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Design inspires swirling dialogues: from city branding practices to rethinking collaborative learning in design education

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Abstract

As the role of design expands into public policy, governance, and civic life, there is a growing need to rethink design pedagogy, viewing it not merely as a technical discipline but as a field responsible for cultivating civic capacity, fostering critical dialogue, and supporting sustained public engagement. Yet much of design pedagogy still emphasizes problem-solving approaches. As designers increasingly transition from the role of problem solvers to that of facilitators and collaborators, it is essential to ask how they can engage diverse publics in sustained co-creative processes, particularly within the context of wicked, systemic challenges that characterize contemporary public life. This study introduces a swirling dialogue framework that examines how designers actively shape interactions among people, products, networks, and power hierarchies with a participatory and civic learning process of city branding. It demonstrates how design knowledge can foster sustained dialogue and collective reflection among diverse stakeholders, which is critical for building shared visions and supporting long-term urban transformation. These findings also offer implications for design education, suggesting that cultivating future designers' capabilities requires immersive engagement with complex, real-world contexts and developing the ability to facilitate situated and collaborative learning for the public. It positions design as public pedagogy and offers insights for design education to better prepare practitioners for complex, cross-sectoral collaboration.

Keywords Design education, City branding, Participatory design, Social learning

1 Introduction

As social change and technological advancement continue to reshape, design education has often been criticized for its stagnation. Rooted in 20th-century paradigms that emphasize form, aesthetics, and function, traditional design curricula have long neglected human-centered and interdisciplinary approaches (Formosa, 2025). In response, a growing number of educators and researchers are introducing emerging technologies and

public-oriented themes into the curriculum to cultivate students' capacity to "design for the future and for life" (Duan et al., 2025; Wu, 2025). At the same time, the cooling real-estate sector, increasing economic uncertainty, and the rise of internet and AI industries have diversified the competencies required for design graduates, demanding digital literacy, public management skills, and systemic thinking supported by interdisciplinary knowledge (Chen & Chen, 2025). This signals a gradual shift from formalist training to socially engaged and systems-oriented design thinking, positioning design as a knowledge system for social transformation.

In the field of urban planning and design education, this shift is particularly evident in the growing emphasis on public issues oriented and cross-sector collaboration. Jane Jacobs' (1961) life-centered urban design

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philosophy has had a profound influence on both practice and education, inspiring the incorporation of participatory methods and concerns for social justice into planning pedagogy. Nowadays, participatory planning has become a central practice in urban design. The role of designers has evolved from being experts who simply provide solutions to becoming facilitators and collaborators (Sander & Stappers, 2008). Designers are no longer merely handing tools over to the public, instead, they are challenged to co-create sustainable public spheres that enable collaborative social innovation (Björgvinsson et al., 2012; Huybrechts et al., 2018).This expanded and shifting role of designers also signals an urgent need to update the knowledge systems within design education, especially their responsibilities in cultivating civic capacity, critical dialogue and long-term participation in public life..

Set against this wider context, city branding is far from merely a design practice, it operates as a pedagogical laboratory where students, designers, and civic actors engage with complex issues. While it requires designers to integrate multidisciplinary knowledge (such as planning, design, culture, economics, and tourism), it is also necessary to manage the expectations associated with the multiple identities of diverse stakeholders (e.g., communicated identity, conceived identity, desired identity) (Ashworth & Kavaratzis, 2009; Wæraas et al., 2015). This process is intangible and complex, which is different from the current focus of design education on tangible crafts, forms, and studio-based training. Therefore, the cultivation of designers must move from being operational practitioners to cross-disciplinary leaders who can tackle systemic, contextual, and complex problems (Meyer & Norman, 2020).

Concurrently, design education itself serves as a simulated testbed for city branding. Students' visualizations help governments and citizens see brand visions, generating contextualized, place-based proposals that create a pathway from the classroom to the city. Radosavljević et al. (2020) propose two educational paradigms in city-branding programs: place-based and collaborative city-making. They argue that educational projects can generate value in situ and enable social and spatial transformation through workshops, events, design projects, and exhibitions. While such approaches enable dialogue among stakeholders, designers, and even non-human actors, linking branding and design and embedding participation into planning and governance, a critical question remains: how can designers continuously create and sustain these dialogues over time? Addressing this issue is essential for fostering stable cross-actor development and advancing integrated strategic approaches.

This study examines a city-branding project in China to understand how dialogic design practices are initiated and sustained over time. Far from merely passive recipients, the multiple stakeholders are conceptualized as active co-creator in an expanded landscape of design education. This reframing emphasizes their embodied interactions with place and emotion, while also foregrounding the continuous, reflective learning processes that link prior knowledge with inquiry and meaning-making. The article outlines specific design strategies and case analyses that demonstrate how innovation and participation were activated under limited time and resource conditions to renew the city's identity. Rather than focusing on design outcomes, the study focuses on how design organizations collaborated with public sector workflows and employed emerging technologies such as the Internet of Things to support urban governance. By exploring how design actors reshape their roles within intricate sociopolitical systems, this research contributes to ongoing discussions on how design education might evolve to prepare future practitioners for complex, cross-sectoral challenges in public life.

