How Citizens Perceive Urban Street Environment in Shanghai: Insights from Social Platform Text Analysis

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Abstract

Studies on livability often rely on objective measures to characterize livable spaces as spacious, bright, and accessible, in recent years, growing attention is being paid to how individuals perceive and emotionally respond to their urban environments, to capture nuanced attributes such as comfort and pleasantness. Social platform apps make the data collection and mining of individual perception available. This research constructs a perception lexicon for over 200 street sites in Shanghai and identifies how citizens comment on these sites through sentiment analysis based on the social platform texts. A Chinese natural language processing (NLP) tool is applied to sort out the extent of citizens' feelings on the urban street environment through a 0-1 scoring system. The results unveil that urban streets with high sentiment score are mainly located in urban center with a few sites in major new towns designated in Shanghai's mater plan. Among the five categories of urban streets, those with historical heritages such as old township streets or historical cultural commercial streets generally receive the higher score than those without historical factors, implying the significance of historical elements in establishing the pleasant street environment. The NLP-based text analysis quantifies the intensity of emotional perceptions related to the built environment. Findings demonstrate that this approach not only captures public perception effectively but also provides a scalable, data-driven method for integrating emotional and experiential dimensions into urban livability assessments.

Keywords

Street environment, social platform, text emotional analysis, perception, Shanghai.