

Research on the Mechanism of the Impact of Social Media Transmission Paths on Public Welfare Projects

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Abstract: With the deepening of digital transformation, social media has become the core carrier for the dissemination of public welfare projects, and its dissemination paths play a crucial role in the transmission of the influence of public welfare projects. This study aims to clarify the typical paths of social media-based public welfare communication and the mechanism by which they exert influence on public welfare projects. It adopts the methods of literature research and case analysis, focusing on four types of communication paths: interpersonal connection type, circle aggregation type, algorithm-driven type, and opinion leader-led type. It conducts empirical analysis using three typical public welfare project cases. The research results show that different communication paths act on the influence of public welfare projects through five mechanisms: "information diffusion, public cognition, emotional resonance, behavioral transformation, and influence accumulation", and they present different effects during the project's initiation, promotion, and conclusion phases. The opinion leader-led path has the best breakout effect during the initiation phase, the interpersonal connection type and circle aggregation type paths have more significant effects in deepening cognition and consolidating trust during the promotion and conclusion phases, and the algorithm-driven path has advantages in coverage but lower conversion efficiency. At the same time, current social media-based public welfare communication has problems such as single paths, imbalance between content and paths, lack of trust mechanisms, and insufficient interaction and transformation connection. Based on this, this study proposes optimization strategies such as a multi-path combination matrix of "stages, goals, and paths", a differentiated content system, and a full-process trust construction mechanism to provide theoretical references

and practical guidance for public welfare organizations to improve the efficiency of social media communication and strengthen the influence of projects.

Keywords: Social Media; Communication Paths; Public Welfare Projects; Influence; Mechanism of Action

1. Introduction

Driven by digital transformation, the dissemination of public welfare projects has shifted from "offline reliance" to "online and offline collaboration". Social media, with its large user base, instantaneous dissemination, and rich interactive features, has become a key medium for public welfare to reach the public, such as large-scale disease crowdfunding, hot searches on animal protection, and live broadcasts for rural education assistance. According to the data from CNNIC in 2024, there are over 1 billion social media users in China, and over 60% have paid attention to or participated in public welfare, highlighting its importance and research value for public welfare. Current academic research on social media and public welfare dissemination mostly focuses on the superficial description of dissemination effects, lacking in-depth analysis of the "intrinsic logic of the path's impact on public welfare influence". This study breaks down the dissemination path and verifies the mechanism, which can fill the gap in mechanism-based research and provide references for theoretical improvement. In practice, public welfare organizations often have problems such as blind selection of dissemination paths and imbalance between content and path, resulting in resource waste and low efficiency. This study refines the types of paths and their logical mechanisms, which can provide guidance for public welfare organizations to formulate dissemination strategies and help optimize resource allocation and enhance public welfare effectiveness.

2. Analysis of Typical Paths of Social Media Public Welfare Dissemination

2.1 Interpersonal Connection Path

Based on the user social relationship network, relying on the trust of acquaintances to reduce the cost of audience information discrimination. The process is that the public welfare organization or the initial disseminator sends out information, and users recognize and process it for secondary forwarding to private social fields. Friends receive it and some further spread, forming a chain extension. The advantage is high audience trust and strong participation and transformation willingness; the limitation is that the diffusion range is limited by the scale and activity of the social network, and it is prone to a closed-loop within the circle.

2.2 Circle Aggregation Path

Based on the community circle formed by the same interests, identities, or value orientations, the motivation comes from circle identity and topic resonance. The public welfare organization collaborates with related circles and uses core nodes to push information. Members agree and discuss, share, or participate, forming a "concentration within the circle and outward radiation" pattern. The advantage is that members do not need topic enlightenment, and the dissemination efficiency and conversion effect are good; the limitation is that there are circle barriers, and when the activity is insufficient or the topic matching is low, the information is prone to stagnation.

