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Educational and strategic perspectives on Pi network's tokenomics and long-term value

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ABSTRACT

This study provides a critical analysis of the Pi Network's strategic design and tokenomics, examining its potential to develop as a utility-driven cryptocurrency. Using a qualitative-descriptive approach, the paper explores key features including mobile-first mining, phased decentralization, and delayed exchange listing. The results demonstrate that these strategic elements serve as practical learning models for digital literacy, resource management, and organizational strategy in educational settings. Findings indicate that Pi's focus on accessibility and community engagement provides management insights into sustainable growth and inclusive technology adoption. While challenges such as limited financial literacy remain, the platform offers a unique framework for bridging theoretical economic principles with hands-on digital learning.

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Cryptocurrency adoption, mobile-first mining, phased decentralization, digital currency utility, educational management.

INTRODUCTION

The rise of decentralized blockchain technology has created new avenues for educational innovation, particularly in developing digital literacy and strategic thinking. Pi Network stands out by lowering technical barriers to entry through mobile-based participation. From an educational management perspective, Pi's design offers a unique case study in resource management and organizational behavior. This study aims to examine how Pi Network's strategic framework can support digital literacy and experiential learning, positioning the platform as a practical learning tool rather than merely a speculative instrument (Nakamoto, 2008; Narayanan et al., 2016).

Beyond their economic significance, cryptocurrencies have also created new avenues for educational innovation, particularly in developing students' digital literacy, financial knowledge, and strategic thinking. As digital assets increasingly shape global commerce and the future of money, there is a growing need for schools and educational programs to equip learners with the skills and understanding necessary to navigate decentralized systems, manage digital resources, and make informed decisions in the emerging digital economy.

Among the many projects in the cryptocurrency space, Pi Network stands out due to its focus on accessibility, inclusivity, and mass participation. Unlike earlier cryptocurrencies such as Bitcoin, which required specialized and energy-intensive hardware for mining, Pi Network leverages mobile devices, allowing broader participation from a diverse range of users, including students (Pi Network Whitepaper, 2019). By lowering the technical and financial barriers to entry, Pi Network presents a unique opportunity for educational institutions to integrate hands-on cryptocurrency learning experiences into their curricula.

Launched by a team of Stanford researchers, Pi Network has rapidly gained traction worldwide, amassing millions of users through its mobile-first approach and community-driven growth strategies. Rather than immediately entering speculative trading markets, Pi Network employs a phased approach**:** maintaining controlled centralization in early stages, gradually reducing mining rewards, and delaying public exchange listings. These strategies are designed to ensure system security, promote long-term engagement, and foster sustainable network growth (Tapscott & Tapscott, 2017; Pi Network Blog, 2023).

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From an educational management perspective, Pi Network's design features offer multiple learning opportunities. Students can analyze its controlled economic mechanisms, tokenomics, and governance model as a case study in resource management, strategic planning, and organizational behavior. Teachers and program coordinators can also explore how to incorporate digital currency projects into classroom or extracurricular activities, assessing the benefits and challenges of adopting emerging technologies in educational settings. This approach not only encourages practical financial literacy but also promotes critical thinking, problem-solving, and decision-making skills.

Furthermore, Pi Network's mobile-based ecosystem and community-oriented growth model provide a framework for schools to experiment with project-based learning and student-led initiatives**.** By observing user engagement, adoption patterns, and long-term sustainability strategies, learners can gain insights into economic principles, behavioral incentives, and digital governance. Comparing Pi Network with more established cryptocurrencies such as Bitcoin also allows students to understand differences in scalability, accessibility, and strategic design, providing a richer context for analyzing the broader digital economy (Baur et al., 2018).

In summary, this study seeks to examine the educational and managerial implications of integrating Pi Network into student programs**,** emphasizing how its strategic framework can support digital literacy, engagement, and experiential learning. By situating Pi Network within the context of educational management, the research highlights its potential as a practical learning tool**,** rather than merely a speculative financial instrument, offering meaningful insights for both students and educators.

