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Innovations and Development in Urban Planning Scholarship and Research

Editor
Thomas W. Sanchez

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Editorial

Innovations and Development in Urban Planning Scholarship and Research

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Abstract
Urban planning is characterized by involving a wide range of experts from a variety of fields. Therefore, planning research draws upon each of these fields in how it interprets and examines the natural and built environment as elements of human settlement activities. As a small professional and academic discipline incorporating aspects of design, policy, law, social sciences, and engineering, it is understandable that research outcomes are published in a broad range of academic outlets. It is useful for us to reflect on our research intentions, processes, and outcomes, which is also referred to as 'research about research,' with a focus on the scholarly products of urban planning academics. We can do this by examining our methodologies, subdomains, application of research to practice, research impact, and bibliometrics. The purpose of reflecting on our research helps us better understand research processes and the resulting body of urban planning research and scholarship as a whole.

Keywords
planning; research; scholarship

Issue
This editorial is part of the issue "Innovations and Development in Urban Planning Scholarship and Research" edited by Thomas W. Sanchez (Virginia Tech, USA).

1. Introduction

As an academic field, urban planning straddles traditional social sciences and professional training. The role and nature of research is quite different in these two cases, as are the professional expectations. The expectation for planning academics is to produce scholarship (i.e., published works) adding to the body of knowledge about planning thought and processes. Practice-oriented research primarily focuses on the elements of plan-making. As such, contributions to academic literature are very different products and activities compared to planning reports or plans, although both draw upon and contribute to planning knowledge. The continuum of planning research, spanning from theory to application, has been the subject of ongoing debate.

Wildavsky's (1973, p. 127) statement, "If planning is everything, maybe it's nothing," refers to the breadth of urban planning, recognizing that urban development processes are quite complex, far beyond a singular definition or approach. These approaches represent fields including sociology, economics, engineering, political science, and public administration—that in themselves continue to grow and change. For a planner to understand the systems represented by these fields is a significant endeavor that aims to capture and translate interdisciplinary knowledge across the associated academic domains (Shin, 2014). This means that scholars are forced to specialize, which further fragments knowledge domains such as planning. Like general practitioners in other professions, planning practitioners with a general knowledge of planning processes defer to professionals with specialized training such as engineers, attorneys, and designers (Friedmann, 1996).

The debate about the variety of topics of concern to planning educators and practitioners seemingly results from diverse definitions of 'planning' and foci of planning practice. Perspectives differ in how planning situates place and process as well as the intensions of planning efforts (Edwards & Bates, 2011). This may make planning

appear to be diffuse and incoherent to those outside of the field. Wildavsky acknowledged the challenges of planning in its all-encompassing dimensions, where he stated that "Planning requires the resources, knowledge, and power of an entire people" (Wildavsky, 1973, p. 152). It was also in the same issue of *Policy Sciences* that the Wildavsky article appeared (1973, No. 4) that Rittel and Webber (1973) described how planning problems are inherently "wicked." Solutions to wicked problems are elusive due to their complexity and lack of scientific rules. Later insights on these topics shared by Alexander (1981), Reade (1982), Klosterman (1985), and Wadley and Smith (1998) reiterate that 'planning' has several definitions that depend on philosophical and ideological perspectives.

2. Suggested Areas of Research about Research

As Davoudi and Pendlebury (2010) argue, the planning profession benefits from a coherent realm of discourse, that can facilitate problem recognition in a specific institutional context. This may seem the case to those inside the field, but perhaps not so easily recognized by those outside of the field. One can argue that planning meets these criteria. Another approach would be to use urban planning curricula to describe planning, but this would likely neglect a variety of topics that are not taught, either because they are very specific, do not fit an academic format, or lack of student interest. Urban planning curricula also vary depending on faculty composition and specializations. And yet, planning does not appear to have "any guiding principle or central paradigm" with a very large number of concepts to master, along with societal dynamics (Beauregard, 1990).

The preceding discussion about urban planning research has direct implications for how we perceive and utilize the body of research. We hope that increased awareness and reflection on urban planning research outcomes will also better connect to practice as well as urging practice to inform scholarly activities. How do we continue to innovate our research processes to better understand the condition of urban places? Critical reflection on our research activities will hopefully lead to innovation through a consistent effort to generate new knowledge. The following briefly outlines four areas that are recommended as areas to be researched about planning research.

2.1. The Context of Planning Research

There are differing opinions about the level of emphasis that should be placed upon purely academic research and research that directly serves the planning profession. This also varies by the type of academic institutions where planning faculty reside and the mission of their institutions. Research and practice complement each other as well as create tension within academic and professional communities. Exploring this, Alexander (2017) connects planning theory, research, and practice in a historical context set in a diverse planning agenda. This has direct implications for the purposes and approaches to planning problems. The inherent 'gap' between research and practice suggests that planning academics lack direct professional planning experience. This gap may be narrowed with greater attention being paid to practice-oriented research to identify "planning cultures" that influence the directions of planning research. In addition, they refer to research traditions which pervade academia.

2.2. Types and Topics of Planning Research

The knowledge domain of planning is comprised of many interwoven elements. Given that the urbanization process is at the confluence of natural, human, and built environment systems, we would expect that planning scholarship would reflect this. While some integration occurs, research areas develop their own cultures and communities of scholarship. Analyses of research topics describe the footprint of planning research topics as well as the evolution and explicit connections in an interdisciplinary context (see Sanchez & Afzalan, 2017). We can expect that these topics will change over time with changing urban conditions as well as the techniques we use to observe these conditions. Recent events in the U.S. (including the Black Lives Matter movement and COVID-19 pandemic) have generated renewed criticism around the lack of diversity in scholarly topics as well as the lack of diversity among scholars in the planning academy. This exemplifies the need to look critically at research processes and scholarly practice.

2.3. Planning Research on Objects and Design

Planning scholarship traditionally employs a variety of methods that are both quantitative and qualitative, also ranging in scale. This includes discussion of the 'boundary' between planning research and design. Quantitative analyses often lead us to over-generalize, while real planning problems are specific, and case-based. For instance, the many approaches to urban morphology highlight ways in which 'form' cannot currently be easily quantified. Change detection and pattern recognition to understand built environments and settlement activities have fascinating pedagogies with deep connections to theory. The boundary between planning and design is often questioned and argues for a strengthening of this critical connection. These discussions challenge scholars and students relative to research design and methods selection, especially those with non-design backgrounds.

2.4. Planning Methods, Science, and Technology

Methods related to science and technology in urban planning are constantly changing, requiring re-examination on a continual basis. For instance, there has been

increasing interest in analytical methods and modelling at the urban scale. These applications have broadened to include information and communications technologies (ICTs) and distributed analytic capabilities. These are valuable insights that connect to 'research to practice' themes including advances in ICTs and their potential for planning research opportunities. Previously referred to as Planning Support Systems, these technologies can be used to collect, analyze, and communicate a vast array of data types. At the same time, these tools can be made available to 'citizen scientists' who are extending the traditional model of citizen participation. Citizen science is a collaborative model well-suited to urban planning research activities that can build grassroots capacity. The intersection of theory and methods highlights, in part, the underlying scientific approach is taken by many urban planning researchers.

3. Thematic Issue Contributions

The five articles appearing in this thematic issue exemplify some of the important dimensions of planning 'research about research' mentioned above that contribute to innovative approaches and perspectives. Rivera (2021, p. 93) discusses the multifaceted aspects of design in planning, particularly by advocating for "training planners to both envision and build alternate possible worlds." This references a departure from the dominant social scientific approaches to planning research most common today. Töppel and Reichel (2021) present an innovative approach to "spatial perception" with a mixture of methods to better understand places, integrating visual and spatial data with survey methodologies as case studies and intersecting questions of context, objects and design, and techniques with technology. Terashima and Clark (2021) provide an example of the use of topic analysis across the field of urban planning. Such approaches can be used to assess the coverage of topics, and in this case, the lack of attention given to important planning issues like the needs of disabled persons. Types and topics of planning research can also be examined through bibliometric methods, and other meta-research approaches. The purpose is to better understand the corpus based on publication characteristics and trends. Chang (2021) examines the discourse of the "temporary use" through symbolism as a socio-semiotic process, an approach focusing on the evolution of this scholarly path, and Sanchez (2021) combines bibliometric analysis with measures of social media activity (Twitter) by urban planning academics to detect levels of effort into each as a function of professional rank. Stiftel's (2021) astute interpretation of these articles asks (and answers) whether research leads practice—it does not.

4. Conclusions

As our understanding of cities grows and changes, we can expect that our means and methods of observation should change as well. Can we continue to use the same methods and perspectives to understand phenomena not previously detected? The interaction of social, economic, and environmental systems is not static or predictable on the urban to rural continuum, particularly as global connections impact all aspects of our lives. Our research processes should strive to innovate and adapt at the same time.

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Conflict of Interests

The author declares no conflict of interests.

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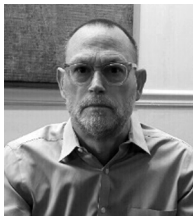

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Article

Design in Planning: Reintegration through Shifting Values

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Abstract
Design is increasingly entering planning beyond the subfield of urban design. At a larger scale, designers are moving into the social sciences to apply design skills at intersections with the social sciences. This article offers an overview of research and practice at the forefront of both interpreting design fields and understanding their growing importance within planning. This transcends examinations of urban design to incorporate the potential of design more broadly in planning, with particular emphasis on community development and engagement. The article does this through a case study of an existing design-based nonprofit (bcWORKSHOP) which leverages techniques across design and planning to generate new forms of community planning practice in the State of Texas. Ultimately, this case study begins to ask whether planning can fully address a number of issues (like social/racial justice and climate change) without understanding these issues from both design and planning perspectives simultaneously. It also emphasizes the importance of training planners to both envision and build alternate possible worlds, a skillset fundamental to design that could reshape planning education and practice.

