

Facilitating Flow in Gaming: An Analysis of Black Myth: Wukong's Design Elements

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Abstract: Flow, a psychological state of deep engagement and enjoyment, is central to the game's success and player satisfaction. This paper explores how *Black Myth: Wukong*, a recent popular action role-playing game, fosters the flow experience for players through its thoughtful design elements. Three key components contribute to the flow experience: avatar design, the combat system, and the storyline. The avatar, the “Destined One”, facilitates flow by offering smooth, fluid motion and fostering player identification, thus enhancing immersion. The combat system strikes a balance between challenge and skill, accommodating both novice and expert players through intuitive mechanics, rewarding precise timing, and dynamic boss fights driven by reinforcement learning. Additionally, the game's epic storyline provides clear goals and higher-level purposes, enriching the player experience and encouraging emotional involvement. Together, these elements create an environment where players can lose themselves in the game, achieving a state of flow that enhances both enjoyment and performance. This analysis suggests that *Black Myth: Wukong* serves as an exemplary model for future game design, focusing on player engagement and well-being rather than simple addiction or superficial pleasure. It also offers valuable insights into how games can better align with the principles of flow.

Keywords: Flow, *Black Myth: Wukong*, Game.

1. Introduction

When fully immersed in a certain activity with full concentration and joy, you are experiencing a state of flow. This concept was proposed by psychologist Csikszentmihalyi in 1990 [1]. Flow can occur when you are reading a fascinating novel, trekking in a picturesque mountain, or playing an exciting action game. *Black Myth: Wukong* is an action role-playing game released in August, 2024. Upon release, it became one of the best-selling games so far this year. On December 13th, this game won the Best Action Game and Players' Voice awards at The Game Awards (TGA) 2024, which is thought to be the Oscar of the games, indicating people's acknowledgement and love for this game.

We have to ask, why is this game so successful, especially as the very first AAA game of China? Among all the factors contributing to a successful game, providing an immersive flow experience for players with thoughtful designs is crucial while hard to achieve. In this sense, *Black Myth: Wukong* manages to promote flow experience through the ingenious design of a vivid avatar (“the Destined One”), a balanced combat system, and an elaborate storyline. To some extent, clarifying these designs can help future games to offer better flow experience to players.

2. Avatar Design and Flow Enhancement

Black Myth: Wukong has a well-designed avatar, “the Destined One”, designed to enhance the player's flow experience. The developers of Game Science collaborated with one of the most professional martial artists in China, Yin Kai, for the avatar's motion design and capture. They adapted traditional Chinese martial arts, especially the monkey-style kung fu, to the game. More than 500 unique motions were performed by Yin himself and captured by advanced technology over 6 years [2]. These efforts resulted in a fluent and vivid motion of the avatar, especially during combat, which can contribute to flow experience in a subtle but impactful way.

A study by Yee and Bailenson indicates that an avatar's strong performance can motivate players to outperform in the digital world and even influence their self-perception [3]. The fluent motion of “the Destined One” allows for smooth response to players’ commands, providing immediate feedback, a key component for flow in games [4]. This immediate responsiveness helps players to fully immerse themselves in the game. On the other hand, the impressive appearance and graceful motions of “the Destined One” evoke player identification with the avatar, which also prompts flow. Jin found that the identification with game character is a crucial component of self-presence, in which people experience virtual self (avatar in games) as their actual self [5]. Furthermore, Jin also discovered that self-presence is an indispensable dimension of flow in games, especially in games that gradually unfold with narrative and avatar behavior [5]. In other words, the avatar in *Black Myth: Wukong* encourages the players to enter a state of flow by evoking identification and self-presence.

In summary, the developers of *Black Myth: Wukong* made great effort to create a successful avatar, “the Destined One”, who not only guide the players through the game’s story but also leads them into a state of flow.

3. Combat Mechanics: Balancing Challenge and Skill for Flow

The balanced combat system of *Black Myth: Wukong* allows players with varying gaming needs and skill levels to achieve a state of flow.