2 Literature Review
2.1 City branding as a situated learning process
City branding is generally understood as a strategic process through which cities construct, communicate, and manage a distinct identity to influence perceptions among external and internal audiences (Kavaratzis, 2012). A successful city brand can catalyze a series of positive developmental outcomes, such as boosting local tourism, attracting visitors and investors, enhancing economic vitality, and improving residents' quality of life (Anttiroiko, 2014; Cleave et al., 2016; Hussain Ali & Neamah Al-khafaji, 2022). As a spatial identity, city branding provides a shared reference point for political decision-making, commercial strategies, and even individual behaviors (Kavaratzis, 2005). It implicitly educates the public on how to understand, imagine, and engage with the future of their cities. In this sense, city branding can be conceptualized as a form of urban design education. It communicates collective values, constructs shared narratives, and stimulates civic imagination about what the city could become. Typically, a city brand is composed of a multidimensional assortment of functional, emotional, relational, and strategic elements that collectively generate a distinctive set of associations in the public mind (Aaker, 1996, p. 68). Still, in practice, city branding is frequently reduced to a visual strategy, used to supply content for infrastructure, media, and public messaging.

The process of creating a city brand can also be understood as a form of design education. Rather than being an intrinsic and fixed identity, city branding is an externally

constructed and continuously evolving product of deliberate design. While a city's identity may be shaped over time through collective memory and emotional attachment (Parente, 2016), it is also subject to reinterpretation and revision, much like clothing that can be tailored, replaced, or adjusted to fit new contexts and aspirations (Anholt, 2006; Bauman, 2013). In this sense, the act of constructing a city brand is not merely a top-down imposition of visual identity, but a learning process that engages diverse actors in dialogue, negotiation, and reflection. This situated learning process occurs through iterative design practices, participatory engagements, and the testing of symbolic narratives. Through this co-creative process, city branding becomes a platform for civic education, enabling publics to develop critical design literacy, reflect on shared meanings, and actively shape the urban imaginary.

While the city branding process ideally invites broad participation, it is often led predominantly by government or public sector which concerns over efficiency, return on investment, and administrative feasibility. This frequently exclude stakeholders who should otherwise contribute to the brand's creation, and resulting in a widely observed lack of participation (Huzzard, 2021). The structural complexity and political nature of public sector play a significant role. Centralized power dynamics often marginalize less powerful stakeholders, overlooking their needs, identities, and aspirations. This is also a form of power asymmetry, that is, an imbalance in the power–dependence relations among interdependent actors who are expected to participate in collective tasks (van der Vegt et al., 2010). While bottom-up initiatives led by citizens have emerged, seeking to involve diverse perspectives through collaboration, without effective organization and support, these stakeholders may remain passive recipients of information or mere followers, rather than active participants in the shaping the city (Parente, 2016; Lu et al., 2017). Building on this, it highlights a central challenge: how can designers intervene within these constrained institutional frameworks to foster democratic design dialogues.

2.2 Participation and facilitation in the city branding dialogue

City branding is inherently a collective endeavor, and no single group or institution can unilaterally determine its success. Rather, the active participation of diverse stakeholders is widely acknowledged as a critical component in shaping an authentic and resonant city identity (Kavaratzis, 2012; Stubbs & Warnaby, (2015). In this context, participatory design engages stakeholders in constructive, often contentious dialogues that spark new ideas and forms of knowledge. However, stakeholder involvement has its complexities. Each actor brings their own assumptions about urban development and social progress. These interpretations are inevitably shaped by personal values, biases, and constraints on rationality, which make objective consensus difficult. As Simon (1990) describes it as bounded rationality, individuals are limited by cognitive biases and imperfect information, making fully rational decisions nearly impossible. When designers intervene in the reshaping of a local identity, their external perspectives may diverge from the embedded knowledge and emotional attachments of local communities. As Yi-Fu Tuan (1990, p.63) illustrates the difference is not merely informational but experiential:

> *"......we may say that only the visitor (and particularly the tourist) has a viewpoint; his perception is often a matter of using his eyes to compose pictures. The native, by contrast, has a complex attitude derived from his immersion in the totality of his environment. The visitor's viewpoint, being simple, is easily stated. Confrontation with novelty may also prompt him to express himself. The complex attitude of the native, on the other hand, can be expressed by him only with difficulty and indirectly through behavior, local tradition, lore, and myth. "*

This divergence between outsider imagination and insider experience complicates the participatory design process, especially when external designers attempt to intervene in deeply rooted local identities. Therefore, the participatory city branding hinges not only on technical skill, but on the designer's ability to recognize their own positionality, navigate plural values, and facilitate meaning-making processes that reflect both external insight and internal resonance.

To address this, Richard Buchanan (2007) argues that designers must engage in "rhetorical inquiry"which is the ability to communicate design visions effectively, imagine preferable futures, cultivate empathy from the user's perspective, and construct compelling and persuasive narratives. Their interpretations of material culture—often shaped by creative, speculative thinking—can differ from the lived experiences and symbolic meanings held by residents. Engaging with the public sector requires designers to transcend operational tasks, fostering shared interpretations and dialogical balance with policymakers (Huzzard, 2021). Design organizations carry political responsibilities across both macro and miso levels, tasked with integrating practice and governance to initiate institutional transformation (Huybrechts et al., 2018; Deserti & Rizzo, 2014). Some scholars advocate for more radical approaches, such as "agonistic participatory design", which seeks to emancipate design from political instrumentalization by fostering democratic arenas of

contestation and pluralistic dialogue (Björgvinsson et al., 2012). Ultimately, however, the positioning of design within or against institutional systems depends on the designer's own ethical and political orientation.

Participatory dialogue is also a process of mutual learning and role transformation. For designers, engaging with local stakeholders requires long-term social immersion, allowing them to grasp tacit relationships and context-specific knowledge that may be invisible to outsiders. Their roles are increasingly fluid, ranging from lurkers and facilitators to consultants and cultural mediators (Merkel et al., 2004). Yet the dual responsibility of being both facilitator and change agent has been critiqued. Winschiers-Theophilus et al. (2012) argue that designers should evolve from meta-participants into true co-participants, adapting their methods and plans to support collaborative, locally embedded practices.

