# Instructor's Manual Materials to Accompany
## FUNDAMENTALS OF GAME DESIGN, 2E

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## THIS INCLUDES MATERIALS FOR CHAPTERS 1-8

## *WE WILL POST THE REMAINING CHAPTERS' MATERIALS ON 10/20/09*

# Instructor's Manual Materials to Accompany
## FUNDAMENTALS OF GAME DESIGN, 2E

## CHAPTER 1
## GAMES AND VIDEO GAMES

## CHAPTER OBJECTIVES

When students have finished reading this chapter, they will be able to:
- Know the essential elements of a game—rules, goals, play, and pretending—and what they do in the context of playing games.

- Know the formal definition of a game.

- Understand the nature of challenges and actions, as well as the formal definition of gameplay.

- Become familiar with the concepts of symmetry and asymmetry, fairness, and competition and cooperation.

- Learn the various benefits that computers bring to games.

- Become familiar with the ways in which video games entertain people.


## CHAPTER OVERVIEW

This chapter provides a high-level definition of games and identifies the elements of a game. A game must include rules that structure the activity, a goal, play, and pretending. A video game is a type of game. The software enforces the rules and determines when the goal has been accomplished. A video game presents a fictional world through sounds and images, allowing players to become imaginary characters in the game. A game designer must consider game characteristics such as victory conditions, fairness, competition, and cooperation. Although games can be used as educational tools, most games are designed to entertain the player.
The major sections in this chapter are:
1.  **What Is a Game?** Explain the characteristics of a game.

2.  **Conventional Games Versus Video Games.** Describe how the computer affects gameplay.

3.  **How Video Games Entertain.** Gameplay, consisting of challenges and actions, is the most important entertainment source in a video game.

# CHAPTER OUTLINE

I.         What Is a Game?

            A.       Toys, Puzzles, and Games

            B.       The Definition of a Game

            C.       The Essential Elements of a Game

            D.       Things That a Game Is Not

            E.       Gameplay

            F.       Fairness

            G.       Symmetry and Asymmetry

            H.       Competition and Cooperation

II.        Conventional Games Versus Video Games

            A.       Hiding the Rules

            B.       Setting the Pace

            C.       Presenting a Game World

            D.       Creating Artificial Intelligence

III.      How Video Games Entertain

            A.       Gameplay

            B.       Aesthetics

            C.       Harmony

            D.       Storytelling

            E.       Risks and Rewards

            F.       Novelty

            G.       Learning

            H.       Creative and Expressive Play

            I.       Immersion

# KEY TERMS

**actions** Player behaviors permitted by the *rules*. Many game actions are intended to overcome *challenges,* but others serve to add to the player's enjoyment in other ways.

**artificial intelligence (AI)** A suite of programming techniques that allow a computer to mimic human behavior in certain domains. Video games use AI to provide artificial opponents for players to play against, among other functions.

**asymmetric game** A game in which the players do not start with identical conditions, do not play by the same rules, or do not seek to achieve the same victory condition.

**augmented reality** A form of computerized interaction in which computer-presented data and input mechanisms are combined with real-world events. The computer is said to augment the player's experience of the real world.

**challenge** A nontrivial task the player seeks to perform in order to move toward the game's goals.

**competition mode** One of a variety of different forms of competitive or cooperative play, such as team play or multiplayer cooperative play. Many video games allow players to choose a competition mode.

**cooperation** A form of play in which the players act together to achieve the same goals.

**deathmatch** A multiplayer competitive competition mode.

**fair** (1) In a player-versus-player game, a perception on the part of the players that they all have an equal chance of winning the game when it begins and that the rules do not create advantages for one player over another other than by the operation of chance. (2) In a player-versus-environment game, a set of player expectations about the nature of the game experience.

**game** A type of *play* activity conducted in the context of a pretended reality in which the participant(s) try to achieve at least one arbitrary, nontrivial *goal* by acting in accordance with *rules.*

**gameplay** The challenges presented to a player and the actions the player is permitted to take, both to overcome those challenges and to perform other enjoyable activities in the game world.

**goal** Desired result or condition that the player seeks to achieve. See *object (of a game).*

**group play** A form of social play in which a group of people take turns at playing a single-player game while the others watch. Also called hotseat play.

**handicap** An adjustment to the rules of the game (often of the *victory condition*) intended to balance differential skill among the players and give the less skilled an equal chance of winning with the others.

**harmony** An aesthetic quality of a game such that it feels as if all its elements—visual, auditory, gameplay, and others—belong together and complement each other.

**immersion** The feeling of being submerged in a form of entertainment and unaware that you are experiencing an artificial world. Players become immersed in several ways: tactically, strategically, and narratively.

**immutable rules** Rules that may not change during play.

**interactive story** A story that a player interacts with by contributing *player events* and possibly by changing its plot through *dramatic actions.*

**LAN parties** Multiplayer networked play in which all the players are in the same location but each has her own machine networked to the others over a local-area network (LAN).

**loss condition** An unambiguous true-or-false condition that determines when a player has lost a game. Not all games have a loss condition. Many games may not be lost; they simply remain unfinished.

**magic circle** Term originally coined by Johan Huizinga to refer to physical locations in which special social rules of behavior apply. Subsequently adopted by the game industry and other fictional media as follows: The magic circle is a theoretical concept related to the act of *pretending* that occurs when we choose to play a game. When we begin to *play* and agree to abide by the *rules*, we enter the magic circle. Within the magic circle, actions that would be meaningless in the real world take on meaning in the context of the game.

**microgames** Games that last only a few seconds.

**mixed reality** See *augmented reality.*

**multiplayer distributed gaming** Playing games among multiple players at distributed locations (such as over a network), which enables each to have her own video screen and individual view of the game world. Contrast with *multiplayer local gaming.*

**multiplayer local gaming** Playing games in the same room with other people, all looking at the same video screen. This approach makes it impossible to provide individual players with secret information.

**mutable rules** Rules that can be changed during a game according to other rules that define how the changes may take place.

**networked play** Play among characters on computers connected together by a network. See *multiplayer distributed gaming.*

**object (of a game)** Desired results or conditions that the player seeks to achieve. The goals of a game need not be achievable, so long as players can work toward them. Games usually have many goals, defined by the *hierarchy of challenges.* The *victory condition,* if the game has one, is always one of these goals. See *goals.*

**pace** The rate at which the player is obliged to interact with the game; the speed at which the game presents challenges.

**perfect information** A quality of a game such that each player has full knowledge of his own status and the other players' status including all previous actions taken; no information is hidden, and there is no element of chance.

**play** Nonessential, recreational human activities. One of the four key elements of a game.

**pretending** The mental ability to establish a notional reality that the pretender knows is different from the real world. One of the four key elements of a game.

**puzzle** A mental challenge with at least one correct solution state that the player must find.

**rules** Instructions that dictate to the player how to play. Rules normally include lists of required, permitted, and prohibited actions; the sequence of play; the challenges and actions that make up the gameplay; the goals of the game; the termination conditions of the game; definitions of the meanings of symbols in the game (its semiotics); and any metarules if some of the rules are changeable.

**suspension of disbelief** Term originally coined by Samuel Taylor Coleridge to refer to a reader's willing choice to believe in the fantasies of romantic poetry despite their incredibility. Subsequently adopted by the game industry and other fictional media and significantly redefined. See *immersion,* which is now used synonymously, for the game industry's definition.

**symmetric game** A game in which all the players begin with the same initial conditions (resources, starting positions, and so on), are trying to achieve the same goals, and play by the same rules. Such a game is usually considered to be *fair* and is generally easier to *balance* than an *asymmetric game.*

**termination condition** An unambiguous true-or-false condition that determines when a game has ended. Not always identical to a victory or loss condition; a race ends not after one runner wins but after the final runner crosses the finish line.

**toy** A physical object that a person can play with, typically in an unstructured fashion and without any formal rules (though the player may invent rules of his own if he wishes).

**victory condition** An unambiguous true-or-false condition that determines when a player has won the game or the current *level*. The highest challenge in the *hierarchy of challenges.* Not all games have a victory condition. Many construction and management simulations can be lost (by running out of resources) but not won.

**video game** A game mediated by a computer.

# TEACHING NOTES

I.      What Is a Game?

      A.      Toys, Puzzles, and Games

            **Teaching Tips:** Rules and goals separate games from toys and puzzles. Ask students to identify several popular toys. Standard answers might include Barbie dolls and miniature cars. Ask students to identify popular games. Standard answers might include *Monopoly* and baseball. Ask students to identify some popular puzzles; standard answers may include Rubik's Cube. Contrast the experience of playing (or playing with) each of these. Discuss what constrains the players in each case.

      B.      The Definition of a Game

            **Teaching Tips:** The definition of a game presented in this book reflects the priorities and capabilities of the game industry. Alternative definitions in other fields, such as anthropology or philosophy, reflect the interests of those fields.

      C.      The Essential Elements of a Game

            **Teaching Tips:** Select a popular video game. Ask students to identify the play activity, pretended reality, goal, and rules for the game.

      D.      Things That a Game Is Not

            **Teaching Tips:** A video game does not require competition or conflict from other players. For example, a flight simulator game in which the player pilots a jet from one city to another city does not involve conflict or competition. Ask students to identify other games that do not require competition or conflict.

      E.      Gameplay

            **Teaching Tips:** A challenge can be physical or mental. The rules determine the challenges and the actions that the player can use to overcome the challenges. The game designer makes the rules, thus creating the challenges and actions. Ask students to identify the challenges and actions for a popular video game.

      F.      Fairness

**Teaching Tips:** Fairness is a judgment that players make about games. Note that players will not continue to play a game after they have decided that it is not fair, or they will change the rules if possible.