Keywords
design; planning research; community-based design; interdisciplinary research; design practice

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1. Introduction

> *Queremos ser nosotros los que diseñemos y controlemos nuestros proyectos de vida* [We, ourselves, want to be those that design and control our life projects]. (Elicura Chihuailaf, as cited in Escobar, 2017, p. 16)

Design is rapidly transforming, with profound implications for planning practice and research. Historically portrayed as a utopic endeavor (Hall, 2014; Healey, 1997, pp. 17–19; Marcuse, 2016), design has long been considered a subject to avoid in planning. However, the most urgent issues facing planning in the 21st century (like social/racial justice and climate justice) require a reorientation towards the nature of life and space, a rethinking of possible futures: This requires the skills and techniques of design. Designers have been at this point for years and already contribute significantly to examinations of social/racial justice and climate justice in planning research. Much of this recent work is driven by researchers who formerly worked within the humanities in the design professions, chiefly architecture, landscape architecture, and urban design. Taken together, this research represents a major forefront in planning, one that seeks to broaden the impacts of design on planning beyond New Urbanism or street designs to fundamentally reconceptualize planning research and its influence on real communities.

To discuss these efforts, I use the following definitions for 'planning' and 'design.' Following Van Assche, Beaunen, Duineveld, and De Jong (2012, p. 179), planning is defined as "the coordination of policy and practice affecting spatial organization." Placing academic planning alongside its peers, most are quick to label planning a social science in recognition of its historical emphasis on policy environments and sociological phenomena before concerns of space; however, a growing number of planning scholars, steeped in design fields, are questioning the premise of this orientation. In contrast, following Escobar (2017, p. 21) design is defined as "an

ethical praxis of world-making." This orientation towards design will be explained in more detail through the literature review, but represents the shift in design described throughout the article. It should be noted that the relationship between planning and design differs substantially from country to country. Here, I focus extensively on the U.S. context, where planning and design have endured a fractured relationship.

From this, the article first offers an overview of what constitutes design and how new, expansive definitions of the field are engaging the social sciences. Second, I follow Faste and Faste (2012), who distinguish between knowledge resulting "from the 'study of design"' versus knowledge created "during the 'act of design"' (p. 2). To do so, I examine the 'study of design,' describing the methods and justice-based orientation of new studies. Subsequently, I highlight the 'act of design' through a case study of bcWORKSHOP, a Texas-based interdisciplinary design nonprofit that has received national attention for its contributions to housing design and policy. To conclude, I consider how definitions of design, within planning research, need to transform to capture the true breadth and impacts of this work within planning.

2. Methods

To undertake the analyses in subsequent sections, the research took inspiration from open-ended interviews with bcWORKSHOP-based designers and/or planners. In an earlier project on South Texas community organizing, conducted between 2013 and 2017, a theme emerged from six interviews and four years of participant observations of bcWORKSHOP community engagement events: Namely, that a shift in approach to design was needed to meet the needs of low-income communities of color. This was followed up with four additional interviews that asked about bcWORKSHOP's approaches to design and planning, as well as clarifying two of their projects; one which is recounted here, and another which is recounted elsewhere (Rivera, 2020). Interviews and observations underwent a two-phase analysis in Atlas.TI (one in 2017 and one in 2020) that used an analytic framework derived from a relational power perspective emphasizing objectives, obstacles, tactics, attitudes, emotions, and unspoken subtexts surrounding bcWORKSHOP's design work. A relational power perspective is crucial, as subtexts regarding the designer as a 'facilitator' as opposed to 'expert' were consistent throughout the interviews and observed community-engaged design events.

From this, larger shifts in the design professions emerged as a major subtext within bcWORKSHOP's work. The literature review below focuses on recent design scholarship that emphasizes these 'ontological' shifts, bolstered by informal discussions with several junior urban design practitioners and faculty who have not yet published on this topic, but are well-known within this area.

3. What Is Occurring in the Design Professions? What Is Their Ontological Shift?

While design and planning have their origins in the Neolithic times (Van Assche et al., 2012, p. 182), I begin, here, in the modern industrial era, a time period that design continues to reckon with. Industrial notions of design often privilege objects over all else, traditionally favoring technical prowess, abstract discourse, and problem-solving over social inequities (Cuff, Loukaitou-Sideris, Presner, Zubiaurre, & Crisman, 2020, p. 9). This industrial orientation of design has long been criticized; in particular, Marcuse (2016, p. 121) referred to this phenomenon as "designer planning" whereby the output (object) becomes more important than the process. In numerous frameworks of traditional planning thought (Hall, 2014; Healey, 1997, pp. 17–19; Marcuse, 2016; Van Assche et al., 2012, p. 184), design is typically cast as a utopic endeavor, concerned more with output than with process. The often-used examples of such a design orientation are utopic modernist designers, such as Le Corbusier and Ebenezer Howard. Their form-based orientation and *tabula rasa* processes are used to entrench the view that planning ought to distance itself from design.

Since the 1960s, architecture, in particular, has faced such criticisms head-on. Most notably, in a 1968 meeting of the American Institute of Architects, prominent civil rights leader Whitney Young told the gathering of architects:

> You are not a profession that has distinguished itself by your social and civic contributions to the cause of civil rights, and I am sure this does not come to you as any shock. You are most distinguished by your thunderous silence and your complete irrelevance. (AIA New York, 2018)

These critiques directed towards designer planning or utopic design are not incorrect; the continuing legacies of urban renewal (Jacobs, 1961; Von Hoffman, 2008) and contemporary ties between New Urbanism and processes of gentrification (Quastel, 2009, p. 699; Slater, 2009, pp. 305–306) reify these concerns. However, several designers have attempted to address these critiques, even from the onset of modernism (Sitte, 1889). Most notably, Michael Sorkin (2001, p. 4) boldly stated, "decades of well-rehearsed critiques of the Master Plan have resulted in a baby-with-the-bathwaterism, in a reticence of vision." As an expression of faith in the potential for design to remake itself, Sorkin's work has inspired and continues to inspire an entire generation of new designers.

Silence on social and, later, environmental concerns was addressed in small ways with object-centered design responses but transformed throughout the 2000s and 2010s. With the Occupy Wall Street movement, and at a time when design jobs were scarce, young designers

noted parallels to their professions. A common refrain was that design only assisted a privileged 10% of the population, avoiding the 90% that could not afford exorbitant fees (Architecture for Humanity, 2006; Cooper Hewitt, 2007). Early notions of pro bono architecture, humanitarian design, and design for the 90% all attempted to expand the reach of design; however, these attempts largely failed to reorient the design profession due to their continued emphasis on objects, through 'interventions' and entrepreneurship, rather than on an epistemological reorientation of the disciplines' goals. In response, there has been a call for more reflexive practices of community-based design (Francis, 2005, p. 18).

This constitutes a profound movement away from aging industrial notions of design to a re-evaluation of its connection to life and world (Hou, Francis, & Brightbill, 2005). Arturo Escobar (2017), in studying the shifts in design through *Designs for the Pluriverse: Radical Independence, Autonomy, and the Making of Worlds*, identifies this new wave of design:

> [There is a] significant reorientation of design from the functionalist, rationalistic, and industrial traditions from which it emerged, and within which it still functions with ease, toward a type of rationality and set of practices attuned to the relational dimensions of life. (Escobar, 2017, p. X)

However, due to this reorientation, there is a growing schism in design, with some emphasizing speculative and capitalist modes of design, while others emphasize avoiding the "creation through destruction" associated with capitalist modes (Escobar, 2017, p. 11). Reorientations of design, then, involve an ontological shift that reconceptualizes design in terms of its connection to real communities. As Cruz and Forman (2015) note:

> The most relevant new urban practices and projects promoting social and economic inclusion are emerging not from sites of economic power but from sites of scarcity and zones of conflict, where citizens themselves, pressed by socioeconomic injustice, are pushed to imagine alternative possibilities. It is from this sense of urgency that a new political agenda is emerging, one in which urban design and architecture will take a more critical stance against the discriminatory policies and economics that produced inequality and marginalization. At this moment, it is not buildings but the fundamental reorganization of social and economic relations that is the essential [sic] for the expansion of democracy and justice in the city. (Cruz & Forman, 2015, para. 4)

From this, and beyond classifications of disciplines, design is being newly reimagined as "a culture and a practice concerning how things ought to be in order to attain desired functions and meanings" (Manzini, 2015, p. 53). In examining what 'ought to be,' the growing ontological shift in design leverages the skillset of designers to reimagine and institute a more just future, or "to consider a situation, imagine a better situation, and act to create that improved situation" (Vial, 2019, p. XI). As such, design becomes less concerned with industrial-modernist conceptions of design as objects and more concerned with design as envisioning alternative worlds and futures. As Bryan Lee Jr. states:

> To design is to have an unyielding faith in the potential for a just society. It is an act of individual and collective hope requiring not only an awareness of true inequity, but a compulsion to speak out against it in its many forms. Design speaks to the potential for equitable spaces and attempts to visually and physically represent our collective aspirations for the future. (Bryan Lee Jr., as cited in Wilson, 2018, p. 169)

Lee's notion of 'collective aspirations' is key, as new ontologies of design purposefully de-center the designer as a solitary genius, instead framing the designer as a facilitator of discussions about an aspirational future. This involves pushing past the object-oriented design ideas of a single future and instead focuses on "embracing paradox" (Mau, Leonard, & Institute Without Boundaries, 2004, pp. 18–19) and interpolating between multiple notions of the future (Escobar, 2017, p. 3).

From this perspective, design is not simply about problem solving, but is instead about collectively envisioning the future. As Escobar describes:

> [As this new ontological orientation of design] moves out of the studio and the classic design professions…and into all domains of knowledge and applications, the distinction between expert and user/client breaks down. Not only does everyone come to be seen as a designer of sorts, but the argument for a shift to people-centered (and, to a lesser extent, earth-centered) design is more readily acknowledged. Designing people and the environment back into situations also means displacing the focus from stuff to humans, their experiences and contexts. [It means moving] from mindless development to design mindfulness, from technological fixes to more design, from object-centered design to human-centered design, and from 'dumb design' to 'just design.' (Escobar, 2017, p. 34)

Design research and practice in its newer orientations is concerned with the study of "how the world gets put back together" (Mattern, 2018, para. 2). Specifically, as Susmita Rishi (personal communication, 2020) frames it, we must now "design with, not for."

