision by the game designer is how much choice to give the player and how much affect these decisions will have on the game plot. This is one of the major issues with including structured plots in a computer game.

There are several ways to handle player choice and game plot. Some of these are:

- Allow the player to make choices on minor game plot elements but keep the major game narrative static. This allows the player to feel part of the game but does not impact the overall game plot. As an example, the TellTale game The Wolf Among Us allows player to make some choices about which characters to pursue but this does not impact the overall game narrative.

- Allow the player to make major plot choices in how the final game plot ends but not the final ending. These choices will result in multiple minor outcomes but will not change the overall game plot outcome. An example of this would be Fallout 3 New Vegas and Fallout 4, where the player can choose which faction to align with and which will affect who wins the final battle, but that will not change the final battle.

- Allow the player to make small plot choices which will result in multiple endings based on the player choices. In this case the player will not know the impact of their plot related choices until the end of the game. An example of such plot choices is the Witcher 3, where the player’s choices, while seemingly minor, affect the ending of the game. This kind of player choice plot option promotes multiple playthroughs.

Examples – Background and World Information:
Since computer games don’t have to present narrative in a traditional way and should allow player choices, background and game world narrative becomes a very significant part of the game’s narrative. Game world narrative is done to flesh out the game world and make it more interesting for the player. This can be done in a variety of ways including “found narrative” and “display narrative”. Found narrative means that the player is given the option of coming across things like records, movies, written material, or even NPCs that explain to the player information about the world. A good example of this kind of narrative is BioShock where the player can listen to recordings made by characters, see posters, etc. While the recordings are “found” the posters are on display and hard to miss.

Another example of found narrative would be the books and papers that the player can pickup and read in games like Skyrim and the Witcher 3. These also provide information about the world and unseen characters in the world.

While such found narrative devices can help provide a “texture” to the world and give the player a feeling of place and history, they can also be used to present part of the game plot and narrative. This is done by fixing the order that the player encounters such items and presenting a sequential narrative broken up into small found item bits. These bits might be placed so the player encounters them in order. This is difficult to do in an open world game (but the game designer could dynamically adjust which part of the message is presented based on the order of the item retrieval). In a more linear game, such as Tomb Raider, the world narrative bits could be retrieved in order.

A problem with such found world narrative items is how necessary is their narrative to the overall game plot. If the player must get the narrative information in these bits in order to progress or understand the game ending, then they must be forced on the player and not assumed to be retrieved. In other word, if the game allows for a player to miss finding a recording or book then the narrative contained in the item must not be critical or necessary for the game.

Another problem with found or environmental narrative elements is that they must be consistent with the game world and internally consistent. For example, if the game narrative contains reference to a character and if the found narrative (such as a book of lore) indicates that the character has died then there is a breakdown between these two elements of the game narrative. These found narratives should also not contradict each other. If a recording indicates that someone has some kind of device but the game character mentioned in the narrative does not have the device then the player will feel some kind of plot or narrative dislocation. Therefore, creating a seamless and consistent game narrative can be difficult.

A major issue faced by game narratives are linear and non-linear narrative presentations. This means that if the game wants to present a game plot in a linear fashion the player must be given the plot points in a specific order. This will require that the player is put under more strict control during gameplay so they do things in a specific order. This will reduce player choice and give the game a more visual novel feel. If the narrative is interesting this may not be a problem and the player, if solving puzzles along the way, can still have an enjoyable game.

If the game designer wants to present the narrative in a non-linear fashion (perhaps in an open world game) then they must create an environment where the narrative structure is not dependent on sequence. That is, there may be a central narrative structure but there are also a number of sub-plots and extra narrative elements that add to the main narrative but are not necessary for the main narrative. Examples of games in which this works are Open World games such as the Witcher 3 and Fallout 4.