For beginners, it is easy to master basic operations, including jump, sprint, dodge, light attack and hard attack, in a short period of time. It is crucial for a game to be intuitive, as engaging game experience begins with accessibility. A grounded investigation summarized that the first step towards flow is engagement [6]. Therefore, the developers need to lower the initial barriers of engagement and make it easier for beginners to access and stick with the game. Players can step into the flow only when they are not puzzled and distracted by the fundamental controls.

For a skilled player preferring more precise control during combat, *Black Myth: Wukong* offers additional advanced features. One such feature is an input buffer that does not prioritize commands. To put it plainly, the input buffer stores commands for the next action while the previous action is still in progress. In *Black Myth: Wukong*, the avatar executes the latest command a player performs during the recovery of the last movement, which allows players to conduct accurate operations. Apart from the input buffer, this game also provides a reward system for precise timing, the parry system. The parry system is a high-risk and high-reward system. If a player performs a parry right before the attack of an enemy, they can unleash a powerful counterattacks that deals substantial damage to the enemy and stagger most enemies [7]. Perfect input control and successful parrying requires precise timing, pushing skilled players to ignore distractions while devoting to an intensive boss fight. This kind of task-oriented concentration is one of the elements of GameFlow model [8]. It is a validated model summarizing features of player enjoyment in gaming under the theoretical framework of flow. From the perspective of this model, some subtle and unique designs of the combat system in *Black Myth: Wukong* induce flow by rewarding precise timing and fostering deep concentration.

For a player who cannot tolerate the repetitive attack patterns of enemy and similar bosses, the developers of *Black Myth: Wukong* ensured that each boss fight remains engaging and unique. Reinforcement learning, a critical AI algorithm, is incorporated into the game's boss design, ensuring that the bosses can learn the attack pattern of players and accordingly develop counter-strategies accordingly [9]. The bosses' attack pattern also varies with a bunch of parameters, such as the distance, the HP (health points) of the player and the boss, and the stances used of the player. Moreover, adapted from *Journey to the West*, each boss has totally different personalities, leading to corresponding attack preferences and also weaknesses. Certain items collected during the journey can have surprising effects when facing specific tricky bosses. For instance, in the Chapter 4, "Rosy Cheeks, Gray Hair", the final boss is the Hundred-Eyed Taoist Master. This boss is particularly challenging, especially at the final stage. However, using the Weaver's Needle collected earlier in the game, it can be weakened significantly, making it easier to handle [10]. By facilitating the adaptability, diversity, and flexibility of the combat system, *Black Myth: Wukong* always surprises the players, making the journey refreshing and keeping the flow flowing.

The design of combat system in *Black Myth: Wukong* is highly in accordance with the flow channel model proposed by Csikszentmihalyi [1]. According to this model, if a task is not challenging enough for a skilled player, boredom will ensue. In another case, if a task is too challenging for a player without sufficient skill, anxiety may result. Flow occurs only when the challenge and the skill are balanced. Moreover, in the context of gaming, Scientists tried to build a connection between the game-play elements and the components of flow [11]. They found that the whole gaming experience can be mapped to the balance of challenge and skill in the tasks to complete. It indicates that striking a balance between them is a necessary component of flow in game. Therefore, as a combat-driven game, *Black Myth: Wukong* captures the essence of what is required to trigger flow during combat, providing an engaging experience for players of all skill levels.

4. Narrative Structure and Its Role in Sustaining Flow

The epic storyline of *Black Myth: Wukong* enhances many components of flow in both direct and indirect ways.

