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Learning and Strategic Thinking in League of Legends: A Game-Based Learning Analysis

Introduction

As video games have evolved, they have become more than just a form of entertainment. Many modern games, particularly those with strategic and multiplayer components, foster a wide range of cognitive and social skills. League of Legends (LoL), a multiplayer online battle arena game developed by Riot Games, exemplifies this phenomenon. Through its complex mechanics, competitive structure, and team-based gameplay, LoL requires players to engage in strategic thinking, adaptability, and teamwork—all of which contribute to a deeper learning experience.

James Paul Gee, a researcher in game-based learning, argues that good video games function as powerful learning tools because they incorporate principles that naturally encourage engagement, mastery, and skill progression (Gee, 2005). This paper will analyze LoL through the lens of Gee’s Learning by Design principles, demonstrating how the game facilitates learning through situated cognition, problem-solving cycles, and feedback systems. Additionally, I will critique certain shortcomings in the game’s design that hinder learning and propose improvements that could enhance its educational potential.

Thesis Statement and Research Focus

This paper examines how League of Legends serves as a dynamic learning environment that fosters strategic thinking, adaptability, and teamwork through its game mechanics, skill progression system, and community-driven learning resources. Using James Paul Gee’s (2005) principles of learning, I will analyze how players transition from beginners to advanced competitors by engaging with situated learning, in-game feedback loops, and structured practice cycles. Additionally, I will explore the effectiveness of Riot Games’ onboarding system and whether its tutorials adequately prepare new players for the game’s complexities. Beyond the built-in learning mechanisms, the study will also investigate the role of external community resources, such as coaching services, strategy guides, and professional gameplay analysis, in shaping player development. By integrating academic research on game-based learning, this paper will contribute to the broader discussion on the educational potential of competitive video games and their impact on cognitive skill development in high-pressure environments.

Gee’s Principles and Learning in League of Legends

One of the key reasons LoL serves as an effective learning tool is that it immerses players in a rich, interactive environment that encourages learning through experience and iteration rather than direct instruction. Gee highlights several principles that explain why video games can be effective learning environments. These principles include situated meaning, problem-solving cycles, customization, and just-in-time learning, all of which are evident in LoL.

1. Situated Meaning and Contextual Learning

Gee emphasizes that learning is most effective when it is situated in a meaningful context rather than presented as abstract information. Traditional education often struggles with this because students are asked to memorize facts without understanding how to apply them in real-world situations. LoL, however, naturally embeds learning within its gameplay.

For example, new players do not simply read a textbook on game mechanics—they learn by doing. When I first started playing, I did not fully understand concepts such as wave management, jungle pathing, or vision control. However, through trial and error, as well as observing skilled players, I gradually developed an intuitive understanding of these mechanics. This aligns with Gee’s situated cognition principle, which suggests that players grasp concepts more effectively when they experience them in action.

A concrete example of situated learning in LoL is the laning phase, where players must balance aggression, resource management, and positioning. Instead of being explicitly taught these concepts, players internalize them through direct gameplay experience. Mistakes, such as overextending in lane and getting punished by the enemy jungler, serve as learning moments. This aligns with experiential learning theory, which posits that people learn best by actively engaging with their environment rather than passively absorbing information (Kolb, 1984).

2. Problem-Solving Cycles and Cycles of Expertise

Another core concept in Gee’s framework is the cycle of expertise, where players develop mastery through repeated cycles of practice, challenge, and refinement. LoL exemplifies this principle through its ranked matchmaking system, where players continuously refine their skills through progressively harder challenges.

Each match presents unique, unpredictable scenarios, forcing players to adapt their strategies. For example, if the opposing team has a hyper-scaling champion like Vayne or Kassadin, my team must adjust our strategy by prioritizing early aggression and objective control to prevent them from reaching their power spikes. This problem-solving process requires players to analyze past failures, adapt strategies, and iterate on their decision-making processes—a direct application of Gee’s problem-solving cycle.