Other games, such as What Remains of Edith Finch, present their narrative in a non-linear fashion but still controlled. This means that the narrative is broken up into smaller self-contained pieces that can be approached in any order. However, major plot points that progress the narrative, may be locked behind doors (in the case of Edith Finch) or locked behind quests that cannot be done until some side-quests are completed.

Finally, some games use a structure that leads to an Emergent narrative. This is a narrative that is created by the player and not the game designer. The game sets up an environment that allows the player to create their own narrative by using the presented game resources. Game like this are the Sims and No mans sky. Such games are very open-world and allow the player to modify the game characters and the game world.
Examples – Conflicts and Resolutions

Conflicts are a central element to narratives because narrative progression typically happens because the protagonist has conflicts and resolutions that change the protagonist. These conflicts can be demonstrated through combat, dialogs with NPCs, and other situations that cause the player to engage with the game. The resolution to the conflict will be part of the game narrative and move the narrative forward.

The problem with conflicts and resolutions used to progress the game narrative is that the player must encounter these at specified points in the game. Unless the narrative is not linear (and is something like emergent narrative), then the game must control the players actions to the point that they engage in the conflict. While a game could have a number of non-critical conflicts and resolutions they may not be central to the main game narrative. For example, in Borderlands 3 the player will engage in a number of side-quests that don’t further the main quest but are used so the player can level up. These side quests may include self-contained narrative and this narrative may define some of the game characters that will be part of later game narrative, but they are not required. Players could just not do the quests for Marcus or Claptrap and the main game narrative (Children of the Vault) will not be affected.

Another element that is part of the resolution is allowing the player to make choices. If the outcome of the narrative linked conflict (the resolution) will move the narrative forward, the game may or may not give the player choices. For example, if the player must beat a Boss character in order to complete a game-narrative quest then the outcome might be, for example, access to information or resources needed to complete another quest that is part of the game narrative. In this example, the player must beat the Boss in order to progress the game. The player is not given any choice.

Even in open-world games, such as Witcher 3 and Fallout 4, the player must complete some “gateway” quests that involve some kind of conflict before they can start later narrative linked quests.

Narrative and Game Design

One of the problems with designing game narrative is to balance the narrative with the game mechanics and game systems, and the game level design. All three of these elements must be flexible enough to work together. If the game narrative is too fixed the game mechanics and level design will suffer. The same goes for the mechanics and levels. One way to start the game narrative is:

- Create a general narrative outline of the story you want the game to tell.
- Break the narrative down into sections that are linked by some kind of player conflict/exploration
- Write a character summary of the game character and other important NPCs and describe who the characters are, their place in the narrative, and their motivations and relationships to each other.
- Describe the game world and the game world history and other elements. Even if all of these are not immediately used in the narrative list them anyway.

Once the basic narrative, world, and character descriptions have been outlined the game designer can link the game mechanics and game systems to the narrative structure.

- Describe the core game mechanics and core game systems
- Identify how the player will progress through the game with the core game systems
- Link the game systems with the game narrative progression

Home
Lecture Four – Game Analysis and Game Genres

A. Purpose of Game Analysis
B. Game Analysis Process
C. Game Genres and Game Design
D. Evaluating Game Genres and Game Mechanics and Systems

Purpose of Game Analysis

Game Analysis is the process of evaluating and documenting a computer game using a set of criteria that help describe the game structure and narrative structure, game mechanics, and game systems. The purpose of game analysis is to identify and document elements of a computer game to help understand and create game designs.

Analyzing games is useful for several reasons:

- Identifying what game mechanics and game systems are in the game
- Evaluating how well or badly game mechanics and game systems work together.
- Evaluating how game narratives are implemented and how game narratives are linked with game mechanics, game systems, and game structures
- Evaluating the overall structure of the game and how it relates back to the game narrative, mechanics, and systems
- Evaluating how well the game implements generic game genre features

The general purpose of performing game analysis is to gather information from a video game that will help the design of new games. This can be done by analyzing both good and bad games. Often, the game designer can learn more from bad games than from successful games since the errors of bad games are often much more visible than good games. Well design games will hide their mechanics and systems so they are an organic part of the game and difficult to see. Bad games often throw their failures out so they are easy to discern.