The story sets a clear overall goal for players, which enhances the flow experience. After the events of *Journey to the West*, Sun Wukong chose to live a simple life in Mount Huaguo. However, due to the mistrust of the Celestial Court, he was executed. Following his fall, his six senses transformed into six relics scattered all over the world, including Craving Eyes, Fuming Ears, Hubris Nose, Envious Tongue, Grieved Body, and Freed Mind. The player's character, a young monkey, "the Destined One", is given a task to collect those relics to revive the Monkey King. From the perspective of Csikszentmihalyi, having a clear goal is one of three key conditions of experiencing flow [12]. *Black Myth: Wukong* sets a clear and meaningful goal for the players through an epic narrative, paving the way for them to achieve a state of flow.

In addition to a clear goal, the storyline of *Black Myth: Wukong* also conveys deeper meanings, thereby promoting the flow in an indirect way. The six chapters covers profound themes, such as obsessiveness, righteousness, greediness, love, rebellion, and freedom. Players who engage with the storyline can develop an understanding of the game's higher level of purpose, such as themes of self-actualization. It was discovered that an understanding of higher purpose of a game can promote players to step into flow [13]. Specifically, higher purposes make players more emotionally involved in the game and willing to perform better action sequences. Emotional involvement is an important aspect of flow, and better performances result in positive feedbacks, which is also a key element of flow.

Moreover, *Black Myth: Wukong* has a flexible and varied plot setting, which prompts immersion efficiently. There are many side plots included in this game to form a complete and grand view of the

world. Players can choose either to focus solely on the main storyline or explore those side plots by gathering cues and traveling around the whole landscape. In other words, player's choices and actions shape the story they experience. Study has shown that narratives are of great joy for experienced players when they can freely explore various plots, unlock Easter egg plots, get to know different endings, or walk through the journey in their own way [14]. Being the central part of a personalized story, the players can develop more identification and even empathy with the character, as if living an immersive life of a true hero by themselves. The immersion provided by a rich narrative is also a key component of flow.

In addition to the plot itself, the storyline is also complementary to the combat system, which fosters the maintenance of flow experience. As mentioned above, *Black Myth: Wukong* is a combat-driven game. Research has discovered that overly concentrating on the operations and techniques of the game, rather than the storyline, can disrupt flow [15]. To handle this problem, the developers put in extra effort to carry out some subtle and memorable designs. Bosses in the game are not simply enemies; they can also be teachers, old friends, allies, altruistic demons, or resilient fighters. They possess complex emotions, aspirational dreams, and their own odyssey, which players can explore through side plots. For example, the final boss of Chapter2, "Yellow Sand, Desolate Dusk", is the Yellow Wind Sage. As the story unfolds, players would understand that he played a role in bringing peace to the Yellow Wind Ridge. Eventually, the player collaborates with him to fight against Fuban, a monster who brought calamity to this region [10]. Such storytelling elements helps players to take a break from the simple pleasure of fighting and contemplate on the philosophical metaphors of those plots, enabling the flow to persist even during moments of contemplation.

In summary, the design of storyline of *Black Myth: Wukong* helps the players to enter the flow in many ways, including setting a clear goal, conveying higher purposes, constructing a complete worldview, and interacting with the combat system.

5. Conclusion

In the past, a number of games attract players by constructing a highly addictive feedback system. However, *Black Myth: Wukong* opens up another possibility. An avatar promoting immediate feedback and self-presence, a combat system striking perfect balance between challenge and skill, and a storyline providing higher-level goals and deeper immersion are three key elements for *Black Myth: Wukong* to successfully take its players on the journey to the flow.

The success of *Black Myth: Wukong* in achieving flow can inspire future games across various genres, shifting the focus from addiction-oriented designs to flow-oriented experiences. For example, instead of intensive sensory stimulation to promote dopamine release, we could focus more on the operation system, making it intuitive, flexible, and diverse at the same time, meeting the needs of different players and allowing them to step into flow. For future theoretical study on the flow in the context of game, we can take a comprehensive look at many of the best games in human history and try to summarize shared principles they promote flow, combining grounded investigations and experimental studies. The results are not only helpful for future game designs, but can also give us a deeper understanding of the flow itself, since flow is such a crucial part in entertainment, education, and more general personal well-being. Just as Csikszentmihalyi proposed, as long as we can align with the universal flow, we will be like exiles returning home, with hearts as light as the feathers [1].