      G.      Symmetry and Asymmetry

      **Teaching Tips:** Ask students to suggest names of some symmetric and asymmetric games (other than those in the book). Have them identify the qualities that make the asymmetric ones asymmetric—the rules, the victory condition, the starting conditions? Many video games enable players to select a difficulty level before starting to play the game. How does this resemble handicapping?

      H.      Competition and Cooperation

      **Teaching Tips:** Ask students to identify contemporary games that fit each competition mode.

II.      Conventional Games Versus Video Games

      A.      Hiding the Rules

      **Teaching Tips:** Why is it important to provide enough clues for players to solve a problem? Players will stop playing if they can't overcome an obstacle. Note that although hiding the rules improves immersion, it also often leads to designs that the player can only solve by trial and error.

      B.      Setting the Pace

      **Teaching Tips:** Some games increase the pace to increase the challenge as the game is played.

      C.      Presenting a Game World

      **Teaching Tips:** Using the full capabilities of a computer, a game can help the player become immersed in the game world. As technology continues to advance, game worlds will become more real to the player.

      D.      Creating Artificial Intelligence

      **Teaching Tips:** Artificial intelligence is a developing technology. Like advances in hardware, advances in artificial intelligence will help players become immersed in the game world.

III.      How Video Games Entertain

      A.      Gameplay

      **Teaching Tips:** Ask students to identify current games for several categories.

      B.      Aesthetics

      **Teaching Tips:** Ask students to point out games that have an exceptionally aesthetic quality to them and have them explain what specific details about the game are pleasing.

      C.      Harmony

**Teaching Tips:** The look and feel of a game must remain consistent. This is known as harmony. This helps the player become immersed in the game world. This includes every aspect of the game such as fonts, buttons, graphics, music, and dialog. Many games are based on worlds created in movies. Games based on the *Star Wars* series are obvious examples, but more games based on movies are distributed all the time. Many times, the game and movie are released at the same time to take advantage of the marketing and the audience's spike of interest. Ask students for current examples.

D.      Storytelling

**Teaching Tips:** Not all games include storytelling. However, adventure games enable a player to move around and interact with the game in ways that make the player feel that she affects the outcome.

E.      Risks and Rewards

**Teaching Tips:** Every risk requires a reward or the player will avoid the risk. The reward should be relative to the risk. A large reward for little risk will make the game seem unbalanced.

F.      Novelty

**Teaching Tips:** Ask students why most games allow players time to explore a new element before introducing another new element.

G.      Learning

**Teaching Tips:** After a player masters a game, it becomes boring and the player will abandon the game. Ask students how learning can keep a game interesting. Learning a new skill in a game can provide rewards or introduce new challenges.

H.      Creative and Expressive Play

**Teaching Tips:** The purpose of a vehicle is transporting passengers from one location to another. However, there is more than one kind of vehicle in the market. Individuals choose vehicles that reflect something about themselves or their personalities. Ask students how a game can enable a player to express her individuality. Examples can include choices that affect the look of a game without affecting the gameplay, such as the colors used in the user interface. Choices can also affect how the game is played. For example, a player might choose to be a fighter with more agility than strength, even though it is easier for a fighter with more strength to overcome the challenges.

I.      Immersion

**Teaching Tips:** Ask students to identify immersive games they play. Use the variety of responses to reinforce the different types of immersion.

J.      Socializing

**Teaching Tips:** Communication software is frequently used with game software when players are not in the same location. Common examples include

*TeamSpeak* and *Ventrilo*. Ask students to suggest some games in which they have greatly enjoyed the social aspects.


## PROJECTS/EXERCISES

**I.   Discussion Questions**
Discussion Question 1
    Will a game ever immerse a player as much as a movie immerses a viewer?
    Students could argue that some games already immerse a player more than a movie because the player is an active participant. As technology advances, computers will offer additional methods of interaction that will make a game world more realistic to the player.
Discussion Question 2
    In many science fiction books and movies, it is difficult to distinguish between artificial intelligence and a human. In the future, will this possible in the real world?
    Students could argue that artificial intelligence will never be able to respond in ways that are not specifically programmed, or to duplicate human emotion.

**II.  Web Projects**
Web Project 1
    Go to http://www.yahoo.com. Visit the Games area. How does Yahoo categorize the games available to download or play online?
    Currently, games are categorized as arcade games, board games, card games, puzzle games, word games, and skill games from king.com.
Web Project 2
    Go to http://www.amazon.com. Identify the top-selling games. Are there any common characteristics among the most popular games?
    Answers will vary based on recent game releases.
Web Project 3
    Go to http://www.esrb.org. What is the purpose of the ESRB?
    The Entertainment Software Rating Board is a "non-profit self-regulatory body that independently assigns ratings, enforces advertising guidelines, and helps ensure responsible online privacy practices for the interactive entertainment software industry."
Web Project 4
    Go to http://world.honda.com/ASIMO/technology/intelligence.html. Describe the artificial intelligence exhibited by Honda's humanoid robot ASIMO.
    ASIMO can interpret human gestures and postures and respond independently. It can recognize faces, greet people by name, and move in a direction indicated by a person's gestures.


## WEB RESOURCES

- http://www.pbs.org—Site containing information about a variety of topics explored on public broadcasting. Search for "magic circle" to view additional information about the magic circle in game theory.

- [http://www-aig.jpl.nasa.gov](http://www-aig.jpl.nasa.gov)—The Artificial Intelligence Group at the Jet Propulsion Laboratory researches artificial intelligence and applies it to analysis, spacecraft command, network operations in deep space, and space transportation.

- [http://ludix.com/moriarty/listen.html](http://ludix.com/moriarty/listen.html)—*Listen! The Potential of Shared Hallucinations.* Lecture delivered at the Game Developers' Conference, Santa Clara, California, in 1997 by Brian Moriarty

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## FUNDAMENTALS OF GAME DESIGN, 2E

## CHAPTER 2
## DESIGN COMPONENTS AND PROCESSES

## CHAPTER OBJECTIVES

When students have finished reading this chapter, they will be able to:
- Understand the player-centric approach to game design and apply its principles to your own design practice.

- Know how the core mechanics and the user interface work together to create gameplay for the player.

- Explain how gameplay modes and shell menus make up the structure of a game.

- Recognize the three stages of game design (concept, elaboration, and tuning) and know what kinds of design work take place in each stage.

- Know the kinds of jobs required on a design team.

- Know the kinds of documents that a game designer is likely to need to make and what they are for.

- Know the qualities required of a good game designer.

## CHAPTER OVERVIEW

This chapter discusses the importance of designing a game that a player will want to play. This often means ignoring your own preferences to satisfy the players' preferences. To design a good game, you need to understand the key components in a video game—core mechanics and user interface. Knowledge of the key components is used in the three-part design process that includes the concept stage, elaboration stage, and tuning stage. The game design team interacts throughout the process as team members perform their jobs. The major sections in this chapter are:

4. **An Approach to the Task.** Describe the influencing factors that a game designer must consider when designing a game.

5. **The Key Components of Video Games.** Describe the relationship among core mechanics, user interface, and the players.

6. **The Structure of a Video Game.** Explain how the gameplay modes and shell menus form the structure of the game.

7. **The Stages of the Design Process.** Designing a game is a three-stage process—concept stage, elaboration stage, and tuning stage.

8. **The Game Design Team Roles.** Describe the roles of the design team members.

9. **The Game Design Documents.** At every stage, game designers create documents to explain the design.

10. **The Anatomy of a Game Designer.** Identify the characteristics of a good game designer.

## CHAPTER OUTLINE

I.  An Approach to the Task

  A.  Art, Engineering, or Craft?

  B.  The Player-Centric Approach

  C.  Other Motivations That Influence Design

  D.  Integrating for Entertainment

II.  The Key Components of Video Games

  A.  Core Mechanics

  B.  User Interface

III.  The Structure of a Video Game

  A.  Gameplay Modes

  B.  Shell Menus and Screens

  C.  The Game Structure

IV.  The Stages of the Design Process

  A.  The Concept Stage

  B.  The Elaboration Stage

  C.  The Tuning Stage

V.  The Game Design Team Roles

VI.  The Game Design Documents

  A.  Why Do We Need Documents?

## KEY TERMS

**abstract** (adjective) A quality of a game that indicates it bears little relationship to the real world, and the player may not rely on his understanding of the real world in playing the game; its rules are arbitrary. Abstract is one end of the *realism* scale; the other end is *representational.*

**art-driven game** A game whose design is primarily driven by the goal of showing off the game's artwork.

**attract loop** A continuously cycling noninteractive demonstration on an arcade game designed to attract the attention of passersby.

**concept stage** The first major stage of game design, in which the designer works to turn an idea for a game into a *game concept.*

**core mechanics** A symbolic and mathematical model of the game's rules that can be implemented algorithmically.

**designer-driven game** A game whose designer retains all creative control. Such games usually reflect the designer's own personal desires rather than a wish to entertain others.

**elaboration stage** The second and longest stage of game design, during which the designers elaborate on the game concept they built during the *concept stage.*

**first playable level** The first level created by the level design team that actually includes gameplay, as opposed to being a prototype or mockup. It should be a typical example of a level, not the first level the player will play.

**game world** An imaginary universe in which the events of the game take place. Most computer game worlds are simulated two- and three-dimensional spaces containing characters and objects.

**gameplay mode** A collection of features of a game that strongly influence the player's experience of the game at any given time. The features that make up a gameplay mode are: a) the subset of the game's *gameplay* that the core mechanics offer at any particular time, b) the *camera model* from which which the user interface displays the *game world;* and c) the *interaction model* offered by the user interface, by which the player acts upon the world. Whenever any of these changes significantly, the game has entered a new gameplay mode.

**interaction model** The means by which the player projects her will into the game world, which is facilitated by the user interface. Common interaction models include *avatar-based, party-based, multipresent, desktop,* and *contestant-based*.