2.3 Algorithm-Driven Path

Relying on platform algorithm recommendation technology, through user behavior data to generate tags, and then push public welfare information. The operation mode includes organizations advertising or initiating challenges, and the platform promoting spontaneous public welfare information. The advantage is high dissemination efficiency and wide coverage, reaching a large number of potential audiences in a short time, breaking the limitations of interpersonal dissemination; the limitation is low trust and conversion efficiency, the information has no endorsement, and users receive it passively, making it difficult for the information flow to carry deep information.

2.4 Opinion Leader Dominated Path

Based on an opinion leader with a fan base and credibility as the core node, the motivation comes from their authoritative endorsement and audience recognition. The process is that the organization selects a matching opinion leader for cooperation, and the leader disseminates information in the form of videos or initiatives, and fans trust and participate or forward. The advantage is strong cross-circle diffusion ability and large influence, which can cross circles and reduce the threshold of audience trust; the limitation is high cooperation costs, the expenses of leading figures overwhelming small organizations, and the negative public opinion of the leaders can easily affect the project.

3. The Mechanism of Social Media Communication Paths on the Impact of Public Welfare Projects

Social media-based public welfare communication operates through four core mechanisms, deeply influencing the impact of public welfare projects from various dimensions. The characteristics of different communication paths under each mechanism are significantly different.

3.1 Information Diffusion Mechanism

The interpersonal connection path relies on key social nodes among acquaintances, leveraging users' private social networks to activate information diffusion. The trust relationship among acquaintances makes recipients more willing to become secondary dissemination nodes. Although the coverage is limited by the size of the social circle, the secondary diffusion rate is significantly superior. The algorithm-driven path depends on platform algorithm nodes, achieving large-scale information push through precise matching of user tags. It can quickly reach a large number of potential audiences, with a prominent coverage breadth. However, users are mostly passively receiving, lacking the motivation for active forwarding, resulting in a relatively low secondary diffusion rate. The opinion leader path relies on the cross-circle fan base of core opinion nodes, which can not only activate large-scale fan nodes but also guide them to actively forward, achieving the dual effects of wide coverage and high secondary diffusion rate. For example, a rural book corner public welfare project initiated by a certain celebrity, with its influence, saw the number of forwards exceed 100,000 within 1

hour, reaching over 50 million users, vividly demonstrating the diffusion advantage of this path.

3.2 Public Cognition Mechanism

The circle aggregation path relies on professional scenarios, capable of carrying specialized and in-depth public welfare content. Circle members themselves have a basic understanding of related issues and can quickly grasp the project value. The depth of cognition is far greater than other paths. The interpersonal connection path utilizes the personalized scenarios of social interaction, with information transmission often accompanied by the personal remarks of the disseminator. This personalized information greatly reduces the cognitive threshold for the audience, helping them quickly establish an intuitive understanding of the project background. The algorithm-driven path is limited by the lightweight scenario of information flow, with content mostly consisting of 15-second short videos or simple text images, only able to convey the core information of the project, and is difficult to present the depth of background and value logic, resulting in public cognition remaining at the surface level. For example, a major illness crowdfunding project, when spread through the circle, due to the user's addition of the note "The patient is my colleague, and the family is in great difficulty and in urgent need of help", the depth of the audience's cognition of the project's authenticity and urgency was much higher than that of the general public welfare poster pushed by the algorithm.

3.3 Emotional Resonance Mechanism

The interpersonal interaction scene of the interpersonal connection path allows the public to feel the group nature of public welfare participation, effectively weakening the sense of isolation from individual actions, thereby strengthening emotional resonance. The opinion leader path uses the interactive scene of role models to present the effect of public welfare concretely, such as showing the changes in the beneficiaries' lives, which directly stimulates the public's altruistic emotions and empathetic psychology. The circle aggregation path's like interaction scene can strengthen the group identity of members, enabling the public to deepen their positive attitude towards the public welfare project through the emotional resonance

in the like group. The animal rescue project through the opinion leader's live streaming of the rescue process on Douyin, with fans interacting in the comment section "I feel so heartbroken, I want to donate grain", the number of participants during the live stream increased 3 times compared to usual days, which is a typical manifestation of the transformation of attitudes driven by emotional resonance.