Game Analysis Process

If the purpose of game analysis is to play and analyze games to identify the game structures, narrative, mechanics, and game systems, then how should this process take place? Game analysis should be different than just playing the game because the purpose of analysis is to “take apart” the game and look at the pieces. Ordering and eating a meal from a restaurant is different than reviewing a restaurant. The former is done for pleasure while the latter is done for analysis.

When playing a game for analysis the player must, at some point, both play the game as a player and observe themselves playing the game. For example, if a section of the game is designed to give the player and experience the person analyzing the game must be able to have the experience and, at the same time, evaluate why they are having the experience. For example, playing Alien Isolation, which is a stealth horror game, is to experience (as the game intends) a level of anxiety. The player’s experience is directed by the game so that the player is forced to play a specific way (avoid the alien) and with a feeling of impending dread. While experiencing this feeling the game analyst must also step back and figure out how the game causes such a feeling. This is not easy.

While the first step in analyzing a game rather than just playing a game is the right state of mind (the analysis mind), some other step include:

- Play through all or a large part of the game so the player understands the game systems, structure, narrative, and mechanics. During this first playthrough the analyst should not worry about doing any analysis but just experiencing the game as it was designed.
- Go back to the start and replay the game, but make notes of game mechanics, game systems and structure, and how the game narrative is being presented.
- Replay sections of the game until you have explored all the possible options and outcomes. If the player can die then the analyst should die a few times to understand this mechanic.
As an analyst, the goal is not to “beat” the game but to understand the elements of the game. Each element should be documented as the analyst plays through the game. The documentation should look like:

- Describe the game element (mechanic, system, narrative, player choice, structural element).
- Explain how the player encountered this element.
- Explain how this element relates to other elements in the game.

After playing through a good part of the game, the game analyst might go back to the start and replay the section to check to ensure that they have documented all the elements.

**Game Genres and Game Design**

A game genre is a general type of game that includes a set of common features. Game Genres have been developed over the years and represent some common kinds of games that players gravitate towards. The major game genres include:

- Adventure Game
- Role Playing Games
- First Person Perspective Games
- Strategy and Simulation Games

There are a number of more specialized kinds of games including:

- Stealth Horror Games
- FPS Combat Games
- Walking Around Games
- Hidden Object Games
- Platformer Games
- Rogue Lite Games

One of the reasons that game genres exist is that, as computer games have been created and as players gravitate to kinds of games, the designers tend to create games that fit into popular categories. However, with such self-imposed game design structures the games that fit into these genres will most often share a set of common mechanics, structures, and systems. These are the elements that people who want to play, for example, an Adventure Game want to see. Without these core features the game is not an Adventure Game (or one of the other genres).

If you are a game designer and want to create a game that fits into one of these common game genres you should understand what the common game genres are and how they are implemented. This is done by playing a number of genre games and analyzing the games so you understand the common features.

While most computer games have common game mechanics and systems there are some features that are unique to the particular game genres.

**Adventure games** – these kinds of game typically include the following features:

- **Linear Narrative Structure** – most Adventure games include a more linear narrative than open world or strategy games. The narrative is part of the overall game structure and often is introduced in the game through cut-scenes, player dialog choices, and other elements. While narrative is one element in adventure games it must be balanced with the other game elements.
- **Puzzles** – many adventure games include various kinds of puzzles. These are part of the basic gameplay mechanics and not just an add-on feature. In most adventure games the player must solve puzzles in order to progress through the game (for example, in Tomb Raider the player must solve puzzles to open and explore tombs).
• Exploration – this is another central element to many adventure games. Players will explore in order to get resources, solve puzzles, and, perhaps, advance the narrative. While exploration can be optional in open-world games it is typically part of the core game mechanic in Adventure games.

