# How Games Empower Public Welfare—A Post-print Study Based on User Engagement with "Ant Forest"

**Authors:** Wang Yujie, Lu Songjian, Li Qichen

**Date:** 2025-07-09T15:43:15+00:00

## Abstract

【Purpose】 The concept of gamification design has served as a catalyst in public welfare projects; however, how to integrate gamification design into daily behaviors to facilitate users' unconscious participation in philanthropic actions and the underlying sustainability mechanisms remain to be thoroughly investigated.

【Method】This paper conducted semi-structured interviews with 10 veteran users of "Ant Forest" and performed a comparative analysis of their usage process experiences.

【Results】 The study reveals that by embedding gamification elements within both public welfare virtual scenarios and user behavioral scenarios, "Ant Forest" effectively supports the proactivity, collaboration, and diversification of users' philanthropic behaviors, thereby enabling the transformation of philanthropic actions themselves into sustainable activities that evolve from "utility games" to "social games" and further to "interconnected games."

【Conclusion】 The empowerment of "gamification" has forged a novel philanthropic culture, paving a viable path toward realizing the vision of "universal public welfare" where everyone can participate.

## Full Text

### How Games Empower Public Welfare: A Study Based on Ant Forest User Practices

**Wang Yujie[1], Lu Songjian[1], Li Qichen[2]**
(1. Baoding University, Baoding, Hebei 071000; 2. Hebei Normal University, Shijiazhuang, Hebei 050010)

## Abstract

[**Purpose**] Gamification design has served as a catalyst in public welfare projects; however, how to integrate gamification into daily behaviors to promote users' unconscious participation in public welfare actions and its sustainability mechanisms remains to be thoroughly explored. [**Method**] This study conducted semi-structured interviews with ten veteran Ant Forest users and performed comparative analysis of their usage experiences. [**Results**] The research reveals that Ant Forest, by incorporating gamification elements into both virtual public welfare scenarios and user behavioral contexts, effectively supports the proactivity, collaboration, and diversification of users' public welfare behaviors, thereby facilitating a continuous transformation of public welfare actions from "practical games" to "social games" and further to "linked games." [**Conclusion**] This gamification empowerment has shaped a new public welfare culture, opening a viable path toward the vision of "universal public welfare" where everyone can participate.

**Keywords:** gamification; internet-based public welfare; user practices; Ant Forest; technological empowerment
**CLC Number:** G230 **Document Code:** A **Article ID:** 1671-0134(2025)04-64-05
**DOI:** 10.19483/j.cnki.11-4653/n.2025.04.012

**Citation Format:** Wang Yujie, Lu Songjian, Li Qichen. How Games Empower Public Welfare: A Study Based on Ant Forest User Practices[J]. China Media Technology, 2025, 32(4): 64-68.

Public welfare activities aim to improve social issues and enhance social well-being, representing a crucial marker of social and civilizational progress. Prior to the emergence of internet-based public welfare, such activities primarily relied on offline charitable fundraising and volunteer services, which typically required substantial organizational costs and strong community foundations, emphasizing mutual aid and symbiotic relationships between people with rather pronounced administrative characteristics [1]. However, as "Internet + Public Welfare" gradually became a new form of public welfare activity, public participation shifted from traditional material donations toward immersive public welfare experiences, with increasing entertainment and appeal. The global popularity of the "Ice Bucket Challenge" in 2014 marked the beginning of gamification's intervention in internet-based public welfare. In fact, the intrinsic mechanisms of public welfare communication and games are naturally compatible. People's desire to participate in games, coupled with the evolution of compensatory media technology, has made the gamified development of public welfare communication possible [2]. Through gamification, public welfare activities successfully simplify complex information into intuitive and engaging content, allowing the public to develop deeper concern for public welfare issues while enjoying the fun of games.