Yet full decentralization which leaving all agenda-setting and decision-making to diverse stakeholders may risk producing incoherent or diffuse outcomes. Without careful structuring, such dialogues can devolve into unproductive "buzz" that fails to yield actionable knowledge. The key lies in acknowledging that participants possess valuable, change-enabling knowledge and in offering them platforms to articulate and mobilize that potential (Till, 2005). As Johnston and Glenny (2020, p. 300) note, "People become active publics only if they are sufficiently motivated to be involved and if they have the ability to find and consider information about how their interests may be affected."

Therefore, establishing inclusive and well-facilitated dialogue among multiple stakeholders is essential in complex city branding contexts. Such interactions foster novel participation patterns, build new relational networks, accommodate diverse motivations and values, and negotiate sensitive power dynamics (Brereton & Buur, 2008).

3 Participatory city branding case study: *Longquan*

This case study documents the authors' extensive dialogue with various stakeholders concerning the city branding renewal of Longquan City. It outlines how the design organization collaborated with the public sector and other community members to facilitate broader public engagement in governmental decision-making processes, aiming to enhance public engagement and participation in governmental decision-making process. Longquan City, situated in Zhejiang Province, Eastern China, boasts a rich cultural heritage as a nationally recognized historical and cultural city. Notably, Longquan is renowned for its celadon and swords, esteemed intangible cultural assets. Longquan celadon, with a

history spanning over 1,600 years, remains a focal point of the city's tourism promotion efforts, showcasing traditional celadon craftsmanship. The authors and their design organization embarked on this journey in 2018 when tasked with developing a master plan for a celadon-themed craftsmen's workspace. Subsequently, they became deeply involved in Longquan's city branding strategy for nearly four years. The authors navigated coordination and communication with the public sector throughout this period, continually engaging multiple stakeholders in co-design processes.

This study employs a qualitative research approach, based on empirical materials gathered through fieldwork and design action research in Longquan. The combination of on-site observations, participatory activities, and design interventions provides the foundation for exploring how designers can sustain swirling dialogues over time.

3.1 Phase 1: City Branding Concept

During our field research in Longquan, we observed numerous urban sculptures, signboards, and billboards shaped like celadon vases and swords scattered throughout the city's public spaces (see Fig. 1a). These items often replicated the contours of celadon vessels and swords, frequently displaying inferior aesthetic qualities. In contrast, the celadon and sword artifacts we encountered at various exhibitions and studios (see Fig. 1b) offered a different cultural experience, highlighting these items' craftsmanship and cultural significance. While the former lacked aesthetic quality, the latter showcased exceptional craftsmanship and cultural significance. This discrepancy led us to question whether local citizens and the creators of these artworks indeed recognized these images as representations of their cultural heritage. Furthermore, we wondered if the designers shared a common perception of Longquan's image and how the public sector's decision-making process influenced the materialization of cultural expression.

To address these questions, we conducted several seminars and workshops with stakeholders, including public sector officials, artists specializing in celadon and swords, local design firm designers, and public representatives (see Fig. 2). Utilizing tools such as giga mapping, social network analysis, and semi-structured interviews, we sought to understand the cultural identity that Longquan's stakeholders wanted to present to the public. Our goal as external designers and researchers was to adjust our strategies continuously while collaborating with these multiple stakeholders.

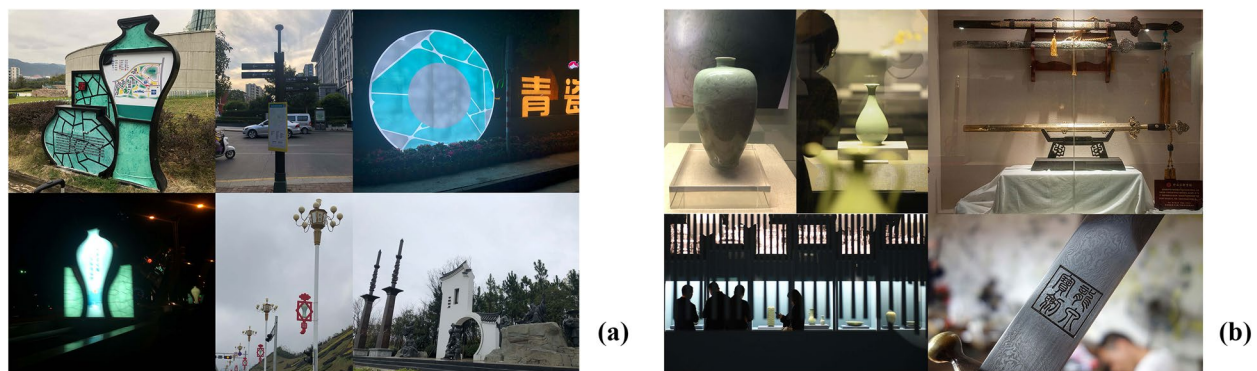After extensive discussions, the design strategy for the Longquan City brand was established as a symbolic

