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The Availability Heuristic in Gacha Marketing: Mechanisms, Consumer Vulnerabilities, and Ethical Implications

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Abstract. With the continuous growth of the game industry, the gacha mechanism has become the core revenue model, and the impact of access heuristic promotion on players' consumption is becoming more and more significant. Based on consumer behavior and cognitive psychology, this study examines how the heuristic promotion of availability affects player spending through probability misjudgment and impulsive consumption. Taking the prayer system of "Genshin Impact" as an example, this article analyzes from the perspective of consumer behavior and cognitive psychology how the heuristic promotion of availability can activate the player's availability deviation through frequent display of "European gas" extraction, the use of the opinion leader (KOL) effect, and algorithm recommendation, so as to promote sales. The study found that these practices can increase short-term revenue, but they also bring structural problems: a crisis of trust in the drop rate, irrational consumption of minors, and gaps in ethical supervision. To deal with these problems, the paper puts forward targeted strategic suggestions, including strengthening probability transparency, establishing a consumption firewall for minors, and clarifying the rules of algorithm ethics. This research extends the application of behavioral economics to the field of game marketing and provides a theoretical basis and practical inspiration for the health and sustainable development of the game industry.

Keywords: Availability Heuristic, Gacha Mechanics, Impulse Spending, Adolescent Vulnerability, Algorithmic Ethics

1. Introduction

1.1. Research background

According to the rapid development of the global game industry, in-game purchases - especially the random lottery system commonly known as "drawing cards" or "unboxing" - have become one of the most important sources of income for many game companies. According to Newzoo's 2025 Global Game Market Report, the global game market will reach $201.6 billion in 2025, of which 56% of the revenue will come from mobile. China is the largest video game market, with consumer spending on video games reaching $54.6 billion [1]. At the same time, Sensor Tower notes that 47% of the global top 100 mobile games use the gacha systems in 2025, and these games are dominated

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by role-playing and simulation games [2]. These games usually use the availability heuristic when promoting their content. At its core, if something comes to mind easily, people tend to think it happens more often than it really does [3]. For example, game publishers often show some "European" videos, screenshots of rare characters that players can get by drawing, and card drawing records released by key opinion leaders (KOLs). After seeing such content enough, ordinary players will begin to think that they can draw it equally easily, thus overestimating the actual probability, which is often less than 1%. This promotion strategy will obviously drive impulse consumption and repeat purchases, but it also brings serious problems. For example, some players spend tens of thousands of yuan to chase a character, which leads to gambling addiction and family conflicts; misleading advertisements distort players' perception of probability; minors' addiction to card drawing has repeatedly caused public criticism. Data from young people aged 16-24 support this concern: buying out of the box is highly related to gambling problems, and this association is as strong as that observed in online casino games or slot machines [4]. Therefore, it is of great commercial and social significance to deeply study how availability heuristic affects card drawing sales at the promotion level.

1.2. Theoretical foundations: the availability heuristic

The existing literature confirms that availability heuristics are a key cognitive bias in consumer decision-making, that is, significant events are systematically overestimated relative to their objective probability [5]. In the game situation, Roethke and others proved that unboxing/drawing cards uses this heuristic to cultivate a "control illusion" to improve the willingness to buy [6]. Dertwinkel-Kalt and others further quantified this effect, revealing that the high visibility of rare winnings makes consumers overestimate the probability of winning and are willing to accept prices close to six times the expected value. This tendency is more obvious in individuals who are averse to loss [7]. Social strengthening also plays a key role; Haka and others confirmed that the winning results of contact with peers on social media will significantly increase the expenditure of card drawing [8].

Although the research on availability heuristic has been quite rich, there are still obvious gaps. Most scholars focus on how it affects general probability judgment, while few studies systematically examine the commercial application of the availability heuristic in the promotion of game card drawing and how this application affects sales. Existing studies often regard ability heuristics as a general cognitive bias, but do not fully consider that different forms of promotion - such as card drawing animation, player community evaluation, or KOL live broadcast - may activate the availability heuristic in different ways. At the same time, there is almost no research on how China's card-drawing culture (such as the bottom guarantee mechanism and the phenomenon of "saving and guaranteeing the bottom") interacts with the availability heuristic. Moreover, when access-based promotion raises ethical issues - such as inducing minors to consume or displaying misleading probability information - empirical intervention studies based on behavioral insights are still scarce. This bias of cognitive theory rather than application, and the research tendency to focus more on the Western background rather than the local situation, limits the actual reference value of relevant findings to the marketing strategies of game companies.

