Postprint Analysis of Scenario-based Social Media Applications in the Mobile Internet Era

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Date: 2023-10-08T00:00:00+00:00

Abstract

Amidst the transition from the Web 2.0 era, characterized by interactivity and user-generated content, to the Web 3.0 era, distinguished by scenario segmentation, personalized verticals, and artificial intelligence, the contextualization of social media has become increasingly pronounced, propelled by the robust development of mobile internet media and underpinned by technologies including mobile devices, social media platforms, big data, sensors, positioning systems, VR (Virtual Reality), and AR (Augmented Reality). Perception-based scenarios founded upon LBS and constructed scenarios characterized by situational immersion facilitate secondary dissemination and marketing across interpersonal networks through social media platforms. In advancing social media contextualization, emphasis should be increasingly directed toward excavating niche domains to enhance contextual penetration; integrating diverse technologies to elevate contextual innovation; prioritizing content production to strengthen contextual competitiveness; and addressing the right to be forgotten to perpetuate contextual vitality, thereby enabling social media contextualization to exert more significant and sustainable effects in group interaction, commercial consumption, and related domains.

Full Text

Preamble

Analysis of Contextualized Social Media Applications in the Mobile Internet Era

Abstract: Against the backdrop of the transition from the interactive, user-generated content era of Web 2.0 to the contextually segmented, vertically personalized, and artificially intelligent era of Web 3.0, the contextualization of social media has become increasingly pronounced, supported by mobile devices,

social media platforms, big data, sensors, positioning systems, VR (virtual reality), and AR (augmented reality). Location-based service (LBS) scenarios and contextually immersive scenarios leverage social media platforms to achieve secondary dissemination and marketing through interpersonal networks. In the development of contextualized social media, greater emphasis should be placed on exploring niche segments to strengthen contextual penetration; integrating multiple technologies to enhance contextual innovation; focusing on content production to boost contextual competitiveness; and addressing the right to be forgotten to sustain contextual vitality, thereby enabling contextualized social media to play a more significant and enduring role in group interaction and commercial consumption.

Keywords: mobile media; contextualization; social media; mini-programs
Classification: G206
Document Code: A
Article ID: 1671-0134(2018)03-111-04
DOI: 10.19483/j.cnki.11-4653/n.2018.03.047
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1. Definition of Contextualization

The term "场景" (chǎngjǐng) originally referred to scenes in theatrical and cinematic works, emphasizing spatial background. Its English equivalent, "context," introduces connotations of situation, focusing on the connection and interaction of contextual discourse. Peng Lan, in *Scene: A New Element of Media in the Mobile Era*, argues that "scene simultaneously encompasses both space-based and behavior/psychology-based environmental atmospheres." Ye Yuhao, in *Contextualized Application of News Media in the Mobile Internet Era*, proposes "contextualized thinking" as a user-scenario-centered, user-demand-oriented approach that relies on mobile terminals, sensors, social media, big data, and positioning systems to achieve "mobile adaptation" through small-screen narratives and visual methods, thereby enhancing information accessibility and reducing user effort. This paper primarily approaches contextualization from the perspective of user roles, categorizing it into two types: perception-based scenarios and construction-based scenarios, as well as integrated scenarios that combine location perception and contextual immersion.

2. Background and Inevitability of Social Media Contextualization

American journalists Robert Scoble and Shel Israel, in *Age of Context*, propose that "five forces—mobile devices, social media, big data, sensors, and positioning systems—constitute the core technologies of contextual communication." Between 2007 and 2016, China's mobile internet user base expanded dramatically. Peng Lan, in *Contextualization: A Key Element of Media in the Mobile Era*, contends that "the essence of mobile communication is scenario-based services,

namely the perception of context and the adaptation of information/services." As laptops have effectively become "cumbersome desktop computers," portable mobile devices provide the material foundation for constantly changing scenarios, while the massive user base lays the groundwork for the widespread application of contextualization. The convergence of these factors enables contextualization to play an increasingly vital role in mobile communication.

The internet has evolved technologically from Web 1.0 to Web 3.0. The Web 1.0 era, dominated by portal websites, featured static, one-way transmission where users primarily browsed for information. The Web 2.0 era is characterized by interactivity and sharing, with social networking sites becoming mainstream and interpersonal relationships becoming digitized and convenient. Humans are inherently social creatures, and social media enables the retrieval, discovery, activation, and integration of various value resources embedded in human relationships. Now, the Web 3.0 era—marked by contextual segmentation, vertical personalization, and artificial intelligence—is emerging. Social media contextualization optimizes user experience by providing personalized scenarios and intelligent services. Consequently, the integration of social media and contextualization represents a transitional manifestation of the leap from Web 2.0 to Web 3.0.