• Choices – most adventure games allow the player to make various kinds of choices when playing the game. These could include choices in terms of exploration or puzzles, but for the most part choices will have minimal effect on the outcome of the game. (However, there are some adventure games that allow for multiple endings.)

• Linear game progression – while sections of an adventure game may be open for exploration, the overall game is linear in nature in terms of moving the player from point to point. While open-world games may give the player an open area with multiple quests and side-quests, most adventure games will present the player with a single direction. This is often linked with the linear nature of the game narrative.

• Pre-defined game character – most adventure games give the player a pre-defined character. That is, the player does not really have the opportunity to create their own character in the game and must play an already defined character. This is because adventure games tend to have more highly structured narrative and there must be a place for the main game character.

Examples of modern adventure games include the Telltale series of games such as The Walking Dead and the Wolf Among Us. Other adventure games include the tomb raider series, the uncharted series, Life is Strange, and Night in the Woods. Classic adventure games include the Monkey Island series, the Longest Journey, and Beyond Good and Evil.

Role Playing games typically have the following features:

• Game character that the player can design or modify – many role playing games allow the player to choose and modify their game character. This is because role playing games (RPG) want the player to invest in their game character and identify with their game character. This is done by allowing the player to define a character from the ground up or choose a character from a set of characters and then modify the character as the game progresses.

• Game character abilities can change (level up) as a result of playing the game and acquiring resources in the game. This core game mechanic of leveling up the game character is one of the central features of RPGs. Unlike adventure games, where the character is fairly static, RPG characters can be changed as a result of playing the game. Typically, RPG characters start with a set of pre-defined abilities but can increase their skills or learn new skills as a result of acquiring something called XP (Experience Points).

• Non-linear narrative or a narrative that is not as rigidly structured as adventure games. While there will likely be a game-level narrative in most RPGs the narrative is often approached in a non-linear fashion through world exploration and environmental narrative tools.

• Player choices affect the direction and outcome of the game. Many RPGs allow the player to make choices that can result in short-term and long-term outcomes that will be different based on which choice was made. Given that the game wants the player to be fully invested in their game character, allowing characters to make important and significant choices is often found in RPGs.

• Game Progression is often not linear and is through quests. Since the player can level up their abilities their game progression is also put into their hands. This means that the player is given a set of quests that are used to provide XP or present game-level narratives. This progression is done in a non-linear way and players can often be working on multiple quest lines at the same time.

• Overall game design is open world rather than structured. Many RPGs will include an open-world design that allows the player to complete quests, explore, gather resources, and perform other tasks. The game might “gate” sections of the game so that only after completing specific quests can the player move to a new area, but otherwise the game allows the player to explore their current area.

There are a number of classic and modern RPGs that contain most of these features. The classic RPGs include the Ultima series, Baldurs Gate, Morrow Wind, and Zelda. Modern RPGs are Skyrim, The Witcher 3, and Divinity – Original Sin.
First Person Perspective games include a number of different sub-types such as exploration, combat, etc. While this is not necessarily a separate game genre the games that use this can include Adventure, RPG, Horror, etc. If the game designer chooses to use this kind of game mechanic they should consider some common First Person Perspective (FPP) features:

- **Player immersion in the game** – many FPS games use the camera perspective to immerse the player into the game. This means that the player controls the viewport and the direction they are facing. Maintaining this first person perspective will require that other game mechanics are focused on this player perspective.
- **Player fairness** – because the player is using the first person camera most such games include additional cues that the player can use during gameplay. These include visual indicators or sound. For example, some games will highlight things to pickup to draw the players attention or they will have enemies out of sight make noises or have some kind of mini-map to indicate opponents. This is important because FPP games that rely on the players attention and focus must play fairly.
- **Integrate FPP into the game mechanics** – Many FPP games will integrate the players immersion and viewport into the game mechanics. For example, first person horror games will use the players limited perspective to perform jump-scares or create a feeling of dread. While the FPP feature is used to immerse the player into the world it should also be part of the core game mechanics and game systems.