3.4 Behavioral Transformation Mechanism

The communication path optimizes the convenience of participation to directly affect the efficiency of behavioral transformation. The interpersonal connection path relies on social platforms, allowing users to directly attach crowdfunding links or volunteer registration mini-programs when forwarding information. Users do not need to jump to other platforms and can participate by simply clicking. The conversion threshold is extremely low. The algorithm-driven path uses platform function settings to provide a one-click participation entry, simplifying the participation process and improving the conversion efficiency. The opinion leader path will design an exclusive participation entry to guide fans to participate in a concentrated manner. At the same time, the endorsement of the opinion leader further reduces the decision-making cost for users, resulting in significant conversion effects. On the contrary, if there is no convenient entry point for participation, the conversion efficiency will drop significantly. For example, in a certain charity running event, when the information was spread through recommendations from WeChat friends and included a small program link that could be clicked to register, the conversion rate reached 25%; while during the same period, when pure text information was pushed through algorithms, users had to search for the registration channel by themselves, and the conversion rate was less than 5%. The clear difference between these two cases clearly demonstrates the crucial role of the convenience of participation in behavioral conversion.

4. Case Empirical Research

4.1 Case Selection

To verify the mechanism of the influence of different communication paths of social media

on the impact of public welfare projects, this study, following the principle of "typical sampling", selected 3 public welfare projects with different communication paths as cases. At the same time, it took into account the representativeness of the cases in terms of path, project type, and data availability. Among them, Case A is the "Big Medical Crowdfunding for Children with Leukemia" project, which is dominated by the interpersonal connection path and was published on a major domestic crowdfunding platform. The core communication channels are WeChat Moments, and the communication subjects include the patients' families, individuals in their social relationship chains, and early donors. It did not rely on platform algorithm push or cooperation with opinion leaders, and achieved information diffusion solely through interpersonal social relationships. The core goal of the project is to raise medical expenses; Case B is the "Publicity Project for Urban Waste Classification" public welfare project, which is dominated by the algorithm-driven path. It was initiated by a local environmental protection organization and reached an agreement with the Douyin platform. Through the platform algorithm, the publicity videos on waste classification (including the "Waste Classification Challenge" entry point) were targetedly pushed to users with the tags of "environmental concern" and "life service interest". No large-scale interpersonal communication or circle cooperation was carried out, and the core goal was to enhance public awareness and participation in waste classification; Case C is the "Public Welfare Project for Collecting School Supplies in Mountainous Areas" public welfare project, which is dominated by the opinion leader-driven path. It was executed by a national public welfare organization and invited 2 education bloggers with over 5 million followers to participate in the communication. The bloggers used forms such as releasing videos of visits to mountainous schools, live-streaming the distribution process of supplies, and initiating "Donation for Education" initiatives to drive the communication. Only a small amount of internal push within the public welfare circle was used. The core goal of the project was to raise school supplies and recruit volunteers.

4.2 Case Analysis

The communication cycle of the white blood cell

children's major medical crowdfunding project dominated by the interpersonal connection path lasted for 7 days. The WeChat Moments reposts reached 23,000 times, 18,000 people participated, and 520,000 yuan was raised. The conversion rate was 78%, and the retention rate was 30%. This confirmed the high conversion value of the endorsement by familiar trust, but the dissemination was limited to the social circle. The communication cycle of the urban waste classification publicity project dominated by the algorithm-driven path lasted for 10 days. The exposure reached over 20 million times on Douyin and 500,000 discussions. However, 35,000 people participated, but only 80,000 yuan was raised. The conversion rate was 0.17%, and the retention rate was 5%. This highlighted the paradox of efficiency conversion, with wide coverage but lacking emotional resonance and deep participation. The communication cycle of the mountainous area school supply collection project dominated by the opinion leader-driven path lasted for 5 days. The bloggers and their fans reposted over 500,000 times, and 30+ media outlets reported it. 120,000 people participated, 3 million yuan was raised, and over 2,000 volunteers were recruited. The conversion rate was 28%, and the retention rate was 25%. This demonstrated the advantage of the core node of opinion leaders, achieving high coverage, high conversion, and cross-circle diffusion.

