Research Paper

Navigating Digital Heritage: The Role of Social Media in Cultural

A Case Study of Dongguan Street, Dalian

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Abstract

The UNESCO (2024) Thematic Report takes seriously the call to use new media as a promotional tool for heritage protection. Social media platforms expand the visibility of historic areas and attract more visitors, but their entertainment and commercial promotion often weak historically grounded character. As a result, the distinct character of heritage districts is at risk.

I examine 1,984 posts about "Dongguan Street" on two major social platforms in China, Rednote and Weibo. I use TF-IDF to extract key topics and assess public attitudes through sentiment analysis. The result shows that 29.2% of posts focus on tourism, lifestyle, and commercial activities. The post highlight "check-in" culture, photography, and shopping sharing. Historically and educationally focused posts account for 7.1% and attract lower engagement than leisure content. Posts from institutional account for less than 8% of all content and struggle to compete with UGC material in shaping Dongguan Street image.

The fragmentation and rapid changing nature of digital content make the preservation of cultural inheritance become a complicated task. Social platforms reduce access barriers and present heritage as easily consumable and short-lived content. A gap persists between online engagement and on-site educational practices, as interaction with Dongguan Street content online does not necessarily improve visitors' historical understanding.

Based on the findings, balancing commercial objectives with structured heritage narratives can transform social media from a platform of superficial engagement into an infrastructure for long-term cultural inheritance. I recommend using a hybrid communication that connects online visibility with historically interpretation and participatory heritage education.

Keywords

Historic districts, Social Media, Heritage Preservation, Digital Cultural Governance

1. Introduction

Cultural heritage carries collective memory, cultural diversity protection, place-based social identity(Council of Europe, 2005; Nic Craith et al., 2018). However, globalization and modernization place pressure to the cultural heritage, homogenizing local traditions under dominant external influences(de Noronha Vaz et al., 2012; Egoreychenko et al., 2020). Local traditions may be reframed through external cultural and commercial logics, weakening the distinctiveness and integrity of heritage sites(Fu et al., 2023).

UNESCO (2024) emphasizes the urgent need to use new media as a powerful tool for heritage preservation and education. In this context, social media constitutes both an opportunity and a challenge: it expands public access to heritage and increase the visibility of historic districts., thereby strengthening cultural identity and awareness of heritage transmission. However, heritage-related content on these platforms often shifts toward entertainment, tourism consumption, and commercial promotion, while historically grounded interpretation receives less attention(Ginzarly and Teller, 2025; Liang et al., 2021; Rouhani, 2023).

1.1. Literature Review

Cultural heritage is regarded as one of the sustainable development pillars along with economic, social, and environmental aspects by international organizations (UNESCO, 2015; United Cities and Local Governments, 2011; Wiktor-Mach, 2019). However, Labadi (2017) argues that initiatives to conserve heritage can conflict with urban growth and commercial pressures, highlighting the need to balance cultural values against other priorities.

Social media has become an important tool for disseminating cultural heritage information, increasing public engagement, and raising heritage awareness. Governments and organizations worldwide leverage social platforms in heritage strategies. For example, UNESCO held the global campaign #Unite4Heritage to mobilize public support for heritage through social media in 2015.

Social media takes advantage of the interactivity, comprehensiveness, and rich multimedia content. Kaplan and Haenlein (2010) define social media as a series of Internet-based applications that can create and exchange UGC. Compared with traditional media, these platforms facilitate two-way communication and form communities around common interests, even individuals (Cooke and Buckley, 2008). The low barrier to entry and content production gives ordinary users a voice alongside institutions. Within this environment, UGC becomes a core value source, as user contribution systems aggregate diverse forms of user input in ways that create value for others(Cook, 2008). In the heritage context, tourists and citizens can collaboratively create an ever-expanding repository of content about heritage sites. Tourists often plan trips and rely on reviews from others through social networks (Richards, 2011). Due to its cost-effectiveness and wide coverage, social media has also become a marketing tool favored by cultural tourism enterprises (Hays et al., 2013).

