Hollow Knight as a Learning Machine: Applying Gee’s Principles in Game Design

The integration of educational principles into video game design offers profound insights into effective learning methodologies. This paper will analyze Hollow Knight (Team Cherry, 2017), a critically acclaimed action-adventure game, through the article of James Paul Gee, called Learning by Design: good video games as learning machines. By examining how Hollow Knight uses principles such as problem-solving cycles, identity formation, and system thinking, this study will demonstrate how the game serves as a dynamic tool for experiential learning, which is related with topic of our class topics "How Games Teach us to Play".

# Game Selection

Hollow Knight (Team Cherry, 2017) is a Metroidvania-style game set in the decaying insect kingdom of Hallownest. Players assume the role of a nameless knight navigating a labyrinthine world filled with challenging combat, platforming obstacles, and environmental storytelling. The game emphasizes nonlinear exploration: players unlock abilities like wall-jumping and dashing to access new areas, while the map system requires manual updates at checkpoints. The game stresses exploration, requiring players to uncover maps, abilities, and narrative fragments organically. With an average playtime of 20–30 hours(from HowLongToBeat website) to complete, Hollow Knight provides enough content for a 20-hour analysis, ensuring sustained engagement without repetitive mechanics. Its nonlinear progression and emphasis on skill mastery align with Gee’s principles, making it an ideal candidate for studying learning-through-design.

# Lesson/Meta Proposal

This analysis will focus on how Hollow Knight teaches players to navigate its complex systems through experiential learning. Key elements include:

1. **Well-Ordered Problems**: The game introduces mechanics incrementally (e.g., movement upgrades, combat techniques), ensuring players master basics before meeting harder challenges.
2. **Pleasantly Frustrating Difficulty**: Boss battles demand pattern recognition and adaptability, rewarding persistence without excessive punishment.
3. **Identity and Agency**: The silent protagonist allows players to project their strategies onto the knight, fostering investment in their role as explorers.
4. **Information on Demand**: Environmental cues (e.g.hidden pathways) and the information from NPC replace tutorials, encouraging observational learning and postive thinking about what need to do in the next step.

These elements mirror Gee’s emphasis on “empowered learners” who engage via problem-solving and system thinking.

# Justification

Effective learning environments balance challenge and assist, principles evident in Hollow Knight. The game’s lack of explicit instruction forces players to “co-design” their experience (Gee, 2005, p. 6), interpreting mechanics through experimentation. For instance, the “Cycle of Expertise” (Gee, 2005, p. 11) is reflected in boss battles, where repeated failure leads to incremental mastery. Additionally, the game’s interconnected world fosters “system thinking,” requiring players to learn abilities within a larger ecosystem (e.g., using dash moves to access new areas). Community-driven resources, such as fan-made guides and forums, further support distributed knowledge, aligning with Gee’s concept of “smart tools” (Gee, 2005,p. 5).

# Conclusion

Hollow Knight shows how game design can embody pedagogical principles, offering players a supportive yet autonomous learning journey. By analyzing its mechanics through Gee’s reading, this study will highlight how video games can serve as models for immersive, self-directed education. The findings aim to underscore the potential of game-based learning in fostering critical thinking and adaptability.

References

Gee, J. (2005). Learning by Design. *Technology*, 5-16.

Team Cherry. (2017). Hollow Knight [Video game]. PC; Adelaide, Australia: Team Cherry.

You do not need all 3 of your required sources for the proposal. You will need you the class reading and the game citation at minimum.