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Fig. 1 Comparison of Longquan's cultural image performance. Note: **a** illustrates the artifacts of urban cultural translation and design expression in pre-existing public spaces; **b** shows the cultural impression of local celadon and swords as artifacts. The two are in stark contrast
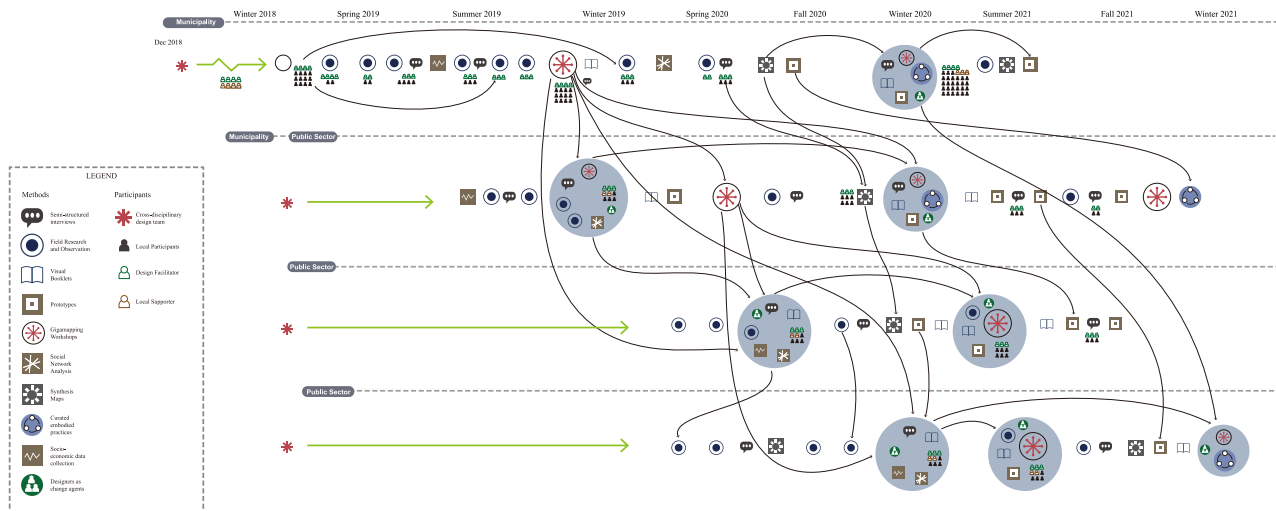

Fig. 2 Multi-stakeholders engagement and design methods. Note: This figure illustrates the various design methods employed throughout the 4-year city branding project, showcasing the lasting impact of each phase's outputs on the project's future

abstraction. Subsequently, we collaborated with diverse stakeholders to ascertain the suitable level of abstraction and methods for symbolization to capture the essence of the city's cultural image. Utilizing workshops and discussions, we presented abstract patterns representing celadon vases, swords, landscapes, and other cultural elements of the city. Additionally, we conducted product shape testing to assess whether the designs effectively conveyed the intended cultural image. This iterative process enabled us to fine-tune the city's brand representation in close collaboration with the community.

3.2 Phase 2: Small-scale Piloting

City branding in Longquan is largely government-driven, often tied to annual planning cycles and events such as the International Celadon Conference in Longquan. However, limited budgets, lengthy approval procedures, and time pressures frequently constrain these initiatives.

In Longquan, the government's original plan for a new celadon cultural park stalled when costs exceeded expectations, reflecting a common challenge of misalignment between government ambitions and available resources. To address this, our design team shifted from large-scale construction toward a smaller-scale pilot strategy within a Celadon Creative Park, focusing on branding and environmental enhancements of existing facilities.

To increase stakeholder participation, we held workshops with government officials, residents, artists, and businesses, who shared their views on the city's image, tested prototypes, and offered suggestions for product improvements. Building on Phase 1, we created a series of smart city signs with AR/VR features and QR code interfaces, establishing a technological feedback loop between users and the brand. Additionally, we used the annual World Celadon Conference to boost the project's

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visibility through exhibitions and lectures, strengthening branding efforts and expanding the city's cultural reach. This strategic adjustment enabled the government to achieve visible results within its budget and time frame while allowing us to create flexible, participatory processes, such as workshops, exhibitions, and expert dialogues, that broadened stakeholder engagement (see Fig. 2). By embedding these micro-level interventions within the government's annual work plan, we were able to sustain participation and ensure continuity despite institutional and financial constraints.

3.3 Phase 3: Citywide Promotion

In this pilot phase, our team completed two projects assigned by the government: the city branding for the main entrance road and the one-kilometer area around the city hall, along with the development of tourism souvenirs that highlight Longquan's cultural heritage.

The authors meticulously gathered and analyzed feedback during the co-design process, leading to initial decisions regarding city branding design and derivative products. Consensus was reached with the public sector during symposium discussions. However, the limited public engagement during the pre-design phase remained a concern, compounded by the project's tight timeline, demanding prompt deliverables.

Consequently, a user feedback interface was integrated into the initial implementation phase as a compromise to enhance participation. Specifically, QR codes were installed at 281 city branding touchpoints within the signage and facilities, enabling users to provide constructive feedback on the city brand. Over a six-month period, a total of 42,343 instances of user interaction were recorded through code scans, yielding 3,425 pieces of substantive feedback. Representative examples of user feedback included: "The AR promotional videos on the signage allow tourists like us to better understand the historical and cultural background of Longquan more intuitively. It would be even better if there were more types of videos." Another noted, "The patterns are novel, but they look somewhat similar to security window grilles. Could this be improved?" Others focused on derivative products, for example, "The promoted Longquan silk scarves are very beautiful. Is there a way to purchase them?". This data serves as a vital foundation for subsequent iterations of the city brand image and informs the development of the smart city concept.

In addition to online feedback portals, we organized ad-hoc offline engagement activities aligned with the public sector's outreach efforts. This reciprocal exchange of interests aimed to satisfy governmental expectations for creative initiatives, and the need for design practitioners and researchers to gather feedback and

disseminate ideas was pivotal. Adopting this approach of design involvement in governmental initiatives, we seamlessly integrated thematic speeches, exhibitions, and other activities into the daily routines of governmental organizations. These served as platforms for publicizing initiatives and soliciting opinions, fostering face-to-face interactions with grassroots citizens (see Fig. 2).

