

# How Does Cryptocurrency Affect the Cognitive Development of Adolescents in China?

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Received January 23, 2024; Revised September 21, 2024; Accepted October 18, 2024

## Abstract

The research paper "Urban Evolution: How Species Adapt to Survive in Cities" by Eric Bender parallels the adaptations of urban wildlife with the cognitive challenges faced by Chinese adolescents in the digital era, specifically through cryptocurrency. This study addressed the problem statement of how cryptocurrency influences the cognitive development of Chinese adolescents amid rapid technological changes. The objectives of the research are to examine both the educational and economic benefits of cryptocurrency and the negative cognitive impacts associated with excessive engagement. Using a scoping review methodology, the research examines a wide array of sources to provide a comprehensive understanding of cryptocurrency's impact. The findings revealed that cryptocurrency offers economic benefits, such as portfolio diversification and stimulating interest in new economic models. However, excessive engagement can disrupt sleep, lead to social isolation, and impair decision-making, similar to behaviors seen in Internet Gaming Disorder. Professionals exhibit cautious engagement with cryptocurrency, recognizing its risks, whereas adolescents are more vulnerable to financial losses and scams. Restrictive Chinese government policies further limit adolescents' exposure and understanding, potentially hindering their preparedness for future financial environments. The study concluded that while cryptocurrency has educational and economic potential, the associated cognitive risks and the impact of government restrictions necessitate structured education and guidance. Addressing these challenges is crucial to mitigate adverse outcomes and ensure adolescents can effectively navigate the evolving digital and economic landscapes.

*Keywords: Cryptocurrency, Cognitive development, Chinese adolescents, Formal education, Government policies.*

## 1. Introduction

### 1.1 Inspiration and Significance

In "Urban Evolution: How Species Adapt to Survive in Cities," Eric Bender delves into the fascinating realm of urban ecology, showcasing how various species undergo remarkable adaptations to thrive in burgeoning urban environments. The accelerating growth of cities has carved out new ecological niches, presenting both challenges and opportunities for urban-dwelling organisms. While birds and rodents have successfully harnessed the resources available within cityscapes, other creatures like bats and specific insects grapple with urbanization-induced hurdles. In the animal kingdom, the impacts of urbanization manifest through shifts in dietary patterns driven by human activities like fast-food waste and habitat alteration due to urban construction (Bender, 2023).

In a parallel narrative, the human species grapples with challenges posed by rapid technological evolution. Much like their animal counterparts, humans must adapt to the digital era's transformative wave, with cryptocurrency emerging as a potent symbol of this change. Cryptocurrency, defined as a digital currency whose transactions are

verified and recorded via decentralized systems, has disrupted conventional financial paradigms, leaving a profound imprint on economies and societies. In exploring the implications of cryptocurrency, the focal point narrows to the cognitive development of adolescents, particularly in the context of large developing economies like China.

As per reports from China News Service, cryptocurrency has cast a spell on the younger generation in China, often referred to as the post-95s (individuals born after 1995). They harbor the fervent belief that a modest investment of several tens of thousands of yuan could yield manifold returns overnight (China News Service, 2021). This allure of quick riches, central to the cryptocurrency narrative, resonates intensely with adolescents, a phase bridging childhood and adulthood, characterized by ongoing cognitive development and a penchant for risk-taking (Casey, et al., 2008). Therefore, this study aims to elucidate this crucial question: How does cryptocurrency affect the cognitive development of adolescents in China?

## 1.2 Hypothesis

Cryptocurrency influences the cognitive development of Chinese adolescents by offering educational and economic benefits; however, excessive engagement with cryptocurrency may negatively impact their cognitive development.

## 2. Methods

The scoping review method was employed to investigate the impact of cryptocurrency on the cognitive development of Chinese adolescents. This method involves a comprehensive and systematic examination of a wide range of sources, including academic studies, reports, and expert opinions, to map the existing literature on the impact of cryptocurrency on the cognitive development of Chinese adolescents, and identify key themes and findings. The review process aimed to provide a holistic overview of the topic, considering both positive and negative aspects of cryptocurrency's influence on adolescents. Including various perspectives and sources contributed to a well-rounded understanding of the subject. Additionally, the study acknowledged limitations stemming from governmental restrictions in China, which limited the availability of perspectives from the world's second-largest economy.

### 2.1 Selection of Relevant Papers and Methods Used to Find Useful Sources

A systematic approach was followed to ensure the selection of relevant papers. Clear inclusion and exclusion criteria were established. Research papers that met at least one of the following criteria were considered for review: (1) studies related to the cognitive development of adolescents, (2) the influence of cryptocurrency, or (3) research conducted in the context of China. Papers specifically connected to the Chinese context were considered more valuable and given priority in the analysis. Studies that did not focus on these areas or lacked empirical data were excluded. Titles and abstracts of identified papers were initially screened for relevance, and those meeting the inclusion criteria were selected for a full-text review. The full texts of selected papers were thoroughly reviewed to confirm their relevance and suitability for the scoping review.

