Analysis on Feedback Mechanisms of the Availability Heuristic and Self-Fulfilling Prophecy in Modern Society

Zhongchang Fu*

Beijing Royal School, Beijing, 102200, China

*fuzhongchang1022@163.com

Abstract

In this paper, the author explores the approach that the availability heuristic and self-fulfilling prophecy interact in the modern world, with a focus on examining how the two generate an accelerated feedback loop through the dissemination of digital media. The availability heuristic leads people to rely on easily accessible information when making decisions, thereby overestimating the significance of events. The self-fulfilling prophecy refers to the phenomenon where beliefs translated into collective action come true. When combined together, cognitive biases and behavioral outcomes reinforce each other, driving rapid changes in social reality. The author uses cases such as the GameStop stock incident, COVID-19 panic buying sprees, cryptocurrency market volatility, and the AI investment boom to illustrate the financial, social, and technological manifestations of this cyclical phenomenon and its associated risks. Finally, measures to mitigate these situations from three perspectives, including media responsibility, public education, and policy intervention, are proposed to provide insights for understanding and addressing cognitive biases and social behaviors in modern society.

Keywords

Availability heuristic, self-fulfilling prophecy, digital media, feedback loop.

1. Introduction

In traditional economics, humans are regarded as "fully rational beings", who are capable of accessing all information and making optimal decisions. However, real-life human behavior is far more complex. When faced with uncertainty, people tend to rely on intuitive shortcuts rather than engaging in in-depth deliberation. The availability heuristic and self-fulfilling prophecy are typical examples of such phenomena[1]. The former indicates that when judging the probability of an event occurring, people depend on the most easily recalled examples in their minds. If an event frequently appears in media reports or casual conversations among acquaintances, people will perceive it as more likely to happen. Moreover, the latter demonstrates that when people believe a certain outcome is imminent, this belief will push them to take corresponding actions that ultimately make the outcome a reality. In the digital age, characterized by the rapid flow of information, these two phenomena are usually intertwined. Social media and algorithmic recommendations have not only transformed the way people access information but also accelerated the emergence and spread of cognitive biases. An event that receives extensive coverage can quickly attract collective attention, whose shared sense of recognition might turn into actions that alter real-world conditions, creating a self-reinforcing feedback loop. This paper focuses on analyzing such loops and elaborates on them by combining with specific cases in modern society.

2. Theoretical Framework

2.1. The Availability Heuristic

The availability heuristic is a common mental shortcut, indicating that when people judge the likelihood or importance of an event, they do not rely on objective statistics or logical reasoning but rather on the information that brought to mind most easily. In other words, if people can quickly recall instances of a certain type of event, they will perceive it as common, representative, or significant[2]. Since human memory does not equate to the actual distribution of events in reality, it gives rise to cognitive biases. In modern society, media and social platforms have significantly amplified this mechanism. For example, frequent news reports on violent incidents lead the public to overestimate the decline in public security. Viral success stories on social platforms make people believe that "getting rich overnight" is easier than it actually is. This trend, where information visibility replaces factual authenticity, is becoming one of the cognitive characteristics of the digital age. The impact of the availability heuristic is not limited to individual-level risk perception or decision-making biases [3]. As most people rely on similar mental shortcuts, entire groups frequently exhibit convergent responses to trending information, further amplifying public attention to and reactions toward certain events. This phenomenon creates conditions for the self-fulfilling prophecy, enabling a single piece of information to trigger large-scale social actions in a short period.

2.2. The Self-Fulfilling Prophecy

The self-fulfilling prophecy refers to a process where an initial belief or expected outcome gradually becomes a reality in that the belief guides corresponding actions[4]. Its essence lies in the fact that humans are both observers and creators of social reality. When an idea is widely accepted and put into practice by the public, it gains the ability to alter objective circumstances, which can be observed in several social scenarios. For instance, if investors in financial markets generally believe that prices will fall, they will sell their assets en masse, leading to an actual market decline. In the field of education, high expectations from teachers can motivate students to work harder and ultimately achieve better grades. Human beliefs transform the world through actions, and these changes in the world further reinforce the original beliefs, which forms a cycle. In digital society, the self-fulfilling prophecy exerts an even more pronounced effect. Social media and group discussion enable the rapid formation of consensus[1]. When a belief spreads widely online, it usually turns into collective action quickly, whether in the form of panic buying, investment, or public opinion movements. The initial idea gains real-world validation through feedback mechanisms, showing that the self-fulfilling prophecy is not an accidental phenomenon but a common driver of social life.