In recent years, research on gamification design in internet-based public welfare

has developed rapidly. A literature review reveals that current domestic studies primarily focus on three core dimensions: mobilization mechanisms, interaction rituals, and participation motivations. Overall, scholars generally agree that gamification design plays a catalytic role in micro-public welfare projects, significantly enhancing user participation while optimizing the efficiency and effectiveness of public welfare actions. However, certain research gaps remain, such as best practices in gamification design and the sustainability of long-term participation. Based on this, this study focuses on how Ant Forest, as a phenomenal success case, skillfully integrates gamification design into daily behaviors to promote users' unconscious participation in environmental actions and its sustainability mechanisms.

## 1. Ant Forest: An Exemplary Practice of Gamified Public Welfare Culture

Ant Forest is a low-carbon environmental advocacy project provided by Alipay for its users, which won the United Nations' highest environmental honor, the "Champions of the Earth" award, in 2019. By combining mobile payment with environmental concepts through mobile gaming, it became a phenomenal gamified public welfare product upon its launch in 2016. Users can obtain quantified "green energy" by completing a series of game tasks such as green transportation, bill payments, and green recycling, which is then deposited into their personal "carbon account." When the accumulated energy reaches the amount required for a tree sapling or protected area, Alipay and its public welfare partners plant a real tree in desertified regions (such as Alxa, Ordos, etc.) on behalf of the user and grant them a tree-planting certificate with a unique serial number. As of August 2024, Ant Forest has attracted over 700 million participants, planted a cumulative total of 548 million trees, co-built 34 public welfare protection areas, and successively supported ecological construction in 24 provinces including Inner Mongolia and Gansu [3].

In the digital era, digital media characterized by visualization, interactivity, and sociality provides new possibilities for advancing ecological and environmental construction [4]. As a representative of gamified internet public welfare, Ant Forest has fundamentally transformed the traditional model of public welfare culture. It advocates a new lifestyle philosophy, encouraging people to actively participate in environmental and other public welfare causes while enjoying the convenience and fun brought by technology. Through individual participation and interactive experiences, it has shaped a more relaxed and interesting public welfare culture. More importantly, it has changed the traditional perception of public welfare as a one-time or short-term activity, gradually evolving it into a more systematic and continuous activity focused on small actions in daily life. The sustainability mechanism of internet public welfare actions is a multi-dimensional, cross-disciplinary complex system, where users' motivations, attitudes, and perspectives toward participating in public welfare projects constitute key components of the sustainability mechanism. Ant Forest's innovative

model of integrating games into public welfare holds typical significance in mobilizing user participation and designing sustainability mechanisms.

## 2. Research Methods

This study selected ten respondents of different genders, ages, regions, and occupations for interviews conducted via telephone or face-to-face, with each interview lasting no less than 40 minutes. Interview questions included but were not limited to: (1) basic usage patterns such as duration, frequency, and how they learned about the platform; (2) usage motivations and influencing factors; and (3) usage evaluations and improvement suggestions. All questions were open-ended, encouraging respondents to express themselves freely. All interviews were conducted with respondents' consent, and to prevent privacy leakage, letters A, B, C, D, etc. were used as name codes. During the interviews, researchers actively guided respondents to share their genuine feelings and opinions, recording the conversations for subsequent review and analysis.

Basic Information of Respondents

## 3. From Passive to Active: Individual Participation in "Practical Games"

Traditional public welfare participation primarily focused on "one-way donations," presenting a top-down procedural public welfare communication process. Due to the lack of long-term mechanisms and strategic planning, the end of donations meant the end of a public welfare activity, preventing maximization of public welfare concept transmission and habit formation [5]. In contrast, Ant Forest achieves two-way information flow and interactive communication through network platforms and social media, enhancing users' awareness of individual rights. By combining virtual public welfare scenarios with user behavioral contexts and focusing on user experience, it promotes active user engagement, enabling users to autonomously participate in public welfare activities in their daily lives.

### 3.1 Value Identification Fostered by Reward Mechanisms

Self-Determination Theory (SDT) emphasizes the importance of satisfying basic psychological needs—autonomy, competence, and relatedness—for stimulating intrinsic motivation and enhancing user participation [6]. This means that game rewards are not merely external incentives but also ways to satisfy users' intrinsic needs. When players complete specific game tasks or behaviors, they receive meaningful rewards such as medals, points, coupons, or even cash incentives. Public welfare is the core of Ant Forest, and the reward mechanism realized through gamification further promotes its own user attention, active participation, and even spontaneous diffusion. From green energy to a real tree, the impact of users' every low-carbon behavior is no longer an ethereal number

but transforms into a tangible object, providing users with very clear reward perception that satisfies their need for self-value identification.