4. The 'Designer-Turned-Planner' in Research

The ontological shift in design, whether consciously or not, is impacting research throughout the social sciences

and humanities as designers merge training in the nature of space with critical studies from humanities and the humanistic social sciences. Specifically, changes in design perspectives are increasingly influencing planning scholarship, and even its practices and orientations towards the 'future' that planning aspires to affect. The usual limitation within planning, however, is that the designers only use their skills within a particular subset of the field where design skills are necessary. Mapping, street-level infrastructure, land use, and more object-oriented subfields of planning are considered the traditional domains of the 'designer-turned-planner'; however, designers are increasingly leveraging shifts in design ontologies to push the field to more radically reconsider notions of the future. I review three forms of design-based research following Faste and Faste (2012, p. 3): 1) *empirically oriented* research examining the nature of the world through direct, qualitative observations; 2) *practice oriented* research focusing on informed design form, craft, and prototyping; and 3) *speculatively oriented* research posing theoretical and cultural questions.

To examine these forms, I cover two interrelated topics introduced by bcWORKSHOP as critical to the shifts in design perspective: social justice and uneven environmental risks. This emphasizes two key areas where designers-turned-planners are transforming design: planning for social and racial justice, and planning for climate change and climate justice. These foci have been transformed by the new ontological orientation of design as the notion of designer as a facilitator, rather than an expert, has profound implications for how we understand the issues that generate social, racial, and/or climate injustices in the physical space of communities.

4.1. Design in Planning for Social and Racial Justice

> We should advocate for an outreaching, inclusive architecture, that responds forthrightly to the social, ecological, and cultural issues of this time, and for our grandchildren's future. (Bond, 2008)

The most impactful shift in design can be seen through the movements for social and racial justice. As Bryan Lee Jr., Architect and Director of Colloqate Design explains, meaningful movement towards racial and social justice necessitates an orientation away from end results and an emphasis on a new design process (as cited in Pedersen, 2020). This reorientation is meant to solidify relational forms of justice in the design process, repairing inequitable power relationships that disallowed disenfranchised communities from participating in design processes directly affecting them (Hou, 2018, p. 15; Lee, 2020, paras. 3–4). This involves an act of humility by understanding one's role as a designer within a given context (Moore, 2015). According to Jeff Hou (2018, pp. 10–11), those engaged in these forms of community engagement at intersections of design and planning do not often remain in research, but actively engage in collaborations with communities, generating key insights for design and planning research in their process.

To illustrate this point, Bryan Lee Jr. explicitly asks what it means and looks like to design spaces that do not center whiteness (Pedersen, 2020). Based in New Orleans, Louisiana, Colloqate Design works with communities to expose and address inequities in the built environment. Paper Monuments, one of their recent projects, uses public space as an artist's canvas to highlight obscured and forgotten histories underpinning inequity across historically Black neighborhoods in New Orleans. They call this form of designing "design justice" or action to "dismantle the privilege and power structures that use architecture as a tool of oppression and [see] it as an opportunity to envision radically just spaces centered on the liberation of disinherited communities" (Lee, 2020, para. 3). In this manner, striving for social and racial justice transcends design to critically include policies and teachings (Pedersen, 2020, para. 15). As such, design justice is a growing area of research and practice that emphasizes the need to move beyond well-intentioned projects to view design as a liberatory process (Costanza-Chock, 2020, pp. 6–7). The major contribution of design justice is the visioning of a more just future, one in which design is no longer seen as a practice of the elite, as Lee states: "We must act swiftly and sustain our efforts to reconstitute our profession as a co-conspirator to justice" (Lee, 2020, para. 28).

Design justice is greatly influencing the practices of community engagement and community development. Design justice derives extensively from community development practices and research, early on adopting ideas like participatory action research into community design processes (Hou et al., 2005). However, now it seems that design justice approaches are reinforming community development practices, particularly through the addition of design tools and perspectives. To illustrate, Lee notes that design justice necessarily involves two practices (Pedersen, 2020, para. 23). First is ground setting or defining the conditions within a community and valued spaces, not from the perspectives of the city, but from the perspectives of the community. Second is baselining or assembling the collective memory or insurgent historiography of the community. Similar approaches are being undertaken in design research and pedagogy; the most notable of these is UCLA Urban Humanities, which merges design, humanities, and urban studies to address the most pressing issues facing cities (Cuff et al., 2020). Urban Humanities leverages three core components—thick mapping, spatial ethnography, and filmic sensing—to more clearly understand the potential future implications of interdisciplinary research in urban studies (Cuff et al., 2020, p. 28)

These practices and research display the community and participatory approaches needed to meaningfully work with communities to not just envision change, but also enact it. A notable example of this is Leonie Sandercock's work with First Nations. As a trained

screenwriter, Sandercock has used film to reconceptualize participation and collaboration in planning practices. Her films, with Giovanni Attili, include *Finding Our Way* (2010) and *Where Strangers Become Neighbors* (2007). Sandercock and Attili (2014) highlight how the process of creating a film can form a novel basis for undertaking participatory action research and, even, reaching towards the decolonization of the planning process. Here, consensus is not the aim; instead, the aim is to create processes that envision an entirely different set of possible futures with liberation at their bases. Barbara Wilson Brown describes similar processes, stating: "Consensus is not the goal; designing for equitable, systemic change in vulnerable communities involves fusing the local knowledge of residents with the technical knowledge of professionals in small, nimble, public projects" (Wilson, 2018, p. 2).

These works are transforming community-led practices for social and racial justice. They point to goals like abolition and decolonization, noting that such goals are unachievable without a radical reconception of the relationship between policy and design or social scientific theories and reified space.

4.2. Design in Planning for Climate Change and Climate Justice

Design solutions for sustainability, with an eye towards addressing the contributions of the building industry to climate change, have historically focused primarily on the buildings and landscapes as objects. This focus on building forms and technologies placed the onus for change on client-based decisions and consumption patterns. Larger-scale urban design initiatives have been similarly critiqued for their inability to enact the broader scales of change needed to truly institute mitigation and adaptation for all (Anguelovski, Irazábal-Zurita, & Connolly, 2019; Shi, 2020), as Fry notes:

> Gestural egocentric architectural statements and master planning fictions measured against the scale of imperative [climate change and generalized unsettlement] are not merely misplaced, they are crimes against the future. (Fry, 2015, p. 48)

As such, designers are taking the helm in defining new relationships between underrepresented communities and climate change. This body of academic and professional work leverages the insights from design innovations on issues of social and racial justice, extending discourses on community-based design, to encompass climate futures. These works contain critiques of environmental and land use planning relative to environmental and climate justice (Steiner, 2014; Steiner, Simmons, Gallagher, Ranganathan, & Robertson, 2013). Notable is Sarah Dooling's concept of 'ecological gentrification' or "the implementation of an environmental planning agenda related to public green spaces that leads to the displacement or exclusion of the most economically vulnerable [referring to the homeless] while espousing an environmental ethic" (Dooling, 2009, p. 630). Specifically, Dooling critiques visions for greenspaces which do not critically examine how these spaces are used. In her Seattle-based case study examining homelessness, an uncritical view of greenspace leads to the displacement of the homeless from public spaces. Her concept of ecological gentrification has since informed countless studies and opened a new area of study on gentrification's intimate relationship with sustainability and 'greening' strategies in planning (Alkon & Cadji, 2020; Anguelovski, Connolly, et al., 2019; Rigolon & Németh, 2019; Sbicca, 2019).

In this way, designers continue to highlight 'hidden' infrastructures, taken as givens, which harm the environment and perpetuate harmful forms of design (Mau et al., 2004). DesignEarth, a design firm founded by architects Rania Ghosn and El Hadi Jazairy, explores fictive futures of post-oil through storytelling and visual representation (Ghosn & Jazairy, 2020). Their work offers, at once, research-driven inquiries into physical infrastructures and visions of a potential sustainable future. Similarly working in this space, Teddy Cruz and Fonna Forman examine how the U.S./Mexico border affects the physical space and infrastructures of the San Diego/Tijuana region (Cruz, 2007; Cruz & Forman, 2018). Their research and practice interrogating infrastructural landscapes in this international region have profound implications for how transnational environmental systems and policy are understood.

Most notable in this area, however, are the designers reflecting and building upon not just infrastructure, but also climate change policies like the Green New Deal, a series of proposed resolutions to address climate change in the U.S. (Recognizing the Duty of the Federal Government to Create a Green New Deal, 2019). While many view the Green New Deal as a series of proposed policies, a number of designers are viewing the document as a provocation for design to rethink its goals and processes, and to push the ideas within the Green New Deal (Fleming, 2019; Goh, 2020). Notably, Reinhold Martin has pointed to the uneven development from the New Deal, calling for a vision of the Green New Deal that is more overtly equitable in its orientations (Martin, 2020). These inquiries underpinned the Superstudio, a pedagogical collaboration from 2020 to 2021 across design studios nationwide to interrogate the potential spatial implications and lessons from the Green New Deal, sponsored by the University of Pennsylvania's McHarg Center and the Landscape Architecture Foundation. These teaching and professional opportunities leverage the ontological shifts in design, not just in the service of social and racial justice goals, but also for a radical reconceptualization of a future contending with climate change.

These works exemplify the current ontological shift in design and its potential implications for environmental planning. Without fluid and radical visioning for the

future under climate change, the physical and policy-based issues we face will not be fully addressed. Design tools that permit the development and implementation of alternative futures, with creativity, are sorely needed.

5. The "Designer-Turned-Planner" in Action: bcWORKSHOP and RAPIDO

To examine the broader implications of the work above, I present the case of bcWORKSHOP, a design and planning nonprofit founded by Brent Brown in 2005 in Dallas, Texas, that eventually expanded to satellite offices in Houston, Texas; Washington, DC; and Brownsville, Texas. BcWORKSHOP's practice, writ-large, merges architecture, landscape architecture, preservation, and planning in service of low-income communities of color. Their mission is "to improve the livability and viability of communities through the practice of thoughtful design and making" (bcWORKSHOP, 2020). To accomplish this, they follow a collaborative design approach that leverages community development and engagement techniques throughout the design process.