3.4 Phase 4: Derivation and Proliferation

If city branding represents a continuous dialogue with citizens and stakeholders, then creating various cultural derivatives undoubtedly enhances the opportunities for engagement. However, this idealized model necessitates ongoing negotiation, promotion, and consensus-building in collaboration with the public sector. Particularly in the project's early stages, government entities, as primary investors, lacked a comprehensive strategy for large-scale brand promotion. To address this gap, our approach goes beyond meeting design requirements for each project phase. Instead, we propose alternative design ideas feasible in the present context, fostering a collaborative dialogue. We refer to this approach as "tossing a stone to see what's ahead." For instance, during the small-scale pilot phase, we suggested developing tourist souvenirs, leading to a subsequent commission from the Municipal Propaganda Department. Facilitating such interventions within the public sector has been instrumental in ensuring the project's sustainability. In the later stages, local government, public agencies, and design institutions were also able to draw upon the guidebook developed in Phase 1 to further expand the brand through new derivatives, ensuring that the branding process continued beyond our direct interventions.

Consequently, Longquan's brand derivatives now encompass a wide array of products, ranging from urban sculptures and signage to practical urban furniture like garbage cans, seating, traffic barriers, and equipment enclosure decorations, as well as smaller travel souvenirs like silk scarves, earrings, and even sports shoes (see Figs. 3 and 4). This expansion of product offerings has diversified the local residents' perception of celadon swords beyond mere artwork and enabled them to connect with their cultural heritage in a more tangible and meaningful way.

Moreover, in addressing the challenge of managing a plethora of new urban furniture and equipment, we identified a significant pain point in governmental operations. Previously, government agencies lacked precise information on the number and location of urban furniture and facilities, requiring manual checks for maintenance or updates. This inefficiency not only reduced management effectiveness but also escalated maintenance costs. To mitigate this, our programming engineers and designers

Fig. 3 Longquan city branding on urban furniture, facilities and sculptures
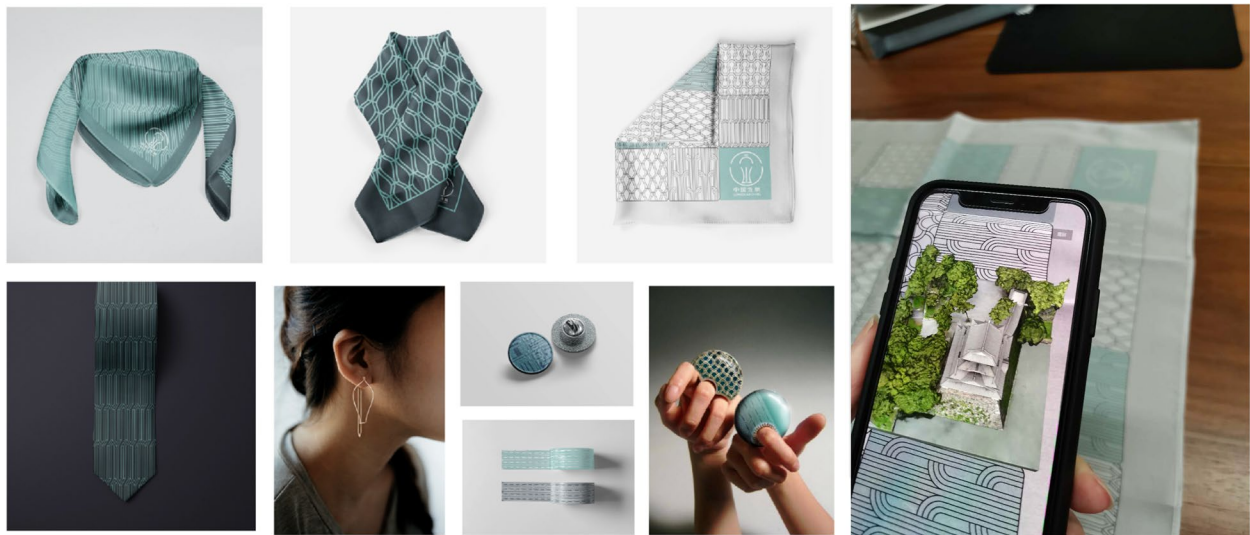

Fig. 4 Tourism souvenirs with AR function

collaborated to develop an IoT platform for registering and monitoring street furniture and equipment (see Fig. 5). This platform features QR codes for information registration during product installation and sensors on traffic barriers to detect traffic accidents, facilitating digital management of city facilities and providing timely feedback on warranty and faults. By involving the public sector in dialogue during the construction and maintenance phases of city branding, rather than solely during the preparatory phase, we have changed how the government works and made it more efficient.

4 Findings: ongoing dialogue for collaborative learning

In the preceding sections, we provided a detailed overview of the development of Longquan's city branding, highlighting how diverse stakeholders engaged collaboratively in decision-making processes, and how design interventions adapted and responded within complex systems, beginning from small entry points. We conceptualize city branding as a situated form of social learning and an educational approach to urban design.