4.3 Comparison of Effect Differences in Different Stages of Communication Paths

4.3.1. Startup Period

The core goal was to rapidly increase the project's popularity and break the "zero awareness" state. Opinion leader-driven paths can achieve explosive information diffusion in a short period of time by relying on the fan base and communication appeal of the core node (opinion leader). For example, the Case C project started within 1 day and the repost volume exceeded 100,000 times, far exceeding other paths; Algorithm-driven paths rely on the large-scale push capabilities of the platform algorithm to quickly achieve wide coverage. For example, the Case B project started within 1 day and the exposure volume exceeded 5 million times, but lacked deep interaction: Interpersonal connection paths are limited by the size of the social circle, and the diffusion speed during the startup period is the slowest. For Case A, the repost volume within 1 day was only 1,000 times,

making it difficult to quickly gain popularity.

4.3.2. Promotion Period

The core goal is to deepen public awareness and expand participation scale. Interpersonal connection paths use the chain diffusion effect, and the effect gradually improves. For example, Case A's promotion period within 3 days saw a 15,000-time increase in reposts and a 3-fold increase in participation compared to the startup period; The concentric aggregation path leverages the professional attributes of related circles to deepen public understanding through in-depth content, achieving better results than the algorithmic path, which is prone to causing user fatigue due to homogenized content. The opinion leader path still maintains high effectiveness, but its growth rate has slowed down. For instance, in case C, the growth rate of shares during the promotion period decreased by 40% compared to the initial period. It requires new content stimulation to maintain popularity.

4.3.3. Conclusion Period

The core objective is to drive continuous user engagement and consolidate long-term influence. The interpersonal connection path relies on the "familiar trust" accumulated in the early stage, which can maintain a stable level of participation. For example, in case A, during the conclusion period, 2,000 people continued to donate, accounting for 11% of the total participants. The concentric aggregation path, through long-term professional content output and community interaction, can strengthen users' sense of group identity and promote long-term attention. The algorithm-driven path has the most significant decline in effectiveness. For instance, in case B, during the conclusion period, the exposure reached 1 million times, a 75% decrease compared to the promotion period. Due to users' aesthetic fatigue from repetitive 推送 and the lack of trust foundation, it is difficult to maintain participation. The opinion leader path, although its effectiveness is relatively stable, requires new content to avoid user loss. Otherwise, its influence is likely to decline as the dissemination heat fades.

5. Existing Issues and Optimization Strategies for Social Media-based Public Welfare Communication

5.1 Existing Issues of Social Media-based Public Welfare Communication

5.1.1. Monotony in Communication Path Selection and Resource Mismatch

Most public welfare organizations have a path dependency. Small and medium-sized organizations, due to limited financial resources, mostly rely on interpersonal connection-based paths, which can reduce the cost of trust but limit the scope of dissemination and make it difficult to spread across different circles. For example, a community elderly care public welfare project relies solely on WeChat Moments for dissemination, covering less than 100,000 users, far below the potential of the combined paths; large organizations, although they have algorithm-driven resources, mostly rely on algorithm-driven paths, ignoring the synergy effect, resulting in wide coverage of information but low participation conversion rate.

5.1.2. Imbalance in the Adaptation of Communication Content and Path Characteristics

Some public welfare organizations do not follow the principle that "path characteristics determine content adaptation logic" and adopt a "one-size-fits-all" distribution model. For example, in environmental protection public welfare communities and student aid professional topic groups, they push lightweight short videos, lacking professional data and execution details, unable to meet users' demands for professional content; in algorithm-driven paths such as TikTok information flow and Weibo recommendations, they push long reports, exceeding the threshold for users' fragmented reading, and users quickly scroll away due to high reading costs, making it difficult to form effective cognition.