Ant Forest clearly defines what behaviors yield how much game energy, allowing users to clearly perceive the different impacts of different behaviors on environmental protection. "My favorite tree to plant is the 'Haloxylon ammodendron,' and someday I hope to visit where my tree was planted" (I, female, 35). Meanwhile, after users complete a behavior, the energy in Ant Forest cannot be harvested immediately—it generally requires 24 hours before collection, which promotes users' public welfare browsing behavior. "I basically use it once a day because the walking energy I generate from commuting to work on foot needs to be collected the next day" (D, male, 24). "My energy matures around 7 AM every morning, and I'll collect it as soon as possible" (J, male, 22). Ant Forest is a "wake-up game" in human history that has defeated alarm clocks. With clear time guidance, it constructs "visible" immediate rewards, imperceptibly changing people's lifestyles. Under clear data support, users will advance along established goals, with planting a real tree as the ultimate symbol of game victory.

In addition to obtaining energy rewards through daily low-carbon behaviors, users can also acquire energy or energy props through additional reward tasks. The content and forms of these tasks vary. For instance, "Energy Rain" requires users to click rapidly falling energy balls to obtain green energy, offering obvious gaming experience that is time-efficient and effective. "I use Ant Forest every day, sometimes many times a day, because I can play that Energy Rain daily. I think playing this accumulates energy faster than online payments" (A, male, 23). Although these task contents differ, their ultimate goal is to enhance user stickiness. Beyond designing reward mechanisms centered on energy, Ant Forest also provides users with different types of achievement rewards, such as environmental protection certificates, tree-planting certificates, and activity certificates, displayed as badges in the "My Achievements" interface. These badges symbolize users' achievements in energy conservation and emission reduction, visually demonstrating their goal attainment, thereby greatly enhancing users' sense of pride and accomplishment.

Thus, Ant Forest skillfully integrates entertainment with educational significance. Its uniqueness lies not only in providing engaging and interesting experiences but also in creating profound social value and environmental benefits. While enjoying the game process and witnessing the growth of virtual trees and steady increase in energy values, participants genuinely experience the positive impact of their individual actions on environmental protection, making it possible to transform green dreams in the virtual world into tangible green actions in the real world.

### 3.2 The Win-Win Logic Behind Self-Interest Motivations

Among the many factors driving public participation in public welfare, self-interest and altruistic motivations play crucial roles [7]. Self-interest motivation refers to individuals' primary drive to maximize their own benefits, a concept widely discussed in economics and psychology research. This also means that individuals participating in public welfare activities are not entirely selfless but seek certain returns, essentially viewing it as a transactional behavior [8]. "I started using Ant Forest to obtain Fortune Collection cards for the 'Five Blessings' activity" (G, female, 28). "I work away from home, and by interacting with my father on Ant Forest, I can better maintain our family bond" (H, female, 25). "Everyone is using it and talking about it, so out of social needs, I unconsciously use it too" (H, female, 25). Meanwhile, as a nurturing game, users witness the growth from small to large trees, from virtual to real trees, accompanying a tree's entire growth process. Over time, players develop emotional attachment during the game. "For my little tree to grow, I go to Ant Forest to collect energy every day, and I also buy some decorations for my tree" (J, male, 22).

Freud believed that humans' choice of entertainment is instinctive behavior, not a choice made after careful deliberation [9]. Personal self-interest motivation is not always negative; it can be reasonable and legitimate, especially when combined with social development and personal growth [10]. Contemporary youth face significant pressures from career, education, and economy in fast-paced lives. In comparison, Ant Forest's relatively simple and easy-to-operate game design can fill users' fragmented time while also providing emotional release and stress relief from work and life pressures, greatly enriching users' life experiences and satisfying their need for environmental control. When personal interests and public welfare goals complement each other, users can not only satisfy their psychological, social, and entertainment needs but also participate in actual public welfare activities. The entertainment appeal further highlights the gamification characteristics of internet public welfare and becomes the starting point for most people's spontaneous participation.