2.3. The Four-Stage Feedback Loop

To better understand the interaction between the availability heuristic and the self-fulfilling prophecy, these two can be integrated into a "four-stage feedback loop". The following model illustrates how information evolves from individual cognition and group communication to ultimately shaping reality[5].

The first stage is the vivid event, an event becomes highly prominent due to its emotional resonance, dramatic nature, or media coverage. It might be a sensational news headline or a viral video. The second stage is biased cognition. Under the influence of the availability heuristic, people overestimate the event's significance or prevalence based on its high visibility, developing a biased psychological expectation. The next stage is collective action. As more people adopt this biased belief, convergent behaviors emerge, such as herd investment, panic buying, or unified public expression. These actions directly alter reality, turning the original belief into an objectively observable fact and validating the initial expectation. The last stage is cycle acceleration as the loop does not end after one iteration. The new reality becomes the

source of further dissemination, triggering more vivid events and biased cognition, and accelerating the entire process. In digital society, the speed of information dissemination and the amplifying effect of social network effects make this process operate faster and more frequently, potentially causing changes in market trends, social dynamics, or public sentiment in a quite short time.

3. Analysis of Modern Cases

3.1. The "Retail Frenzy" and the GameStop Stock Incident

In early 2021, the U.S. stock market witnessed a globally attention-grabbing "retail investor vs. Wall Street" showdown. It began when users on the Reddit community of WallStreetBets extensively discussed GameStop stock and called on retail investors to collectively buy shares to counter hedge funds[6]. Initially, GameStop's fundamentals did not support a surge in its stock price. However, as related posts, memes, and slogans spread virally online, GameStop became the focus of social discourse. This phenomenon demonstrated the power of the availability heuristic. The retail investors were constantly exposed to information about GameStop online, making them overestimate the investment opportunity psychologically. They made decisions not based on rational judgments of long-term profitability but on the stock's heightened cognitive salience. Subsequently, the self-fulfilling prophecy mechanism was activated. The retail investors firmly believed that they can defeat Wall Street and poured money into the stock, with this collective action directly doubling the stock price in a short period. As prices soared, the result further validated the retail investors' beliefs, attracting more participants and forming a typical feedback loop. In the end, GameStop's stock price experienced extreme volatility so that some retail investors profited while others suffered losses when prices plummeted. This incident showed that digital communities are not merely platforms for information exchange but can also shape the reality of financial markets.

3.2. Panic Buying Sprees during COVID-19

When the COVID-19 pandemic first broke out in 2020, toilet paper panic buying occurred in a large amount of countries and regions. Although the supply chain for daily necessities was not truly threatened, once the media began frequently reporting on potential shortages, the message was quickly amplified and caught public attention [3]. Under the influence of the availability heuristic, consumers easily visualized empty supermarket shelves, leading them to overestimate the likelihood of shortages. Even rational analysis showed that production and logistics could still meet demand, people still tended to take preventive measures as their psychological expectations drove them to hoard daily necessities to avoid future unavailability. This collective action directly caused real-world shortages. As people flocked to supermarkets, shelves were indeed emptied. The visible shortage further reinforced the belief that supplies were in shortage, completing the self-fulfilling prophecy. What began as a worry or belief turned into reality through consumers' collective actions. This case illustrates the acceleration effect in digital society. Social media spread information so quickly that individual cognitive biases instantly evolved into group behavior. Within a few days, a situation that was originally controllable escalated into widespread social panic due to the psychological feedback loop.

3.3. The Confidence Cycle in the Cryptocurrency Market

The cryptocurrency market has experienced multiple rounds of extreme price volatility in recent years, driven in part by the interplay of the availability heuristic and the self-fulfilling prophecy. Social platforms and news media repeatedly tell stories of Bitcoin millionaires, and such extreme success cases are more likely to be remembered[7]. The possibility of getting rich quick is overestimated and most of the investors perceive it as a common opportunity rather than an isolated phenomenon. Under this mindset, the self-fulfilling prophecy takes effect.