Furthermore, the ranked progression system in LoL encourages cycles of expertise. Players start at a beginner level (Iron or Bronze rank) and gradually improve by identifying weaknesses, refining their playstyle, and applying strategic insights gained through experience. The game also provides feedback mechanisms, such as post-game statistics and replays, which allow players to review their performance and identify areas for improvement. This aligns with Gee’s assertion that effective learning environments offer opportunities for reflection and self-correction.

Applying Gee’s Principles to My League of Legends Journals

My gameplay experiences in League of Legends, as recorded in my journals, strongly reflect Gee’s principles of learning. Through trial and error, reflection, and adaptation, I witnessed firsthand how game mechanics can facilitate deep learning. Specifically, my experiences align with situated meaning, problem-solving cycles, learning from experts, and cycles of expertise, all of which are crucial elements of Gee’s framework.

One of the most apparent principles I observed in my first journal was situated learning, which suggests that players learn best when immersed in a meaningful and interactive context. In my session, I initially played Vel’Koz as a support champion, focusing on landing skill shots and protecting my ADC. However, after struggling against a hook-based champion, I adapted by switching to Nautilus, a tanky support with strong crowd-control abilities. This experience directly aligns with Gee’s emphasis on learning through experience rather than passive instruction. Instead of reading a guide or tutorial, I internalized the effectiveness of counter-picking through direct gameplay. By experimenting with different champions and seeing real-time cause-and-effect relationships, I developed a deeper understanding of strategy—something that textbooks or theoretical explanations often fail to provide.

In my second journal, learning from experts played a major role in my strategic growth. Before starting my games, I watched professional players like Faker and Bausffs, analyzing their decision-making, lane control, and champion mechanics. Gee discusses how observational learning and mentorship accelerate skill acquisition, a principle that was clearly reflected in my experience. Watching high-level players helped me anticipate enemy movements, execute better trades, and use the Teleport summoner spell more effectively. However, as I noted in my journal, applying what I learned was still a challenge, reinforcing the idea that expertise develops through repeated practice, trial and error, and refinement. This is consistent with Gee’s Cycles of Expertise, where mastery emerges from continuous iterations of learning, failing, and improving.

Additionally, I encountered Gee’s principle of problem-solving cycles throughout both journals. In LoL, each match presents unique scenarios that force players to analyze patterns, predict outcomes, and adjust their strategies accordingly. For instance, in my second session, I played Tryndamere and gained an early lead in the top lane, only to find myself repeatedly ganked by the enemy jungler. Although I struggled, my team capitalized on my opponent’s focus on me, securing objectives elsewhere. This mirrors Gee’s assertion that effective learning environments provide challenges that push players to adapt and think critically. Even though I personally struggled, my actions contributed to a broader strategic success, reinforcing the importance of situational awareness and long-term planning.

Overall, my League of Legends sessions provided direct, practical applications of Gee’s learning principles. Through situated learning, learning from experts, problem-solving cycles, and cycles of expertise, I experienced a form of interactive, engaging, and dynamic education that is often lacking in traditional classroom settings. By reflecting on these experiences, I gained a greater appreciation for how games like LoL function as complex learning environments, fostering strategic thinking, decision-making, and adaptability.

Connecting External Scholarly Sources to My Topic and Thesis

The idea that League of Legends serves as an effective learning environment aligns with existing research on game-based learning. Several scholars have explored how video games contribute to cognitive skill development, strategic thinking, and adaptability. These studies provide empirical evidence supporting my thesis that LoL fosters learning through situated cognition, problem-solving cycles, and iterative feedback systems, as outlined by James Paul Gee’s learning principles.