### 3.3 Low-Threshold Value Self-Actualization

Public welfare participation in real life often faces time and energy costs, and may also involve concerns about the transparency and credibility of public welfare organizations. Many potential donors or volunteers weigh personal time management and resource allocation before participation, considering whether they can afford the additional burden of public welfare activities. In contrast, Ant Forest appears more accessible, popular, and transparent, without restrictions on identity, status, or region. Relying on the widely used Alipay mobile payment platform, users need not download or register for additional applications. This seamlessly integrated participation method greatly lowers the entry barrier for users.

Ant Forest encourages users to accumulate green energy through daily low-carbon behaviors (such as walking, cycling, online payments). These behaviors are typically part of users' daily routines, requiring no high time or energy costs—users only need to spend fragmented time clicking to collect generated energy without any additional monetary cost. "I first learned about Ant Forest from a video by other users I stumbled upon on Douyin. It seemed interesting that I could plant a real tree just by casually clicking on my phone" (C, female, 54). "I hope to contribute my small part to our country's environmental protection through some low-cost behaviors in daily life" (F, female, 21). An ordinary walk or regular shopping consumption can become a way to participate in public welfare activities. Through gamification design, Ant Forest enables users to participate in public welfare through simple game tasks, unifying the "front-stage" real scenes with "virtual donations" after gameplay.

## 4. From Isolated to Collaborative: Group Participation in "Social Games"

Traditional public welfare activities typically have relatively monotonous organizational methods and participation models, often emphasizing activity execution and outcomes. Under this model, individual public welfare behaviors are more viewed as private matters rather than part of collective or community activities. Ant Forest, however, places greater emphasis on interaction and communication among participants, achieving decentralization, collectivization, and communityization of public welfare activities.

### 4.1 Interactive Communication Bonds User Relationships

Interaction is the source of social dynamics, and each individual's self-identity is formed through continuous social interaction [11]. Gamification design brings good emotional exchange and social interaction to the public, gradually transforming them into clusters with internal identity, consistent goals, and high cohesion [12]. Friends in Ant Forest mostly come from Alipay contacts, forming a "strong-tie" network through acquaintance socializing that possesses certain stability. These acquaintances as extended roles in the game can also drive more people to join the public welfare game [13].

Through gamification packaging, friends have more frequent and close communication and interaction through "stealing energy" and "helping each other," making social relationships closer. "I find the mutual energy-stealing and watering functions very interesting, which keeps me playing every day" (D, male, 24). "My father often waters my tree and steals my energy, which I feel is a special way of connecting with him" (H, female, 25). "This interaction method, I think, can enhance my social experience" (E, male, 24). Simple interactions actually increase users' perception of support from society and other users. Compared with traditional individual-level environmental behaviors, users' contributions can be known by others under this method, and they can also feel others' atten-

tion and support toward themselves.

When a friend's energy balls expire without timely collection, other friends have the opportunity to help "revive" this portion of energy. The positive feedback given when the helped friend receives the reminder also prompts more frequent interaction between both parties, thereby deepening their social connection. Meanwhile, functions such as liking and leaving messages for friends provided by Ant Forest also expand users' social networks to some extent. Leaderboards, as the most typical manifestation of social competition, can stimulate users' enthusiasm and initiative. In Ant Forest's leaderboard, users can see the energy values and rankings among themselves and their friends. This ranking mechanism triggers users' competitive psychology, transforming them from "I have completed my task" to "I need to do more behaviors to win." Users at the top enjoy the honor of high rankings and need to continuously perform low-carbon behaviors to obtain energy to maintain their position; lower-ranked users are motivated to stay in the game to improve their ranking, which can greatly promote user engagement. "I still care about this ranking. I'm currently number one on the leaderboard, so I want to stay number one, which is why I basically enter Ant Forest to collect energy every day" (D, male, 24). "My ranking on the leaderboard is very low, and I feel bad every time I see my ranking" (C, female, 54). "I set an alarm to get up and collect energy on time, trying to improve my ranking" (J, male, 22). Meanwhile, as a reflection of common goals among friends, leaderboards enhance mutual identity and cohesion.