Fig. 5 IoT platform for urban furniture and facilities applied to government digital management
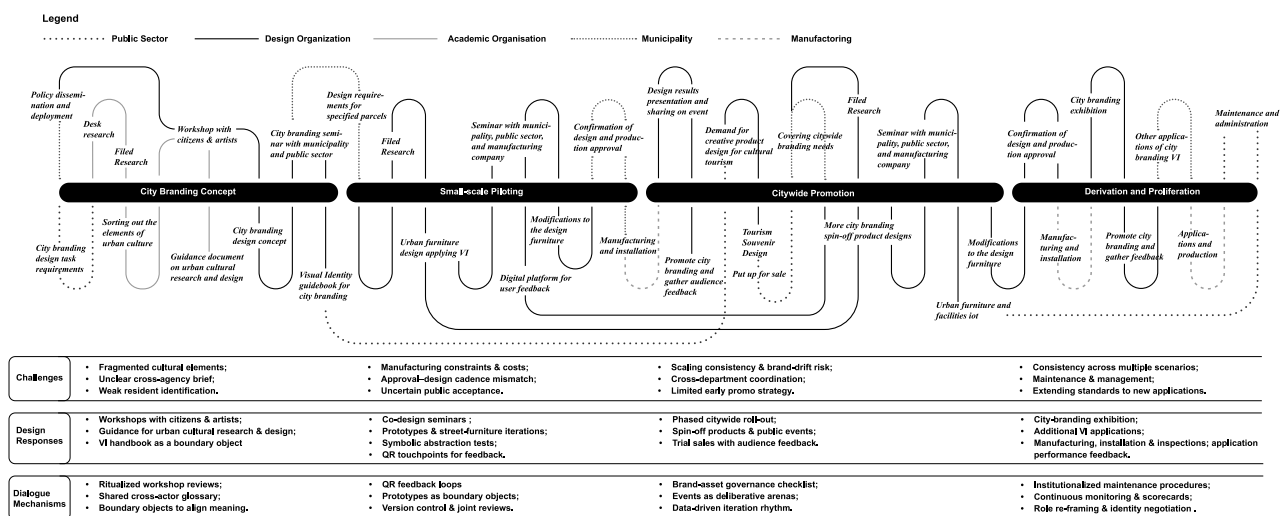

Fig. 6 A design approach that fosters swirling dialogues

This approach encourages multiple stakeholders to collaboratively construct shared urban narratives, thereby preventing marginalization caused by centralized power structures. We have summarized this approach as the swirling dialogues approach, illustrating how various stakeholders participate in discussions around complex real-world public issues, and the role of design in initiating and facilitating such dialogues (see Fig. 6).

We synthesize the multiple dialogues described in the case study. The figure maps the four design stages and the principal "conversation topics" that structured each stakeholder group's engagement at each stage. It also distills the stage-specific challenges faced by designers, the corresponding design responses, and the dialogue mechanisms that sustained collaboration across stages.

As Herbert Simon proposed in *The Sciences of the Artificial,* design as an artifact exists as a system nested between an inner environment and an outer environment. Such systems possess an inherent adaptivity, adjusting their internal behavior in response to external conditions, while also engaging in conditioning processes that reduce the complexity of their surroundings (Simon, 1996, p. 6). This interplay of adapting and conditioning lies at the core of designing artifacts fundamentally. It is a dialogue between the internal intentions of the system and the external realities it faces. The process relies on a kind of soft, intuitive design knowledge, where designers, as boundedly rational problem-solvers, engage in an ongoing conversation with the situations they encounter. Schön further interprets this "dialogue" as a creative and careful testing of one's ongoing performance between the internal and external aspects of practice, following a cyclical mode of experimentation and evaluation known as *reflection-in-action*, which forms an epistemology of practice (Schön, 1983, pp. 49–50). Unfortunately, the teaching of such experiential and tacit knowledge remains insufficient in many current design curricula (Formosa, 2025).

Bruno Latour's actor-network theory (2005) adds another layer of interpretation by focusing on the relational dimensions of such dialogues. From this perspective, human, non-human actors, and material artifacts come together to form networks around the problems they aim to address. So, following actor–network theory, we treat the QR/IoT platform, prototypes, and guidelines not merely as tools but as non-human participants that translate interests, enroll actors, and stabilize coordination across agencies. In the following sections, we build on Latour's insights to further explore how the swirling dialogues in our study brought together diverse stakeholders and design artifacts, tracing the ways they assembled, interacted, and co-evolved throughout the city branding process.

4.1 Dialogue between people and people

Perhaps the most critical dialogue for collaborative learning is the conversation between people, in this case, between the many stakeholder groups involved. We observed active dialogues not only between the external design team and internal stakeholders (local government, residents, artisans, business owners, etc.), but also among the stakeholders themselves. The design team facilitated workshops and seminars to quickly absorb local tacit knowledge from insiders, ensuring the brand genuinely reflected local culture and needs. Public events, exhibitions, and forums were organized to extend the conversation to a wider audience, creating more opportunities for outreach and exchange. Through these activities, local stakeholders (from officials to citizens) and outside experts (designers, scholars) engaged in frank discussions about the city's identity and future, gradually building mutual trust.

In addition, the rise of social media and influencer culture provided a platform for dialogue between external audiences (tourists, netizens) and internal audiences (local residents, brand managers). Digital engagement became a new dimension of collaboration: people spontaneously shared their experiences on blogs, WeChat, and other self-media channels. This kind of grassroots communication, often unprompted and even off-script from the official branding message, exemplifies what scholars have termed "post-Internet" branding. While user-generated posts may not always align with the story the city intends to tell, these diverse voices or even "noises" signal widespread interest and help spread awareness.

In the Longquan case, collaboration with social media influencers was relatively limited, and we recognize this as a missed opportunity. In fact, such interactive, peer-to-peer propagation is considered highly valuable in modern place branding, as it amplifies reach and builds an authentic (Hanna & Rowley, 2014). In the past five years, many Chinese cities, including Chongqing, Chengdu, Xi'an, Changsha, and Zibo, have surged through social media exposure. This pattern shows the strong momentum of social media and its catalytic role in the swirling dialogues, that is, the two way facilitation between government and the public. A key question for urban governance is whether decision makers can actively capture public sentiment on these transparent online platforms, provide timely responses, and upgrade policies, physical infrastructure, and brand incubation in order to support strategies that align with citizen feedback. Digital communication channels therefore open new dimensions of participation and collaboration for city brand building (Parente, 2016).

