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MAPPING AFFECTIVE URBAN ATMOSPHERES IN SHANGHAI'S PUBLIC TRANSPORTATION: A METHODOLOGICAL APPROACH TO URBAN MOBILITIES

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The perception of urban spaces is significantly influenced by affective atmospheres, which emerge from a complex interplay of material, social, and digital components (Brown et al., 2019; Macón, 2023). As such, the perception and experience of emotions are intricately intertwined with the sensory and media conditions that define the human experience of urban space. Digital information systems collectively influence the emotional experience of public transport users as much as lighting conditions, ambient noise, behavioural norms, and access. Digitalisation and 'smartness' of cities gives rise to new forms of atmospheric formation determined not only by physical infrastructure and social components, but also by digital signals and mobile media (Ash, 2013; M. Cook & Valdez, 2021; Sumartojo et al., 2016; Sumartojo & Pink, 2019). These factors influence people's experiences and movement through urban environments. This paper captures experiences of mobility embedded in the environment of Shanghai public transportation as a multisensorial urban atmosphere.

Public transport, as a pivotal component of urban activity, functions as a distinct hybrid space (de Souza e Silva & Sheller, 2015) where the physical, the digital and the affective dimensions of mobility intersect, merging public space and public sphere (Sheller, 2023). Not only people, goods and their media are mobile in these urban processes, but also information flows and ideas at play are also mobilised. Still, as much as mobility is a central defining element of digital urbanised spaces, it cannot be considered neutral, but as a structural and an emerging expression of deep socio-political and economic power relations (Behrendt & Sheller, 2023; N. Cook & Butz, 2019; Sheller, 2018). Mobility thus encompasses transportation and logistics of people and goods as much as it is also the expression of intricate processes of information and of circulation of ideas, along with their cultural anchoring and underlying power structures (Jansson, 2022).

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The digitalisation of public transport is not merely a matter of enhanced efficiency; it also exerts a considerable influence on the atmospheres and social dynamics within urban spaces. ‘Smart’ cities planners progressively adopt data-driven systems to manage mobility, while often disregarding the affective dimension of these advancements (M. Cook & Valdez, 2021, 2022); but the research shows that digital media and mobile (internet)technologies have become an integral part of urban atmospheres and influence how people behave and feel in public spaces (Atteneder & Lohmeier, 2024; Bailly & Marchand, 2021; Humphreys, 2010; Lohmeier et al., 2025; Wilken & Humphreys, 2021): and the interweaving of the aesthetic and emotional dimensions of urban atmospheres (de Souza e Silva & Frith, 2012; Griffero, 2014).

This study is designed to capture the multisensory dimensions of urban atmospheres. To do so, it builds on the Non-Representational Theory (Johnson, 2011; Thrift, 2008) and Affect Theory (Gregg & Seigworth, 2010) frameworks, and encompasses geo-computational analysis and qualitative and quantitative methodologies that will help grasp the interplay between urban spaces, affective atmospheres, and digital mediality.

Objective and Case study

The objective of this study is to develop a methodological tool-set for the systematic capture and visualisation of affective atmospheres in public transport in a digitally-connected metropolis such as Shanghai, by integrating the role of digital signals, mobile media, and subjective perceptions. Initial approaches suggested urban atmospheres in public transport are constituted by a dynamic superimposition of digital and material elements, that could be visualised in spatial-visual representations such as heat maps and density analyses; and the study was designed against this idea.

Shanghai, with its population nearing 30 million, extensive public transportation network, and rapid digitalization, serves as an exemplary field site for urban mobility research. And as a significant industrial city, it functions as a complex transportation hub for both national industry-related transit, and inner-city passenger transport. Access to the field was facilitated by existing research collaborations with the School of Journalism at Fudan University and supported by a research grant from the Baden-Württemberg Foundation (funding line: Elite Programme for Postdoctoral Researchers), of which this project is part.

Methodology

The data collection took place in Shanghai (April 2024) and consisted of an array of data sources synchronized on a same timestamped timeline. The sources include:
GPS tracking (Strava): recording movement paths that could be visualised on a map and connected to atmospheres.
Geolocated Pictures (GPS, and time stamp): to act as visual signifiers and linked to other data layers via metadata.
Sniffer data used to capture 'invisible digital signals', that measured the presence of digital infrastructure -such as Wi-Fi activity and other signals, and their density. The data is also timestamped for interoperability.
Ethnographic field notes (Gobo, 2008; Sumartojo & Pink, 2019): As researcher-based perceptions of affective atmospheres, collected through direct observation.

Analysis and knowledge gain
This methodological approach is intended to create a deeper understanding of the human condition (Herdin, 2020) and of affective urban atmospheres (Griffero, 2014). It was designed to combine the use of geo-computational tools capable of integrating qualitative, digtial and quantitative data to offer a rich and nuanced analysis of affective atmospheres and their visualisation. The amalgamation of diverse data types layered on cartographic representations of urban atmospheres illustrate varying degrees of affective density: Heat maps facilitate the identification of the overlap of spatial patterns and emotional hotspots along the public transportation systems. These representations facilitate a more profound comprehension of urban affect dynamics and their impact on social interactions and mobility practices.

The results contribute to the conceptual research on public spaces and mobility; also provide a practical tool for analysing urban moods and their amplification in the digital age; and finally, they offer a line of recommendation and impact for policy making and urban planning that involves responding to further inquiries concerning the role of affects in data-driven urban planning processes. Among others, how this research on affective atmospheres can help enhancing the quality of life in urban mobility spaces, or to what extent should affective atmospheres be integrated into urban planning strategies. These inquiries underscore the potential of establishing affective atmospheres as a pivotal category in research into urban dynamics and its empirical research as conditions to understand the role of internet and connectivity in urban mobility.

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