One key study by Santamaría (2011) examines the role of serious games in cognitive development and decision-making. The article highlights how immersive gaming environments provide a space for players to refine their problem-solving skills in real-time. My experiences in LoL reflect this idea, as the game constantly challenges players to analyze their environment, anticipate enemy movements, and adapt their strategies based on new information. For example, in my journal, I discussed how I initially struggled against a hook-based champion but later adapted by switching to Nautilus, a more defensive and control-oriented champion. This aligns with Santamaría’s argument that video games act as cognitive training tools, encouraging players to refine their thought processes through active participation (Santamaría, 2011).

Further supporting this argument, Hamari et al. (2016) explore how challenging games enhance engagement, flow, and immersion, leading to improved learning outcomes. The study emphasizes that games with high complexity and difficulty create optimal learning conditions, as they require players to develop strategic thinking and adaptability. League of Legends fits this model perfectly, as it demands constant decision-making and situational awareness. In my second journal, I noted that after watching professional players like Faker and Bausffs, I attempted to apply high-level strategies in my own gameplay. However, I also realized that learning from experts is only the first step—true mastery requires repeated practice and problem-solving cycles, reinforcing Hamari et al.'s claim that deep learning in games occurs when players engage in an ongoing process of refinement and skill adaptation (Hamari et al., 2016).

Finally, Morris et al. (2013) introduce the concept of gamification in scientific thinking, arguing that video games support analytical reasoning and process-based learning. This is particularly relevant to my analysis of LoL, as the game requires players to recognize patterns, make predictions, and adjust their actions accordingly—skills that are fundamental in both gaming and scientific research. In my gameplay, I often relied on pattern recognition to anticipate enemy ganks and optimize my item builds based on the opponent’s team composition. This mirrors Morris et al.'s argument that games promote an experimental mindset, where players develop hypotheses, test strategies, and iterate based on feedback (Morris et al., 2013). LoL fosters this approach through its ranking system and match-based structure, where players continuously refine their skills through repeated gameplay cycles.

Synthesis of Research and League of Legends as a Learning Tool

Together, these studies reinforce the claim that LoL serves as more than just entertainment—it is an effective learning environment that promotes critical thinking, strategic planning, and adaptability. Santamaría (2011) highlights the cognitive benefits of immersive learning environments, which align with LoL's real-time decision-making and teamwork mechanics. Hamari et al. (2016) emphasize how game complexity fosters engagement and flow, mirroring the skill progression and ranked matchmaking system in LoL. Finally, Morris et al. (2013) connect gaming to scientific reasoning, demonstrating how pattern recognition and strategy formulation in LoL reflect real-world problem-solving processes.

These findings collectively support my thesis: League of Legends embodies Gee’s learning principles by creating an interactive environment where players develop expertise through situated learning, problem-solving cycles, and iterative improvement. By leveraging LoL as a case study, I have shown that competitive multiplayer games function as highly effective platforms for cognitive development, engagement, and strategic thinking, reinforcing the broader potential of game-based learning.

Conclusion

Video games have significant untapped potential as learning tools, and League of Legends is a prime example. The game’s combination of strategy, adaptability, and teamwork reinforces skills that are essential both in gaming and in real-world applications. However, the psychology of learning plays a crucial role—students often view school as an obligation rather than a challenge to overcome. If education were structured more like a game, where learning is engaging rather than stressful, students perform better. Parents and educators could shift this perception by treating academic challenges like competitive yet enjoyable problem-solving exercises, rather than high-stakes tests.

Moreover, gaming, and LoL in particular, enhances reaction time, critical thinking, and logical reasoning—skills that extend beyond gameplay into everyday decision-making. The ability to analyze situations, recognize patterns, and adapt quickly to changing circumstances is valuable in many professional and social settings.

That said, while LoL fosters learning, it is important to maintain a healthy balance. The immersive nature of the game can lead to overindulgence, and prioritizing real-life responsibilities should always come first. When approached mindfully, League of Legends not only serves as a platform for entertainment but also as an opportunity for personal growth and skill development in a way that traditional educational methods often struggle to replicate.

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