The real-time, viral nature of social media can massively amplify heritage messages. Social media enables new forms of interactive storytelling for heritage. Unlike static brochures or guidebooks, digital platforms can present cultural content through videos, virtual tours, user testimonials, and live streams, making heritage communication more vivid and relatable. Affleck and Kvan (2008) argue that digital environments redefine the viewer as an active participant, since users can interact with content and with each other. Vicari and Kirby (2023) observe that digital platforms have “reconfigured how cultural manifestations are shared, consumed and reinterpreted,” allowing heritage stories to transcend geographical and generational borders.

People often trust other travelers’ experiences more than official booklets, because of the emotional connection (van der Hoeven, 2019). Positive reviews and personal stories can trigger a virtuous cycle of interest. Social media broadens participation and support, but some scholars raise concerns about social media’s limitations and adverse impacts on cultural heritage communication. A major issue is the tendency to prioritize entertainment value and visual appeal over educational content. Social media content creators often chase likes and shares; they focus on what attracts viewers, typically eye-catching photos and fun experiences, so the sites turn into consumption stages.

Digital media challenges the power structure in publicity. Giaccardi (2012) argues that people outside formal institutions can launch heritage posts. This democratization encourages participation but also may drown out expert voices and leave the public navigating an uneven information environment. While social media carries much high-quality information, its lack of content screening provides avenues for misinformation and even conspiracy theories to proliferate, and identifying and refuting misinformation has become a key challenge on social media (Arechar et al., 2023). Without the strict review systems, the online content related to heritage is released with less quality control due to the openness of social media, which may be erroneous and misleading. In the heritage field, the inaccuracies can distort perceptions of authenticity.

Social media's format and algorithms also bring challenges. Social platforms favor brief, visually driven content over long explanatory text. Deep discussions and analyses tend to get less engagement online; this bias can make it difficult to convey complex cultural information. As a result, heritage communication on social media becomes oversimplified. Munar (2010) notes that social media encourages people to generate immediate ideas and impulsive emotional sharing, which is completely different from the more reflective behavior in traditional travel reflection. Tourists often only post short thoughts instead of thoughtful comments on what they have learned. The architecture Yeung (2025) remarks that accuracy and depth can matter less than speed and visual hook in today's information landscape. The ephemeral nature of social media, where posts quickly sink in ever-refreshing feeds, makes it difficult to sustain attention on educational heritage content and is at odds with the intergenerational continuity that cultural sustainability requires.

In summary, relevant literature regards social media as a two-sided coin: it can promote extensive interaction and achieve creative narratives, but it is also prone to superficial, short and sometimes unreliable content.

1.2. Dongguan Street Context

Dongguan Street, located in Dalian, China, emerged in the early twentieth century. It is one of the first consumer marketplaces. The buildings blend traditional courtyard with Japanese and Russian colonial style. Many original buildings have deteriorated now. By the early 2000s, researchers described Dongguan Street as "one of the most dilapidated neighborhoods in Dalian". It is a signal that careful protection and renewal are urgently needed (Dalian Urban Spatial Planning and Design Co., Ltd., 2022; Zhang et al., 2023).

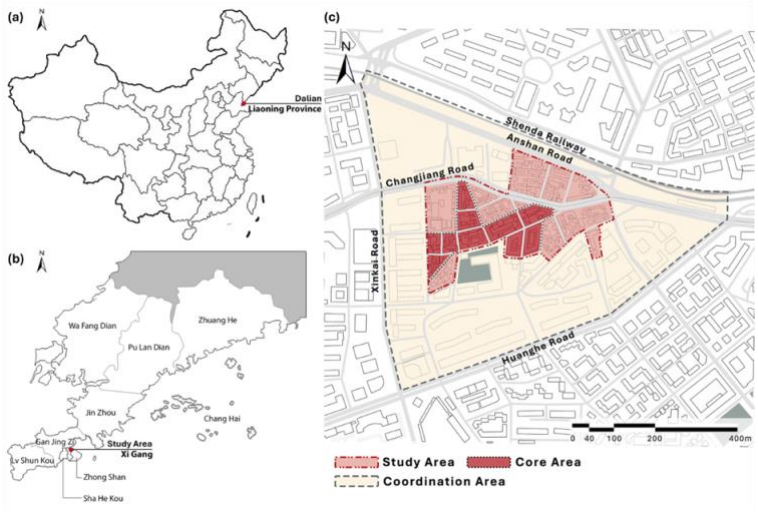

Figure 1 (a) China location map. (b) Dalian location map. (c) Map of the Dongguan Street Historic District. Source: Base map sourced from standard maps provided by CADMAPPER.