Big data technology, centered on prediction, integrates data resources through collection, database storage, mining, and visualization. Combined with sensor-based IoT technology, users can obtain "immersive scenario experiences" through wearable devices.

3.1 Socialized Dissemination

In contemporary social media, the multiplicity of information channels and content overflow has made attention a scarce resource. Under internet logic, successfully managing the "attention economy" has become key to media survival. American communication scholar Wilbur Schramm proposed a formula for audience selection of mass communication programs: Selection Probability = Guaranteed Reward / Effort Required. "Guaranteed reward" refers to the degree to which content meets the selector's needs, while "Effort Required" refers to the difficulty of obtaining the content and using the communication channel.

Regarding contextualized social media applications, under the guidance of Six Degrees of Separation theory, both Weibo's weak-tie-based, square-like, fission-style dissemination and WeChat's strong-tie-based, more private, and closed communication methods can reduce users' effort in obtaining information and services to some extent. Contextualization enhances guaranteed reward by providing "immersive experiences," manifested primarily in two aspects.

Findery is a location-based social sharing application that allows users to explore new places on the map and leave their own stories or photos, sharing them either with people worldwide or with close friends. Photo retrieval can follow Instagram-style hashtag methods or pure geographic location searches. The

application's core concept is "Every place has a story. Share the places you love and explore the world," connecting location-based scenarios with social sharing to create novel photo-sharing experiences. Under the Six Degrees of Separation theory, users may meet like-minded friends from afar, enriching their social activities.

Changsha Museum pioneered the use of "smart pens" in China, combining them with smart guide devices and smart touchscreens to create a "digital museum." The smart pen, equipped with a GPS positioning system, automatically plays background introductions related to the exhibition hall when visitors enter. If interested in a particular artifact, visitors can touch the pen to the induction area of the display case to listen to detailed introductions. After completing their visit, they can touch the pen to the induction area of a smart touchscreen to review their tour trajectory and the artifacts they learned about. Users can also scan QR codes to share relevant information on social platforms such as WeChat Moments, Weibo, and QQ Space, indirectly promoting museum collections. The museum collects visitor data (including age, gender, province, tour route, and listened content) and uses data mining to analyze visitor preferences, thereby planning exhibition hall layouts, artifact placements, and content to create an optimized "digital museum."

Xinhua News Agency's "I'm on the Scene" is a location-based fact-sharing client that enables real-time video uploading, voice reporting, and LBS functions. Users become on-site journalists, inviting friends to participate in reporting and fully leveraging the powerful network effects of UGC and social media to create a "citizen journalism scenario." Real-time location sharing provides users with a strong sense of participation and presence akin to "sharing the same place across the world," which, when amplified and transmitted through social media, easily triggers collective euphoria.

3.1.2 Immersive Contextual Communication

On the 90th anniversary of the founding of the People's Liberation Army, the People's Daily WeChat client launched an H5 product titled "Look! This Is My Military Uniform Photo." Users could upload a photo to generate their own military uniform portrait and share the QR code-linked image on social platforms. Launched on the evening of July 29, the H5 had accumulated 820 million views and 127 million unique visitors by 5:00 PM on August 2, with a peak of 410,000 visits per minute—achieving "viral" dissemination. By understanding user psychology at specific time nodes and gradually guiding user behavior to create particular scenarios for contextual immersion, social media 接力 and viral fission dissemination can achieve remarkable communication effects. This represents a pathway for social media to capture public attention under the logic of contextualization.

3.2 Socialized Operation

WeChat mini-programs, born on the social platform WeChat, are characterized by "no installation needed, accessible at hand, use and go, no uninstallation required." Leveraging WeChat's mature social platform and rooted in users' offline scenarios, mini-programs employ LBS real-time positioning and user habit tracking technologies through precise search and QR code scanning to construct scenario spaces, releasing users' desire for information and services and maximizing the provision of precise, convenient services. Users can switch between mini-programs in real-time across different daily life scenarios.