1.3. Research framework

In order to fill this gap, this study takes the "wish" system of "Genshin Impact" as a case, and builds a model to illustrate how availability heuristic promotion drives sales through probability

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misjudgment and impulsive consumption. The study combines cognitive bias literature with official promotion data, community discourse, and third-party analysis (such as Sensor Tower) to clarify heuristic strategies based on frequency, vividness, and social proof. The analysis further identified three major structural vulnerabilities: misleading probability prompts to erode trust, the risk of adolescent addiction, and gaps in ethics and regulation. Finally, the paper puts forward targeted interventions to promote the sustainable development of the industry.

2. Case profile: the wish system in Genshin Impact

This study examines the "wish" system of "Genshin Impact" - a dominant card drawing model that has promoted more than 70% of the game's global revenue of more than $10 billion since 2020. The system is characterized by a basic shipment rate of 0.6% (1.6% after consolidation) and a cost of 160 original stones (about 16 yuan) per prayer, and relies heavily on availability heuristic promotion means. miHoYo disseminates the media content of "European card drawing" through social platforms (Weibo, Bilibili), sponsors KOL live broadcasts to show rare draws (such as two five-star players at the same time), and combines algorithm amplification and in-game card drawing history with near-cause bias. The strategy has proven to be extremely profitable: in version 3.0, Tinari's limited-time prayer for global mobile revenue to exceed $12 million on the first day (China accounts for >30%) [9]. However, this also contributes to probable cognitive errors, overconsumption, and the failure of protection against minors, resulting in a large number of consumer complaints. The summary of key operating parameters is shown in Table 1.

Table 1. Core mechanics and promotional profile of the wish system

Parameter	Key Data
Revenue Share	~70% of total global revenue
Drop Rates	Base: 0.6% (Five-Star); Consolidated: 1.6%
Cost per Wish	160 Primogems (~16 RMB)
Promotional Levers	Lucky pull media; KOL livestreams; Algorithmic amplification; Recency bias
Performance (v3.0)	>$12M Day-1 mobile revenue
Primary Risks	Probability distortion; Overspending; Minor protection gaps

3. Dual-path analysis: value amplification and structural risks

3.1. Positive mechanisms: enhancing engagement and monetization

3.1.1. Cognitive ease and impulse spending: lowering risk perception

Availability heuristic will reduce players perceived risk of card drawing costs: it constantly presents successful cases in front of players. When players continue to see a video of a five-star character, those vivid and emotional pictures will stay in their working memory. Players began to overestimate their probability of winning, creating an optimistic bias - the feeling that "you will definitely win next time". This deviation weakens their assessment of risk, making it easier for them to impulsively place "Wish ×10" (ten consecutive draws). Social recognition also plays a role: players will feel that others are smoking, and they will miss something if they don't smoke. The decision-making time is shortened, and the sales volume is increasing.

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3.1.2. Social proof and viral diffusion: amplifying user-generated content

The promotion of availability heuristic is inherently social. It encourages players to share and participate, resulting in low-cost viral transmission. When someone gets a rare character in a lucky draw, the game will automatically generate a card to show the result. Players are happy to share on WeChat Moments, QQ group, or the HoYoLAB community to show off their good luck. This kind of user-generated content brings free exposure to the game. It also spreads availability: after seeing these posts, other players will begin to think that they can draw the same result, so they will join in. For example, during the Alhaitham card pool of the 3.4 version of Genshin Impact, the Weibo topic #SinglePullAlhaitham# was viewed more than 200 million times, most of which came from the card drawing records released by players. Such a social chain reaction reduces the cost of attracting new players and enhances the sense of belonging to the community, which indirectly promotes sales growth.