The case presented here focuses solely on bcWORKSHOP's Brownsville, Texas office. Founded in 2012, bcWORKSHOP's Brownsville office was created to establish their presence in the Río Grande Valley (Valley), one of the poorest regions in Texas and the U.S. (MacLaggan, 2013). Their main goal for this new office was to work within the *colonias*, impoverished communities along the U.S./Mexico border that lack basic utilities and adequate housing. BcWORKSHOP's work in the Valley began with a focus on housing design, which, over time, transformed with the introduction of the Ford Foundation in 2015 and its creation of a regional network of nonprofits and grassroots organizations. To examine this transformation, I first introduce and evaluate the history behind bcWORKSHOP's Brownsville office and the founding of the sustainABLEhouse initiative. Second, I examine the transformation of sustainABLEhouse into the RAPIDO project, which brought national attention to bcWORKSHOP-Brownsville.

5.1. Establishing the sustainABLEhouse Initiative

Immediately upon opening the Brownsville office in 2012, bcWORKSHOP began working with the Community Development Corporation of Brownsville (CDCB), a major affordable housing provider in the Valley. BcWORKSHOP's objective in working with the CDCB was to re-envision housing designs for the CDCB's 'Colonia Program,' funded by U.S. Department of Housing and Urban Development (HUD) HOME funds. The current program was based upon a self-help model of affordable housing delivery, popular across South Texas since the 1980s (Ward, 1999). Self-help housing, here, refers to 'sweat equity' homes, whereby households actively participate in the (re)construction of their own homes. The CDCB sought to address an issue with their self-help housing designs: namely, that they all relied on the same design elements and plans. While their standard, universal design reduced costs, it ultimately led to 'cookie-cutter' neighborhoods, as a bcWORKSHOP designer recalled:

> You'd drive [into the community and] almost a quarter of the houses, out of the 864 houses, it's the same house, just a different color. They [CDCB] said: "You know, we're getting these families new homes—durable, efficient homes—but we're changing this neighborhood. We're making it cookie cutter and that's not what we're about." (bcWORKSHOP Designer 1, interview, 2014)

Furthermore, the CDCB wished to reduce the number of self-help homes, allowing residents to participate in the design of their new homes, but not forcing them to construct them (bcWORKSHOP Designer 3, interview, 2015; CDCB Employee 1, interview, 2014). From this, the designers and planners at bcWORKSHOP began a standard humanitarian design process of redesigning the self-help homes for the CDCB. They began with more traditional methods of engagement in the redesign process to help households envision the redesign of the homes, such as holding community focus groups, defining spaces abstractly with colored blocks, and reviewing photographs.

By 2013, these efforts were adapted into the sustainABLEhouse initiative. SustainABLEhouse uses structural insulated panels (SIPs) to establish a modular base for the CDCB's homes. SIPs are framed wall segments that are prefabricated and pre-insulated with integrated utilities. SIPs rely on a system of 4-feet by 8-feet panels (standard dimensions for construction materials) that not only reduce material costs, but also allow for freer construction in a 4-feet by 4-feet grid (Figure 1). In the case at hand, this allowed affordable housing designs to be more freely configured to meet each household's specific needs (Figure 1).

Given the immense flexibility provided by SIPs, bcWORKSHOP needed to develop a new process for designing these homes. As the former designs were unable to change beyond color or material finishes, the CDCB did not have an extensive process for co-designing homes with households. To address this, bcWORKSHOP developed *la tarea* (the homework). *La tarea* is a bilingual (Spanish and English language) pamphlet containing a series of questions, prompts, diagrams, and maps to establish existing issues on lots and each family's housing desires. Households could sit with the bcWORKSHOP designers and determine the parameters for their home. Over time, bcWORKSHOP developed over one hundred distinct house plans from *la tarea* and the SIP panel system (bcWORKSHOP Designer 2, interview, 2014). In conceptualizing *la tarea*, the designers wished for households to take ownership of the design and see themselves in the process; however, that required

Figure 1. Photograph showing the installation of SIPs in the core of a RAPIDO prototype home. Source: bcWORKSHOP (2016).

assisting the household in understanding the multitude of design decisions involved in a design process, as one bcWORKSHOP designer stated:

> When you think about designing a home with somebody who's never thought about home design, really, how do you get people thinking: "I need to make thoughtful decisions." It's what are the simple questions we can ask somebody that really gets people thinking about: How do I want the space outside my house to work? How do I want to walk into my house and what do I want to see? Or, I walk out of my house, what do I want to see? Or, when I'm sleeping, I don't want this beside my bedroom door. So, people started thinking about that so it's not just: "Hey, design your own home." (bcWORKSHOP Designer 2, interview, 2015)

The ontologies underpinning the sustainABLEhouse initiative display a shift from a modernist-industrial focus to a justice-oriented perspective that asks: Why can't low-income households design their homes without the burden of constructing it? SIPs introduced an alternative to traditional stick frame construction that minimizes material costs and also introduces flexibility into home design. However, the true ontological shift emerged from the pairing of structural freedom with design freedom. *La tarea* was a method for quickly establishing the household's site and programmatic expertise, while reinforcing the designer's role as a facilitator in the process. With this reconceptualization of the design process, the CDCB and bcWORKSHOP were able to move deftly to design and build custom houses and diversify the housing across the Valley's *colonias*. The additional benefit of sustainABLEhouse is that these homes adapted more to the regional culture they inhabited. In this case, the Valley residents emphasized space for extended families and the need for outdoor spaces for family gatherings. Unlike many other affordable housing programs, sustainABLEhouse could adapt to these local needs.

5.2. The Development of RAPIDO

As bcWORKSHOP's Brownsville office further established its presence in the Valley, it began collaborations with the Valley's many *colonia*-based groups, namely LUPE and

ARISE, two of the largest grassroots organizations in the region. In 2015, this partnership was bolstered by a three-year Ford Foundation grant that led to several projects focused on urban infrastructure (Rivera, 2020). From this, bcWORKSHOP learned of a persistent issue in the *colonias*, which was also evidenced in their *tareas*: The Valley's *colonias* suffer from inadequate drainage and are highly susceptible to flooding. This issue became evident during Hurricane Dolly, which made landfall in the region in 2008. Many *colonia*-based households reported standing water in their communities nearly 180 days after the storm (Proyecto Azteca Employee 1, interview, 2014). These issues were worsened by poorly executed post-disaster housing reconstruction; namely, the Federal Emergency Management Agency (FEMA) failed to sufficiently support reconstruction in the region's *colonias* by denying them reconstruction funds on a massive scale, leading to a nearly 10-year-long lawsuit lead by LUPE (Rivera, Jenkins, & Randolph, 2019). Hearing these concerns from the community, bcWORKSHOP explored the idea of transforming the sustainABLEhouse initiative, with its flexible SIP design, to provide rapidly-deployed post-disaster homes.

The fundamental goal, bcWORKSHOP recognized, was to reduce the time between disaster and housing reconstruction. Working with the Texas Housers, a notable Texas-based housing advocacy organization, bcWORKSHOP identified incongruities between FEMA and HUD's funding for post-disaster housing reconstruction, which created a slow and confusing recovery process for low-income households. As the problem stands, FEMA funds may be used for immediate housing recovery needs, but cannot be mixed with HUD's funding, which focuses on long-term housing recovery. BcWORKSHOP sought to address this shortcoming, which required not only policy changes, but also changes to post-disaster housing designs.

From this, the RAPIDO initiative was born. RAPIDO took the sustainABLEhouse model and recontextualized it as a housing program for on-site, post-disaster housing. The benefit is rapid deployment and construction times—much faster than current FEMA trailers (Henneberger, 2019)—and no owner-occupied displacement, as families reside in improved housing on their lots. Due to the 4-feet by 8-feet modularity of SIPs, the panels are easily delivered via standard pick-up trucks (never in short supply in Texas) in one to two trips. The initial SIPs deployed by RAPIDO include all the core elements of a functioning home: living space, kitchen, and bathroom. This immediate relief housing was called the 'core.' The core was carefully designed to meet FEMA standards and to take the place of a FEMA trailer or tent. From this core, households could expand their homes with more SIPs or with traditional stick-frame construction as funds from HUD CDBG-DR grants or elsewhere permitted. The benefit of the SIP core construction is that panels can be easily removed to become doorways or passages into home additions. Figure 2 shows how RAPIDO homes can expand over time.

To test the concept, bcWORKSHOP built twenty fully operational RAPIDO homes in the Brownsville, Texas area as a pilot project (see Figure 3). The cores of these prototypes were assembled and deployed to the site, as expected in a post-disaster situation. Then, bcWORKSHOP designers worked with each of the twenty households to design a unique extension to the core that served each family's needs. The RAPIDO program, and its successful pilot projects, earned bcWORKSHOP a number of accolades, notably the South by Southwest Eco Place Design Award in 2015 and a Design Corps Seed Award in 2016.