To ensure comprehensive coverage of the topic, several methods were employed to find useful sources. Specific keywords related to the research topic, such as "cryptocurrency," "cognitive development," "Chinese adolescents," "digital currency," and "financial literacy," were used. Boolean operators (AND, OR, NOT) were utilized to refine search results, narrowing down studies that focus on both aspects (For example, "cryptocurrency AND cognitive development" helped narrow down studies that focus on both aspects). Additionally, reference chaining, which involves reviewing the references cited in relevant studies, provided additional sources that might not have appeared in the initial database search. These combined methods ensured a robust selection of relevant studies for the review.

### 2.2 Evaluating the Credibility

To ensure the credibility of the literature, preference was given to papers published in reputable peer-reviewed journals, which undergo rigorous evaluation by experts in the field. The qualifications and affiliations of the authors

were assessed to ensure they were experts in the relevant fields. Papers frequently cited by other researchers were considered more credible (by checking the “number of times that the paper has been cited”), indicating their acceptance and recognition within the academic community. More recent studies were prioritized to ensure the information reflects the current state of research and understanding. The research methodology of each paper was critically evaluated to ensure robust research practices were followed.

### 2.3 Gathering Final Information

To gather the final information needed, key information from each selected study was systematically extracted, including details on study design, sample size, findings, and relevance to the impact of cryptocurrency on cognitive development. Extracted data was analyzed through thematic analysis to identify recurring themes and patterns, helping to understand the broader implications and nuances of the research topic. The findings from multiple studies were synthesized to form a comprehensive understanding, considering both the positive and negative impacts of cryptocurrency on adolescents' cognitive development.

## 3. Results

The following were key themes that emerged after the methodology. These themes encompassed the broad impacts of cryptocurrency on the economy, adolescents' cognitive development, and the differing perceptions between adolescents and professionals, highlighting both positive and negative aspects.

### 3.1 How Cryptocurrency Benefited the Economy and Shaped Adolescents' Future Financial Perception Positively, and Its Impact on Cognitive Development

Cryptocurrency, as a novel economic system, has introduced significant changes to traditional financial models. Jefferson Colombo, a professor of finance at the São Paulo School of Economics, analyzed data from several countries and found that adding cryptocurrencies to traditional multi-asset portfolios (which include stocks, bonds, and cash) could enhance diversification and reduce overall portfolio risk, particularly during times of market stress or economic uncertainty (Colombo, et al., 2021). This shift contributed to the viability of new transactions and brought renewed vitality to the economy.

In China, where digital finance has rapidly evolved, cryptocurrency exposure has had a unique impact on adolescents. Studies have shown that Chinese adolescents, already immersed in a digital-first society, have an increasing interest in cryptocurrency as it represents a modern, tech-savvy economic model. Gao and Clark pointed out that the rise of digital payment systems like Alipay and WeChat Pay may have normalized digital financial transactions for young people, making cryptocurrency particularly appealing (Gao & Clark, 2022). This exposure sparked their interest in innovative economic models, stimulating research and career aspirations in finance and technology. Thus, cryptocurrency not only diversified the economy but also shaped Chinese adolescents' financial perceptions, cultivating a future-focused financial outlook.

However, while maintaining an interest in cryptocurrency could be beneficial, excessive devotion to it has proven detrimental to adolescents' cognitive development. Mehmet Uçar highlighted that cryptocurrencies have become popular among young people and students, but technological developments, including the constant need to monitor cryptocurrency markets, negatively impacted health. This is especially true in China, where screen time and internet addiction among adolescents is a growing concern (Mehmet, 2022). Gao and Clark further argue that Chinese adolescents accustomed to digital transactions might develop compulsive behaviors when engaging with cryptocurrency, leading to sleep deprivation and mental health issues. The high volatility of cryptocurrencies exacerbates these tendencies, requiring constant market monitoring, which can result in cognitive impairments, social isolation, and mental health disorders (American Psychiatric Association, 2023). With the added academic pressures Chinese adolescents face, cryptocurrency becomes an additional distraction, further compromising cognitive development and academic performance.