3.1.3. Perceived scarcity and emotional attachment: elevating IP valuation

The availability heuristic promotion also emphasizes the rarity and time limit of the character, which strengthens the emotional connection between players and the game's intellectual property rights (IP) and their perception of the value of the character. MiHoYo deliberately exaggerates the time-limited exclusivity of these characters, creating a sense of urgency that "if you miss it, you will not have it again". This is tied into the "imaginability" part of the Character Heuristic available: If players can imagine the character, they will imagine the character's awesome battle or the character's poignant plot scene simultaneously, which further enhances the value of the character. Moreover, in the case of the card-drawing mobile game, character attachment emerged as the most significant factor influencing purchase intention, highlighting the need for emotional engagement [10]. Thus, as soon as this perceived value surpasses the price, players will certainly not hesitate to pay. Such emotional buying behavior not only boosts the volume of sales for the individual card pool but also helps create brand loyalty over time, which will lead to more sales in future versions.

3.2. Structural vulnerabilities: cognitive distortions and ethical deficits

3.2.1. Probability misperception and the erosion of trust

The availability heuristic promotion brings false hope by playing only those that have succeeded in this way, so that the player seriously overestimates the actual probability. There is a continuous losing experience that MiHoYo tends to overlook in its marketing and only emphasizes the "lucky" lottery. This survivor deviation makes players think that the actual drop rate is much higher than 0.6%. If they get to the bottom line before the 5-star draw, they will feel cheated and angry. Many players took their stance on TapTap and HoYoLAB in 2023 against the misleading propaganda of the game and even demanded a boycott of the prayer system. Such a breach of trust tarnishes the company's brand and can draw the attention of regulators. In Belgium and the Netherlands, the unboxing mechanism has been deemed as gambling and thus forbidden, and in China, the Online Game Management Measures (Draft for Comments) is a regulation requiring the drop rate to be disclosed. The company risks trouble if they don't take the initiative to convert this availability heuristic promotional technique.

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3.2.2. Adolescent vulnerability and the risk of behavioral addiction

The availability heuristic marketing exploits minors' psychological vulnerabilities, causing them to spend irrationally and develop addictive behaviors. The prefrontal cortex of adolescents is not fully developed, which makes them more sensitive to available sexual hints. When they see that the anchor draws two five-star draws in a ten-in-a-row draw, they often can't rationally evaluate the probability. On the contrary, they are driven by the fantasy of "I can do it too" and keep investing money. The questionnaire evidence supports this concern. In a national survey of 1,137 teenage players aged 12-16, 45.6% of respondents who had played games in the past year reported participating in some form of unboxing/card-drawing activities. Teenagers who have bought or sold unboxed items are especially likely to show problem gambling symptoms [11]. More seriously, the card drawing mechanism depends on variable rewards - this behavioral principle will make teenagers as addicted as slot players. This commercial exploitation of the vulnerability of adolescents for profit is worth in-depth reflection and intervention.

3.2.3. Ethical lapses and regulatory arbitrage

At present, game companies are often in the gray area between law and ethics when using availability heuristic promotions, and industry self-discipline and external supervision are lacking. On the one hand, the company uses the algorithm black box to control the display frequency of promotional content through A/B testing to find out which "lucky draw" videos can bring the most consumption, and then push these contents to the players who are most likely to pay. This kind of dark model violates the principle of integrity in China's Consumer Rights and Interests Protection Law. On the other hand, the current supervision has very limited restrictions on card drawing promotion. Although it is required to disclose the drop rate, it is not required to disclose the distribution of card drawing results, nor is it required to explain the extent to which the promotional content is representative. Such a regulatory gap makes companies lack the motivation to restrain themselves, so they continue to increase the availability heuristic promotion, forming a vicious circle of inferior coins expelling good coins. If it is not constrained, it will seriously damage the healthy development of the game industry in the long run.