4.2 Dialogue between people and products

One important dialogue in the city branding project was the interaction between people (users) and designed products (artifacts). Rather than being a purely abstract or procedural exercise, the participatory design process was made experiential through tangible design outcomes and iterative prototyping. For example, a suite of city street furniture, including signage with augmented reality (AR) features, benches, trash bins, became the interfaces through which the brand engaged people in everyday life. These artifacts not only present a unified visual identity for Longquan's brand, but also act as cultural touchpoints that invite public interaction. A visitor walking down the street can scan an AR-enabled sign to see location-specific cultural stories or tourism videos, scan a QR

code on the sign to purchase local craft souvenirs, read community-contributed travel tips, or even submit feedback about the facilities. Such features make the city's brand experience interactive and fun, effectively creating an ongoing dialogue between the product (the city's designed touchpoints) and the people who use them. This person–product dialogue enriches the brand experience and turns passive onlookers into active participants, demonstrating how design can educate and engage the public in the city's story.

4.3 Dialogue between products and network

Another layer of dialogue occurs between the products (urban facilities) and the larger networked system of the city. City branding in this case was not a one-off design project but a systemic, long-term policy initiative that spanned multiple projects and agencies. A common challenge in such initiatives is coordinating various design components (from different design firms and at different times) and managing them over time. We found that introducing an Internet of Things (IoT) infrastructure helped link dispersed city artifacts into a network that "talks" back to city managers. For instance, every piece of street furniture and signage installed was geo-tagged in an online system so that officials can instantly visualize their distribution across the city. This makes it much easier to monitor and update the branding elements citywide, addressing a key pain point in the government's daily work. Moreover, some installations were equipped with sensors, for instance, the traffic barriers featuring smart sensors. These barriers can detect accidents or congestion in real time and automatically reposition or reorient themselves during peak hours to alleviate traffic pressure on specific road segments. In this way, the products are in dialogue with the network (the city's digital and operational network). They report their status and respond to contextual changes, which in turn transforms the public sector's working mode from static planning to responsive management. This product–network dialogue exemplifies how design, coupled with technology, enables a feedback loop: the designed artifacts adapt to their environment and the system adjusts to the artifacts' data.

4.4 Dialogue between the hierarchy of power

A final kind of dialogue we identified is the communication across different levels of power in the public sector hierarchy. In governmental projects, however, with each upward reporting, the nuanced details of design work tend to get lost, and decisions can become disconnected from on-the-ground realities. This top-down political structure can feel like a constraint, but we found that if navigated thoughtfully, it can also provide momentum and longevity for the project. The key lies in bridging the

language of design with the language of policy. Designers often communicate in terms of aesthetics, user experience, or ergonomics etc., to a politician, these terms might boil down to subjective notions of "pretty or ugly" or simple functional judgments. Through this case, we learned that designers must translate their ideas into the metrics and vocabulary that matter to policymakers. In other words, this meant reframing design proposals to directly address policy objectives and performance indicators. By explicitly mapping design outcomes to policy goals, the designers empowered the public sector leaders to see the value of design in fulfilling their mandates. This dialogue between designers and power-holders ensured that the project not only fit into the political logic but also helped officials achieve their own success criteria. This dialogue across the hierarchy thus transforms a design intervention into a policy innovation, securing high-level buy-in and making it more likely for the initiative to be sustained over the long term.

In this study, we presented a four-year case of city branding to offer a situated account of how design interventions engage with complex public issues in the real world. Specifically, we explored how designers can initiate, sustain, and develop dialogues with multiple stakeholders, which we conceptualize as a *swirling dialogue* model. By doing so, this research responds to ongoing calls within design education scholarship to better prepare designers for active engagement in public matters, emphasizing the cultivation of dialogic, adaptive, and collaborative capabilities.

5 Discussion

5.1 Expanding understanding of design education as collaborative learning

This study addresses the systemic and contextual challenges facing contemporary design education. These challenges were among the eleven major issues identified by Ken Friedman in his 2019 *Chatterjee Global 150th Anniversary Commemorative Lecture*, where he grouped them into four broad categories: performance challenges, systemic challenges, contextual challenges, and global challenges (Friedman, 2019). As demonstrated in the case presented here, real-world design practice, particularly in public-sector projects, often involves complex, multi-actor systems that require cross-sectoral collaboration. Designers frequently act as intermediaries, coordinators, or facilitators (e.g., Sanders & Stappers, 2008). Importantly, this shifts the understanding of the design object from discrete products to complex systems that embed collaborative and adaptive learning. Such a shift fundamentally reshapes the competencies designers need to develop and challenges us to rethink the scope of design education.

We seek to reframe participatory design practice as a process of situated learning, thereby offering a broader perspective on the scope of design education. In our case, designers engineered workshops, prototypes, and QR/IoT touchpoints to move participants along this trajectory: from observers to contributors to joint owners of the city brand and its maintenance. In this context, participatory design is no longer understood merely as a series of workshops aimed at gathering user input or completing predefined research tasks. Rather, design interventions provide participants with legitimate roles and external conditions that facilitate engagement in collaborative learning. As Lave and Wenger (1991) argue, within communities of practice, learners' identities are continuously reproduced along a trajectory, from legitimate peripheral participation toward fuller membership, evolving from novice to expert. Empowering peripheral actors thus creates an open pathway, enabling deeper understanding through progressive engagement. Such an approach moves beyond the conventional model of participatory design as a concentrated exercise confined to workshops. Instead, it deliberately seeks to expand opportunities for legitimate peripheral participation, developing design education into a more open, dynamic, and inclusive system.