In September 2016, the City of Brownsville became the first local government to accept RAPIDO as a post-disaster housing reconstruction model. This has set into

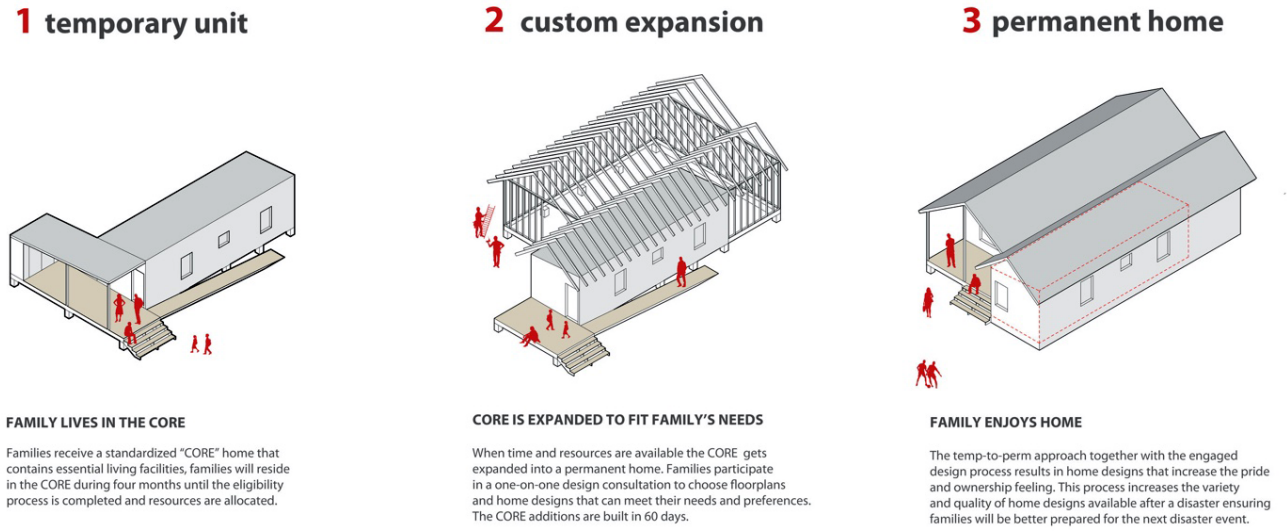

Figure 2. Rendering of the deployment phases of a RAPIDO home. Source: bcWORKSHOP (2016).

Figure 3. Nearly completed RAPIDO prototype home, designed using a sustainABLEhouse model, under construction in a *colonia* north of Weslaco, Texas. Source: Author (2015).

motion the adoption of RAPIDO as not just a design proposal, but, as a bcWORKSHOP designer states, disaster preparedness:

> This is not only a disaster response model, but it's a disaster preparedness model, because what we did with these twenty houses is show that this isn't hard. The same process that we use for designing a custom-built house, you can do with this program and it didn't take that much time. It had to be done. (bcWORKSHOP Designer 2, interview, 2015)

True to the statement above, bcWORKSHOP did not end with the proof of concept, but worked with the Texas Housers to transform post-disaster housing policies in Texas. In 2019, after six years of concerted effort, RAPIDO was passed in the Texas legislature and signed by Governor Greg Abbott (Henneberger, 2019). The program and its technical plans (CDCB & bcWORKSHOP, 2015) are now available to Texan coastal communities as a disaster preparedness and recovery model. Currently, Texas Housers and bcWORKSHOP hope to expand the adoption of RAPIDO to the federal level to resolve the conflicts between FEMA and HUD post-disaster funding more broadly. In the meantime, bcWORKSHOP has begun constructing RAPIDO homes across Houston in the wake of Hurricane Harvey in 2017 to encourage the program's adoption in the city.

RAPIDO highlights the need to integrate planning and design, in this case to envision more equitable post-disaster housing reconstruction policy and design. To transform the recovery experience for low-income households, changes were needed to both the physical design and planning process for post-disaster housing, and these changes needed to occur in tandem. At once conducting policy analyses pointing out the shortcomings of reconstruction funding and designing context-relevant housing, bcWORKSHOP was able to envision and enact a new future for post-disaster housing. The power of the ontological shift is that this is not a utopic vision or object-oriented design, but instead merges justice-based world-making with key planning and policy frameworks.

6. Conclusions

Design is an inherently spatial way of thinking about the world, and about the multiplicity of potential worlds that could exist (Escobar, 2017, pp. 15–16). As such, space

becomes the means and methods through which designers think and act, a fundamentally different approach to the world than seen in other disciplines. In the social sciences, despite the "spatial turn" in the early 21st century (Withers, 2009), space remains secondarily or even tertiarily important and is more often considered metaphorically within a larger policy or sociological context. However, design conceptions of space extend beyond geographic information systems and nonrepresentational metaphors to encompass envisioning a multiplicity of worlds. While design, and its predilection for working in reified space, once remained in a distant corner of academia, new pathways for designers to fuse their practices and perspectives with social sciences and humanities are emerging.

This is having profound implications for planning research, particularly in its relationship to environmental concerns and in its ability to achieve more just impacts in low-income communities of color. Designers enter planning, increasingly, not just to improve geographic information systems-based research or improve street-level infrastructure, but to engage in planning because there is a need to address serious concerns, like social and racial justice and climate change, with reconceptualizations of what is possible for communities from simultaneous views of world-making and governance. These issues cannot be substantively addressed through policy or design alone, but require both to truly be successful. However, planning research has not yet fully recognized the transformations and ontological shift occurring in design. The assumption that design remains inherently object-oriented is, increasingly, incorrect. A major, untapped area of planning research, reflecting trends in design-oriented research in geography and anthropology, is to re-engage with designers-turned-planners to transform what is possible in planning research and practice.

The case of bcWORKSHOP's RAPIDO and sustainABLEhouse programs illustrates the importance of engaging new conceptions of design as part of a planning strategy. Without an understanding of the design constraints posed by existing housing designs, the collaborative nature of the design process and the two-phase construction of these homes would not have been possible. It was this reconceptualization of housing design and its implications for post-disaster housing reconstruction policies that made RAPIDO so impactful.

Ultimately, the simultaneous viewing of problems from design, humanities, and social science perspectives is what is needed to envision multiple and different worlds: past, future, and current. Existing spatial patterns and policy frameworks cannot fully and satisfactorily address issues like climate change and anti-Blackness. Instead, frameworks like abolition, decolonization, mitigation, and adaptation all require new policy approaches, but also new modes of understanding and transforming real, reified space. This is the true wheelhouse of the designer.

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Conflict of Interests

The authors declare no conflict of interests.

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Article

Qualitative Methods and Hybrid Maps for Spatial Perception with an Example of Security Perception

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Abstract
The security/insecurity of our cities has become the subject of public debate in recent years. Intuitive concerns about safety or the lack thereof, tends to alter with experience, age, gender, social status or background, in addition to physical constitution. Perceptions of space are personal, individually selective, and thus are continuously reproduced. Noting these variations, materialised factors also play a major role, e.g., recessed house entrances, dense or high hedges, poor orientation options, dark places, etc. Attributing meaning to these materialised factors, real constructs are formed which create positive or negative narratives about certain (urban) spaces, influencing the actual use and design of urban spaces. To investigate the importance attached to certain spaces, qualitative methods are required for examining socio-spatial situations, perceptual processes and attribution (Sommer & Töppel, 2021, p. 195). Using different methods in an explorative and in-depth descriptive research phase, such as expert interviews, user observations, surveys on go-alongs, participatory mapping with detailed information on structural and spatial locations, the advantages and disadvantages of method selection are presented. Berlin's Alexanderplatz was used as a case study area to determine perceptions of security in urban areas. We confirmed that despite variations, certain subjective perceptions concerning visibility, brightness, and audibility are collective. Additionally, hybrid maps are used to explain how subjective perceptions of space, combined with 3D graphics, can alert architects and city planners to uncertainty among users of public space.

Keywords
3D planning tools; go alongs; hybrid maps; participatory mapping; spatial perception; urban resilience

Issue
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1. Introduction

People establish relationships with public places, endowing them with meaning as a part of their lived environment. In spatial research, a noteworthy aspect is the meaning which people assign to specific places, ascribing personal meanings founded on emotional states generated by these places (e.g., Stals, Smyth, & Ijsselsteijn, 2014, from Sommer & Töppel, 2021, p. 197). The relationship between person and place is characterised as mutually dependent, as Casey emphasises:

> The relationship between self and place is not just one of reciprocal influence...but also, more radically, of constitutive coingredience: each is essential to the being of the other. In effect, there is no place without self and no self without place. (Casey, 2001, p. 684, from Sommer & Töppel, 2021, p. 197)

As Sommer and Töppel summarize: "Place, and therefore any lived environment, is not merely a neutral backdrop for human interactivity. It has a structure, the experience of which mould the perceptions of those living within it (Anderson, 2004; Preston, 2003; Tilly, 1994 from Sommer & Töppel, 2021, p. 197). Edward Relph hypothesizes this connection through the model of a perceptual space, which is determined by current and imagined and remembered places" (Relph, 1976, p. 11, from Sommer & Töppel, 2021, p. 197)." Subjective security perceptions are consequently the result of individual perception and evaluation processes and are associated with a whole range of emotions such as fear, risk, danger, intolerance, and vulnerability in relationships (Schreiber, 2011, p. 32). Individual interpretations and evaluations of urban spaces consequently influence subjective perceptions. As Sommer & Töppel (2021, p. 198) point out: "a research challenge when investigating the connection between place and person is that their perception of a place, especially when its connected with emotions, is often not explicit communicated. Still, places are also linked with intersubjective attributions (Kühl, 2015, p. 36)." As Sommer & Töppel (2021, p. 198) point out: "a research challenge when investigating the connection between place and person is that their perception of a place, especially when its connected with emotions, is often not explicit communicated. Still, places are also linked with intersubjective attributions (Kühl, 2015, p. 36)." As Sommer & Töppel (2021, p. 198) point out: "a research challenge when investigating the connection between place and person is that their perception of a place, especially when its connected with emotions, is often not explicit communicated. Still, places are also linked with intersubjective attributions (Kühl, 2015, p. 36).As Sommer and Töppel (2021, p. 198) point out: "A research challenge when investigating the connection between place and person is that their perception of a place, especially when its connected with emotions, is often not explicit communicated. Still, places are also linked with intersubjective attributions" (see also Kühl, 2015, p. 36).