When people collectively hold the belief that prices will only go higher, they flood into the market, driving cryptocurrency prices to soar. This price surge, in turn, strengthens people's optimistic outlook, attracting new capital inflows. In a short period, market prices are pushed far beyond the actual application value of cryptocurrencies, which presents a classic sign of a speculative bubble. However, this prosperity is built on beliefs alone. When signs of a price decline emerge, investors' confidence collectively reverses. Sell-offs trigger a price collapse, and a negative feedback loop ensues. Thus, the cryptocurrency market is a hotbed for wealth myths, as well as a convergence point for cognitive biases and belief cycles, where risks and opportunities coexist.

3.4. The AI Boom and Venture Capital Bubbles

Recently, the rapid development of artificial intelligence (AI), especially generative AI, has triggered unprecedented attention and an investment boom. Various media outlets continuously report on cases and predictions of "AI transforming the world", quickly bringing the narrative to the public and investors, making it a dominant discourse in society[8]. Due to the overexposure of these technologies, people generally believe that AI will inevitably reshape industrial structures. Under the influence of the availability heuristic, people easily remember a handful of successful AI companies while ignoring the numerous tech firms behind them that are neither profitable nor have practical applications. Under the circumstance, decision-makers are more likely to be influenced by the appeal of the narrative than by objective data. Consequently, the self-fulfilling prophecy takes hold. A flood of capital into the AI sector prompts companies to accelerate their investments in AI, further raising market expectations for the technology. The above collective action creates a short-term bubble-like phenomenon that massive capital inflows make the AI industry appear prosperous whereas projects lack long-term viability. When market confidence wavers or the pace of technological progress slows, the bubble bursts quickly. This case demonstrates that in digital society, beliefs and narratives not merely shape our cognition but also directly drive changes in economic and social reality.

4. Discussion

4.1. The Amplifying Effect of Digital Media

In traditional society, the spread of information was limited by time and space, so the effects of the availability heuristic and self-fulfilling prophecy emerged through a gradual process[1]. However, in digital society, particularly driven by social media platforms, these psychological effects have been greatly amplified. Digital media leverages algorithmic recommendations and social network effects to expose an event to a massive audience in a short time, rapidly increasing its visibility, which directly fuels the emergence of cognitive biases. More importantly, digital media is not only a channel for information dissemination but also a platform for mobilizing action. When a narrative or emotion gains attraction online, groups can immediately translate it into tangible economic or social actions. For example, investors can drive up a stock's price overnight through trading platforms and consumers can trigger a panic buying spree in a short time. Moreover, public opinion can prompt the discussion and revision of public policies within hours. This immediate chain reaction enables the rapid formation of self-fulfilling prophecies. Thus, digital media has changed the availability of information as well as the relationship between information and action. It has shortened the time lag in the feedback loop, drastically narrowing the gap between public opinion and reality, and thereby intensifying the mutual influence between cognitive biases and behavioral outcomes.

4.2. Risks and Insights

When the availability heuristic and self-fulfilling prophecy interact in the digital world, their greatest risk is distorting reality into a narrative. In finance, it is likely to cause speculative bubbles that prices become completely decoupled from value. In public crises, it can trigger panic behaviors, which could exacerbate resource inequality. Additionally, in the political sphere, it might bring social fragmentation, where collective beliefs replace factual reality. The acceleration of the feedback process also increases systemic vulnerability. Once a single narrative dominates public opinion, it is possible to spread throughout society in an extremely short time and trigger irreversible collective actions. Such systemic fragility endangers economic stability and undermines social trust and public order. However, understanding this mechanism provides valuable insights that social reality is not purely objective and neutral but is co-shaped by information dissemination, opinion formation, and behavioral feedback. Public opinion and cognition are reflections of reality forces that shape it, offering a new perspective for understanding the complexity of modern society.