In this sense, the goal of design education shifts from training in craft, drawing, or technical production toward preparing designers to facilitate collaborative public learning. Our study identifies the skills and capacities required in such contexts, particularly the ability to navigate multi-layered dialogues among people, artifacts, networks, and hierarchies of power. It becomes important to consider how the knowledge and insights derived from real-world design practice can inform and reshape classroom teaching. This calls for a shift in the aims and approaches of design education that moving beyond an exclusive focus on visual outcomes to more intentionally cultivating students' understanding of complex social relationships and their ability to navigate them in practice.

5.2 Educating for complexity through adaptive and collaborative learning

Current design education remains predominantly focused on craft, formal aesthetics, and structured workshop-based training (Formosa, 2025). Typically, collaborative studios within design schools provide fictitious briefs and teach students standardized co-design toolkits for working with communities or stakeholders. However, assessment criteria in these courses remain visually-centered, making it difficult to adequately evaluate students' critical thinking, research capability, collaborative competence, and systemic understanding (Pontis & van der Waarde, 2020). Real-world situations, by contrast, involve complexities far exceeding simulated classroom contexts, and such rigid pedagogical models can leave students unprepared, inflexible, and uncertain when confronted with complex societal relationships. Of course, established design methods and structured processes remain valuable for cultivating evidence-led design thinking, enabling students to systematically connect insights from research into targeted solutions. Yet, these initial solutions often exist merely as fragmented ideas requiring further integration to meaningfully engage with the multi-layered dialogues inherent in complex public issues.

Redström (2020) argues that design practice should not simply rely on pre-existing knowledge, but instead operate between the known and the unknown, not taking solutions for granted but continually making new possibilities visible. Based on this, he suggests that design education should move beyond teaching ready-made procedures, instead emphasizing the development of the capability to create novel design practices. Our case study aligns with this perspective by illustrating how designers proactively identify strategic entry points within ongoing dialogues, enabling them to sustain and extend public engagement. Especially in today's era of rapid development in artificial intelligence, AI tools can serve as a dynamic scaffolding model (Siu et al., 2025), helping learners move beyond their own limitations and better explore the unknown.

In terms of curriculum implementation, Redström proposes two potential pedagogical frameworks: a position-based approach, organizing education around a central specialization (such as product design or collaborative design), and a trajectory-based approach, encouraging students to evolve along paths defined by complexity and uncertainty. Similarly, Lou and Ma (2014) propose a T-shaped framework for design education, advocating not only disciplinary and functional expertise but also the ability to apply knowledge flexibly across diverse contexts. This pedagogical philosophy directly informs curriculum development at Tongji University's College of Design and Innovation, which increasingly emphasizes interdisciplinary and cross-departmental collaboration, bringing together students from diverse design disciplines as well as broader academic backgrounds. This approach better reflects the complexity and uncertainty inherent in contemporary design practice, preparing future designers for effective interdisciplinary cooperation. However, such curricular innovation also introduces greater managerial challenges and places increased demands on educators' capacities for instructional guidance, areas warranting further exploration.

Moreover, design education should cultivate students' understanding of non-design aspects within real-world projects, such as engineering implementation, policy constraints, and institutional frameworks. Vink and Koskela-Huotari ([2021](#)) conducted classroom experiments focused on social structures (including norms, roles, and beliefs), guiding students to consciously identify, reflect upon, and intervene in these intangible dynamics. Our research contributes to similar educational experimentation by proposing a multi-level dialogue approach that systematically deconstructs complex public issues, fostering dialogue connections among diverse actors, material entities, and intangible aspects such as power and norms. Of course, the ideal scenario is that such classroom experiments are grounded in real-world projects. A significant area for future exploration is how these real-world projects can collaborate with design schools over the long term, forming sustained, mutually beneficial relationships rather than relying solely on the initiative of one party.

Although this case strived to create an inclusive dialogue environment and platform, power asymmetries inevitably persist in public projects, shaping who has a voice and whose opinions are heard or adopted. In the Longquan case, the willingness and initiative of the government and public sector served as the obligatory passage point (Callon, [1986](#)) through which heterogeneous elements such as people, products, and networks had to pass; without this authority, the dialogue platform could easily collapse. The role of designers was to use their professional expertise to temporarily weave diverse actors into networks and provide them with opportunities for equal expression, for instance through symposiums that shared cultural narratives or through the establishment of digital touchpoints for feedback. Conversely, if public officials lacked open-mindedness, designers failed to establish effective feedback channels, or the design objects lacked cultural anchors to trigger discussion, the cyclical dialogues proposed in this study could weaken or require adjustment. Thus, the case provides more of an exploratory approach to addressing complex public issues than a directly replicable model. Whether the arrangement of roles and the mechanisms of piloting and diffusion in cyclical dialogues can be transferred to other contexts depends closely on the city's cultural background, narrative actors, administrative procedures, and budget scale. Future research should therefore conduct comparative validation across different public issues and multiple urban contexts to broaden the applicability of the framework and deepen understanding of the skills and knowledge designers need for public participation. For design education, these reflections can support curriculum changes by establishing a foundation for developing students' negotiation, management, and dialogue skills, as well as helping transfer knowledge across various public engagement contexts.

6 Conclusion

We provided a detailed account of a long-term case centered on a complex public issue, from which we derived the concept of swirling dialogue between design and multiple stakeholders. Through facilitating dialogues across people and people, people and products, products and networks, and hierarchies of power, designers helped reframe urban public challenges as forms of situated and collaborative learning. This highlights new demands for preparing future designers capable of navigating such transitions. At the same time, this study offers practice-based insights into the capacities designers need when working in complex, cross-sectoral environments, linking these observations to classroom contexts and offering new directions for the reform of design education.

Data availability
Data from this project is available upon request.

Declarations

Ethics approval and consent to participate
Not applicable.

Competing interests
None.

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