**interactive fiction** Text-only adventure games, played by typing on a keyboard.

**license** A contract between the owner of an intellectual property such as a character, movie, book, or sports league, and a game developer or publisher to use that property in a game. The term *license* is often used to refer to the property itself, as in "Electronic Arts has the Harry Potter license."

**market-driven game** A game whose features are included simply because they are known to appeal to a given market, whether or not those features are consistent with the game's real premise.

**moveset** A list of animations that shows how a character can move, both voluntarily and involuntarily.

**perspective** One of several *camera models* in which the game's *virtual camera* remains largely fixed with respect either to an avatar or a game world. For example, the camera in a *first-person perspective* always remains fixed relative to the avatar. The previous edition of theis book referred to all camera models as perspectives.

**player-centric game design** An approach to game design that requires the designer to empathize with the player and concentrate on entertaining that player.

**presentation layer** Another term for the *user interface.*

**realism** A continuous scale upon which the game's relationship to the real world is measured. One end of the scale is *abstract* (little or no relationship); the other end is *representational* (very close relationship). Different aspects of the game may

have their own levels of realism (such as the graphics and the physics), which combine to form the game's overall level of realism.

**representational** A quality of a game such that it represents ideas and relationships familiar from the real world*,* such as gravity, money, death, parenthood, or fear, and presents its game world in a photorealistic way. Representational games expect players to apply some of their understanding of the real world to the game world. The opposite end of the *realism* scale from *abstract*.

**shell menu** A menu of options implemented by game software outside of the game world. Chiefly used for loading and saving games and customizing the user interface.

**simulation** A mathematic or symbolic model of a real-world situation.

**structure of a game** The relationships among a game's *gameplay modes*, including a specification of the circumstances in which the game switches from one mode to another.

**technology-driven game** A game designed to show off a particular technological achievement.

**tuning stage** The final stage of game design in which designers refine the core mechanics and other aspects of the design without adding any new features.

**user interface** The collection of presentation elements and control elements that mediate between the player in the real world and the game world, translating player actions performed on the machine's input devices into game-world actions, and game-world events and other data into images and sounds produced by the machine's output devices.

## TEACHING NOTES

I.      An Approach to the Task

        A.      Art, Engineering, or Craft?

                **Teaching Tips:** Identify other crafts, such as architecture or carpentry, which encompass a combination of art and engineering.
        B.      The Player-Centric Approach

                **Teaching Tips:** Emphasize that *empathizing with* the player is not the same as *being* the player. For example, games for children are designed by adults. A good children's game considers the child's entertainment, not the adult designer's entertainment. Be sure to cover the two misconceptions designers often have: considering themselves to be their typical player, and considering the player to be the designer's opponent.

C.      Other Motivations That Influence Design

**Teaching Tips:** The force driving a game design can have a profound effect on the product. Motivation is a critical factor. For example, if you ask students to write a 10-page paper about the Renaissance, students will write 10 pages about the time period. However, if you ask students to write a paper about daily life during the Renaissance, the submitted papers will specifically address daily life during the time period. The paper might still be 10 pages long, but the content will be driven by the topic, not the assigned length. The results of the two assignments will be very different because the driving motivation is different.

D.      Integrating for Entertainment

**Teaching Tips:** Creating a good game can be compared to baking. The right amount of every ingredient must be present or the result is not edible.

II.      The Key Components of Video Games

A.      Core Mechanics

**Teaching Tips:** More realistic games require more core mechanics. For example, if every car in the game travels straight ahead at the same speed when the player drives a car, the core mechanics are fairly simple. If cars accelerate, slow down, turn corners, and require gas to move at all, the core mechanics are much more complex.

B.      User Interface

**Teaching Tips:** Note that, unlike productivity tools' interfaces, game user interfaces involve an element of pretending. Rather than "typing" a paper for class, you are "talking" to another player through the keyboard. Rather than "entering numbers" in a spreadsheet, you are "running" across the room on your screen. The UI facilitates the player's entertainment, not his productivity. Be sure students understand the concepts of interaction models and camera models, as these are critical to game design.

III.      The Structure of a Video Game

A.      Gameplay Modes

**Teaching Tips:** This is another critical concept. Select some popular simple video games and ask the players to identify their gameplay modes. *Tetris* and *Pac-Man* are good minimal examples; also consider action-adventure games such as the *Zelda* series.

B.      Shell Menus and Screens

**Teaching Tips:** Actions that aren't part of *playing* the game belong in the shell. These actions do not help to immerse the player in the game. Saving your current game and adjusting your interface preferences do not immerse you in the game.

C.      The Game Structure

**Teaching Tips:** Using the games you chose in Gameplay Modes section, have students diagram the structure of the game – the relationships among the

gameplay modes and shell menus, and the events that cause the game to switch from one mode to another.

IV.     The Stages of the Design Process

      A.      The Concept Stage

      **Teaching Tips:** Concept elements should not change after entering the elaboration stage, but concept elements will change and develop as more elements are established in the concept stage.

      B.      The Elaboration Stage

      **Teaching Tips:** Most of the work needed to go from concept to a real game is done during this stage. Be sure to highlight the danger of irresolution.

      C.      The Tuning Stage

      **Teaching Tips:** Locking down a software product by refusing to make any additional major changes can be difficult. It's easy to give in to making "a small change" here and there. This can easily get out of control. Remember that making changes can add errors. At this point, you should be removing errors, not creating new problems.

V.      Game Design Teams

      **Teaching Tips:** Like any career field, personal skills and interests will point you toward one or more of the positions on a design team. Emphasize that teams need a leader or a mechanism for resolving disputes.

VI.     The Game Design Documents

      A.      Why Do We Need Documents?

      **Teaching Tips:** Remind students of the game Telephone, in which one person whispers a single sentence to a second person. After the message is passed several times, the final message received can vary dramatically from the initial message. To demonstrate this, tell one student a complicated message. (Include names, dates, and times to make the message complicated.) Allow the message to travel around the room by each student whispering the message to pass it to the next student. Ask the final student to write the message on the board. How does it differ from the original message? This is an example of the miscommunication that can occur without good documentation.

      B.      Types of Design Documents

      **Teaching Tips:** In today's world, several members of the design team could be freelance workers or company employees located in another state. Good documentation and a good distribution method that enables all team members to communicate is critical. Also, when you are submitting design documents and seeking funding, the document can be just as important as the content. Proofread your work! Ask a second person to review your document before you submit it to a game publisher to request funding. A professional writer or editor can provide valuable insight or corrections that can prevent embarrassment or rejection for sloppy work.

VII.    The Anatomy of a Game Designer

**Teaching Tips:** This is the portrait of the *ideal* game designer. Most game designers will not have *all* of these skills. Ask students to rate themselves on a scale of one to five for each listed characteristic.

    A.       Imagination

    B.       Technical Awareness

    C.       Analytical Competence

    D.       Mathematical Competence

    E.       Aesthetic Competence

    F.       General Knowledge and the Ability to Research

    G.       Writing Skills

    H.       Drawing Skills

    I.       The Ability to Synthesize

## PROJECTS/EXERCISES

**I.    Discussion Questions**

Discussion Question 1

    Ask students how they fit the model of the ideal game designer described in this chapter.

    Answers will vary. Students should describe ways that their personal characteristics can help them design good games.

Discussion Question 2

    Ask students to describe the game concept of a good game they enjoyed playing.

    Answers will vary. Students could describe the concept, the intended audience, core mechanics, and gameplay modes.

**II.    Web Projects**

Web Project 1

    Go to http://www.firaxis.com. Describe the products Firaxis offers.

    Firaxis is the company associated with famed game designer Sid Meier and the *Civilization* suite of games.

Web Project 2

    Go to http://www.firaxis.com/company/about.php. Summarize the history of the company.

    Firaxis was founded in 1996 by Jeff Briggs. Sid Meier is the creative director. The company has produced several games, such as *Sid Meier's Civilization* and *Sid Meier's Alpha Centauri* that have remained popular for the past decade.

Web Project 3

Go to http://www.firaxis.com/jobs/index.php. Identify the requirements for one position that interests you.

The requirements will vary for each job posted. Currently, every position listed requires at least one shipped game title as experience.

Web Project 4

Go to http://www.firaxis.com/company/legacy.php. Describe the legacy created by Sid Meier.

Sid Meier created the first "god games" in which players manage all aspects of a particular business. In *Railroad Tycoon*, the player manages a railroad at the start of the steam age. The player is responsible for all railroad functions. Players lay the track, deliver passengers and mail, perform maintenance, and try to become wealthy.

## WEB RESOURCES

- http://www.firaxis.com—Study the Web site for Firaxis Games, Inc. This company has created games such as the Civilization series.

- http://www.gamedev.net—Site created by independent game developers to assist one another. Articles cover many topics associated with game design.

- http://www.sloperama.com—Site created by a professional game designer, containing a large amount of advice and answers to many frequently asked questions.

# Instructor's Manual Materials to Accompany
## FUNDAMENTALS OF GAME DESIGN, 2E

## CHAPTER 3
## GAME CONCEPTS

## CHAPTER OBJECTIVES

When students have finished reading this chapter, they will be able to:
- Take a game idea and add the necessary material to make it into a design concept.

- Define the player's role or roles in the game.

- Know the different genres of games and think about which one your game may belong to.

- Know how to choose a target audience for your game and understand some of the special considerations associated with designing for specialized markets such as children, the disabled, and foreign consumers.

- Plan the progress of your game.

- Understand the differences among the various kinds of game machines and how those differences affect the way people play on them.