Strategy and simulation games include a wide variety of game types. These games are focused on problem solving and strategic decisions. They implement this in different ways but the results are similar. In pure strategy games the player is often tasked with military unit implementation. Games such as starcraft have the player choose which elements to deploy against and enemy and how to deploy it. Games such as XCOM, Total War Games, Age of Empires, and other military based strategy games require the player to implement both short-term and long-term strategic thinking. These are often called Real Time Strategy games (RTS).

Other games use a simulation model to allow the player to make short and long-term strategic decisions. For example, games such as Euro Truck Simulator put the player into a simulated environment of driving a truck. The goal is to complete jobs and get money to upgrade the truck. Other simulation games such as Civilization and Star Dew Valley are also simulation games but on a larger scale.

Some of the core features of strategy and simulation games are:

- **Good game tutorial** – since many of the strategy and simulation games require a more complex interaction from the player these games must have a good player tutorial process. This can be either a dedicated tutorial section or a playable tutorial with prompts, but such games should show the player how to play the game.
- **Clear decision making** – since the core mechanic and core game systems involve the player making tactical (short term) and strategic (long term) decisions the game should be clear about what decisions the player is being asked to make. This does not mean that the game should direct such decisions but the player should know what decisions have to be made and what the decisions mean to the gameplay.
- **Real-time vs Turn-based** – Strategy and simulation games typically are either Real-time or Turn-based. Real-time strategy games mean that the player must make quick decisions during gameplay because the opponent will be operating at the same time. Turn-based strategy games allow the player to make decisions and then allow the opponent to make their moves. Real-time strategy games should not impose extremely complex decisions into a real-time environment but turn-based games can require more complex decision making.
- **Ramping Up Difficulty** – good strategy and simulation games will include a difficulty ramp that increases as the player masters strategic decision making. The game should challenge the player by making the decisions more difficult as the game progresses.

**Evaluating Game Genres and Game Mechanics and Systems**
When designing a new game the game designer should decide which general game genre the game will fit into. This means that the game will implement some of the core game mechanics and perhaps core game systems found in popular games within the genre.

Lecture Five – Adventure Games

A. History of Adventure games
B. Core Adventure game mechanics
C. Core Adventure game structures and systems
D. Adventure game narrative structure
E. Adventure game level design

Adventure games were some of the earliest computer games ever made. The reason for this long history of Adventure games is that text-only adventure games were being played before game consoles and personal computers existed. Games like Adventure and Colossal Cave ran on mini computers and mainframe systems before such systems could display graphics. As personal computers and game systems were developed one of the first kinds of games implemented were Adventure Games.

One of the early Adventure games was Kings Quest. This was a game from Sierra On-line released in 1980. The game was about a knight going through various adventures, exploring, and solving puzzles. These actions were similar to the early text-only adventure games. In Kings Quest I the player is a knight sent by a king to defeat the evil witch and find magic items. The story was focused on the player character, which was already defined by the game. The player had to explore, solve puzzles, and meet with other NPCs. The entire Kings Quest series was very popular.

As adventure games evolved they included more character development, narrative structure, combat, and other game elements. Modern adventure games, such as The Last of Us, the Tomb Raider Series, the Uncharted series, and various visual novels, include many of these elements.

While many of the following elements are not unique to Adventure games, the core Adventure Game mechanics include the following elements:

- Player character is already defined – the player will inhabit a character with an already developed back story
- Exploration and resource management – many Adventure games include some level of exploration and likely include some kind of resource management. Players are able to gather resources and, perhaps, craft new items.
- Puzzle solving – many adventure games include some element of puzzle solving which could include environmental puzzles, logic puzzles, and other kinds of puzzles.
- Linear narrative structure integrated with the game progression structure – many adventure games include a strong narrative element which is presented in a fairly linear fashion. The game structure (levels or areas to explore, adventures and quests, etc) will match the narrative presentation.