In July 2009, the "Dongguan Street District" was listed as an immovable cultural relic, but this area did not get sufficient attention in 2010 to 2020 master plan. Scholars argue that the omission casts the street as an obstacle instead of a heritage. After 2010, Dongguan Street became the focus of redevelopment. Citizens in Dalian Street advocate protection and restoration. In 2015, the government announced a transformation plan for the area, but the project paused because of the relocation postponement and the Cultural Heritage Bureau's intervention. The interaction between demolition pressure and protection efforts highlights the controversial status of Dongguan Street heritage in the past decades(Dalian Urban Spatial Planning and Design Co., Ltd., 2022; Zhang et al., 2023).

Dongguan Street was not included in the formal protection policy until recently. In 2020, Dongguan Street was officially listed as a provincial historical and cultural block with new regulations and plans. From 2019 to 2020, Dalian formulated protection plans for key areas and issued city-wide heritage planning regulations. (Dalian Urban Spatial Planning and Design Co., Ltd., 2022; Zhang et al., 2023). In summary, the modern history of Dongguan Street is a slow process of heritage recognition, and its redevelopment plan is being advanced through continuous discussions.

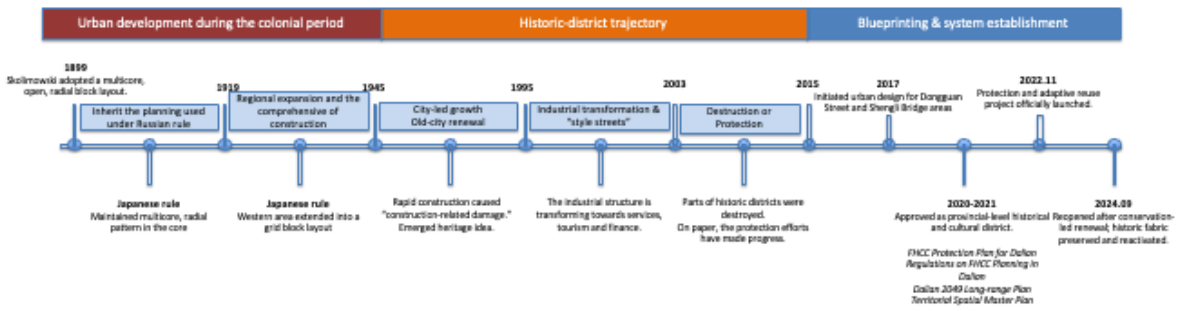

Figure 2 Dongguan Street Historic District Timeline. Source: By author.

2. Methodology

2.1. Data Collection and Overview

I collected posts from two major platforms in China: Weibo and Rednote. Irrelevant mentions were filtered out. The total number of valid data is 1,984. The data included public posts, images. I conducted a search for posts containing the keywords “Dongguan Street” and “Dalian” in Chinese. The posts spanned primarily from 2018 to 2025. This generates a screened database, reflecting the online discussion about Dongguan Street. Each post is classified according to users and content types. Overall, about 92% of posts are published by individual users, and 8% from institutions or verified official accounts.

2.2. BERTopic Modeling for Topic Extraction

To uncover prevalent themes in the social media discourse, I employed BERTopic. BERTopic extends traditional topic modeling by generating dense semantic embeddings of documents and then finding natural clusters of these embeddings(Grootendorst, 2022).

Each post was treated as a document and subjected to standard preprocessing steps, including noise removal and normalization into simplified Chinese. A pre-trained Chinese BERT model was used to transform each post into a vector representation that encodes its semantic content. These vectors were clustered into topics following the BERTopic procedure. Each bubble represents a topic in a two-dimensional projection of the embedding space. The presence of several dense clusters alongside a few more isolated bubbles indicates that the discourse contains both tightly related groups of themes and a small number of more distinct topics.