## CHAPTER OVERVIEW

This chapter discusses the process of transforming an idea into a game concept. An idea for a game can be inspired by several sources. Turning the idea into a game concept requires defining the player's role in the game and the type of challenges presented to the player. Identify the target audience for the game. Try to avoid material that will drive away part of your target audience. Create a story or provide a path that allows the player to progress through the game. Finally, identify the type of machine used to play the game. The major sections in this chapter are:

11. **Getting an Idea.** Identify several sources for ideas that can be turned into games.

12. **From Idea to Game Concept.** Identify and gather information for the high concept document describing the game.

13. **The Player's Role.** Describe the player's goals and actions.

14. **Choosing a Genre.** Select the type of challenges the player will face.

15. **Defining Your Target Audience.** Describe the people who will buy your game.

16. **Progression Considerations.** Provide a method for players to advance as they play.

17. **Types of Game Machines.** Identify the game platform.

# CHAPTER OUTLINE

I. Getting an Idea

  A. Dreaming the Dream

  B. Game Ideas from Other Media

  C. Game Ideas from Other Games

  D. Communicating Your Dream to Others

II. From Idea to Game Concept

III. The Player's Role

  A. What Is the Player Going to Do?

  B. Defining the Role

IV. Choosing a Genre

  A. The Classic Game Genres

  B. Hybrid Games

V. Defining Your Target Audience

  A. Dangers of Binary Thinking

  B. Core Versus Casual

  C. Other Distinctions

VI. Progression Considerations

VII. Types of Game Machines

  A. Home Game Consoles

  B. Personal Computers

  C. Handheld Game Machines

  D. Mobile Phones and Wireless Devices

  E. Other Devices

## KEY TERMS

**exclusionary material** Content or features that tend to drive players away from a game they might otherwise like, e.g., racist or sexist content.

**game concept** A statement of a group of design choices sufficient to convey, among other things, what a game will be like to play, for what audience it is intended, and on what machine it will run.

**high concept** A very short description, no more than two or three sentences long, that conveys the most important aspects of an idea for a game.

**unique selling points** Unique characteristics of a game that will make it stand out in the marketplace.


## TEACHING NOTES

I.      Getting an Idea

        **Teaching Tips:** Follow the process in this chapter to transform an idea into a game concept. Use the blackboard, an overhead projector, or a flip pad to record the game concept as it develops.
        A.      Dreaming the Dream

        **Teaching Tips:** Several games reflect real-world professions. For example, *SimCity* reflects the job of a city manager. In other games, the player manages a theme park, designs a zoo, or runs a railroad. Ask students to select another profession as the basis for a new game.
        B.      Game Ideas from Other Media

        C.      Game Ideas from Other Games

        D.      Communicating Your Dream to Others

II.     From Idea to Game Concept

        **Teaching Tips:** Ask students to write a high concept statement describing the game idea. Most of the remaining information needed to describe the game idea will be completed as you finish this chapter.
III.    The Player's Role

        A.      What Is the Player Going to Do?

        **Teaching Tips:** Make a list of the types of things that a player can do in the game. These should be specific actions, not generalities: "buy" and "sell," not "accumulate money."
        B.      Defining the Role

**Teaching Tips:** Define the player's role in the game. What is the player trying to achieve?

IV.      Choosing a Genre

      A.      The Classic Game Genres

      **Teaching Tips:** Identify a genre that is appropriate for the game idea. Remember that genres are defined by the types of challenges that they offer.

      B.      Hybrid Games

      **Teaching Tips:** Discuss why the game idea is or is not a hybrid game. If you wanted to create a hybrid game, what would you want to add? How would the additional features affect sales of the game?

V.      Defining Your Target Audience

      **Teaching Tips:** Focus on the FYI feature. Distinguish between a representative player and the target audience.

      A.      The Dangers of Binary Thinking

      **Teaching Tips:** Emphasize the dangers of binary thinking, assuming that men and women, or children and adults, like mutually exclusive forms of entertainment.

      B.      Core Versus Casual

      **Teaching Tips:** Is your target audience made up of core or casual players? Could your game possibly appeal to both, as with *Goldeneye*?

      C.      Other Distinctions

      **Teaching Tips:** Are there any characteristics of the game idea that would include or exclude players from any of these groups? Note the importance of needlessly excluding people who might buy your game.

VI.      Progression Considerations

      **Teaching Tips:** Define the player's progression in the game. How do you measure success? If the game is based on a profession, progression could be measured by promotions or financial success.

V.      Types of Game Machines

      **Teaching Tips:** Select the best game machine for the game idea. As you consider the equipment, identify the advantages and disadvantages of each game platform as it relates to your game idea. If the game is based on a low-activity profession, a personal computer will probably be the best alternative.

      A.      Home Game Consoles

      B.      Personal Computers

      C.      Handheld Game Machines

D.       Mobile Phones and Wireless Devices

E.       Other Devices

# PROJECTS/EXERCISES

**I.   Discussion Questions**
Discussion Question 1
Ask students how they fit into the target audience for the game idea developed in class.
Answers will vary. Students should describe their interest level in the profession. How would this affect the decision to buy the game?
Discussion Question 2
Ask students how they would avoid excluding potential buyers.
Answers will vary. Students could describe small changes to the game idea that would avoid excluding potential buyers.

**II.  Web Projects**
Web Project 1
Go to http://www.cnn.com. Select a news story. Write a high concept statement of three or four sentences that describes a game idea generated by the news story.
Answers will vary, but they should include a description of the story and a brief description of the related game idea.
Web Project 2
Go to http://www.bls.gov/oco/ocos158.htm. Describe a firefighter's job and write a high concept statement for a game based on the firefighter's profession.
This is the Web site for the Bureau of Labor Statistics. Answers will vary but the high concept statement should reflect the duties and dangers faced by firefighters.
Web Project 3
Go to http://www.nytimes.com/pages/books/bestseller/index.html. Select a current best-selling book. Describe why the book might be converted into a marketable game concept.
Answers will vary, but they should include information about the book that suggests it could be developed into a game concept.
Web Project 4
Go to http://www.movietickets.com. Select a current movie. Describe why the movie might be converted into a marketable game concept.
Answers will vary, but they should include information about the movie that suggests it could be developed into a game concept.

# WEB RESOURCES

- http://www.costik.com/presentations/Imagining%20New%20Game%20Styles.ppt—
  PowerPoint slides to accompany the *Imagining New Game Styles* lecture delivered at the Futureplay conference in 2005 by Greg Costikyan.

# Instructor's Manual Materials to Accompany
## FUNDAMENTALS OF GAME DESIGN, 2E

## CHAPTER 4
## GAME WORLDS

## CHAPTER OBJECTIVES

When students have finished reading this chapter, they will be able to:

- Know the various dimensions of a game world and understand how they affect the player's experience of the game.

- Define an appropriate physical model for your game world, including its dimensionality, scale, and what happens at the boundaries.

- Explain the relationship between game time and real time and decide how time will behave in your game.

- Create the culture and environment of a game world, set the level of detail that it will offer, and define a visual and auditory style for it.

- Know some of the techniques for influencing the player's emotions.

- Be aware of how the ethics of a game world can differ from the ethics of the real world and the implications that has for public acceptance of your game.

- Understand the multidimensional nature of *realism* as it applies to games and how it affects the player's expectations about the experience the game will give her.

## CHAPTER OVERVIEW

This chapter discusses the creation of a game world. The most important thing to remember about a game world is its purpose. A game world must entertain. Creating a game world requires many decisions that determine everything from the world's appearance to the passage of time in the game world. The game world affects players' actions, abilities, and decisions.

The major sections in this chapter are:

18. **What Is a Game World?** A game world is an artificial universe, an imaginary place in which the events of the game occur.

19. **The Purposes of a Game World.** A game world entertains by providing a place to explore and an environment for interaction.

20. **The Dimensions of a Game World.** When designing a game world, consider how to handle every aspect of the physical and emotional environment you create.

21.     **Realism.** In most games, the degree of realism varies in different parts of the game.

# CHAPTER OUTLINE

I.      What Is a Game World?

II.     The Purposes of a Game World

III.    The Dimensions of a Game World

      A.      The Physical Dimension

      B.      The Temporal Dimension

      C.      The Environmental Dimension

      D.      The Emotional Dimension

      E.      The Ethical Dimension

IV.     Realism

# KEY TERMS

**dimensions** Collections of related properties that define how the player experiences the *game world*, for example., the physical dimension, emotional dimension, ethical dimension, and so on.

**game world** An imaginary universe in which the events of the game take place. Most computer game worlds are simulated two- and three-dimensional spaces containing characters and objects.

**survival horror** A subgenre of action or action-adventure game that makes use of some of the qualities of horror movies: lone protagonists, disturbing images, and startling attacks.

# TEACHING NOTES

I.      What Is a Game World?

II.     The Purposes of a Game World

        **Teaching Tips:** A game world anchors your game into a specific setting and affects the player's behavior.

III.    The Dimensions of a Game World

**Teaching Tips:** Create a game concept that occurs on a college campus. Be sure you have covered all the necessary elements of a game concept identified in Chapter 3, especially the player's role and the gameplay As you go through this chapter, create a game world that reflects the school campus. To avoid becoming mired in arguments about the layout, use an existing map and some photographs of the campus from a brochure or other school publication.

    A.      The Physical Dimension

**Teaching Tips:** Choose 3D for the spatial dimensions of the school campus in your game. Select a scale and perspective similar to Figure 4.5. Set the boundary at the edge of the campus. (Rather than wrapping the map, you can use the parking lots or street entrances as zone lines between map areas or points to exit the game. Doors into buildings can also be used as zone lines into interior settings.)

    B.      The Temporal Dimension

**Teaching Tips:** How long does it take a student to run across the campus in real life? Is this a reasonable amount of time in the game world based on the gameplay you have chosen? If not, discuss adjusting the avatar's movement rate or the game clock. Should the game have a night or is it always daylight? If the game has a night, determine if the player's options differ at night. (Answers to these questions depend on the game concept created for this class.)