When singing at KTV, users no longer need to follow official accounts; they can simply scan to use the "K-Mi Song Ordering" mini-program, which closes upon exit. The "Flower Master" mini-program allows users to identify flower species, attributes, and related ancient poems instantly by taking a photo. The once-popular "WeChat Jump Jump" integrates users' fragmented time, with WeChat friend leaderboards creating group interaction scenarios. During Spring Festival travel season, Zhixing.com successfully utilized the "Help Friends Speed Up Ticket Grabbing" mini-program to conduct secondary marketing through interpersonal networks on the WeChat social platform. Thus, mini-programs play a significant role in commercial consumption and group interaction by shortening marketing pathways.

Whether in socialized dissemination or socialized operation, contextualization upgrades user roles and enhances their participation in social media, significantly increasing usage rates and making social media an indispensable part of daily life.

4. Development Trends and Recommendations for Social Media Contextualization

4.1 Exploring Niche Fields to Enhance Contextual Penetration

Since China officially connected to the internet in 1994, the "internet economy" has undergone more than two decades of development, participating in the construction of various aspects of China's economy and society, and has begun to take shape. Today, unlike the "land-grab" scale economy of the first half of the internet era—where massive user numbers drove website clicks and traffic to evaluate site quality and advertising investment—the key to victory lies in improving user stickiness and maintaining long-term website operations as the "demographic dividend" gradually disappears. Discovering niche markets, vertically cultivating blue-ocean and minority fields, and focusing on low-frequency, weak-tie consumption demonstrate the utility of contextualization. American scholar Christopher Soghoian argues that "contextualization deconstructs consumers' lives into thousands of individual fragments. From each fragment, consumers discover immediate needs and desires, creating a special, time- and space-limited market. Due to the specificity of these markets, companies that can meet

consumer needs can create higher consumer value in an instant." Under the prediction of the "Long Tail Theory," targeting low-frequency consumption from users' infinitely segmented daily scenarios may capture the economic trends of the second half of the internet era. Peng Lan, in *Three Major Paths for Traditional Media Transformation: Mobilization, Socialization, and Intellectualization*, points out that "verticality is not only about content depth but also about service deepening related to vertical content and community operation." This represents the thinking of creating services and interactive communities through contextualization on social platforms.

4.2 Integrating Multiple Technologies to Enhance Contextual Innovation

Considering current domestic contextualization applications, most merely utilize positioning systems. The further development goal of contextualization is to fully and comprehensively leverage the "combined force" of the "five contextual forces" to create "deep contextualization," moving from single perception-based or construction-based scenarios toward integrated scenarios. This elevates user experience from a "sense of presence" to a "sense of immersion," making contextualization a new entry point for rich media.

Efforts can focus on creating a "social ecosystem" based on wearable devices, leveraging social media's desire for 24-hour collective revelry, mutual voyeurism, and sharing characteristics to achieve real-time "scenario sharing." For example, integrating smart bracelets with instant messaging tools can create an "exercise scenario." The smart bracelet records users' step counts, weather temperature, humidity, heart rate, and other data in real-time, which can be shared on social platforms with one click for challenges and ranking checks. Another example is Gaolei's smart bracelet, where users can "poke" each other at any time, causing the other person's bracelet to vibrate, creating an "affection scenario." In summary, technology-driven innovation in contextualization is needed to make it a new form of information presentation and service delivery.

4.3 Focusing on Content Production to Enhance Contextual Competitiveness

Marshall McLuhan stated that "the medium is the message." When contextualization emerges as a new communication method and information presentation form, its innovation and novelty can immediately capture public attention. However, as contextualization becomes widely adopted and no longer serves as a gimmick, focusing on content production and information quality becomes crucial. Contextualization should not only provide users with "immersive experiences" but also trigger "immersive thinking." Only in this way can contextualization avoid being a "flash in the pan."

4.4 Addressing the Right to be Forgotten to Sustain Contextual Vitality

Viktor Mayer-Schönberger, in *Delete: The Virtue of Forgetting in the Digital Age*, foresaw that for humanity, forgetting used to be the norm and remembering the exception. Now, as storage devices become increasingly inexpensive, remembering has become the norm and forgetting the exception. For example, in perception-based scenarios, some map apps use sensors and big data technology to obtain users' geographic locations as a foundation. They also utilize multiple information sources to maintain synchronized data updates—that is, to maintain changes. Finally, they conduct personalized integration, knowing where users are, what they are doing, and what they will do next, to achieve personalized adaptation. When multiple scenarios are connected and integrated, users' life graphs can be completely exposed. Therefore, we need to allow forgetting to return to normalcy, grant users the right to be forgotten, and reduce their concerns about privacy leakage in contextualization to sustain its long-term vitality.

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