The security and insecurity of cities has increasingly become a topic of public debate in recent years. Cities offer protection; as places of cultural diversity where different groups and orders meet, they also harbour risks and dangers. Certain districts, streets, or squares are constituted as criminal or insecure areas. This is expressed in terms such as ghetto, crime hotspot or no-go area (e.g., Glasze, Pütz, & Rolfes, 2005, p. 13). A Google image search on the subject of fearful areas—as well as the relevant scientific literature on it (Hiller, 2010; Rolfes, 2015; Schubert, 2005)—provides a clear picture: the majority of the cases are deserted, sparsely lit underpasses. However, there is difficulty in approaching the issue of security. For city dwellers, it is not so much factual, statistically verifiable crime levels that cloud their opinion, but rather subjective security perceptions, i.e., based on their subjective perception of security. These can often be influenced by negative media reports. City dwellers usually assume a greater risk of becoming victims than they statistically would be (e.g., Hermannsdörfer, 2015, p. 7; Hiller, 2010, p. 2). Overall, the following factors have so far been identified in the scientific discourse (e.g., Blieffert, Floeting, Schmalfeld, & Schröder, 2015; Born, 2009; Hiller, 2010; Müller, 2015; Rolfes, 2015; Schmidt, 2016; Wehrheim, 2012) as essential for citizens' feelings of security or insecurity: Confusing areas, e.g., due to niches in the masonry, recessed house entrances or dense and high hedges (as hiding places for possible perpetrators), poor orientation options, poor lighting, lack of social control of offensive behaviour. Dynamic factors such as a lack of neatness (vandalism, graffiti, littering) or the dominance of certain—seemingly threatening—local social groups are also mentioned.

In our article, we focused on the perception of security in public spaces regarding visibility and audibility, with a special focus on materialised elements in space and concerning the factors gender, cultural background, personal experiences. There has been no systematic inventory of structural and spatial factors and, above all, an exact characterisation and measurement of places that are perceived as insecure, but also of places that are perceived as secure. Specifically, the research gap consists of the fact that the knowledge about structural and spatial factors named and discussed in the literature is usually not taken from systematic, empirical, or social science studies. Rather, the authors refer to experiences from police practice, in particular to results of simple inspections carried out by police experts with city planners and citizens (Abt, Hempel, Henckel, Pätzold, & Wendorf, 2014; Koskela & Pain, 2000; Ruhne, 2003; Schreyögg, 1989; Zinganel, 2003). Exceptions include a few systematic studies on the effects of urban lighting, which, however, produced highly contradictory results (Krause, 2013, p. 12). Exact dimensions and visual data of factors perceived as potentially dangerous in urban areas were rarely collected. This is what Kamalipour, Faizi, and Memarian (2014) say, in regard to the international context, when they speak of an 'absence of morphological mapping.' The most diverse structural-spatial factors, which are typically perceived as uncertain but also as secure, were neither systematically recorded and inventoried, nor were they precisely described and measured in terms of their characteristics.

To investigate what importance people attach to a certain space, a wide variety of methods are required with which one can grasp the most diverse elements in a socio-spatial situation. With a multi-method approach including visual methods, the perceptions of citizens and experts on uncertainties and security in public spaces were collected.

In our article, we focus on the Alexanderplatz, in the heart of Berlin, to shed light on the individual methods of subjective spatial perception, drawing out their advantages and disadvantages. We aim to present tangible methods which can grasp the subjectively shaped

perception patterns, and answer the question, how city planners and architects can obtain security assessments for a place with the help of hybrid map visualisations in a 3D planning tool.

In the following, we present the case study area Alexanderplatz and explain why this location was investigated with regard to security perceptions. Furthermore, we give an overview of the different methods to show the advantages and disadvantages of the perception of space and security. We present our results in so-called hybrid map visualisations and make clear that security perceptions of a place are intersubjectively shared regardless of age, gender and cultural background.

2. Case Study Area Alexanderplatz

With an area of around eight hectares, Alexanderplatz is one of the central and well-frequented squares in Berlin. The square was named after the Russian Tsar Alexander I in 1805, but already had a central function as a market and meeting place since the 17th century, especially when the first train station was built in 1882. At this time, Alexanderplatz served more and more as a traffic junction between the old city and the working-class and entertainment districts in the east of the city. After the destruction of the Second World War, it acquired its present form in the 1960s and 1970s with the construction of striking buildings (Engler, 2016, p. 180). It is surrounded by commercial and office buildings, a central underground and S-Bahn station with regional transport connections and a 39-story hotel. A special feature is that trams run across and stop in the square. Up to 360,000 people cross the square every day (see BerlinOnlineStadtportal, 2017). In recent years, Alexanderplatz has become a focal point of crime. The quality of use of the public space could not be increased significantly despite some efforts (e.g., seasonal markets). Structural measures were not implemented, but rather the Berlin police increased their presence in the square and opened a permanent police station on December 15, 2017 (see BerlinOnlineStadtportal, 2017). Just two years after the opening of the police station, the Berlin police recorded 4,352 criminal offences from January to July, 2019. Most of the registered crimes are robberies (2,231), assault and robbery (469), and drug trafficking (387; Berlin.de, 2019). Alexanderplatz is an interesting case study area as it is the most visited city square in Berlin and subsequently a high-crime spot.

3. Methods of Subjective Spatial Perception

In the following, we present an overview of the various methods to show the advantages and disadvantages concerning the perception of space and security. We divided our empirical research into three different phases, which partly overlapped (see Figure 1): 1. an explorative phase; 2. an in-depth description phase; and 3. a data representation phase.

In the explorative phase, the user routes on Alexanderplatz were observed to gain a first impression and access to the case study area. In a next step, we carried out a questionnaire survey at different locations in the square, intending to get the first insight into the sound/acoustic quality and lighting conditions and to determine the first structural and spatial deficits. Also, expert interviews were carried out with representatives from planning and security practice to prepare go-along routes. These findings were the basis for the following in-depth description phase, intending to further investigate individual aspects that have caught our attention. To achieve this, we used the method of go-alongs with the method of thinking aloud. Structural and spatial focus areas were recorded in which uncertainties regarding lighting, sound/acoustics, and visibility

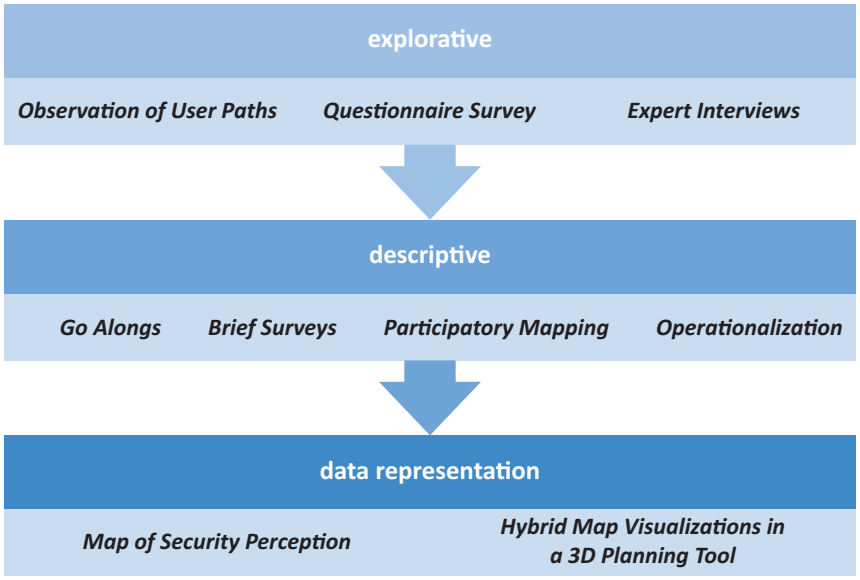

Figure 1. Overview of the three research phases and their methods for investigating spatial perceptions.

were identified by the respondents. In addition to the go-alongs, we continued to carry out short surveys on Alexanderplatz to collect more specific information about the place. During the survey phase, several measurements of light, sound and distances of the determined structural-spatial factors were carried out to verify the respondents' statements, or to underpin their statements. Furthermore, a participatory mapping workshop took place near Alexanderplatz. In the data representation phase, we combined the evaluated results in a hybrid map visualisation for security perception. The hybrid maps are a basis for the data representation in a 3D planning tool so that actors in planning and security-practice receive security assessments.

4. Explorative Phase

In order to gain an insight into the case study area Alexanderplatz, the user paths in the square were observed. Also, the opportunity arose to record the light and sound conditions with students by means of a questionnaire at a certain time of day to determine the first structural-spatial factors. Through the interviews with experts, we learned more about the character of Alexanderplatz, its use, planned measures and concrete structural and spatial deficits. The initial observations and spatial perceptions of the experts from the exploratory phase were considered in the in-depth descriptive phase.

4.1. Observation of User Paths

In autumn 2018, we conducted observations of user paths at three locations in Alexanderplatz over two days. We did this in the mornings and afternoons to determine how the areas and their functions are being used. Another interest was to find out which space is utilised by which user groups and to deduce which users might not visit the space or possibly avoid it altogether. It is interesting to note that it is possible to determine whether certain public spaces we looked at are more transit spaces or lingering spaces. The example of Alexanderplatz has shown that the paths between the train and tram stations and the department store were the most frequented. Users tended to use the paths along the buildings and less across the square. Even while observing user routes in Alexanderplatz, a lack of convivial space usage became apparent even though the square has a lot of open space on offer. As a result, Alexanderplatz should be viewed more as a transit hub that is mainly crisscrossed by commuters and tourists and used as a transfer point. This was also evident with a view to the user groups who were less likely to be found on the site due to the observation of the user routes, such as large families and senior citizens.

The most remarkable advantage is that the method is particularly suitable for the beginning of a field phase because we were able to determine which target points in the square are highly frequented, e.g., the department stores and train station entrances and which small-scale areas are less frequented or never used. Also, in the case of longer or repeated observations, it is possible to determine how day and night differ and whether this should be taken into account in further surveys. However, one disadvantage is that we do not know why routes are being used in certain ways and have no knowledge of how these routes and their surroundings are perceived.