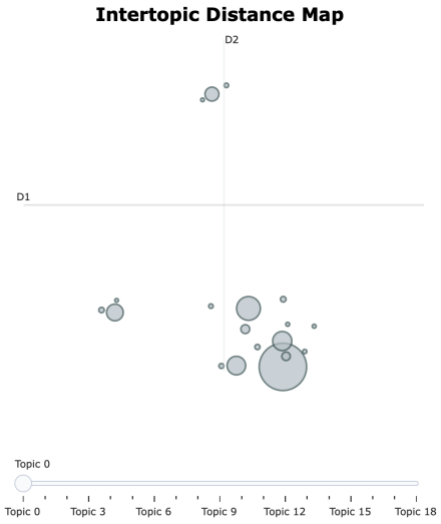

Figure 3 Intertopic Distance Map. Source: By author.

Building on the BERTopic results, an iterative topic-refinement workflow was implemented using the GetTopicInfo_Plus procedure. In each iteration, low-frequency or clearly irrelevant topics identified from the BERTopic topic list were removed, and semantically similar fine-grained topics were merged until a stable and interpretable set of higher-level themes was obtained. Outlier documents (those assigned Topic = –-1) were reassigned to the most semantically similar topic using the reduce_outlier function to minimize noise. This process generated a final content taxonomy comprising five categories: (a)

commercial experience and consumption scenarios, (b) cultural activities and cultural tourism integration, (c) historical buildings and neighborhood memories, (d) leisure and natural landscape experience, and (e) urban renewal and transformation practices.

Category (a) includes posts emphasizing food, shopping, entertainment, street selfies, and general travel impressions. Category (b) encompasses posts describing festivals, performances, exhibitions, creative markets, and guided tours. Category (c) consists of posts focusing on historical buildings, old neighborhoods, and local memories. Category (d) comprises posts about everyday leisure and landscape experiences. Category (e) includes posts discussing transformation projects, streetscape upgrades, infrastructure improvements, land-use changes.