In summary, Ant Forest satisfies users' diverse social needs through a series of social interactions, providing a platform that relies on "network behaviors" rather than "verbal communication." During interaction, the weak-tie network among users can be effectively promoted and bonded, even transforming imperceptibly into strong-tie networks, thereby further expanding social circles and influence.

### 4.2 Group Power Promotes Synergistic Effects

First, teamwork can effectively compensate for individual limitations, pooling collective wisdom and strength to achieve accomplishments beyond individual capabilities. Without disrupting the game's core gameplay and data system, Ant Forest's "Co-Planting" function serves as an important way to reduce game difficulty while maintaining Alipay friend relationships. Based on different co-planting themes, it can be divided into Happiness Tree, Family Tree, Love Tree, Classmates Forest, Colleagues Forest, Friends Tree, and Pioneer Forest. Users can invite family or friends to jointly complete tree planting, which not only improves planting efficiency and enables users to achieve tree-planting goals faster but also strengthens connections and communication among users, making public welfare communication more warm and appealing.

Second, celebrities joining public welfare games also greatly influences more people to participate in social public welfare activities. As public figures, celebrities

have broad social influence and fan bases, and discussions they initiate often quickly attract attention and trigger heated debates. Ant Forest invites celebrities from different fields to join the "Celebrity Public Welfare Forest," leveraging star power to not only enhance the exposure and attention of public welfare activities and gather social forces from all sectors to participate as "tree-planting partners" but also maximize the dissemination effect of public welfare activities. Users water their idols' public welfare forests to achieve co-planting with their idols. This cooperative tree-planting activity between celebrities and fans not only strengthens the connection between idols and fans but also enhances public environmental awareness.

Both "Co-Planting" and "Celebrity Public Welfare Forest" initiatives provide participants with opportunities for exchange and cooperation. By pooling the impact of individual behaviors, participants can not only deeply appreciate the positive contributions of their actions to environmental causes but also feel the positive influence they have on other members within the collective.

## 5. From Single to Diverse: Officially Created "Linked Games"

Ant Forest's cross-sector public welfare cooperation based on internet platforms involves not only multiple stakeholders such as government, market, and third sectors but also reduces cross-sector cooperation costs and promotes effective resource docking through internet platforms [14]. This "linked game" model not only enhances the comprehensive effectiveness of public welfare actions but also promotes deep integration among all sectors of society and the formation of a public welfare communication community [15]. Public welfare activities are no longer confined to a single organization or institution but are moving toward a new pattern of scaled development.

On the one hand, by transforming daily environmental behaviors into a series of clear gamified tasks and tightly integrating them with e-commerce consumption, Ant Forest innovatively promotes the trend of "green consumption." Under the cooperation model between Ant Forest and Tmall platform, users purchasing products with the "green appliance" label from designated partner stores on Tmall and completing payment through Alipay can obtain corresponding green energy rewards seven days after confirming receipt. This "public welfare—e-commerce" synergy model demonstrates unique innovation and provides new ideas for further promoting sustainable lifestyles. It not only motivates consumers to choose more environmentally friendly products but also enhances merchants' enthusiasm for promoting green products, forming a virtuous cycle.

On the other hand, Ant Forest's "Public Welfare Forest" function serves as an exemplary model of the multi-sector linkage approach. The platform's public welfare forest watering leaderboard covers six categories: wishing, brand, school, institution, city, and entertainment. By inviting various enterprises, schools, and other social forces to join, this mechanism successfully pools broad social

resources. Meanwhile, in public welfare communication activities, enterprises, schools, and entertainment institutions often become role models for public emulation due to their rich social capital and large fan bases, with their words and actions possessing "natural" influence and authority. Public welfare initiatives launched by these entities can quickly trigger widespread attention, and their fans' participation will drive exponential growth in others, making universal participation possible. Taking "Zhengzhou University Public Welfare Forest" as an example, as of June 15, 2024, its total watering volume exceeded 1,600 tons, planting 11,066 Pinus sylvestris trees. The energy required to plant just one Pinus sylvestris tree is equivalent to what an ordinary user accumulates in a year.

