Research on Types and Characteristics of Individual Knowledge Diffusion in WeChat Mode: Postprint

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Abstract

[Purpose / Significance] Focusing on WeChat as a widely used information dissemination platform, conducting behavioral research on individual knowledge diffusion contributes to refining the theory of individual knowledge diffusion. [Method / Process] Based on the individual knowledge diffusion model, this study analyzes the types of individual knowledge diffusion in the WeChat context. It examines the diffusion patterns of individuals in the WeChat model from the characteristics of real-time nature, short-term nature, professionalism, friendliness, and transmissibility. [Results / Conclusion] The emergence of WeChat has facilitated individual knowledge diffusion and the recognition of innovation.

Full Text

Preamble

Research on the Types and Characteristics of Individual Knowledge Diffusion in WeChat Mode

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Abstract

[**Purpose/Significance**] Conducting behavioral research on individual knowledge diffusion on WeChat, a widely used information dissemination platform, contributes to the refinement of individual knowledge diffusion theory. [**Method/Process**] Grounded in the individual knowledge diffusion

model, this study analyzes the types of individual knowledge diffusion in WeChat mode and examines the diffusion patterns from the perspectives of real-time responsiveness, short-term visibility, professional relevance, friendly interaction, and transmission capacity. [**Result/Conclusion**] The emergence of WeChat has facilitated individual knowledge diffusion and enhanced the recognition of innovation.

Keywords: WeChat; individual knowledge; knowledge diffusion

WeChat is the most pervasive tool in the self-media landscape. According to QuestMobile's "2016 Spring APP Power Ranking," WeChat's registered user base exceeded 927 million, establishing it as the most important user communication tool [1]. As an instant messaging platform, WeChat enhances online interaction through its convenience, fragmented operation, and high penetration rate [2]. During user communication, WeChat serves as a platform that aggregates information, expands the scope of interactive groups, and increases the convenience and real-time nature of information exchange [3]. In this virtual environment, relationship maintenance becomes the primary means of sustaining user connections, while individuals' knowledge backgrounds, lifestyles, and interest preferences serve as important factors for group formation [4]. Individuals increasingly use social media platforms for knowledge interaction, with personal public accounts and interest groups becoming important channels for information aggregation and knowledge diffusion, thereby enhancing knowledge liquidity [5].

Research demonstrates that knowledge diffusion unfolds through social network models, with varying network structures affecting diffusion outcomes [6]. Within social networks, individuals' knowledge characteristics, relationship lengths, and clustering patterns all influence the frequency of knowledge diffusion [7]. Existing research on knowledge diffusion has primarily focused on diffusion paths and effectiveness. However, with the proliferation of self-media applications, the speed and methods of knowledge diffusion have changed dramatically, with virtual organizations replacing traditional organizational forms and online knowledge transmission becoming the dominant diffusion pattern. For most people, WeChat has become the primary source of information for life, work, and study, making its use for knowledge diffusion the new norm. This paper analyzes knowledge diffusion patterns in WeChat mode, examines the characteristics of knowledge diffusion, and investigates the forms and features of individual knowledge diffusion on the platform. The findings contribute to the refinement of individual knowledge diffusion theory.

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1 Individual Knowledge Diffusion Model

Knowledge diffusion represents a crucial mechanism for the socialization of knowledge development. Knowledge must be recognized and absorbed by audiences to achieve inheritance and development. This process follows social network diffusion pathways, where transfer speed and extent are closely related to knowledge carriers and the social attributes of diffusion, constituting an evolutionary process [8]. Nonaka argues that individuals are the source of knowledge innovation, with new knowledge requiring transformation through four modes (socialization, externalization, combination, and internalization). The amplification of individual knowledge must occur within organizations through interaction with others to complete knowledge validation [9]. Knowledge diffusion begins at the initial creative stage, achieving confirmation and maturation of ideas through interaction with other individuals. This process requires recipients to possess adequate knowledge, as their existing knowledge stock determines whether absorption can occur. Consequently, this flow exhibits strong directionality, diffusing rapidly within groups with relevant knowledge backgrounds while cross-disciplinary diffusion proceeds more slowly.

Based on years of research, our research group has constructed a knowledge evolution model grounded in biological evolution theory and knowledge fermentation theory [10], from which we derive the WeChat-based individual knowledge diffusion model (see Figure 1 [Figure 1: see original paper]). An individual generates a theme based on creative inspiration and interacts with other individuals, achieving knowledge maturation through revision. The sender employs images, videos, and other catalysts to accelerate knowledge dissemination. Upon receiving knowledge, the recipient must identify and analyze it, integrating it with their existing knowledge stock before transmitting it to third parties. This interaction mode constitutes a spontaneous process adopting a knowledge learning pattern, facilitating communication through thematic elaboration [11]. Environmental factors in knowledge diffusion provide auxiliary information about the disseminated knowledge, offering recipients essential elements for knowledge acquisition, improving understanding, and assisting individuals in achieving knowledge diffusion.