Objectives

This study analyzed the Pi Network's strategic framework and long-term value potential in relation to educational and management contexts. Specifically, it aimed to:

1. Examine how Pi Network's key design elements, mobile-first mining, phased decentralization, and delayed exchange listing, demonstrated strategic planning relevant to digital literacy, innovation, and organizational strategy.
2. Compare Pi Network and Bitcoin to identify management insights on user adoption, ecosystem development, and governance, and to explore how these concepts could serve as learning models in education and technology management.

METHODOLOGY

This study adopted a qualitative, descriptive, and interpretive approach, drawing on the researcher's critical observations, conceptual analysis, and informed reasoning. Instead of collecting primary data through surveys or interviews, the research relied on document analysis and trend interpretation, particularly regarding Pi Network's strategic design and its potential application as an educational tool for student engagement and learning (Creswell, 2014; Patton, 2015). A descriptive-analytical framework guided the study, enabling a structured synthesis of existing knowledge and publicly available data. This method was selected because it allows for meaningful insights into cryptocurrency ecosystems while highlighting their potential for educational integration and strategic learning exercises (Yin, 2018; Maxwell, 2013). The study aimed to provide an informed perspective rather than empirical or experimental conclusions.

Secondary data served as the foundation for analysis. Sources included official Pi Network whitepapers and blog posts, app-based features and user interface behavior, public updates from the Pi Core Team, and community engagement patterns. Additionally, historical developments of leading cryptocurrencies—primarily Bitcoin and Ethereum—were reviewed to provide context, identify comparative trends, and highlight learning opportunities for students in areas such as digital economy, strategic management, and system design (Nakamoto, 2008; Triple-A, 2024). Because no human participants were involved, the study relied exclusively on publicly available materials, guided by accepted qualitative research practices emphasizing document analysis, logical synthesis, and educational interpretation (Thomas & Harden, 2008).

The analysis was structured into four layers. First, the study examined Pi Network's strategic design elements—mobile-first mining, early-stage centralization, phased mining rewards, and delayed listing—to understand how these features could serve as practical examples in educational programs, fostering student understanding of strategic planning, resource allocation, and system management. Second, the paper explored Pi Network's tokenomics, including gradual reward reductions and potential coin-burning strategies, interpreting these mechanisms in terms of supply, scarcity, and perceived value.

In an educational context, these features provide students with real-world examples of economic decision-making and incentive design (Triple-A, 2024). Third, to situate Pi Network within the broader cryptocurrency landscape, the study compared it with established platforms such as Bitcoin, focusing on usability, accessibility, scalability, and management strategies. This comparison highlighted potential learning points for students regarding organizational management, ecosystem governance, and technology adoption. Finally, the study synthesized these observations to propose insights into how Pi Network could be applied in student learning environments. The analysis emphasizes educational and managerial lessons rather than speculative financial predictions, reflecting the perspective of an academic and educational practitioner rather than a financial analyst.

This research does not attempt to predict token prices or provide investment guidance. Instead, it offers a structured, educationally focused perspective on Pi Network's design and strategic implications. Ethical considerations were observed by relying solely on publicly available information, clearly defining the scope of the study, and avoiding conclusions beyond the data's limitations (American Psychological Association, 2017). All interpretations were grounded in observable patterns, officially released documentation, and the potential application of Pi Network as a learning and management tool for students.

Analytical framework

This study is guided by an integrative conceptual framework that examines the Pi Network's design and long-term potential through multiple theoretical lenses, particularly in the areas of innovation adoption, digital economics, cryptocurrency tokenomics, and educational management**.** The framework is designed to not only analyze Pi Network's strategic and economic mechanisms but also to explore its potential as a learning tool for students**,** providing practical lessons in strategic thinking, digital literacy, and resource management.