References

- [1] Csikszentmihalyi, M. (1990). *Flow: the psychology of optimal experience*. *Choice Reviews Online*, 28(01), 28–0597. <https://doi.org/10.5860/choice.28-0597>
- [2] Huang. (2024, August 21). *Motion capture artist reveals martial arts in 'Black Myth: Wukong' combat*. *Global Times*. <https://www.globaltimes.cn/page/202408/1318458.shtml>

- [3] Yee, N., Bailenson, J. N., & Ducheneaut, N. (2009). *The Proteus effect: Implications of transformed digital self-representation on online and offline behavior*. *Communication Research*, 36(2), 285–312. <https://doi.org/10.1177/0093650208330254>
- [4] Nah, F. F. H., Eschenbrenner, B., Zeng, Q., Telaprolu, V. R., & Sepehr, S. (2014). *Flow in gaming: literature synthesis and framework development*. *International Journal of Information Systems and Management*, 1(1-2), 83-124. <https://doi.org/10.1504/ijisam.2014.062288>
- [5] Jin, S. A. (2011). “*I feel present. therefore, I experience flow*”: a structural equation modeling approach to flow and presence in video games. *Journal of Broadcasting & Electronic Media*, 55(1), 114–136. <https://doi.org/10.1080/08838151.2011.546248>
- [6] Brown, E., & Cairns, P. (2004). A grounded investigation of game immersion. *CHI '04 Extended Abstracts on Human Factors in Computing Systems (CHI EA '04)*, 1297-1300. <https://doi.org/10.1145/985921.986048>
- [7] Sdlccorp. (2024, August 25). *Anatomy of combat mechanics in Black myth: Wukong*. SDLC Corp. <https://sdlccorp.com/post/anatomy-of-combat-mechanics-in-black-myth-wukong/>
- [8] Sweetser, P., & Wyeth, P. (2005). *GameFlow: A Model for Evaluating Player Enjoyment in Games*. *Computers in Entertainment*, 3(3), 3. <https://doi.org/10.1145/1077246.1077253>
- [9] Sdlccorp. (2024, August 25). *AI and Machine Learning in Black Myth: Wukong: Enhancing NPC Behaviors*. SDLC Corp. <https://sdlccorp.com/post/ai-and-machine-learning-in-black-myth-wukong-enhancing-npc-behaviors/>
- [10] McLarney, A. (2024, September 11). *Best Boss Fights in Black Myth Wukong*. *Game Rant*. <https://gamerant.com/black-myth-wukong-best-boss-fights/>
- [11] Cowley, B., Charles, D., Black, M., & Hickey, R. (2008). *Toward an understanding of flow in video games*. *Computers in Entertainment*, 6(2), 1–27. <https://doi.org/10.1145/1371216.1371223>
- [12] Csikszentmihalyi, M. (1997). *Finding flow: the psychology of engagement with everyday life*. *Choice Reviews Online*, 35(03), 35–1828. <https://doi.org/10.5860/choice.35-1828>
- [13] Pagulayan, R. J., Keeker, K., Wixon, D., Romero, R. L., & Fuller, T. (2002). *User-Centered design in games*. In *CRC Press eBooks* (pp. 915–938). <https://doi.org/10.1201/9781410606723-41>
- [14] Sweetser, P., & Johnson, D. (2004). *Player-Centered Game Environments: Assessing player opinions, experiences, and issues*. In *Lecture notes in computer science* (p. 321–332). https://doi.org/10.1007/978-3-540-28643-1_40
- [15] Admiraal, W., Huizenga, J., Akkerman, S., & Dam, G. T. (2011). *The concept of flow in collaborative game-based learning*. *Computers in Human Behavior*, 27(3), 1185–1194. <https://doi.org/10.1016/j.chb.2010.12.013>