    C.      The Environmental Dimension

**Teaching Tips:** Use the school environment as the game's physical surroundings. Assign sounds or music to specific locations on the map. (Don't overdo this. One or two ambient sounds are probably adequate for your game.) Select the amount of detail and style for your game world. Your selections should reinforce the game concept.

    D.      The Emotional Dimension

**Teaching Tips:** Identify the emotions you want the player to experience. The emotions selected should be based on the selected game concept. It would take too much time to develop the gameplay and backstory in class. Instead, focus on the images, style, and sounds that can be used to reinforce the emotions that would be created by the fully developed game concept.

    E.      The Ethical Dimension

**Teaching Tips:** Does the game concept used in this class lend itself to good or bad behavior by the player?

IV.      Realism

**Teaching Tips:** Based on the game concept used in this class, how much realism should be expected in this particular game?

# PROJECTS/EXERCISES

**I.    Discussion Questions**
Discussion Question 1
    Ask students how important it is to inspire ethical behavior in the players.
    Answers will vary. One consideration that should be mentioned is the age of the target audience.
Discussion Question 2
    Ask students to evaluate the game world created in class.
    Answers will vary. Students should be able to discuss the strengths and weaknesses of the game world designed in class.

**II.   Web Projects**
Web Project 1
    Go to http://www.bbc.co.uk/homes/design/period_artdeco.shtml. Describe the Art Deco style.
    Answers will vary, but they should include a description of the art and dominant colors during the Art Deco period of 1908 to 1935. Geometric shapes and chrome were popular. The glamorous world of early Hollywood reflects the style.
Web Project 3
    Go to http://www.mobygames.com. Using the Game Browser, choose a genre of games and select games released in the last year or two. Visit the database entries for those games and examine the screen shots. Describe the ways in which their details support the gameplay and emotional tone of the genres.
    Answers will vary, but they should discuss such issues as the environment, lighting, music, and overall layout.
Web Project 4
    Go to http://www.marvel.com. Describe the art used in comic books.
    Answers will vary, but they should include information about the style and colors used in comic books. In traditional comic books, clean lines and bold colors dominate.


# WEB RESOURCES

- http://www.mobygames.com—Moby Games database of video games

# Instructor's Manual Materials to Accompany
## FUNDAMENTALS OF GAME DESIGN, 2E

## CHAPTER 5
## CREATIVE AND EXPRESSIVE PLAY

## CHAPTER OBJECTIVES

When students have finished reading this chapter, they will be able to:

- Describe self-defining play as a way a player can project his personality into the game world through his selection of an avatar and the avatar's attributes.

- Explain creative play as a way to allow players to design or construct as part of the gameplay.

- Understand the difference between constrained creative play and freeform creative play.

- Know how games can provide storytelling play by allowing players to create their own stories.

- List ways in which you can provide a player additional creative freedom by allowing her to modify a game.

## CHAPTER OVERVIEW

This chapter discusses creative play. Creative play comes in several forms, and is particularly appealing to players who like a more thoughtful, less competitive experience. Creating an avatar is the first introduction to creative play in your game. Level design tools and the ability to incorporate player-made bots will extend the marketing lifetime of your game.

The major sections in this chapter are:

22. **Self-Defining Play.** Allowing players to customize the avatars that represent them is self-defining play.

23. **Creative Play.** Creative play is constrained by the software and technological limits.

24. **Storytelling Play.** Enabling players to create and share stories enhances the entertainment.

25. **Game Modifications.** Providing tools that allow players to create new levels or new opponents can provide more creative freedom and enhance long-term sales.

# CHAPTER OUTLINE

# KEY TERMS

**bot** An artificially intelligent opponent, usually in a first-person shooter, that players may implement as a modification to the game.

**characterization attributes** Attributes that describe something fundamental about a character or unit and change only slowly by small amounts or not at all. Maximum speed might be a characterization attribute for a vehicle.

**constrained creative play** Creative play artificially constrained by rules. The rules may impose physical, aesthetic, or economic limitations on what the player may create. Contrast with *freeform creative play*.

**freeform creative play** Creative play constrained only by the options that the game offers and the technological limitations of the machine but not by rules. Contrast with *constrained creative play*.

**functional attributes** Attributes of an avatar or other character that influence gameplay through their effect on the core mechanics. Contrast with *cosmetic attributes*.

**mods** Player-created modifications to a game that provide new content and sometimes new ways to play the game.

**sandbox mode** A *gameplay mode* in which the player is not presented with a victory condition. This mode has few restrictions on what he may do and offers no guidance on what he *should* do.

**self-defining play** Game activities that allow the player to choose, customize, or construct an avatar thus defining the player's imaginary self in the game.

**status attributes** Attributes that describe the current state of a character or unit and may change frequently. Current speed and current health are examples.


# TEACHING NOTES

I.       Self-Defining Play

       **Teaching Tips:** *City of Heroes*™ is an online game with the most robust character generation tools currently available. On a server with thousands of other characters, you can play indefinitely without seeing another avatar that looks exactly like yours. Selections include gender, height (4-foot to 7-foot), build (slender to huge), skin color (normal shades, greens, blues, and reds too!), hair style, hair color, and thousands of costume options (pants, skirts, suits, eye patches, robotic limbs, and more). As if that isn't enough, you can use a slider to change the proportions of dozens of standard body and face elements. Make the face thinner, the waist slimmer, the legs shorter . . . . You can easily spend an hour designing your avatar.

       A.       Forms of Personality Expression

       **Teaching Tips:** Remind students that they can improve the avatar's functional attributes through rewards after defeating a challenge.

       B.       Understanding Attributes

       **Teaching Tips:** The ability to change cosmetic attributes can be a reward after defeating a challenge. Once players have played all the way through *Silent Hill III,* they unlock new clothes for the protagonist to wear when playing the game again.

II.       Creative Play

       **Teaching Tips:** The player's creativity in a game is always bound by the restrictions of the software.

       A.       Constrained Creative Play

       **Teaching Tips:** The player's creativity in a game can be limited economically. To purchase or build more items, the player must win the equivalent of "money" in the game. This can be based on the player's financial earnings or experience. In *City of Heroes*, players earn "influence" that spends like money. When a hero defeats a villain, the hero earns experience and influence.

       B.       Freeform Creative Play and Sandbox Mode

III.       Storytelling Play

**Teaching Tips:** Fan Web sites have been created for many games. These sites enable players to exchange stories. *City of Heroes* includes a biography section for every avatar. Other players can click any avatar and view the avatar's biography at any time while playing.

IV.     Game Modifications

    A.     Level Editors

       **Teaching Tips:** Level editors are common for many computer games.

## PROJECTS/EXERCISES

**I.    Discussion Questions**

Discussion Question 1

    Ask students how important it is to enable players to use their creativity. After all, arcade games flourished in the past without any features built in for creativity.

    Answers will vary. One consideration that should be mentioned is marketing. If two games are similar, but one offers more features to provide a creative outlet, it might become more popular.

Discussion Question 2

    Ask students to evaluate the creative outlets provided in the games they play.

    Answers will vary. Students should be able to discuss the strengths and weaknesses of the creative outlets in the games they play.

**II.   Web Projects**

Web Project 1

    Go to http://www.gamasutra.com/resource_guide/20040920/fish_01.shtml. (Free registration is required to access articles on this Web site.) Describe how stories are told in the *City of Heroes* game.

    Answers will vary, but they should include a description of how stories are revealed by completing missions assigned by contacts. The stories fit together to form a story arc.

Web Project 2

    Go to

http://www.gamespot.com/downloads.html?type=downloads&dlx_type=mods. Identify the most popular mods downloaded.

    Answers should include a list of the currently popular mods available for download.

Web Project 3

    Go to

    http://www.hollywoodreporter.com/thr/columns/tech_reporter_display.jsp?vnu_content_id=1000484956.

    Describe how mods affect game sales.

    Answers will vary, but they should include a description of the extended lifetime of games such as *Doom* and *Half-Life*.

Web Project 4

Go to http://www.mobygames.com/game/windows/city-of-heroes/screenshots.
Examine the screen captures showing the character creation facilities. Evaluate the
character generation process. Contrast with more recent games such as *Lord of the
Rings Online*.

Answers will vary, but they should include an evaluation of the available
options.


## WEB RESOURCES

- http://www.gamasutra.com/features/20000323/rouse_01.htm—"Designing Design Tools," by
Richard Rouse on the Gamasutra webzine Web site.

# Instructor's Manual Materials to Accompany
## FUNDAMENTALS OF GAME DESIGN, 2E

## CHAPTER 6
## CHARACTER DEVELOPMENT

## CHAPTER OBJECTIVES

When students have finished reading this chapter, they will be able to:
- Know the basic goals of character design in games.

- Recognize the difference between a player-defined avatar and a specific or nonspecific avatar.

- Know the issues involved in making non-gender-specific characters.

- Know the visual and behavioral attributes used to help create characters in games.

- Use the attributes of either art-driven or story-driven character design to create your own game characters.

## CHAPTER OVERVIEW

This chapter discusses the importance of creating characters that are unique. Avatars should be appealing so the players can identify with them. Additional characters can be more than stereotypical pawns. Develop characters through appearance, language, and behavior. Characters that are more fully-developed engage more of the player's interest. The major sections in this chapter are:

26. **The Goals of Character Design.** Create characters that players will find appealing and believable (within the game's context).

27. **The Relationship Between Player and Avatar.** The player must be able to identify with the avatar.

28. **Visual Appearances.** The way characters look impact the way players feel about them.

29. **Character Depth.** Appearance, language, and behavior can be used to reveal more about a character and show how the character grows over time.