2.1 Active Elaboration Type

Every user possesses differentiated knowledge characteristics reflected in total knowledge volume, classification distinctions, depth of specialized knowledge, and intersection areas of related knowledge, generally manifesting as differences in both quantity and quality. These knowledge disparities cause different individuals to produce different knowledge gene fusions when facing the same environment, constructing knowledge creativity. When an individual forms a new knowledge creation, confirmation becomes necessary, generating knowledge diffusion. Research indicates that individual knowledge varies in quality and quantity, constituting the prerequisite for knowledge transfer. Knowledge potential difference explains the necessity of knowledge transfer and represents the source of knowledge diffusion [12]. Knowledge generally flows from high-potential to low-potential individuals, with low-potential individuals more inclined to construct knowledge chains with high-potential individuals to achieve continuous, improvement-oriented knowledge transfer. The desire of high-potential individuals to transfer knowledge determines whether transfer occurs, with differences in knowledge depth and breadth significantly affecting diffusion effectiveness.

After creativity formation, knowledge enters the creation stage, where existing knowledge stock becomes insufficient for constructing creative knowledge, requiring substantial knowledge augmentation. When users encounter interesting information, they bookmark and forward it to record information, employing web searches and friend circle posts to inquire about and confirm specific content. While simple forwarding and event recording serve basic documentation functions, this process accumulates knowledge fragments related to users' existing knowledge stock, storing numerous knowledge gene fragments. This storage process cultivates the knowledge sprouts formed during the creative stage. Users record information, events, images, and news on WeChat because they are genuinely interested in the topics, with interest stemming from knowledge creativity. Simple recording without commentary represents a knowledge documentation method through which users express attitudes and opinions, expecting discussions that enhance their knowledge mastery and learning.

2.3 Show-off Expression Type

Knowledge creativity generated from individual knowledge gene fragment fusion requires confirmation and identification to ensure its existence value and transformation potential. This verification process demands interaction with other knowledge individuals. Therefore, after generating knowledge creativity, individuals must place their creative knowledge within their knowledge community for evaluation by individuals with homologous knowledge, using interaction to refine the creativity. This refinement process also implements knowledge creation. Individual knowledge exhibits significant professional limitations—possessing high knowledge volume in certain fields while being unable to cover all

domains—whereas knowledge creativity growth may require domain knowledge beyond individual stock [15]. Therefore, after creativity emerges, if individuals discover knowledge gaps during interaction, they can utilize other individuals' understanding to complete and supplement deficient knowledge fragments, using organizational knowledge from existing knowledge groups to cultivate knowledge innovation, during which individual knowledge grows.

When WeChat users encounter novel phenomena or feel inspired, they urgently need to share their understanding on Moments, experiencing excitement from creative formation while simultaneously seeking confirmation from friends. Friends include colleagues, classmates, and peers with similar knowledge backgrounds, whose positive replies or likes represent affirmation of the creativity from same-domain individuals. Friends' replies often introduce considerations or content unknown to the poster, providing revision and supplementation for the creativity. Through interaction with friends, individuals learn about knowledge they lack, constructing channels for individual knowledge to contact external knowledge and providing possibilities for increasing knowledge stock. During creativity refinement, individuals integrate other knowledge gene fragments while discovering deficiencies in their relevant knowledge stock, generating learning interest and motivation due to high interest in the creativity.

2.2 Event Recording Type

Individual knowledge stock constitutes a crucial factor in knowledge creation. Capturing new knowledge gene fragments using existing stock and completing knowledge gene recombination represents the first step in knowledge creation. Knowledge creation is the process of generating new knowledge, achieving knowledge multiplication through capture and absorption of new knowledge [13]. This stage involves substantial accumulation and recombination of knowledge gene fragments, where the ability to capture fragments, recombination methods, unitization approaches, and functional manifestation of knowledge modules constitute the most important factors affecting knowledge creation. Creative capacity depends not only on individual knowledge fusion ability but also on external environments. Related knowledge refers to unmastered knowledge connected to existing stock, serving as the source of knowledge creation [14]. The contact method, fusion type, and timing between related knowledge and stock knowledge determine whether fusion can occur and whether the creativity will be adopted as the starting point for knowledge accumulation.