A typical game system found in Adventure games include:

Getting a quest or adventure \(\rightarrow\) explore to find the area needed \(\rightarrow\) solve the puzzles \(\rightarrow\) getting an answer or resolution

Examples might be games like Tomb Raider in which the player must enter a tomb and location some artifact. In order to enter the tomb the player must solve some kind of puzzle. Once the artifact has been retrieved it explains or resolves some part of the game.

Other kinds of Adventure game could focus more on exploration or more on puzzle solving, but in either case they can still be categorized as Adventure Games.

The narrative structure of an Adventure game is normally (but not always) linear. The player will progress through the narrative by playing the game, solving puzzles, exploring, and resolving issues. With the narrative paralleling the
gameplay the game designer must make sure they can create a narrative that can be partitioned so that it can better fit the gameplay.

A good example (without spoilers) is The Last of Us. This game came out on Playstation in 2013 and was an adventure game with a lot of player combat and exploration. However, the game presents a very strong story and carefully defines the characters in the game. The basic narrative involves a world destroyed by a Zombie plague. The player character is Joel who is tasked with taking a young girl to a hospital because she is immune to the plague. During the trip to the hospital the player fights mutants and people, meets characters, and solves a number of environmental puzzles.

The design of the game is linked to the narrative in that progression through the game is controlled by the narrative. For example, at some point the player meets his brother and learns about his compound he is building. The gameplay and game areas are fairly linear in structure and this is not an open world game. The player will work through areas which are bounded by game areas. Because the game areas are defined and player progress is controlled, the game narrative can be broken into pieces that fit the gameplay areas.

This also affects the structure of the game. While open world games can have a strong narrative (Witcher 3) the presentation of the narrative is much different. If a narrative is integral to the Adventure game and if the narrative will be presented in a linear fashion, the game structure must also be linear. This means that the game must exert some level of control over where the player goes and what they do. The trick is to ensure that the player is able to make decisions but these decisions must be shaped to conform to the narrative.

For example, a game may give the player a goal to reach a specific area and may put challenges before the player (zombies, enemies) so the player, within the defined area, can make decisions about strategy, but the level may be designed so there is only one direction to follow and the game play mechanics may encourage the player to move forward rather than back (lack of resources, being pursued by enemies, etc). If the player’s decisions won’t change the overall narrative of the game, giving players choices and challenges within defined areas is very important.

Home

Lecture Six – Role Playing games

A. History of Role Playing games
B. Core RPG game mechanics
C. Core RPG game structures and systems
D. RPG game narrative structure
E. RPG game level design

Lecture Seven – Game Systems and Game Design – Read Chapter 5

A. Game Systems
B. Designing game Systems
C. Testing game systems
D. Balancing game systems

Lecture Eight – Game Conceptualization and Prototyping – Read Chapter 6 and 7

A. Game conceptual design document
B. Evaluating game concept document
C. Purpose of game prototyping
D. Kinds of game prototyping
Lecture Nine – More Prototyping – Read Chapter 8

A. Paper prototyping
B. Electronic prototyping
C. Integrating prototyping into the design process
D. Revising prototyping

Lecture Ten – Playtesting – Read Chapter 9

A. Purpose of playtesting
B. Designing playtesting
C. Conducting playtesting
D. Evaluating playtesting

Lecture Eleven – Balancing and Revision – Read Chapter 10

A. Game Balancing
B. Kinds of Game Balancing
C. Playtesting and Game Balancing
D. Revising game designs

Lecture Twelve – Making Games Engaging and Fun

A. What makes a game “Fun”?
B. What makes a game “Engaging”?
C. Evaluating game quality.