30. **Audio Design.** Sounds, voices, and speech patterns reveal information about the characters.

# CHAPTER OUTLINE

I.      The Goals of Character Design

II.     The Relationship Between Player and Avatar

      A.      Player-Designed Avatar Characters

      B.      Specific and Nonspecific Avatars

      C.      The Effects of Different Control Mechanisms

      D.      Male and Female Players and Characters

      E.      Designing Your Avatar Character

III.    Visual Appearances

      A.      Character Physical Types

      B.      Clothing, Weapons, Symbolic Objects, and Names

      C.      Color Palette

      D.      Sidekicks

      E. Additional Visual Design Resources

IV.     Character Depth

      A.      Role, Attitudes, and Values

      B.      Attributes

      C.      Character Dimensionality

      D.      Character Growth

      E.      Character Archetypes

V.      Audio Design

      A.      Sound Effects and Music

      B.      Voice and Language

# KEY TERMS

**avatar** A fictional character in a game with whom the player identifies as the personification of herself within the game world. The character need not be human; it may even be a vehicle.

**backgrounder** A document that describes the personality, attitudes, and other characteristics of a game character.

**characterization attributes** Attributes that describe something fundamental about a character or unit and change only slowly by small amounts or not at all. Maximum speed might be a characterization attribute for a vehicle.

**concept art** Sketches drawn during the early stages of game design to give developers and publishers an idea of how game world features and characters may look in the game. Concept art is not incorporated into the final product.

**hypersexualized** Quality of a character whose sexual attributes have been exaggerated to an extreme extent.

**model sheet** A sheet of paper containing a large number of drawings of a single character showing a number of different poses and facial expressions.

**status attributes** Attributes that describe the current state of a character or unit and may change frequently. Current speed and current health are examples.


# TEACHING NOTES

**Teaching Tips:** At the end of the *previous* class, ask students to print a screen capture of their favorite avatars. Collect the screen captures at the beginning of class and display them. At the end of the class, students can try to match each displayed avatar with the student who submitted it.

Note that the game industry and other creative industries use the term "appealing" rather than "likable" with respect to characters. We do not "like" villain characters, but we still find them appealing in some way: people we can love to hate.

I.      The Goals of Character Design

**Teaching Tips:** Ask students to identify memorable characters from movies or television. What characteristics made those characters memorable? Can they identify any that they found unappealing or non-credible? (An example might be Jar Jar Binks from the *Star Wars* movies.)

II.     The Relationship Between Player and Avatar

**Teaching Tips:** Ask students why particular avatars appeal to them in games they have played. List the reasons on the board. Check off the reasons as they are mentioned in the text.

A.      Player-Designed Avatar Characters

**Teaching Tips:** More options when designing an avatar create a better chance that the player will relate to or identify with the avatar.

      B.      Specific and Nonspecific Avatars

      **Teaching Tips:** Discuss with students how specific they prefer their avatars to be, from silent and invisible, such as Gordon Freeman, to strongly characterized, such as Heather from *Silent Hill 3.*

      C.      The Effects of Different Control Mechanisms

      **Teaching Tips:** Ask students if the control mechanism has the same effect in single-player and multiplayer games. Does direct control affect how you relate to other players in a multiplayer game?

      D.      Male and Female Players and Characters

      **Teaching Tips:** A quick poll among the students will probably reveal similar statistics. Female players enjoy customizing avatars. Male players do not spend as much time customizing their avatars.

      E.      Designing Your Avatar Character

      **Teaching Tips:** Ask students if they have encountered games with avatars they didn't care for. What made the avatars unappealing?

III.      Visual Appearances

      A.      Character Physical Types

      B.      Clothing, Weapons, Symbolic Objects, and Names

      **Teaching Tips:** Refer to Figure 6.6. Ask students to describe the personality of the Edgar character.

      C.      Color Palette

      D.      Sidekicks

      E.      Additional Visual Design Resources

IV.      Character Depth

      **Teaching Tips:** Creating character depth enables a player to become more invested in the character. Like a character in a book or movie, you need to know the character before you care what happens to them.

      A.      Role, Attitudes, and Values

      **Teaching Tips:** Like real people, the character's experience makes her who she is today. Creating a background enables you to anticipate how the character will react. Make sure that the character's background and current actions are in harmony.

      B.      Attributes

**Teaching Tips:** If you plan to show character growth, the initial characterization attributes should be chosen carefully.

      C.      Character Dimensionality

      D.      Character Growth

**Teaching Tips:** Any growth should be in harmony with the character's background and current experience.

      E.      Character Archetypes

V.      Audio Design

**Teaching Tips:** Every audio effect should contribute to the harmonious whole.

      A.      Sound Effects and Music

      B.      Voice and Language

## PROJECTS/EXERCISES

**I.    Discussion Questions**

Discussion Question 1

Ask students to consider a character's actions when idle. When the player is not moving the character, what does the character do? How important is this in the relationship between the player and the character?

Answers will vary. In many games, the character makes some movements when idle. For example, in *City of Heroes*, idle characters take heroic poses such as placing their hands on their hips or crossing their arms in front of them. These movements should be harmonious with the character.

Discussion Question 2

In a different game, the character taps his foot impatiently when the player has not moved the character for several minutes. Ask students how this affects the player's relationship with the character.

Answers will vary. It shows that the character is impatient (a character trait), but it could make the player feel rushed.

**II.    Web Projects**

Web Project 1

Go to http://www.polykarbon.com/gallery/index.htm. What characteristics are common in anime art?

Large eyes and small mouths are common.

Web Project 2

Go to http://www.slate.com/id/2097296. Read "The Game's the Thing," by Clive Thompson. Describe the impact of using famous voices for games.

Answers will vary, but they should include information about using the same actor who portrayed the role in a movie to voice the character in a game.

Web Project 2

Go to http://local.aaca.org/bntc/slang/slang.htm. Identify five slang terms you could use if you designed a game set in the 1920s in America.
Answers will vary.


## WEB RESOURCES

- http://www.gamasutra.com/resource_guide/20011119/meretzky_01.htm—"Building Character: An Analysis of Character Creation," by Steve Meretzky on the *Gamasutra* webzine Web site.

# Instructor's Manual Materials to Accompany
## FUNDAMENTALS OF GAME DESIGN, 2E

## CHAPTER 7
## STORYTELLING AND NARRATIVE

## CHAPTER OBJECTIVES

When students have finished reading this chapter, they will be able to:

- Discuss why stories are important to video games and know the definitions of story and narrative in games.

- Know the differences in player actions, in-game events, and narrative. Understand how to use story, character, and narrative to engage the player.

- Describe the difference between linear and nonlinear storytelling.

- Design a foldback, nonlinear story with multiple endings.

- Understand how you can use episodic storytelling to encourage players to subscribe to additional versions of your franchise.

## CHAPTER OVERVIEW

This chapter discusses the role of stories in games. Although a broad description of the story should be created during the concept stage, do not write the story until the elaboration stage. The storytelling engine tracks the player's progress and reveals more of the story as the player advances. Tension is created by the gameplay and the story. Get a player hooked on the story to create a buyer for the game's sequel.
The major sections in this chapter are:

31. **Why Put Stories in Games?** Stories add entertainment, attract a wider audience, maintain interest, and help you sell the game.

32. **Key Concepts.** All events in an interactive story belong to one of three kinds: player actions, in-game events generated by the core mechanics, and pre-written narrative events. Games can have dramatic tension based on the story and gameplay tension based on the gameplay.

33. **The Storytelling Engine.** The storytelling engine manages the player's progress through the game's story.

34. **Linear Stories.** In a linear story, the progression of the story and ending are predetermined.

35. **Nonlinear Stories.** In a nonlinear story, the player's actions affect the story, and its plot can take different directions.

36. **Granularity.** The length and frequency of narrative events defines a game's granularity.

37. **Mechanisms for Advancing the Plot.** Storytelling engines usually advance the plot based on one of three things: player actions or achievements; avatar travel through the game world; or the passage of time itself.

38. **Emotional Limits of Interactive Stories.** In most games, the avatar must live to the game's end, which reduces the emotional impact of his or her death.

39. **Scripted Conversations and Dialog Trees.** Scripted conversations occur in a new gameplay mode that moves the game forward. A dialog tree is a diagram illustrating the ways in which a scripted conversation may progress.

40. **When to Write the Story.** Write the story during the elaboration stage.

41. **Other Considerations.** The story can advance the game and promote future purchases.

## CHAPTER OUTLINE

I.       Why Put Stories in Games?

II.      Key Concepts

     A.       Story

     B.       Narrative

     C.       Dramatic Tension and Gameplay Tension

III.     The Storytelling Engine

IV.      Linear Stories

V.       Nonlinear Stories

     A.       Branching Stories

     B.       Foldback Stories

     C.       Emergent Narrative

     D.       Endings

VI.      Granularity

VII.     Mechanisms for Advancing the Plot

## KEY TERMS

**branching story** An interactive story whose plot is preplanned by the designer, but may take alternative paths as a result of actions the player takes.

**combinatorial explosion** An undesirable property of branching stories such that the number of plot lines grows to unmanageable numbers as each line offers more and more branch points.

**cut-scenes** Short noninteractive visual sequences that momentarily interrupt play.

**dialog tree** A structure documenting player dialog choices and nonplayer character responses to those choices in a *scripted conversation,* which can be drawn on paper in a diagram that looks rather like a tree. Each player option produces a new branch in the tree.

**dramatic action** An action the player takes that changes the direction of the plot and, thus, future events in the story as the player will experience it. Many player actions contribute to a story but are not dramatic actions; they do not change the future.

**dramatic freedom** The player's freedom to take *dramatic action*, that is, to change the direction of the plot in a story.

