

Research on the Knowledge Reproduction Mechanism of Bullet Comment Interaction in the Bilibili Learning Zone from the Perspective of Mediatization Theory

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Abstract. Gen Z students are now turning to Bilibili's Learning Zone as a regular part of their self-study routines, yet the exact role of digital media in this shift is still not well understood. Bullet comments, once seen mainly as a quick way to vent or react emotionally, have clearly grown into something more: a key media practice where users actively take part in reproducing knowledge. Drawing on mediatization theory, this paper looks closely at how these bullet-comment interactions actually work on Bilibili. It asks a simple but important question: how do bullet comments—shaped by the platform's technical setup and the video content itself—help users rework, fix, and add to existing knowledge? The study identifies three main mechanisms behind this process. First, users correct factual errors and fill in missing details. Second, they expand on abstract concepts by adding real-world context and personal experience. Third, over time, high-quality comments are upvoted and pinned, gradually turning into a structured layer of shared knowledge attached to the video. Through these real-time commenting practices, users and creators end up co-producing a kind of "symbiotic text." This directly challenges the old, centralized model of knowledge production in traditional education, and instead supports a more decentralized, collaborative style of informal learning. Existing survey data and typical cases confirm that this bullet-comment-driven knowledge reproduction is not just an occasional habit, but a widespread practice. By applying mediatization theory to this specific context, the research expands its use in the field of educational communication, and also offers practical ideas for improving online learning platforms and building a learning-oriented society. That said, the study does have some clear limitations—most notably its focus on top-tier creators and its confinement to a single platform. Future research could address these gaps by carrying out cross-platform comparisons and conducting longitudinal tracking studies to better understand how media technologies continue to shape online education.

Keywords: Bilibili, media, reproduction, bullet comments, informal learning context

1. Introduction

In the digital era, media is no longer merely a "conveyor belt" of knowledge, but is deeply embedded in the entire process of knowledge production, dissemination, and reproduction. Short-

video and bullet-comment platforms have become important spaces for young people's informal learning, with the Bilibili Learning Zone serving as a typical "mediatized knowledge space" characterized by bullet comments, comment sections, and other interactive features. From the perspective of mediatization, how bullet comments, as "media-related practices," drive individualized knowledge reproduction, dynamically intersect with platform architecture and UP host narratives, and adapt to the rising influence of Generation Z amid rapid media development has become a key research concern. The "video + bullet comments + comment section + bookmarking" model has become increasingly popular among young users. For instance, according to Bilibili's 2024 Annual Report, the annual playback volume of the Learning Zone exceeded 15 billion, with users aged 18-35 accounting for 78% of the platform's total user base, establishing it as the core hub for Gen Z's informal learning [1].

This study focuses on bullet-comment interactions in the Bilibili Learning Zone, examining how users process, correct, and supplement knowledge content produced by content creators through real-time semiotic practices involving bullet comments, and further explores the underlying mechanisms through which these interactions contribute to knowledge reproduction. Existing research on mediatization theory has primarily focused on fields such as journalism, political participation, and family relations, with insufficient attention paid to the specific scenario of educational knowledge production. While some scholars have noted the learning value of Bilibili bullet comments, few have systematically explained the internal mechanisms driving knowledge reproduction from a mediatization perspective. Grounded in the mediatization framework, this study addresses the core question: As a media-related practice, how do bullet-comment interactions participate in knowledge reproduction? By reviewing existing survey data, this study clarifies the operational logic of bullet comment-driven knowledge reproduction, enriching the application of mediatization theory in the field of educational communication and providing practical references for optimizing informal learning platform design and building a learning-oriented society.

2. Educational media and knowledge reproduction: from centralization to networking

The concept of "knowledge reproduction" draws on Pierre Bourdieu's theory of cultural reproduction and refers to the process through which societies reproduce and transmit existing knowledge, values, and power relations across generations through educational institutions [2]. In the traditional sociology of education, the field of knowledge reproduction was largely confined to closed classroom spaces and linear textbook texts, characterized by authority, unidirectionality, and closure: teachers, as knowledge authorities, held interpretive power, while students were mostly passive recipients, and knowledge, once published, was difficult to revise.

With the advent of digital technologies, educational media have undergone profound changes, evolving from print and broadcast media to internet platforms, while the logic of knowledge reproduction has also shifted. The traditional "centralized" production model (institutional production for mass consumption) is gradually giving way to a "networked" production model (user participation in collaborative creation). In this context, educational media is no longer merely a "pipeline" for knowledge transmission, but increasingly a "site" where knowledge production itself takes place.

3. The role of bullet comments in media communication and informal learning

Bullet comments were originally just a way for viewers to voice their opinions or react in real

time, and their main function was to offer a low-effort channel for fragmented thoughts and emotional resonance. With societal development, scholars have recognized that bullet comments can also function as a learning tool, combined with UP host videos to form an informal learning context. But with the growth of Bilibili's knowledge content and the formalization of the Learning Zone, their role has clearly expanded. Through practice, many users have come to see bullet comments as a genuine learning tool. When comment content combines with a high-quality video, something like a "chemical reaction" happens: the video acts as the "main text" of knowledge, while the comments serve as real-time "annotations," "errata sheets," and "supplementary reading." This shared "video + bullet comment" text breaks the time and space constraints of traditional teaching and creates a decentralized, highly interactive informal learning space, where watching itself becomes a collective, collaborative process.