At the center of this framework is Rogers' Diffusion of Innovations Theory (2003)**,** which explains how new ideas and technologies gain acceptance within a social system over time. Pi Network's mobile-first mining model reflects this theory by lowering common barriers to entry—such as the need for specialized hardware or advanced technical knowledge—and making participation more accessible to a broad audience, including students. Its simple and intuitive design encourages trial use, particularly among early adopters and the early majority, providing a practical example for educators to demonstrate principles of innovation adoption and gradual engagement within a learning environment.

Complementing this, Davis' Technology Acceptance Model (TAM) (1989) provides insights into user engagement. TAM suggests that individuals are more likely to adopt a technology when they perceive it as easy to use and beneficial. In Pi Network, the app's non-technical setup, daily mining routines, and user-friendly interface foster continued participation. From an educational perspective, these features offer a concrete example of how technology design can influence user motivation, engagement, and sustained interaction, which can be explored in classroom discussions or project-based learning exercises.

The framework also draws on Network Effects Theory (Katz & Shapiro, 1985), which posits that the value of a digital network increases as more participants join and contribute to its ecosystem. By intentionally delaying public exchange listings and prioritizing the growth of a large, engaged user base, Pi Network emphasizes long-term utility over short-term speculation**.** This strategy provides an instructive case for students on how network growth, critical mass, and community participation influence the success of digital platforms, offering lessons in ecosystem management, strategic planning, and organizational dynamics**.**

From an economic standpoint, the study incorporates the Scarcity Principle**,** a foundational concept in both classical economics and cryptocurrency tokenomics. Pi Network's decreasing mining rate and proposed token-burning mechanisms are designed to gradually limit supply, similar to the deflationary model used by Bitcoin (Nakamoto, 2008). This approach can be used in educational settings to demonstrate economic principles, resource management, and incentive design**,** helping students understand how scarcity drives perceived value and long-term sustainability.

Together, these theories create a multi-dimensional lens through which Pi Network's unique strategy can be examined. Unlike many cryptocurrencies that rushed to public markets, Pi Network adopts a measured, long-term approach emphasizing accessibility, usability, and sustainable ecosystem growth**.** The integration of innovation theory, technology acceptance, network dynamics, and controlled economics not only explains the platform's strategic design but also highlights its educational potential as a tool for teaching digital economy concepts, strategic thinking, and system management**.**

RESULTS AND DISCUSSION

Features of Pi network and Bitcoin with Educational and Management insights

The strategic foundations of Pi Network reflect a distinctive development model that prioritizes accessibility and long-term utility over immediate liquidity and speculative market exposure. Unlike conventional cryptocurrencies that emphasize early exchange listing, Pi Network adopts a phased implementation strategy that deliberately sequences system development, governance, and ecosystem readiness. This approach provides a concrete case study in organizational governance and risk management, particularly relevant to educational and management contexts where controlled growth and sustainability are emphasized (Jiang et al., 2022; MDPI, 2023).

As summarized in Table 1, Pi Network diverges from Bitcoin across four major strategic dimensions: mining methodology, exchange listing strategy, governance structure, and revenue generation. In terms of mining, Pi Network employs a mobile phone–based mining model, while Bitcoin relies on high-power proof-of-work (PoW) mining that requires specialized hardware and high energy consumption. This mobile-first design significantly lowers barriers to participation, promoting inclusivity and enabling mass adoption, especially in developing regions. From an educational standpoint, this feature supports hands-on digital engagement and experiential learning, allowing students and non-expert users to participate directly in blockchain ecosystems without advanced technical requirements (An, 2021; ClickLearn, 2023).

Table 1. Comparative strategic features of Pi network and bitcoin with educational and management insights

Feature	Pi Network	Bitcoin	Management/Educational Insight
Mining	Mobile phone mining	High-power PoW mining	Inclusivity: Promotes mass adoption and hands-on digital engagement.
Listing	Delayed for ecosystem building	Early listing; speculation-driven	Strategy: Prioritizing utility supports sustainable growth.
Control	Phased centralization	Fully decentralized	Governance: Controlled early growth manages systemic risk.
Revenue	Ad-based income	No built-in stream	Sustainability: Alternative models for financial planning.