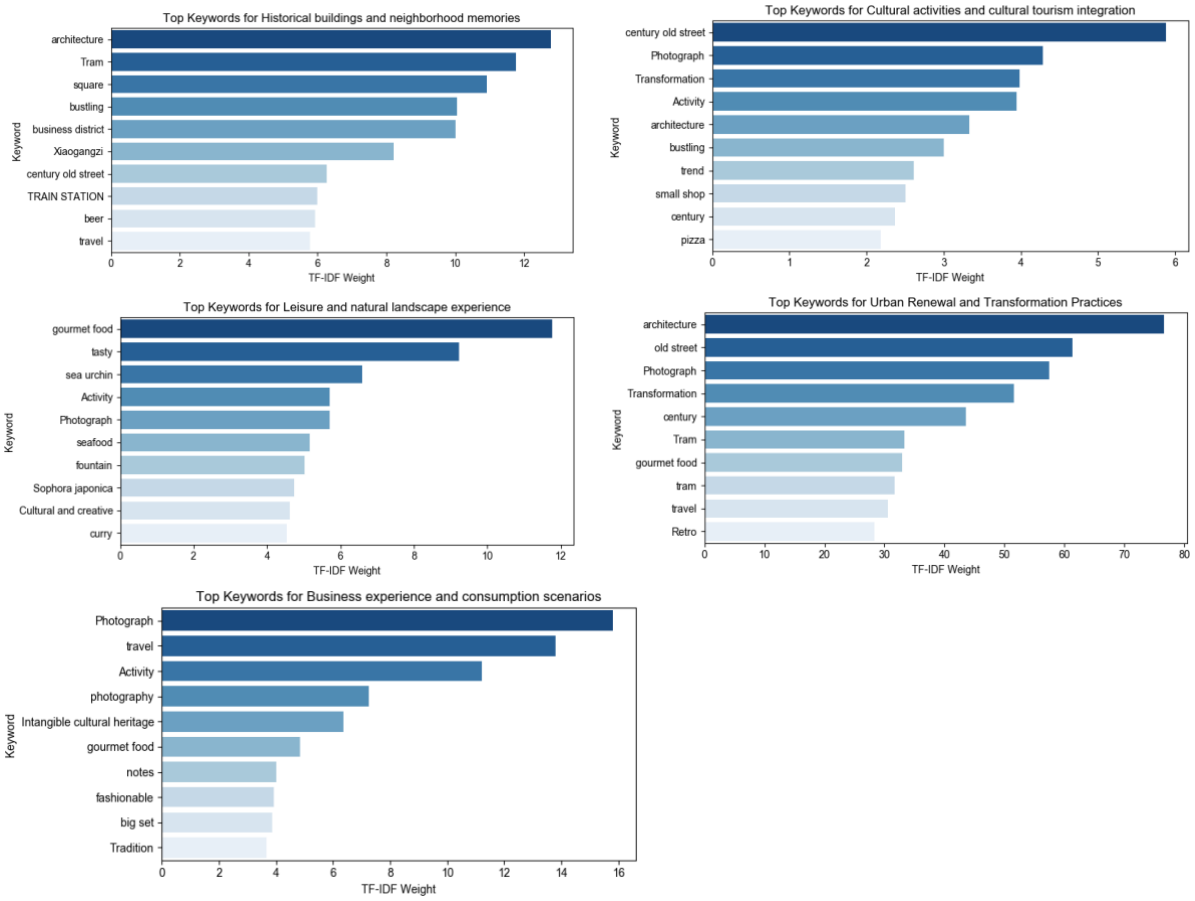

Figure 4 Keyword Importance for Topic. Source: By author.

A topic similarity matrix was computed by calculating cosine similarities between topic embeddings. The similarity matrix reveals that business experience, leisure and natural landscape experience, and urban renewal and transformation practices are highly interwoven, whereas cultural activities and especially historical buildings and neighborhood memories exhibit comparatively lower similarity to the other groups, suggesting that heritage-oriented narratives form a more distinct strand within the overall discourse.

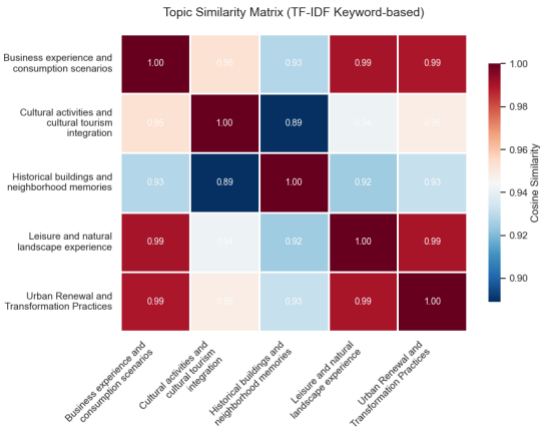

Figure 5 Keyword Similarity Matrix. Source: By author.

This approach facilitated visualization of the relationships among topics, identifying which topics were closely related and which were more distinct. Hierarchical clustering of the topics based on this similarity revealed broader thematic groupings. Tourism-oriented topics clustered separately from history-oriented topics, indicating a clear content bifurcation.

Engagement counts were normalized to control for the effect of follower base. The participation data is standardized to eliminate the influence of the fan base. The summarized indicators make it possible to compare the participation performance of heritage-related content and business content. In addition, the results of the topic model are used to analyze participation by topic. According to the chart analysis, posts related to urban renewal and renovation practices occupied an absolute dominant position in the entire **content, while the content related to heritage protection, which focuses on historical buildings and community memories, accounted for a relatively smaller proportion.**

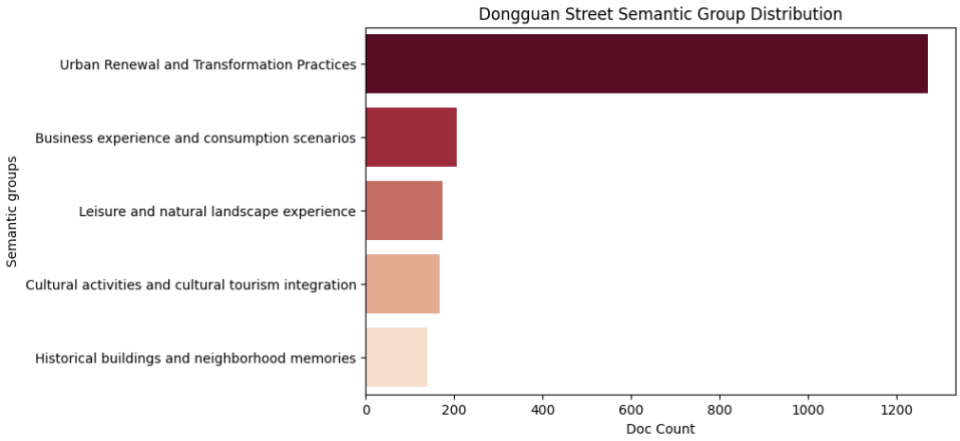

Figure 6 Dongguan Street Semantic Group Distribution. Source: By author.