4. Mechanisms and verification of bullet comment-driven knowledge reproduction from a mediatization perspective

This study uses existing data and mediatization theory to test whether these mechanisms actually hold up. Mediatization theory is a key idea in the sociology of communication. Its basic point is simple: media is not just a tool for sending information; it is a force that changes how society interacts and how culture takes shape. Unlike "mediation" which focuses on specific communication behaviors. Mediatization emphasizes long-term, structural social change processes. Stig Hjarvard describes two paths of mediatization: "institutional mediatization," where social institutions like politics or education start to follow media logic; and "social mediatization," where everyday interaction practices depend more and more on mediation by media technologies [3]. Under the framework of mediatization theory, this study identifies three main mechanisms through which bullet comments help reproduce knowledge.

First, filling gaps and fixing errors. While watching a video, users use bullet comments to supplement details omitted by UP hosts, for example extended case studies, data sources or correct factual errors in videos such as misquoted concepts, or calculation mistakes. In a video explaining the "Long Tail Theory," a user posted a bullet comment noting that the original case data dated back to 2015 and attached a link to a 2023 industry report for updates. This comment was later pinned by the UP host and widely recognized by other viewers. This practice is consistent with the logic of "social mediatization," in which everyday learning interactions rely on media technologies to facilitate collective knowledge verification. Existing research based on questionnaires in the Bilibili Learning Zone indicates that while users affirm the cognitive value of bullet comments in "gap-filling and key-point marking". They also widely express concerns about bullet comment overload interfering with focus. It suggests that the knowledge reproduction function of bullet comments has a "double-edged sword" effect [4].

Second, the concept expansion and contextualization mechanism. Users use bullet comments to supplement interdisciplinary connections, practical application scenarios, or personal learning experiences for core concepts in videos, enabling contextual extension of knowledge. In a programming tutorial, experienced developers may post bullet comments with optimized code snippets and debugging tips, helping novice learners understand abstract programming concepts in specific contexts. This process reflects "institutional mediatization" in education: the logic of traditional closed classroom teaching is replaced by the open, collaborative logic of platform media. Reference [5] also argues that bullet comments and comment sections move knowledge from "one author" toward "collective negotiation," with ordinary users contributing through practices like "segmenting" and "adding notes."

Third, the knowledge structuring and sedimentation mechanism. High-quality bullet comment content is gradually integrated into the cognitive framework of videos through user upvotes, UP host pinning, and platform archiving functions. Over time, these bullet comments form a structured supplementary knowledge system attached to the video, which can be repeatedly accessed by subsequent viewers. This means knowledge is no longer just a static product made by one creator—it becomes a living, cumulative result of group collaboration. This is, in my view, the core feature of knowledge reproduction in mediatized learning.

For example, a survey of 160 undergraduate students conducted by Northwest Normal University found that 58.13% of respondents enabled bullet comments while watching learning videos, while the statement that "bullet comments supplement video content and facilitate understanding" received a mean agreement score of 4.14 out of 5 [6, 7]. Factor analysis based on questionnaires in the Bilibili Learning Zone also indicates that "supplementarity" and "real-time performance" are core dimensions of bullet comments supporting learning; Bilibili's official report shows that approximately 70% of knowledge video users have participated in bullet comment posting or commenting [8]. In a video where legal scholar Luo Xiang expounded on the crime of causing traffic casualties, a user left a bullet-screen comment at the segment interpreting "death resulting from flight after a traffic accident," noting, "Attention should be paid to the latest judicial interpretation for the Criminal Law Amendment 11; minor adjustments have been made to the definition of the aggravating circumstances." The comment also contained a link to the relevant legal provision. It quickly gained hundreds of upvotes and was frequently cited by law students in subsequent viewings, effectively correcting knowledge lag caused by the video's earlier release date [9, 10].

These three independent sets of data support the gap-filling–expansion–sedimentation mechanism identified in this study, indicating that bullet comment-driven knowledge reproduction is not an isolated phenomenon but a widespread mediatized practice.

5. Conclusion

Learning is no longer confined to the physical classroom. Bullet comment interaction in the Bilibili Learning Zone reveals a new possibility: when technology grants everyone a "digital highlighter," knowledge ceases to be a static exhibit and becomes a dynamically constructed product of mass participation. Grounded in mediatization theory, it identifies three core mechanisms of bullet comment-driven knowledge reproduction: gap-filling and error correction, concept expansion and contextualization, and knowledge structuring and sedimentation. This suggests that media practices shape not only how knowledge is disseminated but also how it is produced, interpreted, and reproduced. This enriches the explanatory power of mediatization theory in the field of educational communication. It provides a media-centric perspective for understanding the cognitive landscape of Generation Z. It builds a more open, inclusive, and resilient learning-oriented society. This study has certain limitations. The sample focuses on popular videos from top-tier UP hosts, failing to fully cover the bullet comment ecosystems of mid-tier and small UP hosts; also, the research field is limited to Bilibili. Future studies could conduct cross-platform comparative research, such as on Douyin, using these to explore differences in knowledge reproduction under different platform architectures. In addition, longitudinal studies could track the long-term development of bullet-comment-driven knowledge reproduction, and it can provide a more comprehensive understanding of the dynamic impact of media technologies on educational practice.

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