After creativity formation, knowledge enters the creation stage where existing stock becomes insufficient for constructing creative knowledge, requiring substantial knowledge augmentation. Users face vast amounts of information; when encountering interesting content, they bookmark and forward it to record information, employing web searches and friend circle posts to inquire about and

confirm specific content. While simple forwarding and event recording serve basic documentation functions, this process accumulates knowledge fragments related to users' existing knowledge stock, storing numerous knowledge gene fragments. This storage process cultivates the knowledge sprouts formed during the creative stage. Users record information, events, images, and news on WeChat because they are genuinely interested in the topics, with interest stemming from knowledge creativity. Simple recording without commentary represents a knowledge documentation method through which users express attitudes and opinions, expecting discussions that enhance their knowledge mastery and learning.

2.4 Objective Evaluation Type

After forming knowledge creativity, individuals use their existing knowledge stock to absorb and refine the creativity. Knowledge creativity completes fusion with individual knowledge through the diversity of existing stock. This fusion process primarily occurs pre-creation, with post-creation fusion continuing to ensure complete integration and identify knowledge gaps, thereby clarifying learning directions and generating motivation. Every knowledge individual produces an objective evaluation during the fusion process, based on their knowledge comprehension ability, which helps complete creativity fusion and identify knowledge gaps. During fusion between creative knowledge and stock knowledge genes, knowledge variation occurs, requiring screening and judgment to retain variations conducive to knowledge innovation development. Confirming this variation process through interaction with other knowledge individuals constitutes an important process for ensuring proper knowledge screening.

When WeChat users encounter interesting topics, resonance triggers reflection. Through in-depth analysis and consideration, they use personal knowledge to understand and evaluate the topic, drawing conclusions with significant personal knowledge attributes. This analysis relies entirely on individual knowledge comprehension to make decisions about diffusing content within their friend circle. Therefore, when forwarding relevant topics in Moments or interest groups, users provide objective evaluations that vary by individual. Through in-depth discussion with other users, some develop learning needs regarding the explored content. Each topic's understanding varies according to users' knowledge backgrounds, producing different conclusions from different analytical perspectives. During interactive exchanges, users confirm and filter their viewpoints to ensure accuracy.

3.1 Real-time Characteristic

Knowledge differences among individuals constitute the prerequisite for knowledge transfer. The shorter the time required to perceive and evaluate these

differences, the lower the time cost for the subject and the greater the space for knowledge growth [16]. Knowledge senders need rapid confirmation of whether their diffused knowledge gains domain recognition, requiring diffusion to a large scope within a short timeframe to verify the knowledge. In WeChat mode, information diffusion originates from individual senders, with knowledge transfer requiring minimal time. Any inspiration is immediately transmitted to Moments, subscription accounts, or interest groups for interaction with relevant communities, through which knowledge is confirmed. Recipients also promptly interact with senders, liking and commenting on viewpoints to complete knowledge recognition.

The knowledge diffusion stage requires establishing a real-time mode and mechanism between sending and receiving subjects to ensure real-time diffusion. Knowledge diffusion requires real-time contact between both parties to increase interaction probability and expand interaction scope. Recipients must quickly filter external knowledge, searching among numerous knowledge gene fragments for those that can fuse with their existing stock. This real-time characteristic is essential for effective knowledge diffusion in the WeChat environment.

3.2 Short-term Characteristic

Knowledge dissemination refers to the activity of purposefully spreading knowledge information to specific groups using various media in particular environments, expecting corresponding communication effects [17]. After massive new knowledge emerges, rapid invisibility occurs when it cannot be absorbed, creating a short-term life characteristic during initial dissemination. This short-term nature represents an inevitable phenomenon in early knowledge propagation. Senders hope for high acceptance and employ various dissemination means to expand scope and increase absorption probability. After dissemination, if knowledge cannot be rapidly accepted and spread, it experiences brief attention before being quickly replaced by other relevant knowledge, unless significant demand emerges in certain domains.

WeChat, as the primary self-media tool, maximizes real-time capability, rapidly transmitting senders' information. Individuals diffuse new knowledge through Moments, interest groups, and subscription accounts to expand diffusion scope and reduce time costs, effectively increasing new knowledge survivability. However, WeChat's chronological information flow makes it easy for recipients to overlook pushed content, causing information overlay. If posters' content lacks continuous likes or comments, it is forgotten, amplifying the short-term characteristic of new knowledge during initial release. The rapid information update cycle on WeChat means new knowledge is immediately submerged if not quickly disseminated and absorbed, causing most new creativity to experience brief exposure followed by rapid silence.

3.3 Specialty Characteristic

Knowledge diffusion is the process of knowledge transmission across time and space to cover different individuals [18]. The sticky nature of knowledge creates obstacles for cross-subject and cross-organizational boundary transmission. Analysis of diffusion paths reveals that informal channel diffusion facilitates inter-individual knowledge exchange [19]. For individuals with identical knowledge backgrounds, informal knowledge exchange promotes cross-boundary flow and enhances employee innovation consciousness [20]. Establishing communication platforms increases knowledge exchange willingness, expands scope, reduces conflict, and promotes absorption. This process ensures knowledge reaches recipients according to senders' diffusion methods, though absorption depends on recipients' ability to screen and identify knowledge and effectively connect external knowledge with existing stock. Therefore, recipients' knowledge stock characteristics determine diffusion effectiveness. Dissemination within knowledge's professional domain facilitates resonance between senders' and recipients' knowledge, accelerating diffusion.