2.3. Engagement Patterns

I calculated the percentage in each category and compared the interaction. Key interaction indicators include the number of likes, comments, and shares. Its persistence is defined as the time span from publication to the last record of the interaction. This interaction duration reflects the length of time the post remains relevant or actively interacted with by users.

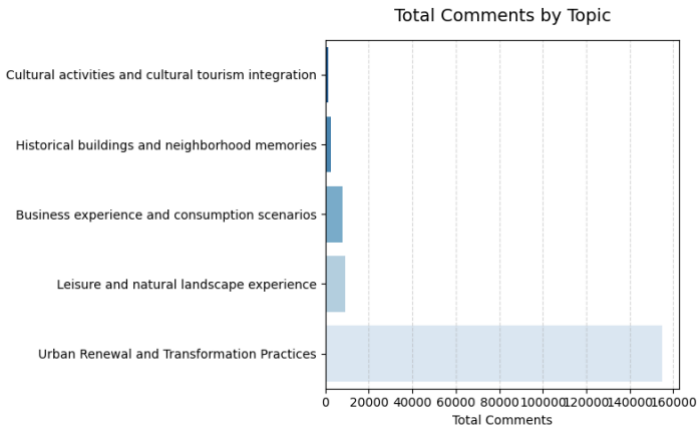

Figure 7 Total Comments by Topic. Source: By author

2.4. Sentiment Analysis

For sentiment analysis, I used the T5-large-sentiment-analysis-Chinese model to classify each post as positive, neutral, or negative. I then aggregated sentiment distributions within topics to reveal dominant emotional tendencies. I computed TF-IDF scores using the CalTfIdf function and extracted the top 500 high-weight keywords per topic to profile topic semantics. These keywords were translated into English with Google Translate before being visualized as word clouds to summarize salient features.

The sentiment distribution shows a clear positive tilt, which is typical in tourism-related content. To ensure a comprehensive analysis, I evaluated negative and neutral posts using qualitative methods. Frequent negative comments mention crowding, commercialization, and service issues, whereas neutral posts are usually descriptive. I calculated the proportion of posts in each emotional category and the average emotional score by content category, then examined how emotion relates to participation. By linking emotions with theme tags, I identified areas of concentrated enthusiasm and its dispersion. Posts about shopping and food are mostly positive, while posts about historical education—though fewer—tend to be neutral or mildly positive.

Some posts include slang or satire. Before finalizing the dataset, I corrected most of the obvious misclassifications. Generally, positive emotions show favor toward Dongguan Street, while specific negative concerns highlight issues. The combined use of thematic modeling, content classification, participation analysis, and sentiment mining offers a multi-faceted view for users describing Dongguan Street.