Another defining feature of Pi Network's strategy is its delayed exchange listing, which contrasts with Bitcoin's early exposure to open-market trading and speculation. Rather than prioritizing immediate liquidity, Pi Network focuses on ecosystem building and real-world utility before allowing public trading. This strategy reduces premature volatility and price manipulation while encouraging intrinsic value creation through platform-based applications. Such an approach illustrates long-term strategic planning and sustainable growth principles, reinforcing the importance of utility-driven development over short-term speculative gains (Guo et al., 2025; FasterCapital, 2025).

Governance further distinguishes Pi Network from Bitcoin. While Bitcoin operates under full decentralization from inception, Pi Network adopts phased centralization during its early development stages. Although centralization is often viewed critically within blockchain discourse, in this context it serves a strategic function by enabling the Core Team to manage growth, maintain system integrity, and implement security mechanisms such as Know-Your-Customer (KYC) processes in a controlled manner. This governance model demonstrates how controlled early oversight can mitigate systemic risk and support infrastructure stability, offering valuable lessons in governance design and project management (An, 2021; Jiang et al., 2022).

Revenue generation is another area where Pi Network departs from traditional cryptocurrency models. Unlike Bitcoin, which has no built-in revenue stream beyond mining incentives, Pi Network integrates advertisement-based income within its mobile mining interface. This pre-launch monetization strategy supports operational sustainability while the token remains unlisted, helping fund development and ecosystem maintenance. From a management perspective, this approach provides an example of alternative financial planning and resource management strategies for sustaining digital platforms without relying solely on speculative capital inflows (Analytics Insight, 2025; Publift, 2025).

Beyond its structural and strategic foundations, Pi Network's ecosystem also presents significant educational implications. The development of the Pi Browser and marketplace applications reflects a deliberate effort to create tangible utility for the token and encourage real-world use cases prior to market exposure. However, existing analyses note a substantial crypto literacy gap among many Pi users, the majority of whom are non-experts. This gap underscores the importance of integrating educational interventions alongside technological accessibility to ensure informed participation in the digital economy (ClickLearn, 2023; MDPI, 2023).

In this context, Pi Network offers several instructional opportunities. Its low-barrier entry model can be leveraged to enhance digital literacy, enabling students to develop foundational understanding of blockchain systems through guided participation. Additionally, Pi Network's pre-launch monetization strategy serves as a lesson in resource management, illustrating how platforms can sustain operations while preserving long-term value.

Finally, the planned transition from a controlled "walled garden" environment to full decentralization provides a practical framework for analyzing technology lifecycle and project management, including phased deployment, governance evolution, and scalability (Jiang et al., 2022; Guo et al., 2025).

Overall, the strategic pillars outlined in Table 1, mobile accessibility, phased centralization, delayed exchange listing, and alternative revenue generation—underscore Pi Network's long-term vision of sustainable adoption rather than rapid speculation. From both educational and management perspectives, Pi Network serves as a robust case for examining strategic decision-making, governance structures, ecosystem development, and economic planning, effectively bridging theoretical concepts with real-world digital innovation (An, 2021; MDPI, 2023).

Projecting Pi Network's future: educational and management implications

The findings of this study indicate that Pi Network is intentionally developing as a utility-centered cryptocurrency, taking a markedly different approach from Bitcoin. Observations of community behavior and ecosystem trends suggest that Pi's development is carefully paced, prioritizing user growth, engagement, and network strength over immediate liquidity. Unlike Bitcoin, which launched with an open-source protocol and immediate market tradability, Pi Network has concentrated first on community building by delaying exchange listing, thereby minimizing volatility and promoting practical, real-world use cases (Brini & Lenz, 2024; Caporale & Zekokh, 2018) (table 2).

