Lecture 7: Learnability and User Interfaces
The Riot Gameplay Pipeline
Engineering a New Champion for *League of Legends*

**Speaker:** Jeremy Ong, Game System Engineer
Riot Games

**Time:** 5pm Wednesday, September 17th

**Place:** Gates Hall G01
Design Document

• Due Friday at 11:59pm
So You Want to Make a Game?

- For the *design document*
  - Need to assign tasks to team members
  - Helps to break game into *components*
  - Each component is a logical unit of work.
Traditional Way to Break Up a Game

- Rules and Mechanics
- Game Engine
- User Interface
- Content
Traditional Way to Break Up a Game

- Rules and Mechanics
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What is a user interface?

the means by which the user and a computer system interact
What is a user interface?

Input

Output
Input

- Mouse
- Keyboard
- Controller
- Multitouch
- Brain
Interaction Mechanisms

- Buttons
- Menus
- Text input fields
Output

- **View of the virtual environment**
- **Status indicators**
  - Progress bar
  - Health bar
Learnability and User Interfaces
Learnability and User Interfaces
Learnability and User Interfaces
What makes a UI “good”?
Oblivion
Minecraft
Learnability

the capability of a software product to enable the user to learn how to use it
NEW TECHNIQUES!

- Holding a shell
  - (Holding the B Button)

- Running with a shell
  - (Holding the B Button)

- Kicking the shell
  - (Releasing the B Button)

- Breaking a block

When Mario has a tail

- Accelerating
  - Power Meter going up

- More acceleration
  - Meter full, (P) starting to flash

- Take off
  - Press the A Button repeatedly

- Mario can only fly for a short time.
Pick up the laser divider.
This is not about technology
Tough crowd

Pokemon Red & Blue

1998 (USA)

StarCraft

1998

Final Fantasy 7

1997
Nielsen’s heuristics for good UI design

1. Visibility of system status
2. Match between system and the real world
3. User control and freedom
4. Consistency and standards
5. Error prevention
Nielsen’s heuristics for good UI design

6. Recognition rather than recall

7. Flexibility and efficiency of use

8. Aesthetic and minimalist design

9. Help users recognize, diagnose, and recover from errors

10. Help and documentation
1. Visibility of System Status

• The player needs to be aware of critical information
Minecraft
Learnability and User Interfaces
2. Match between system and real world

- The game should use concepts familiar to the user
Minecraft
6. Recognition rather than recall

- Player should *recognize* objects
- Shouldn’t have to *recall* the tutorial
Learnability and User Interfaces
Affordances

Learnability and User Interfaces
Learnability and User Interfaces
3. User control and freedom

- Player should feel
  - *in control*
  - *free to explore*

- What are potential problems?
Be the neck

A man may be the head of the house, but a woman is the neck.

and she can turn the head any way she wants.
My attention is stolen by a green square on the other end of the room. I want to be its friend more than anything that I’ve ever wanted. I decide to use the Arrow Keys to approach it.
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Learnability and User Interfaces
Even from back here, I can tell that the ledge ahead is too high for me to jump.
Even from back here, I can tell that the ledge ahead is too high for me to jump.
Learnability and User Interfaces
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Learnability and User Interfaces
Learnability and User Interfaces
3. User control and freedom

- Player should feel
  - *in control*
  - *free to explore*

- But the game should guide them
8. Aesthetic and minimalist design

- Avoid clutter
- Provide *only* critical information
5. Error prevention

- Anticipate possible errors and *prevent them*
5. Error prevention

![Windows 95 Start Menu](image)
Learnability and User Interfaces
9. Help users recognize, diagnose, and recover from errors

- Don’t unnecessarily *punish* the player for failure
- The player should know why he failed
King’s Quest 2 Bridge of Death

Score: 42 of 185

Sound: on
King’s Quest 6 Catacombs
Now that risk is involved, jumping on platforms doesn't seem as easy to me.
I remember that the R key will let me reset the current level to try again.
## Nielsen’s heuristics

1. Visibility of system status
2. Match between system and the real world
3. User control and freedom
4. Consistency and standards
5. Error prevention
6. Recognition rather than recall
7. Flexibility and efficiency of use
8. Aesthetic and minimalist design
9. Help users recognize, diagnose, and recover from errors
10. Help and documentation
Group Work

• Pick two mechanics in your game

• Brainstorm a plan for how the user will learn these mechanics

• Design a user interface that will support this learning