4.2. Questionnaire Survey on Security Perceptions

In June 2018, a questionnaire survey with 17 students from the disciplines of urban and regional planning as well as sociology took place at Alexanderplatz. The survey was designed to learn more about the perceptions of visibility and audibility in the square. The students were between 20 and 25 years old, 10 male and 7 females. The questionnaires were filled out at a total of 17 specified locations on and around Alexanderplatz (one student at each location). As part of the questionnaire, the students rated the lighting conditions and answered questions concerning perceptibility and direct security awareness. In parallel to the questionnaires, selective exposure measurements were carried out in order to relate the subjectively perceived lighting conditions to physical values. To systematically determine how the perception of visibility, audibility and lighting conditions changes during the transition from day to night, the questionnaires were collected in a half-hourly cycle. In the observation of the user routes, we noticed that Alexanderplatz is rather sparsely frequented after closing time. In many buildings, there are offices, which is why the own visibility by third parties in the evening hours is no longer guaranteed. One result showed the students felt less perceived by other people, while they perceived many people in the square (Figure 2).

On the one hand, the questionnaire survey has the advantage of generating a lot of collectable data in a manageable timeframe. This can then be displayed on a device showing the comparative patterns of visibility and audibility in real-time. Using this approach, we identified focus areas at Alexanderplatz and its surroundings, i.e., small-scale areas with their deficits. On the other hand, the disadvantage of questionnaires lies in their predetermined structure. Only certain aspects of perceptions can be included.

4.3. Expert Interviews

We initially carried out site visits and interviews with nine security experts and planning representatives who deal with the design and security of the site in a professional capacity. These were members of the police force (1), prevention officers (2), district management workers (2), architects (1), city planners (2) and landscape architects (1). The main topics of the survey were the character of the area, urban development deficits and security

Figure 2. Questionnaire survey on security perceptions at Alexanderplatz. Source: VirtualCitySystems GmbH (Background).

perceptions, the use of space and its conflicts of use, measures and best practices. From the expert interviews, the first structural-spatial factors in the study area were determined. The following two expert statements concerning the Alexanderplatz confirm the results from the user route observation and the questionnaire collection:

> So I don't know where to go, I have a few cafés on the first floor where I know they see me. With whom I can have visual contact, who I can call if something happens to me—a flower shop, a café, a newsstand—which are practically within calling distance if something happens. I don't have that at Alexanderplatz. So a café on the square would contribute to an increased sense of security. (Expert interview, Prevention Council, District Berlin-Mitte, June 21, 2018)

> It already has a large dimension, which is why this intimate feeling of being there cannot develop so easily. (Expert interview, landscape architects, May 16, 2018)

The lack of quality of stay in the square leads to a lack of visibility of oneself, which leads to a feeling of insecurity among the users. The results from the expert interviews served, among other things, as a basis for the creation of the go-along routes with the residents.

The advantage of expert interviews is that there is a higher level of knowledge, e.g., about criminal offences. Furthermore, future spatial planning projects and measures can be recorded. Consequently, the relevant research questions can only be comprehensively described in connection with expert knowledge and the everyday experience of visitors and residents. However, the experts questioned mostly work locally and have developed their own perspectives through practical work. The disadvantage is that their perception of the space is limited to a professional capacity. Differences between day and night are rarely expressed.

5. In-Depth Description Phase

The go-along method is fundamentally about experiencing an everyday environment and examining the perception and appropriation of spaces. Therefore, it was used in connection with the method thinking aloud to seize spatial perceptions more deeply. The short survey at Alexanderplatz was conducted to confirm or supplement the statements of the respondents from the go-alongs. When using participatory mapping, it was interesting for us to experience how users enter their perceptions on a map and which attributes they assign to them using symbols (created from the go-alongs). During the phase of the detailed description, we carried out measurements

of light and sound in the most frequently mentioned structural-spatial areas. This enabled us to quantify the statements of the study participants and to present intersubjective perceptions of uncertainty.

5.1. Go-Alongs

When using go-alongs for collecting data, the focus is on the specific spatial experience during an 'interview in motion.' The researcher accompanies the respective study participants in a selected spatial environment and questions can be asked while walking (e.g., Kühl, 2015, p. 36, from Sommer & Töppel, 2021, p. 200). In research practice, this approach is a combination of participatory observation and qualitative interviews. According to Margarethe Kusenbach, this methodological approach eliminates the disadvantages of interviews and participant observation if the focus of analysis is on the importance of places in everyday experience (e.g., Kusenbach, 2008, p. 351, from Sommer & Töppel, 2021, p. 200). With participant observation, one cannot always understand all aspects of their perception and experience in the space as they usually do not verbalise their experience (e.g., Kusenbach, 2008, p. 351; Löw, 2016, p. 81, from Sommer & Töppel, 2021, p. 201). In qualitative interviews, everyday experiences are more likely to be verbalised. This cannot always be expressed comprehensively by the respondents especially if the interview does not take place at the location itself (Kusenbach, 2008, p. 352, from Sommer & Töppel, 2021, p. 201). The methodological challenge is transforming this everyday experience, the implied perception it contains, into spatially relevant actions, something pre- verbal or non-explicable in the investigation into spoken language. The role and presence of the researcher creates a discussion framework that offers the opportunity for personal exchange concerning experiences, impressions, and emotions on site and thus motivates the respondents to talk about their perception (e.g., Stals et al., 2014, from Sommer & Töppel, 2021, p. 201).

5.1.1. Applying the Go-Alongs Method

The go-alongs were carried out with citizens of different ages, genders and from different countries of origin. They could choose their everyday route. There were suggestions from us within the respective urban area, but no further specifications. Acquiring different target groups and carrying out the investigation was, overall, very time-consuming. The go-alongs were conducted with individuals and lasted 1–2 hours. A total of 16 inspections took place between May 26, 2018 and April 17, 2019. We scheduled the go-alongs with the participants during both day and evening hours to record the different perceptions in daylight, at dusk and at night. As Sommer and Töppel (2021, p. 202) report: "During the go-alongs, we accompanied the respective participants and asked them to use the method of thinking aloud (van Someren, Barnard, & Sandberg, 1994) to describe their perception in terms of visibility, sound/acoustic quality, observability, and brightness. So, unlike a qualitative interview, we did not lead the conversation with questions. Using the method of thinking aloud, we wanted to let the participants describe their immediate impressions to us, i.e., what was going through their heads." Participants were also asked to indicate which characteristics made them feel insecure or secure. During the go-alongs, they pointed out building structures, walls, streets, paths, squares, courtyards, parked cars, plantations and parks in terms of distances, visibility, lighting, and noise events. The reference to specific features and objects is particularly clear in the data excerpted from the Alexanderplatz case study area (Figure 3): "So here you are really surrounded by large grey buildings" (female, 26, non-resident, February 12, 2019, 14:00); "It is such a large space and everything is so fenced off by consumption options. You feel surrounded by all the shopping malls" (female, 26, non-resident, February 12, 2019, 14:00).

A public square like Alexanderplatz, which is surrounded by office buildings, shopping centres and hotels, offers residents and visitors little opportunity to identify with the location and makes it difficult to implement meeting places that target a wide variety of user groups to unite and promote significant social control. As a result, it remains mainly a transit space and less an inhabitable space: "A traffic junction. But without quality of stay. And that also attracts criminals" (female, 65, resident, January 7, 2019, 14.00); "Benches to sit down are in short supply" (female, 65, resident, January 7, 2019, 14.00); "Where can I meet up with friends and sit down?" (male, 40, non-resident, February 13, 2019, 16:30); "But when there's a lot going on, it's very difficult to get through here and I think the people here are pretty reckless, so everybody runs and that's why I don't like to be here unless I have to" (male, 58, resident, January 14, 2019, 15:00).

Alexanderplatz is a good example of how structural changes and different designs have assumed an overall concept over the decades, which has led to frustrations and orientation difficulties, both for visitors and residents trying to navigate the square.

As Sommer and Töppel (2021, p. 197) conclude: "For our research on the perception of security in the city, this method offered an advantage in that the perception of the spatial environment was carried out simultaneously in the concrete investigation situation and was not told to us exclusively from memory in an interview situation" (see also, e.g., Müller & Müller, 2017, p. 54). By walking together, it is easier for the participants of a study to express themselves, through the direct connection to the environment, concerning their immediate feelings, attitudes and experiences regarding a certain place. In particular, the presence of the survey situation, which is in-situ at the specific location, can promote this effect (Sommer & Töppel, 2001, p. 198). In this regard Kühl emphasises:

Figure 3. Alexanderplatz. Source: IRS.

> Being in one place during the interview makes it possible to look at the location and to become aware of one's own experience. In concrete terms, this makes it easier for participants to reflect and verbalise thoughts, feelings, memories and other associations that are linked to and constitute the space....At the same time, concrete statements are more often made spontaneously or impulsively along with external impressions that arise depending on the situation. As a result, the spatially concrete stimulates rich explanations and expands the spectrum of the execution by aspects that would have been forgotten or detached from the context of experience. (Kühl, 2015, p. 39, after Sommer & Töppel, 2021, p. 198; Authors' translation)

An example of the lack of orientation at Alexanderplatz clearly illustrates this: "There are no signs so that you know that I have to run here and there. If I didn't come from here, I would find it difficult" (male, 40, non-resident, February 13, 2019, 18:00); "You don't know where to go, there is no orientation" (female, 42, non-resident, March 13, 2019, 18:30); and "I definitely wouldn't find my way around here. The signage is inconspicuous" (female, 40, non-resident, February 14, 2019, 17:30).

There was often a lack of clear understanding of the Alexanderplatz space. Many areas are not differentiated and do not allow passers-by to assign functions. During a go-along, three levels can be ascertained, the level of experience, the level of current perception and the associated emotions.

As an advantage, we noted that participants were autonomous in the survey situation if they held the recording device in their own hands. Our co-presence as accompanying researchers was also another positive motivation. A conversation often resulted where respondents perceived us as experts in their urban area, yet also as interested and barely informed listeners. As a disadvantage, challenging in application is collecting the large number of statements and relevant information from the go-alongs, which have to be combined with the corresponding photos. In the analysis of the data material, therefore, priority was given to the assignment of areas and their perceptions of uncertainty and security.