**dramatic tension** An audience's sense that an important problem or situation in a story is not yet resolved, leaving the audience wondering how it will come out. Do not confuse with *gameplay tension.* Usually called "conflict" by screenwriters.

**embedded narrative** Narrative material that is written by the designer and built into the game software (embedded) during development. See narrative and narrative events, and contrast with emergent narrative.

**emergent narrative** Events that are produced by the core mechanics as part of an interactive story, rather than being written by the designer in advance. Should really be called *emergent storytelling,* because *narrative* refers to narrated material.

**foldback stories** A variant of a *branching story* in which the branching plot lines eventually return to an inevitable event that the player will experience regardless of his choices before branching out again.

**gameplay tension** The player's uncertainty about whether he will overcome the challenges he faces and, in a player-versus-player game, what his opponent will do next. Do not confuse with *dramatic tension.*

**granularity** The frequency with which the game presents *narrative* elements to the player.

**in-game events** Events performed by the core mechanics of a game as part of an *interactive story*.

**interactive story** A story that a player interacts with by contributing *player events* and possibly by changing its plot through *dramatic actions.*

**linear stories** Stories whose plots do not change in response to player actions.

**narrative** Noninteractive story material that is presented by the game to the player, consisting of *narrative events.* It differs from *in-game events* in that narrative is written as part of the design process rather than produced by the core mechanics.

**narrative events** Events that are shown to the player through narration rather than through the action of the player or the core mechanics. Equivalent to *embedded narrative.*

**natural language** Ordinary language as spoken or written by human beings.

**nonlinear stories** Stories whose plot can change in response to *dramatic actions* on the part of the player.

**persistent world** A large online game with no definite beginning or ending that allows players to join, play, and depart at any time. Most frequently implemented as a server-based computer role-playing game played over the Internet.

**player events** Actions performed by the player as part of an interactive story.

**scripted conversation** A technique that allows a player to have a conversation with a nonplayer character in a game by selecting a line of dialog from a menu of options. His avatar says the line, the NPC responds, and the player receives a new menu of lines to choose from. Scripted conversations may be documented with a *dialog tree*.

**story** A credible and coherent account of dramatically meaningful events, whether true or fictitious.

## TEACHING NOTES

**Teaching Tips:** During this class, you can construct a foldback story to accompany a simple game containing only two challenges.
I.       Why Put Stories in Games?

**Teaching Tips:** Ask students to talk about a challenge they overcame in a recent adventure game. Can they discuss the challenge without referring to the game's story?
II.      Key Concepts

A.       Story

**Teaching Tips:** Ask students what happens if the story is not credible, coherent, and dramatically meaningful. The player's actions should fit into the story. If the story is flawed, the game can suffer from the same flaws found in the story.
B.       Narrative

**Teaching Tips:** Select an interesting passage from a book. Ask a student to read it to the class. Before she starts, ask the remaining class members to stand when they lose interest in the story. Most of the class will be standing after a few minutes. Most players have low tolerance for long narratives in a game.
C.       Dramatic Tension and Gameplay Tension

III.     The Storytelling Engine

**Teaching Tips:** Note that the triggers between the storytelling engine and the core mechanics go both directions, as shown in Figure 7.2.
IV.      Linear Stories

**Teaching Tips:** Linear stories are more cost efficient when designing a game.

V.      Nonlinear Stories

    A.      Branching Stories

    **Teaching Tips:** Using the blackboard, ask students to chart the potential results of two decisions that have two options. The second decision should depend on the first choice made.

    B.      Foldback Stories

    **Teaching Tips:** Using the results mapped on the blackboard, ask students to create a situation that will fold the story back into a single consequence, regardless of the previous choices made.

    C.      Emergent Narrative

    **Teaching Tips:** Because of the requirement for the core mechanics to be capable of producing a good story, emergent narratives are not very common yet.

    D.      Endings

    **Teaching Tips:** When planning the ending for the game, consider the possibility of a sequel.

VI.     Granularity

    **Teaching Tips:** When making decisions about the length and frequency of the game's narrative portions, remember that the story should not interfere with the gameplay.

VII.    Mechanisms for Advancing the Plot

    A.      The Story as a Series of Challenges or Choices

    **Teaching Tips:** This is a common method of advancing the plot that is easily followed by the player. The player recognizes where challenges or choices affect the outcome.

    B.      The Story as a Journey

    **Teaching Tips:** This common method of advancing the plot is easily recognized by players.

    C.      The Story as a Drama

    **Teaching Tips:** This method is less common.

VIII.   Emotional Limits of Interactive Stories

    **Teaching Tips:** Hallmark commercials don't make everyone cry. No matter how you plan the ending, the effect on every player won't be the same. However, the ending should wrap up the game and provide satisfaction for the player. The player won't remember every challenge or interaction during a game, but the player will remember the ending.

    A.      Emotional Limits of Nonlinear Stories

**Teaching Tips:** Funneling players into the same ending, even though they took different paths during the game, is common. For example, a rogue and a warrior might overcome different challenges in different ways, but they "win" the game to arrive at the same ending.

      B.      Emotional Limits of Avatar-Based Games

IX.      Scripted Conversations and Dialog Trees

      A.      Structure of a Dialog Tree

      **Teaching Tips:** Create a dialog tree using student input. Start with the NPC question, "Why have you come to see me, young warrior?"

      B.      Design Issues for Dialog Trees

      C.      Benefits of Scripted Conversations

X.      When to Write the Story

      **Teaching Tips:** Common sense dictates that you write the story as the events of the story become part of the game.

XI.      Other Considerations

      **Teaching Tips:** The tools used to create and deliver the game might change, but the purpose doesn't change. Above all else, the designer's job is to provide entertainment.

      A.      Avoid the Frustrated Author Syndrome

      B.      Episodic Delivery

# PROJECTS/EXERCISES

**I.    Discussion Questions**
Discussion Question 1

      Discuss emergent narrative. Is it possible for core mechanics to produce a good story? Can a computer write a good story? What would you have to consider for a computer to write a story?

      Answers will vary. By the time the parameters of the story were programmed, would the computer really be creating the story? Remember that for the experience to feel story-like, it must avoid repetition and randomness.

Discussion Question 2

      Is episodic delivery the future for game delivery?

      Answers will vary. Players already play online games, so the idea of online delivery is not new. However, convincing your target audience to tune in regularly for new episodes might be difficult.

**II.    Web Projects**
Web Project 1

Go to http://news.com.com/Stephen+King+puts+The+Plant+on+ice/2100-1023_3-249133.html. This article, "Stephen King Puts 'The Plant' on Ice," was written after the last episode was released. How successful was episodic delivery of the story? How does this relate to episodic delivery of a game?

Answers will vary. Stephen King did not release the entire book. After four episodes were released, Stephen King announced that online delivery would be stopped after six episodes were complete. Readers seemed reluctant to purchase the book through episodic delivery. A game might encounter similar problems.

Web Project 2

Go to http://www.gamasutra.com/features/20041222/adams_01.shtml. Read "How Many Endings Does a Game Need?" How many endings are needed?

Answers will vary, but they should conclude that you should only have multiple endings if it is necessary.

## WEB RESOURCES

- http://algorithmancy.8kindsoffun.com/gdc2000.ppt—*Formal Design Tools: Emergent Complexity, Emergent Narrative.* Lecture delivered at the Game Developers' Conference in San Jose, California in March 2000 by Marc LeBlanc.

- http://www.gamasutra.com/features/20041222/adams_01.shtml—"How Many Endings Does a Game Need?" Designer's Notebook column by Ernest Adams in *Gamasutra* webzine at the Gamasutra Web site.

# Instructor's Manual Materials to Accompany
## FUNDAMENTALS OF GAME DESIGN, 2E

## CHAPTER 8
## USER INTERFACES

## CHAPTER OBJECTIVES

When students have finished reading this chapter, they will be able to:
- Explain how a game's user interface mediates between the player and the game's core mechanics to create the user experience.

- Discuss how principles of player-centric interface design can answer questions about what the player needs to know and wants to do.

- Know the basic steps required to design a game's user interface.

- List options that can help to control a game's complexity.

- Describe the five well-known interaction models.

- List the most commonly used camera models and discuss their advantages and disadvantages.

- Describe how visual elements such as the main view and feedback elements supply information a player needs to know to succeed in the game.

- Explain how audio elements such as sound effects and music affect the user experience.

- Know the types of one-, two-, and three-dimensional input devices and discuss how they affect the game experience.

- List the most commonly used navigation systems and explain how each system controls action in a game.

## CHAPTER OVERVIEW

This chapter discusses the user interface that translates the player's actions into actions in the game world. If possible, use a design that is already familiar to the player. Place critical information where it can be easily found. Don't hide frequently used commands more than two levels deep in a menu. Simplify the interface as much as possible. Focus on the basic input devices that come with the console or computer. Allow the user to customize the keyboard shortcuts and other input preferences as much as possible.

The major sections in this chapter are:

42. **What Is the User Experience?** A game outputs visual and audio elements; the player inputs the control elements.

43. **Player-Centric Interface Design.** The user interface design should provide critical information quickly.

44. **The Design Process.** Use familiar user interface components as much as possible.

45. **Managing Complexity.** Simplify the user interface as much as possible.

46. **Interaction Models.** A variety of models familiar to the player are available.

47. **Camera Models.** The choice of camera model is the result of several design decisions.

48. **Visual Elements.** The primary gameplay mode usually displays the main view of the game world and a variety of feedback elements.

49. **Audio Elements.** Carefully select sounds that create a harmonious whole.

50. **Input Devices.** Always do your initial design for the default input device that comes with the machine.

51. **Navigation Mechanisms.** When a player commands a unit to move, the unit must move in a consistent, predictable manner.

52. **Allowing for Customization.** Allow the player to customize input devices for himself.