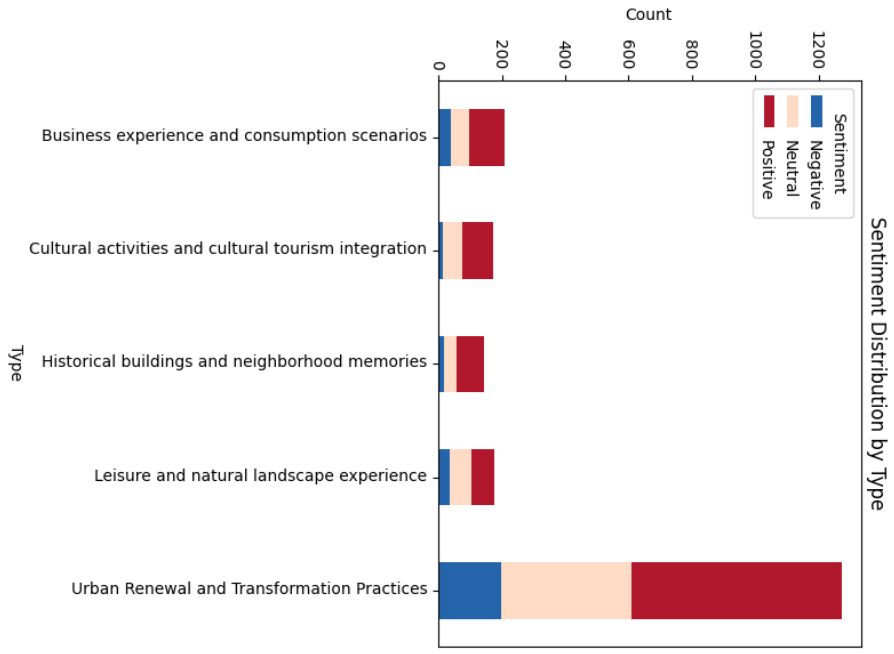

Figure 7 Sentiment Distribution by Type. Source: By author.

3. Discussion

The research results reflect the relationship between social media and cultural heritage. Social media has greatly improved the heritage's popularity; the nature of online content tends to be superficial interaction. I will discuss an integration framework for future interaction, aiming to balance entertainment and education, and use the advantages of social media to strengthen protection.

3.1. Benefits and Pitfalls

The most remarkable achievement of social media in the sustainable development of heritage is its broad influence. It has raised the popularity and expanded the audience. On Dongguan Street, this exposure attracts more young tourists. It can promote community cohesion and pride. If handled properly, positive emotions and the increasing number of tourists will be converted into the cultural capital of local institutions. Equally important, these platforms can provide a participatory cultural heritage experience: users create and spread their own pictures and stories, thus forming a virtual community and strengthening the connection between individuals and the site.

The challenges associated with social media are equally substantial. Entertainment-oriented content is easy to simplify; historical narratives will deviate from the right track with the momentary popular trend. User interaction data shows that heritage-themed posts often perform poorly, suggesting that platform algorithms may exclude substantial content because the feedback brought by such content is slower.

The popularity on the Internet is short-lived. The selective displays may cover up potential problems. Relying on short-term attention is not a stable and lasting strategy; lasting appreciation needs much more than information flow can guarantee.

Institutions voice is weak. When there is a lack of professional views on the Internet, misinformation and superficial interpretations may gain more visibility. Experts need to adopt expressions that resonate with contemporary audiences and establish cooperative relationships with reliable influential figures to ensure that content with historical backgrounds is not ignored. Sustainable heritage communication therefore requires a balance between accessibility, public engagement, and historical accuracy.

3.2. Toward a Hybrid Framework

Based on these findings, balanced communication strategies are needed, which connect online visibility with historical interpretation. Official accounts could use short videos, archival photographs, oral histories, and AR-based "then-and-now" materials to make historical narratives easier to access. Collaboration with selected local creators may also help circulate heritage content, but such collaboration should be guided by clear interpretive goals rather than visitor traffic alone. At the same time, merchants and cultural institutions could integrate historically informed signage, small exhibitions, and QR-based interpretation into the everyday commercial environment. These measures would allow tourism, user participation, and cultural education to support one another, rather than letting entertainment-oriented content dominate the public perception of the district.

4. Conclusion

This study examined how social media shapes the public representation of Dongguan Street and what this means for cultural heritage sustainability. The findings show that social platforms expand the visibility of the district, but the dominant content is oriented toward tourism, photography, consumption, and everyday leisure. Historically grounded posts appear less frequently and receive weaker engagement, while institutional voices remain relatively limited. As a result, user-generated content plays a larger role in defining the public image of Dongguan Street.

These patterns suggest that Dongguan Street is often represented as a consumable urban scene rather than a historical district. Sentiment toward the site is largely positive, but much of this positivity relates to atmosphere and visitor experience rather than historical understanding. Therefore, the concern is not social media itself, but the gap between online attention and cultural interpretation. In conclusion, for heritage districts, digital communication should be linked with on-site interpretation, commercial management, and community participation. Only in this way can online visibility support cultural continuity rather than replace it with short-lived popularity.

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