By incorporating entertainment and interactive gamification elements into public welfare, Ant Forest has shaped a new public welfare culture and attempted to activate a participation process from individuals to groups to the entire platform. Public welfare itself does not necessarily have to be serious; it can become interesting, relaxed, and easy to participate in. The key lies in how to innovatively design participation methods to make them more naturally integrated into daily life and sustainable long-term. Games' empowerment of internet public welfare is evident, but how to balance the depth and breadth of gamification and public welfare activities, and ensure that gamification strategies truly promote the development of social public welfare, are issues requiring further exploration in the future.

## References

[3] Beijing News. Ant Forest has planted 548 million trees in 8 years, with Ant Group's committed donations exceeding 4 billion yuan [EB/OL]. (2024-08-27) [2024-09-08]. https://www.bjnews.com.cn/detail/1724740372168457.html.
[4] Wang Run, Yang Yusi. A study on the sustainability mechanism of "tree-planting" playbor leisure labor under the concept of ecological environmental protection [J]. Journalism University, 2024(4): 57-70, 118-119.
[5] Pan Gao. Research on the public welfare communication of Ant Forest from the perspective of interaction ritual chains [D]. Wuhan: Zhongnan University of Economics and Law, 2020.
[6] Edward Burkley, Melissa Burkley. Motivation Psychology [M]. Translated by Guo Shucai. Beijing: Posts & Telecom Press, 2020: 56-57.
[7] Deng Guosheng, Xin Hua, Zhai Yan. Research on the participation motivations and dynamic mechanisms of Chinese youth volunteers [J]. Youth Exploration, 2015(5): 31-38.
[8] Kotler P, Andreasen A R, Kotler P. Strategic marketing for nonprofit organizations [C]//Prentice-Hall. Prentice-Hall, 2008.
[9] Freud. Annotations on the subconscious in psychoanalysis [C]// Freud's Collected Works (Volume 6). Translated by Gao Fengqiang. Beijing: Jiuzhou Press, 2014: 22-23.
[10] Xu Qiushi. Humanistic reflection on egoism and altruism [D]. Jinan: Shan-

dong Normal University, 2014.
[11] Pan Shuya, Zhang Yuqi. Virtual presence: The interaction ritual chains of online fan communities [J]. International Press, 2014(9): 35-46.
[12] Qian Xinzhu. Research on gamification communication strategies of internet public welfare [D]. Shenyang: Liaoning University, 2019.
[13] Gao Chao. User demands of internet public welfare games: Based on the theoretical framework of uses and gratifications [J]. Southeast Communication, 2020(7): 25-26.
[14] Wang Aihua. Cross-sector cooperation in public welfare based on internet platforms: Process, mechanism, and risks—Taking Tencent's "99 Public Welfare Day" as an example [J]. Public Management and Policy Review, 2019(1): 68-77.
[15] Xi Furong, Yang Xue. Exploration of public welfare communication paths in the new media era—Taking Ant Forest as an example [J]. Media, 2020(7): 78-80.
[1] Gao Jingyi. The difference and development trend between online public welfare and traditional public welfare [J]. News World, 2012(9): 120-121.
[2] Liu Fangru. The generative logic of gamification in public welfare communication in the internet era [J]. Press, 2019(11): 89-98.

**Author Bios:**

Wang Yujie (1988—), female, from Baoding, Hebei, Associate Professor at Baoding University, Ph.D. candidate, research direction: cultural communication.
Lu Songjian (1999—), male, from Pingnan, Guangxi, undergraduate student in Network and New Media at Baoding University, research direction: network and new media.
Li Qichen (2005—), female, from Baoding, Hebei, undergraduate student at the School of Journalism and Communication, Hebei Normal University, research direction: new media communication.

**(Responsible Editor: Li Yansong)**

*Note: Figure translations are in progress. See original paper for figures.*