# CHAPTER OUTLINE

I.      What Is the User Experience?

II.     Player-Centric Interface Design

      A.      About Innovation

      B.      Some General Principles

      C.      What the Player Needs to Know

      D.      What the Player Wants to Do

III.    The Design Process

      A.      Define the Gameplay Modes First

      B.      Choosing a Screen Layout

      C.      Telling the Player What He Needs to Know

## KEY TERMS

**abstract** (verb) To remove a complex mechanism from a simulation (often a mechanism intended to simulate a real-world phenomenon) and replace it with a simpler mechanism or none at all.

**accelerometer** A device that measures acceleration. Placed inside a game controller, it can detect when the player moves the controller. An accelerometer is at thet heart of the Nintendo Wii controller.

**avatar-based interaction model** An *interaction model* in which the player is represented by a single character, vehicle, or other entity in the game world. The key point of this relationship is that the player may influence the game world only through the avatar and, therefore, only those regions of the game world where the avatar is present.

**camera model** The point of view ordinarily adopted by the game's *virtual camera* when displaying the *game world*, along with instructions about how the camera should behave during play. The camera model is one component of a *gameplay mode*. Some camera models include artificial intelligence that attempt to make the camera move automatically to show the scene from a particularly desirable viewpoint. Non-intelligent camera models that keep the camera relatively fixed are sometimes called *perspectives*; for example, the top-down perspective. The previous edition of this book used the term *perspective* for all camera models.

**contestant-based interaction model** An *interaction model* in which the player acts like a contestant in a TV game show. Interactions consist of answering questions, choosing correct answers, and making simple strategic decisions.

**context-sensitive perspective** A *camera model* in which the camera moves in response to the events and circumstances of the game rather than being fixed with respect to the *game world* or the avatar.

**crane** To move the game's virtual camera up or down in space.

**degree of freedom** The number of possible dimensions that an input device can move through.

**desktop model** An *interaction model* that mimics a computer or a real desktop.

**dolly** To move the game's virtual camera forward or backward along a line in the same direction that it is facing.

**first-person perspective** A *perspective* always used with *avatar-based interaction models* in which the *virtual camera* displays the *game world* from the point of view of the avatar's own eyes.

**free-roaming camera** A *perspective* used in 3D *game worlds*, normally with *multipresent interaction models*, in which the *virtual camera* may move anywhere around the world often under player control.

**global positioning system (GPS) Used as input in a game to return absolute positional information. A GPS returns the device's latitude and longitude on the surface of the Earth, as well as the altitude above sea level.**

**indicator** Any visual user interface element that shows the status of some important value in the game and changes continually as the value changes. Digits, power bars, lights, gauges, *small multiples*, and many other design elements are used as indicators.

**localization** The process of modifying game content to make the game suitable for sale in a country other than the one it was originally developed for.

**multipresent interaction model** An *interaction model* in which the player may influence many areas of the game world at one time.

**pan** To turn the game's virtual camera about its vertical axis.

**party-based interaction model** An *interaction model* in which the player influences the *game world* through a *party* of characters who generally stay together in one area but may sometimes separate briefly. The player controls most or all the members of the party.

**pathfinding** An artificial intelligence technique for finding the most efficient route from one point in a landscape to another while avoiding obstacles along the way.

**roll** To rotate the game's virtual camera about a line through the lens, so that the horizon is no longer level.

**small multiple** A visual *indicator* used to show an amount by displaying multiple copies of a small image on the screen. The number of lives remaining in an action game is often shown as a small multiple of pictures of the avatar; as the player gains or loses lives, pictures are added or removed.

**third-person perspective** A *camera model* intended for use with *avatar-based interaction models* in which the *virtual camera* follows the *avatar* as he moves around the *game world*.

**tilt** To cause the game's virtual camera to look up or down.

**top-down perspective** A *perspective* in which the *virtual camera* displays the 2D *game world* from directly overhead. Its 3D equivalent is the *free-roaming camera* perspective.

**truck** To move the game's virtual camera laterally, perpendicular to the direction that it is facing.

**virtual camera** A hypothetical camera that displays the *game world* in the main view. Some 3D engines simulate a virtual camera almost as if it were a real camera, including such optical features as lens focal length, depth of field, and lens flare. Design decisions about how the virtual camera behaves set the *camera model* of the current *gameplay mode*.

## TEACHING NOTES

**Teaching Tips:** For this class, bring several examples of input devices. Include a variety of joysticks, controllers, keyboards, a mouse, and a trackball.

I.      What Is the User Experience?

II.     Player-Centric Interface Design

        A.      About Innovation

**Teaching Tips:** Players easily become frustrated learning a new user interface that is too complicated and varies too much from the interface of other games in the market.

        B.      Some General Principles

        C.      What the Player Needs to Know

**Teaching Tips:** Ask students to identify information that should be constantly displayed for a driving game, a role-playing game, and a construction game.

        D.       What the Player Wants to Do

III.     The Design Process

**Teaching Tips:** Design the user interface early in the elaboration stage.

        A.       Define the Gameplay Modes First

**Teaching Tips:** Return to the list of needed information created earlier for a driving game, a role-playing game, and a construction game. Ask students to suggest what gameplay modes may be needed in each. (Note: role-playing games usually have large numbers of gameplay modes; driving games, fairly few.)

        B.       Choosing a Screen Layout

        C.       Telling the Player What He Needs to Know

**Teaching Tips:** Return to the list of gameplay modes created earlier for a driving game, a role-playing game, and a construction game. Identify the primary gameplay mode in each one and the information the player needs in that mode.

        D.       Letting the Player Do What She Wants to Do

**Teaching Tips:** Continue using the primary gameplay mode identified earlier for a driving game, a role-playing game, and a construction game. Identify what the player wants to do in that gameplay mode.

        E.       Shell Menus

IV.     Managing Complexity

        A.       Simplify the Game

**Teaching Tips:** A complex and confusing user interface could indicate that the interface itself is badly designed, but it could also mean that the game is too complex. The interface could be complicated because the player is expected to control too many details. Does the player have to tell the avatar to eat three times in a game day? If so, you must provide an interface tool that lets the player tell the avatar to eat. If you simplify the game by assuming that the avatar eats without prompting from the player, that interface tool is no longer needed. Be sure students understand the difference between abstraction (some aspect of the simulation has been left out of the game) and automation (some aspect of the simulation operates without player input).

        B.       Depth Versus Breadth

**Teaching Tips:** Providing keyboard shortcuts is critical.

        C.       Context-Sensitive Interfaces

        D.       Avoiding Obscurity

V.     Interaction Models

**Teaching Tips:** Continue using the list of gameplay modes and player actions created earlier for a driving game, a role-playing game, and a construction game. Identify the interaction models that could be appropriate for the three game types in their different modes.

VI.     Camera Models

                **Teaching Tips:** Continue using the samples created earlier for a driving game, a role-playing game, and a construction game. Identify a camera model that would work well for the primary gameplay mode in each type of game.

        A.      The 3D Versus 2D Question

        B.      First-Person Perspective

        C.      Third-Person Perspective

        D.      Aerial Perspectives

        E.      Other 2D Display Options

VII.    Visual Elements

                **Teaching Tips:** Continue using the samples created earlier for a driving game, a role-playing game, and a construction game. Select views that would work well for each type of game.

        A.      Main View

        B.      Feedback Elements

                **Teaching Tips:** Continue using the samples created earlier for a driving game, a role-playing game, and a construction game. Place the feedback elements.

        C.      Character Portraits

        D.      Screen Buttons and Menus

VIII.   Audio Elements

                **Teaching Tips:** Continue using the samples created earlier for a driving game, a role-playing game, and a construction game. What sounds would be appropriate? Consider sound effects, vibration, ambient sounds, and music (or musical styles).

        A.      Sound Effects

        B.      Vibration

        C.      Ambient Sounds

        D.      Music

E.    Dialog and Voiceover Narration

IX.    Input Devices

   **Teaching Tips:** Use the hardware input devices you brought to class as examples when appropriate.

A.    Terminology

B.    Three-Dimensional Input Devices

C.    Two-Dimensional Input Devices

D.    One-Dimensional Input Devices

X.    Navigation Mechanisms

   **Teaching Tips:** Review the hardware input devices you brought to class. If time permits, break the class into small groups. Give one of the control devices to each group. Ask the groups to document how the player could use the input device to perform several common actions such as moving forward, jumping, increasing speed, picking up an object, and examining inventory.

A.    Terminology

B.    Screen-Oriented Steering

C.    Avatar-Oriented Steering

D.    Flying

E.    Point-and-Click Navigation

XI.    Allowing for Customization


# PROJECTS/EXERCISES

**I.    Discussion Questions**
Discussion Question 1
    Discuss the effect of user interface on gameplay. Ask students to identify games with poor user interface. What made the user interface so poor?
    Answers will vary. Discussion should include the complexity of the game versus the complexity of the interface.
Discussion Question 2
    Discuss the screen layout of several popular games. Ask students to identify the standard screen layouts the games followed.
    Answers will vary. If the games deviated from a standard layout, discuss the effect.

**II.** **Web Projects**
Web Project 1
    Go to http://office.microsoft.com/clipart. Select five sound effects. Describe the game and situation that could use each selected sound effect.
    Answers will vary. Students should consider the harmony of the game.
Web Project 2
    Go to http://www.designersnotebook.com/Columns/087_PS3_vs_Wii/087_ps3_vs_wii.htm. Read it and explain whether you agree or disagree with the author. (Note that the article was written in 2006.)
    Answers will vary.

## WEB RESOURCES

- http://www.designersnotebook.com/Columns/087_PS3_vs_Wii/087_ps3_vs_wii.htm

  PS3 vs. Wii – The Designer's Perspective.