GAME DEVELOPMENT

CSC 3150/9010

Instructor: Dr. Edward Kim
Pigeons using vision
The psychology of game design
• Behaviorism

• VS

• Cognitivism
Behaviorism

1. Before conditioning
   - Food (Unconditioned stimulus)
   - Salivation (Unconditioned response)

2. Before conditioning
   - Tuning fork
   - No salivation

3. During conditioning
   - Tuning fork + Food
   - Salivation (Unconditioned response)

4. After conditioning
   - Tuning fork
   - Salivation (Conditioned response)
Stimulus

Behavior

Consequences
Operant Conditioning

• Behaviorist psychology – most notably B.F. Skinner
  • praise for correct outcomes and immediate correction of mistakes
Pigeon Studies
What do we learn from behaviorism

- Importance of Feedback loops
- Importance of Reinforcement (rewards)
Importance of Feedback

- Where you are now?
- How do you get to the next step?
Reinforcement - Badges (PBL)
Dopamine System

- Dopamine is a brain chemical involved in many different functions including movement, motivation, reward — and addiction. Nearly all drugs of abuse directly or indirectly increase dopamine in the pleasure and motivation pathways and in so doing, alter the normal communication between neurons.
Cognitive Evaluation Theory

• Expected vs Unexpected
Reward Schedules

• Fixed vs Variable
Throwing

- Useful in combat even when unarmed.
- Throwing bricks and bottles.
- Turns the tide of battle.
Gifting

- Gift health and ammo to the player.
- Connected to ammo drop system.
  - Doesn’t change difficulty modifiers.
- Happens rarely, so you value it more.
MELEE SAVES
Limits of Behaviorism

• “Hedonic Treadmill”

• Intrinsic vs Extrinsic Rewards
Over justification – “crowd out”

- You had intrinsic motivation.
- Extrinsic reward substitutes motivation.
- Less motivated than when you started.

- Drawing
- Blood donation
- Teacher salaries
Self Determination theory

- How can we create intrinsic motivation