Pi Network also incorporates pre-launch monetization through in-app advertisements, offering a revenue stream before its token is publicly tradable. This contrasts with Bitcoin, which relies solely on network effects and demand for value accumulation. Pre-launch monetization provides financial flexibility for sustaining operations while maintaining token scarcity, serving as a real-world case study for resource management, financial planning, and sustainable revenue models in digital projects (Blocktunix, 2023; Analytics Insight, 2024).

Table 2. Educational and Management Perspectives

Strategic Pillar	Focus of Pi network	Core Insight for Education & Management
Adoption	Mass mobile access	Inclusion: Teaches strategies for reaching a broad, non-technical audience.
Utility	In-app marketplace & apps	Innovation: A model for building practical product value before market launch.
Monetization	In-app ad revenue	Sustainability: Demonstrates alternative financial planning for digital projects.
Engagement	Daily gamified participation	Governance: Insights into user retention and participatory community management.
Literacy	Non-expert user base	Skill Gap: Highlights the critical need for digital literacy training in new tech.
Future Value	Utility-driven growth	Strategic Planning: Shows how long-term design, not hype, drives ecosystem value.

A key strategic feature of Pi Network is its mobile-first accessibility, which allows users to mine directly via smartphones. This approach removes traditional barriers to cryptocurrency participation, such as high electricity costs, expensive mining rigs, and technical expertise. The mobile mining model aligns with global smartphone adoption trends, making engagement feasible even for non-technical users. From an educational and management perspective, this presents a practical example of inclusive technology adoption, illustrating how platforms can reach a broad audience and foster engagement with minimal technical barriers (El Hajj & Farran, 2024; England, 2023).

The network's ecosystem development, including Pi Apps, Pi Browser, and marketplace functionalities—demonstrates a deliberate strategy to create real-world utility for the token. However, many users, particularly those drawn to the mining feature, lack sufficient cryptocurrency literacy. This knowledge gap highlights the importance of educational support and digital literacy programs, ensuring that participants can fully utilize the ecosystem's potential (Kumari et al., 2023; Singh & Singh, 2024). For educational management, Pi Network serves as an illustrative case for integrating digital currency projects into curricula or student-led initiatives, emphasizing user training, engagement strategies, and practical application.

Comparative analysis with Bitcoin reveals that Pi Network's community-first and utility-driven model differs from Bitcoin's scarcity-driven, store-of-value orientation. Pi's focus on mobile accessibility, gamified participation, and intuitive applications exemplifies principles of strategic planning, adoption management, and participatory governance. If Pi successfully sustains adoption, develops intuitive use cases, and closes the crypto literacy gap, it may achieve long-term utility and broad adoption, offering students and managers a dynamic example of how deliberate ecosystem design can drive value over time.

In conclusion, Pi Network presents a cautiously optimistic outlook. Its long-term success depends on maintaining user engagement, providing accessible and practical applications, and fostering digital literacy among participants. From an educational and management perspective, the platform provides rich learning opportunities in technology adoption, strategic ecosystem development, financial sustainability, and participatory management, bridging theoretical concepts with hands-on, real-world applications for students and educators alike.

CONCLUSION AND RECOMMENDATIONS

Pi Network differentiates itself through mobile-first mining and a strategic, cautious approach to market exposure. While limited digital literacy remains a barrier, the platform provides rich learning opportunities in strategic ecosystem development and participatory management. It is recommended that the Pi Network should Enhance User Education, the Core teams and educational institutions should collaborate to improve digital literacy and informed participation. Leverage as Learning Tools, the Educators should integrate digital currency projects into curricula to illustrate concepts of innovation adoption and strategic planning. Finally, Utility Acceleration, the continued development of practical Pi-based applications is essential to ensure long-term value beyond speculation.

DECLARATIONS

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Data availability

The datasets used and/or analysed during the current study available from the corresponding author on reasonable request.

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Competing interests

The authors declare no competing interests in this research and publication.

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