5.1.3. Lack of Trust Mechanism Construction and Risk Hazards

Algorithm-driven and some opinion leader-dominated paths often have problems of insufficient information transparency, leading to public trust loss and even crises. In algorithm-driven paths, public welfare information is mostly in a standardized and lightweight form, lacking key transparent information such as fund flow and beneficiary verification, such as a "child aid" project that did not disclose the detailed information of the funds, and the comment section was filled with doubts like "I'm afraid the money will be misused"; in opinion leader paths, some cooperation "endorsements are merely formal", the leaders did not deeply verify the authenticity of the project before

spreading it, such as a blogger promoting a "major illness crowdfunding" project that was exposed for beneficiary fraud, not only damaging the project's influence but also damaging the overall trust in the public welfare field.

5.1.4. Disconnection between Interaction Design and Behavior Transformation

Some public welfare organizations overly focus on the reach of information, ignoring the construction of the "interaction guidance - behavior transformation" closed loop. After algorithm-driven paths push content, they do not set convenient participation entrances, and users have the intention but give up due to not finding the channels; in interpersonal paths, after users forward, there is a lack of subsequent interaction guidance, making the information diffusion remain at a single forward; in opinion leader paths, some leaders only issue initiatives, without designing real-time interaction scenarios, users' emotional resonance has no outlet for expression and participation, and it is difficult to convert into practical actions.

5.2 Optimization Strategies for Social Media-based Public Welfare Communication

5.2.1. Build an Adapted Multi-Combination Matrix

Based on the characteristics of the public welfare project's life cycle and the core goals of each stage, establish a path combination system. In the start-up period, the opinion leader-dominated path is the core, combined with the algorithm-driven path to quickly break through boundaries and increase awareness, such as in the "rural medical equipment donation" project, during the start-up period, medical bloggers were invited to release visiting videos, and at the same time, the algorithm of TikTok was pushed to users with relevant tags, covering over 8 million users in one day; in the promotion period, the circle aggregation path is the core, combined with the interpersonal connection path to deepen cognition and expand participation, such as in this project, during the promotion period, detailed reports were pushed in professional circles, encouraging users to share donation certificates to drive friends to participate, the number of participants increased by 2 times; in the closing period, the interpersonal connection path is the core, combined with the circle aggregation path to consolidate trust and achieve long-term influence, through familiar people's

transmission of progress and continuous interaction in the community to maintain attention.

5.2.2. Establish a Matching Differentiated Content System

Design adapted content according to the habits and needs of different paths' audiences. The interpersonal connection path focuses on personalized and emotional content, such as when users forward, they can be attached with participation experience templates and related stories; The concentric aggregation path focuses on specialized and in-depth content, such as the environmental protection circle pushing governance data and the educational assistance circle pushing student performance reports; the algorithm-driven path focuses on lightweight and visual content; the opinion leader-led path focuses on scenario-based and interactive content.

5.2.3. Improve the trust-building mechanism

Resolve doubts through information transparency and trust endorsement. Transparent modules are embedded in the entire process of each path. The algorithm path includes a donation query link, the circle path regularly sends out fund details, and the opinion leader path showcases proof of beneficiaries through live streaming; at the same time, a third-party authoritative endorsement is introduced, and government departments and industry associations jointly release certification information, and the certification mark is displayed in each path to strengthen public trust.

5.2.4. Build a behavior conversion closed loop

Optimize interaction and entry design. The content of each path is embedded with a one-click participation entry, such as the donation button attached to the algorithm video and the registration channel attached to the interpersonal link; the interpersonal path sets an invitation reward mechanism, and the opinion leader path designs real-time interaction tasks to stimulate user interaction and re-distribution; after user participation, feedback is sent through SMS and community push, such as photos of equipment delivery, to make users perceive value and strengthen their long-term participation intention.

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