4.3. Mitigation Measures

To address the risks posed by the availability heuristic and self-fulfilling prophecy, it is necessary to explore mitigation strategies from two dimensions, which are information dissemination and cognitive education. Firstly, media and platforms should take greater responsibility. Downplaying extreme cases and reducing incendiary reporting can reduce the weight of biased information in people's minds. Algorithmic recommendation mechanisms also need to be optimized to prevent the infinite amplification of a single piece of information and the formation of echo chambers. Secondly, it is crucial to enhance public digital literacy. If individuals recognize the flaws of the availability heuristic, they are able to maintain greater rationality and critical thinking amid the flood of information. Finally, institutional design should not be overlooked. Governments and institutions can slow the formation of collective panic by promoting information transparency, debunking rumors promptly, and conducting open communication. In finance or tech investment, regulatory policies should pay attention to the role of narratives in shaping market behavior and implement intervention measures when necessary. Through these efforts, relative stability and rationality amid the accelerated feedback loops of the digital age could be maintained.

5. Conclusion

The availability heuristic and self-fulfilling prophecy reveal the close association between cognition and behavior in modern society. The former influences individual judgments through the salience of information, while the latter shapes reality by guiding actions based on beliefs. When intertwined in the digital media environment, they form an accelerated feedback loop that quickly transforms cognitive biases into social reality. From stock market volatility to pandemic panic, from cryptocurrencies to the AI boom, these cases all show that the visibility of information and the power of beliefs are constantly reshaping the logic of social operation. The mechanism might drive innovation and group cooperation, as well as trigger market bubbles, social panic, and ideological polarization. Therefore, understanding and guarding against this feedback mechanism is of great significance. By enhancing public digital literacy, optimizing the accountability mechanisms of media and platforms, and strengthening policy intervention and institutional design, the rationality and stability of society in the rapidly changing landscape of public opinion can be maintained, thereby avoiding the risk of narratives replacing reality.

However, this study employed a conceptual and case analysis approach rather than empirical testing. While the selected cases vividly illustrate the theoretical mechanisms, they are largely

descriptive. The lack of quantitative data, such as sentiment analysis or network diffusion metrics, limits the ability to measure the causal strength and scale of feedback loops. Future research could employ empirical validation. Researchers could employ big data analysis, social network analysis, or controlled experiments to quantitatively examine how online information availability influences perception formation and subsequent behavioral outcomes. For example, measuring the correlation between media exposure frequency and investment or consumption behavior could test the strength of the feedback loop.

References

[1] King, O. C., & Mertens, M. (2023). Self-fulfilling prophecy in practical and automated prediction. Ethical Theory and Moral Practice, 26(1), 127-152.

[2] Feng, R. (2022, April). Risk and Availability Heuristic: The Role of Availability in Risk Perception and Management. In 2022 7th International Conference on Social Sciences and Economic Development (ICSSED 2022) (pp. 760-764). Atlantis Press.

[3] Di Baldassarre, G., Mondino, E., Rusca, M., Del Giudice, E., Mård, J., Ridolfi, E., ... & Raffetti, E. (2021). Multiple hazards and risk perceptions over time: the availability heuristic in Italy and Sweden under COVID-19. Natural Hazards and Earth System Sciences, 21(11), 3439-3447.

[4] Romney, A., Harrison, J. T., & Benson, S. (2024). Looking back to predict the future: a review of empirical support for the self-fulfilling prophecy. Management Research Review, 47(2), 245-260.

[5] Gibb, A., Angus, G., & Clancey, K. (2025). Enhancing Student Voice: Developing the Student Feedback Loop, a practice-based case study. Student Engagement in Higher Education Journal, 7(1), 79-87.

[6] Kim, K., Lee, S. Y. T., & Kauffman, R. J. (2023). Social informedness and investor sentiment in the GameStop short squeeze. Electronic markets, 33(1), 23.

[7] Tandon, C., Revankar, S., & Parihar, S. S. (2021). How can we predict the impact of the social media messages on the value of cryptocurrency? Insights from big data analytics. International Journal of Information Management Data Insights, 1(2), 100035.

[8] Singh, B., Kaunert, C., & Gautam, R. (2025). Artificial intelligence in detecting herding and market overreaction: Specifying impact of behaviors on market dynamics. In Psychological Drivers of Herding and Market Overreaction (pp. 1-22). IGI Global Scientific Publishing.