WeChat users primarily utilize the platform for communication and knowledge exchange, with all published content and expressions closely related to their knowledge backgrounds. Personal inspirations typically resonate with their professional knowledge, eliciting professional commentary and attracting group attention. Information posted on Moments, topics discussed in interest groups, and subscribed public accounts mostly relate to users' interests and work, with users' knowledge in these areas supporting their participation. Professional knowledge diffusion helps attract interested individuals to discussions, drawing attention to relevant knowledge. Hot topics in WeChat circles emerge because professional participation increases readers' interest and motivates them to join discussions using acquired knowledge for further dissemination.

3.4 Friendliness Characteristic

In social networks, each individual maintains numerous direct and indirect relationships, serving as a bridge in information transmission that strengthens through node interaction [21]. Strong relationships require substantial time maintenance, typically built on information interaction with highly relevant knowledge backgrounds and topics. Weak relationships require interaction to strengthen connections, accelerating exchange of heterogeneous knowledge. When constructing social networks, individuals typically use their knowledge to communicate with others, transmitting owned knowledge while accepting interesting external knowledge. Knowledge acquisition methods and generation backgrounds are internalized within social networks, where contextual dependency and knowledge uniqueness affect transfer effectiveness [22]. As knowledge senders, individuals must patiently and thoroughly elaborate knowledge to make recipients willing to listen, creating opportunities for fusion with recipients' ex-

isting stock. Recipients must carefully understand whether accepted knowledge can be correctly comprehended to facilitate absorption.

WeChat, as an information interaction platform, contains numerous individual nodes primarily connected through strong relationships, forming a social network that requires mutual respect. Users frequently strengthen relationships with information posters through friendly behaviors such as liking and posting positive comments. WeChat's internal mechanism uses friendly interaction to reinforce interpersonal relationships and maintain strong ties. WeChat friend interactions are mainly built on strong relationships among classmates, colleagues, and relatives, which ensure knowledge transfer foundations. Through friendly interaction methods, knowledge posters can more fully transmit owned knowledge or new creativity to recipients, who can more thoroughly identify knowledge gene characteristics, increase knowledge retention time, and create conditions for knowledge internalization.

3.5 Transmission Characteristic

Knowledge diffusion is a knowledge flow mechanism that ensures interaction among individuals with similar knowledge structures and backgrounds, representing the result of knowledge sharing [23]. Knowledge diffusion requires implementation in specific environments and achieves large-scale propagation through inter-individual transfer. Social networks provide channels for knowledge flow, with diffusion occurring through transmission using individuals as nodes. During knowledge forwarding, individuals do not simply copy but absorb knowledge using their existing stock before retransmitting understood knowledge—this constitutes the knowledge variation process [24]. The transmission process promotes external knowledge interaction, induces internal knowledge variation, and creates conditions for creativity emergence. During knowledge diffusion, individuals distinctly feel knowledge increase and new creativity emergence, which motivates increased knowledge sharing behavior.

WeChat, as a self-media platform for personal information interaction, hosts massive user information sharing and knowledge exchange. Each individual acts as a center, publishing information while forwarding content from others and elaborating personal viewpoints. This forwarding process achieves information diffusion through continuous multi-individual forwarding. After individuals post information on WeChat, Moments, interest groups, and subscription accounts forward content based on viewpoint recognition, promoting further information forwarding. Individual forwarding represents information approval and 认同, combined with personal viewpoint elaboration. This information capture constitutes a knowledge learning process and knowledge improvement and dissemination.

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4 Conclusion

Knowledge diffusion constitutes important research content in knowledge management, with previous studies focusing more on knowledge ontology propagation methods and absorption efficiency. As WeChat becomes a major communication tool, inter-individual communication methods have changed dramatically, making knowledge exchange more convenient. This paper analyzes individual knowledge interaction methods on WeChat, examining knowledge diffusion patterns and characteristics formed through individual knowledge learning, and interpreting knowledge flow patterns from a knowledge evolution perspective. Focusing on individual WeChat users, this study analyzes individual knowledge diffusion behaviors, while factors affecting individual knowledge absorption and their effectiveness require deeper future analysis.

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Author Contributions:
Zhang Lingzhi: Drafted the paper and revised the knowledge diffusion model.
Xue Jingxin: Collected and analyzed WeChat content, gathered and organized references.

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