### 3.2 Different Perceptions Between Adolescents and Professionals, the Deficiencies of Cryptocurrency, and Approaches to Help Adolescents Develop Accurate Perceptions

While cryptocurrency has intrigued both adolescents and professionals, there is a significant difference in how each group perceives and interacts with it. A study by Dr. Omar Alqaryouti indicated that professionals recognize cryptocurrency's potential but maintain cautious usage behaviors, fully understanding its risks (Alqaryouti, et al., 2020). This contrasts sharply with Chinese adolescents, who are more drawn to the speculative aspect of cryptocurrency without fully understanding its complexities. Hu Jie from the Shanghai Advanced Institute of Finance observed that adolescents influenced by social media and peer trends were more prone to speculative behaviors, risking their finances in ways that professionals do not (Hu, et al., 2020). This disconnect between understanding and behavior has made Chinese adolescents more vulnerable to financial loss, underscoring the need for proper financial education to prevent impulsive and uninformed decisions.

In addition to behavioral discrepancies, cryptocurrency's inherent deficiencies also threaten adolescents' financial well-being. Dr. Parashar's research highlighted concerns such as theft and hacking as key disadvantages of cryptocurrencies (Parashar & Rasiwala, 2018). These risks are particularly concerning for Chinese adolescents, who, being less experienced in financial management, are more likely to fall prey to scams. Tyler Moore's research on cryptocurrency scams echoed these concerns, noting that young people, motivated by the promise of quick wealth, are particularly susceptible to online fraud (Vasek & Moore, 2015). In China, adolescents' engagement with cryptocurrency is often through informal channels, making them especially vulnerable to unregulated platforms and scam artists. These negative experiences can erode trust in legitimate financial systems and distort long-term financial perceptions.

To address these issues, feasible approaches are being explored to help Chinese adolescents develop accurate perceptions of cryptocurrency. The Chinese government has implemented stringent regulations, including banning cryptocurrency exchanges and limiting access to certain digital currencies (Nadeem, et al., 2021). The restrictive cryptocurrency policies in China, especially the ban on private cryptocurrencies like Bitcoin, significantly shape adolescents' access and behavior. For instance, under these regulations, minors are deterred from engaging with volatile cryptocurrencies, and their interactions with digital assets are often limited to regulated digital yuan systems (Foreign Policy Research Institute, 2023). While these measures have curtailed formal cryptocurrency usage, informal engagement persists through online platforms and peer groups. A more balanced approach, as suggested by Gao and Clark, involves incorporating cryptocurrency education into formal curricula. Structured financial education focusing on digital assets could equip adolescents with the necessary skills to engage with these technologies responsibly. By addressing both the opportunities and risks associated with cryptocurrency, Chinese adolescents can develop a more nuanced understanding, helping them navigate this evolving financial landscape with greater awareness and caution.

## 4. Discussion

The findings of this study highlight the dual-edged nature of cryptocurrency's impact on the cognitive development of Chinese adolescents. While cryptocurrency offers educational and economic benefits, such as enhanced financial literacy and exposure to new economic models, it also presents cognitive risks. Adolescents, drawn to the allure of quick wealth, may engage excessively with cryptocurrencies, leading to disrupted sleep patterns, social isolation, and impaired decision-making. These behaviors are reminiscent of Internet Gaming Disorder, as described in the DSM-5-TR, which similarly affects brain structure and function.

The disparity in perceptions between professionals and adolescents regarding cryptocurrency further underscores the cognitive challenges faced by the latter group. Professionals, while recognizing the benefits of cryptocurrency, engage with it cautiously, balancing potential gains against inherent risks. In contrast, adolescents' impulsivity and lack of financial literacy make them more susceptible to financial losses and scams, exacerbated by the sophisticated nature of modern cryptocurrency frauds. This susceptibility is amplified by the restrictive Chinese government policies that limit adolescents' exposure to and understanding of cryptocurrencies, potentially stunting their preparedness for future financial environments.

Moreover, the study draws attention to the pressing need for proper education and guidance to help adolescents navigate the complexities of cryptocurrency. Formal education can equip them with the necessary skills to make informed financial decisions, reducing the risk of impulsive behavior and financial mismanagement. However, the existing government restrictions pose a significant barrier, necessitating innovative educational approaches that can circumvent these limitations while still providing comprehensive financial literacy.

## 5. Conclusion

This study examined the cognitive impacts of cryptocurrency on Chinese adolescents, revealing both benefits and significant risks. While cryptocurrency offers educational and economic advantages, such as exposure to digital finance and new economic models, it also poses cognitive risks like impaired decision-making, disrupted sleep, and social isolation, similar to behaviors seen in Internet Gaming Disorder. A key finding is the divide between professionals' cautious approach and adolescents' impulsive, risk-prone behavior, worsened by their lack of financial literacy. Chinese government restrictions, while protective, may limit adolescents' financial preparedness. The broader significance of this research lies in advocating for balanced financial education that addresses both the opportunities and risks of digital finance. This can help adolescents engage with cryptocurrency responsibly, preparing them for an increasingly digital economy.

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