4. Mitigation strategies and regulatory recommendations

4.1. Enhancing probability transparency to counter cognitive bias

In order to combat the cognitive distortion caused by the availability heuristic, enterprises need to go beyond simply observing the disclosure of the drop rate and turn to the practice that can be called "full sample transparency". One measure is to directly give the probability curve on the card drawing screen in real time. This curve displays not only the basic drawing rate, but also the change in the cumulative probability from the first card drawn to the guaranteed bottom line. But seeing this does have the potential to make the "I can do it too" illusion even weaker because of the exposure to the lucky draw. The second is to establish anti-survivor deviation reminders. If a player hasn't drawn 5 stars for a while, it can automatically display a rational reminder that the consumption distribution of the majority of players on the card pool is displayed. Such objective information can deflate marketing content construction's false hopes. Third, there must be tighter controls on the marketing materials. Only very rare "one-hit" cases should be shown. The official propaganda material should

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be made to center on the target drop rate and the bottom guarantee mechanism. These practices rebuild and strengthen consumer trust and mitigate regulatory risks.

4.2. A two-tiered protection framework for minor players

A double-layer protection of technology and cognition is required in view of the psychological vulnerability of teenagers. Technically, layered consumption locks could employ big data and AI behaviors to flag suspected minor accounts. Once marked, the account will undergo forced face recognition and again be verified by the guardian, and consume much less electricity than an adult per month. On the cognitive level, the game should have a cooling-off time and a budget circuit breaker: once an extremely fast, continuous extraction is activated or when a certain amount of money has been spent, the egg-twisting/card-drawing function should be paused for one to two hours, and a brief message should appear to introduce the concept of the "sunk cost fallacy". Schools can also have their part to play: cooperate with education authorities to introduce game consumption psychology to digital literacy courses, to help minors recognize marketing tactics like the availability heuristic, and to take the source of irrational consumption and family conflicts away.

4.3. Algorithmic accountability and the closure of regulatory arbitrage

In order to solve the problems of algorithm black box and lagging supervision, algorithm accountability and industry self-discipline should be promoted at the same time. Regulators should issue detailed rules requiring game companies to disclose the logic of their content recommendation algorithms. The practice of using A/B tests to target highly attractive card/egg-twisting content to addictive or psychologically vulnerable players should be prohibited. It can also establish a card drawing result filing system, which requires the company to regularly submit the real distribution data of drawing results to the regulatory authorities. This helps the authorities verify whether the promotional statements are representative and prevent misleading advertisements similar to survivor bias. Within the industry, companies can form responsible marketing alliances and sign the code of ethics for card drawing promotion. Writing "not using ability, inspiration, and other means to mislead consumers" into the industry standard and restraining violators with a joint punishment mechanism will help narrow the arbitrage space between the legal and moral gray areas. It is more feasible to combine external law enforcement with internal ethical constraints than to rely on either party alone.

5. Conclusion

5.1. Key findings

Taking the prayer system of "Genshin Impact" as an example, this study shows how the promotion of availability heuristic - frequent card drawing display, key opinion leader (KOL) effect, and algorithm recommendation - triggers players' cognitive bias. These deviations make the user less aware of the risk, more inclined to purchase on impulse, and more likely to use the app again and keep it installed. But they also pose moral dangers: wrong estimates in probability can lead to a loss of trust, there is a possibility that children might get addicted, and there is the danger that companies could break the rules. From these findings, the study proposed a systematic response plan as follows: Increase transparency of probabilities, implement a minor protection system, and define

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more clearly the rules for algorithm ethics. The objective is to balance the interests of business and society.

5.2. Research significance

The value of this study is obvious from the practical perspectives. The research findings indicate that by moving away from the marketing strategies and tactics that exploit cognitive bias toward more responsible and transparent design, game operators can not only mitigate legal liability risk (U. S. FTC penalties and/or even tougher domestic regulation), but can also find more long-term user retention in brand credibility. The study is a new risk for regulators in marketing and offers a theoretical explanation for the development of special card-drawing promotion rules. The research has enhanced the understanding of game marketing and its psychological mechanisms, and encouraged the public and players to consume games rationally.

5.3. Limitations and future study

This research mainly relies on second-hand information and case analysis. It deeply reveals the mechanism behind the phenomenon, but lacks first-hand data. Future research can use questionnaires or behavioral experiments to measure how different availability heuristic stimulation (such as videos and graphics) affects players' actual willingness to pay (WTP). This study also focuses only on a single case. Follow-up research can compare egg-twisting/card-drawing games in different cultural contexts (such as Japan, Europe, and North America), or use big data methods to model the behavior of real players to further test the theoretical models and strategies proposed in this article.

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