5.2. Brief Surveys on Security Perceptions

On April 24, 2019, and May 21, 2019, short surveys of passers-by took place at Alexanderplatz. The locale was very busy on both days. A total of 26 people were asked about the structural design of Alexanderplatz and their perception of security there. Furthermore, it was ascertained how often and on what occasions which areas on the square were preferred, and which ones were avoided. Respondents were further asked how they perceived the place through the media. People surveyed included residents of retirement age as well as families on vacation and young men who only used the square as a traffic junction. The method was helpful, however, to validate

existing assumptions about the lack of quality of staying spaces and the feeling of insecurity during the night. It was also confirmed that Alexanderplatz is used as a destination-oriented and a passing-through space. Here too, it must be emphasised that speaking about space is a methodological challenge, as Martina Löw (2016) states:

> If one specifically asks about the meaning of rooms, the speakers largely fall silent. Spatial action, established connections or simply their own placements are not or only rudimentarily part of the discursive consciousness….Many spatially relevant actions take place extremely naturally and smoothly in everyday life because the knowledge of placements and synthesis is habitualised. It is precisely this inscription of knowledge into the body and materiality however, that leads to the fact that knowledge about spaces is often not explicable, nor does it appear to require naming. (Löw, 2016, p. 82; Authors' translation)

On the one hand, the short survey was advantageous in that many people could be interviewed on a limited topic in a short time to underpin or check the assessment and perception of a certain area. The method enabled us to interview people directly at the location and thus understand which material-spatial aspects triggered their attitudes, experiences and feelings. On the other hand, this method has weaknesses. The statements of the participants often remained very general and only superficial impressions were described. Our results show that short surveys cannot reflect the everyday perception that is very strongly influenced by the image of the place (e.g., via media reporting).

5.3. Participatory Mapping

This participative method of mapping is suitable for capturing and visualising the subjective perception and empirical knowledge of the space from the perspective of the user. At the same time, an exchange of knowledge and opinions about space is stimulated. The aim of the method is not to create a topographical representation of spatial conditions as detailed as possible but to a form of representation of how space is perceived and constructed as a result of cultural concepts, norms and ideas. Empirically valuable group discussions often arise about how these people perceive a space and which attributes they ascribe to it. This is especially true when several people are involved in a mapping process, another advantage of this method is that if a georeferenced map base is used (e.g., a topographical map or an aerial photograph), everything drawn into the map by hand can be easily transferred to a geographic information system (GIS) program or a multimedia map. Accordingly, qualitatively recorded data (such as the forms of spatial perception) can be related to quantitative data (such as the structural specifics of a location; Reichel, 2020, pp. 31–36).

5.3.1. Participatory Mapping for Security Perceptions

In a workshop on the perception of security in public spaces, citizens and experts spoke about their perceptions of insecurity and security in public spaces. Using the example of Alexanderplatz, the participants looked for constructive solutions that could increase the quality and the feeling of security in this square. 21 people took part in the workshop, including residents, non-residents and experts. First, the participants were asked to draw safety perceptions on transparent foils, if possible individually, based on aerial photographs of Alexanderplatz (size A0), concerning their audibility and visibility. They were then instructed to make creative suggestions for improvement. A new transparent film was placed on the aerial photograph for each participant. The security perceptions were initially mapped by colour-coding the corresponding areas. To include the reasons for their perception during the mapping, symbols were prepared in advance and created based on the (in)secure factors ascertained in the inspections. The respondents were able to place these symbols next to the feelings of security they had drawn (Figure 4). Also, during the mapping process, a log was kept of the participants' comments and sociodemographic data such as age and gender were noted.

Without the use of the symbols, compared to the results from the go-alongs, it would seem the statements about Alexanderplatz and its proximity to the train station concerning neglect, orientation, visibility, noise and the uncertainties caused by the tram on the square are congruent. The participatory mapping, on the other hand, provided specific insights into making the secure and positively perceived areas even easier to find. For this purpose, the areas near fountains and parks were all named along with the shopping malls as being suitable for relaxing and socialising.

The advantage of participatory mapping lies with its approach. Those interviewed can decide for themselves which aspects and areas on the map are important to them and which are to be neglected, and how this is to be marked. In this respect, both the finished map and the process of map creation are empirically informative. Furthermore, the method helps make questions about spatial planning more efficient, pluralistic and more democratic. This in turn leads to a higher tolerance towards the planned measures and more sustainable effectiveness of the implemented measures. The areas drawn by hand can also be easily transferred to a geographic information system program or a multimedia map. Trends in spatial perception patterns between different groups of people (e.g., broken down by age, occupation) can lead to an increase in knowledge.

However, the questions asked in our workshop about the subjective feeling of security appeared rather general and therefore not so well-suited. Without the use of the symbols, most of the feedback would have been lost. Overall, the go-alongs appeared to us to be much richer in information.

Figure 4. Participatory mapping for security perceptions. Source: IRS.

5.4. Operationalisation of Structural and Spatial Factors

The question of how to record the go-along process and how to prepare it for analysis is also raised. In our case, go-alongs were embedded in a multi-method research program in which, in addition to qualitative surveys, we also carried out quantitative measurements of light, sound and distances. Unlike walking-with videos (e.g., Pink, 2007), we did not record our walks on video but saved the conversations as audio recordings. As Sommer and Töppel (2021, p. 204) reported: "In addition to the audio recordings, we took photos of the features mentioned, such as a building described, and saved them with the geo-coordinates" (see also Jones, Bunce, Evans, Gibbs, & Hein, 2008, p. 6). Based on the geo-referenced photos and the verbal statements in the course of the on-site visits, structural spatial factors that are responsible for perceptions of uncertainty could be determined as measurement locations (Figure 6). Measurements were carried out at these points to be able to assess the situation on-site at different times of the day and night and at different frequencies. Measurement data on light and sound as well as distance measurements were collected to inventory and check the relevant security perceptions.

Based on the light measurements, we can quantify the statements of the study participants, and there is the possibility of representing intersubjective uncertainty perceptions. In particular, the Fountain of Friendship between Nations in Alexanderplatz and its surroundings were perceived as 'too dark' by those surveyed. As shown in Figure 5, the fountain itself is not lit and there are large dark areas: "Compared to the rest of the square, the fountain is pretty dark. You can't even see the people sitting here" (female, 40, non-resident, February 14, 2019, 18:00).

The light measurements showed values between 3.1 and 3.6 Lux in the dark. In comparison, 1 Lux corresponds to a candle in the moonlight and 10 Lux corresponds to street lighting. The fountain is only indirectly lit by the shop windows of the surrounding shops. The alternation between light and dark areas on the square is also described as unsettling: "That's what strikes me the most—this play of light here. You always go to light places and then to dark places—dark, light, dark, light" (female, 40, non-resident, February 13, 2019, 18:00); "I'm also honestly a little shocked that nobody else is walking along here, you feel totally helpless" (female, 30, non-resident, February 12, 2019, 21:00).

A sufficient uniformity of the lighting is not guaranteed. The bright shop windows also create a glare effect. When measuring sound, we also had to determine the causes of the noise, i.e., whether it was rail noise or road traffic noise: "There is someone in front who is playing music, so if you stand here now and scream for help, you might be lucky to have someone standing next to you who understands" (male, 58, resident, February 20, 2019, 15:00). The audibility tests, which were carried out in places perceived to be loud, showed that a call of about 90 decibels from 20 meters could only be perceived as noise and from 25 meters could no longer be heard. As a reference, samples were taken at an inanimate place without strong ambient noise. Here, calls of about 70 decibels were perceived up to a distance of 90 meters.

On the one hand, the quantitative data (measurements of light, sound, and distances) underpin the qualitative data (uncertainty perceptions) of the study participants. One advantage is being able to use the data for calculations and representations in one tool. On the other hand, measurement inaccuracies cannot

Figure 5. Fountain of Friendship between Nations at the Alexanderplatz in the dark. Source: IRS.

be excluded in the measurements of sound, light and distances. For this purpose, we performed 13 measurements on 4 different days at different times at Alexanderplatz to compare and verify the values.

6. Data Representation

In the data representation phase, we combined the evaluated results in a hybrid map visualisation for security perception. The hybrid maps are a basis for the data representation in a 3D planning tool so that actors in planning and security-practice receive security assessments.

6.1. Using Georeferenced Photos to Identify Intersubjective Perception

As already mentioned in the introduction, in the past, visual data of urban spaces perceived as potentially dangerous and their structural characteristics were rarely collected during so-called city inspections. Photographs were taken on the fringes of inspections to illustrate concrete urban fear spaces, without the photographs having been scientifically analysed and stored in Geo-Tools (Sommer & Töppel, 2021, p. 204). Using a Geo-Tool (Figure 6), structural and spatial factors through georeferenced photos are identified and visualised where different participants had expressed the same perception of uncertainty. In the case study area, Alexanderplatz, three main areas were identified: the station area, the square area and the base area under the television tower. In all three focus areas, the orientation and lighting factors had the greatest impact on the respondents' perception of their security.

Consequently, the result in map view shows that the sensitivity toward security issues centring on material factors is not only subjective but shared intersubjectively. They also enable initial knowledge of the frequency of perceptions of uncertainty through the visualisation in map views. However, the georeferenced data in a map visualisation does not yet say anything concrete about the various reasons for uncertainty perceptions and must be analysed more precisely.

6.2. Hybrid Map Visualisations

The data from the various methods of the project were transferred to so-called hybrid maps (Figure 7). In our sense, hybrid maps are visual representations of a topic that allow different stakeholders to get the same view and understanding of a topic and to work together on it. Based on the statements and the quantitative measurements, the various socio-spatial factors assessed as insecure or secure are visualised in an integrated 3D-representation.

In the 3D-urban planning tool shown here, icons were designed to show the collected influencing factors of security perceptions, such as structural and spatial factors, the image of a place, missing offers, the infrastructure (stations, etc.), but also groups of people and social interaction. These symbols illustrate the social indications of a public space and offer the actors support in assessing security. The statements, in combination with the measurements and the representation in visualisations, resulted in comprehensive findings concerning the analysis of the perception of space, which would not have resulted without an intersection of databases and

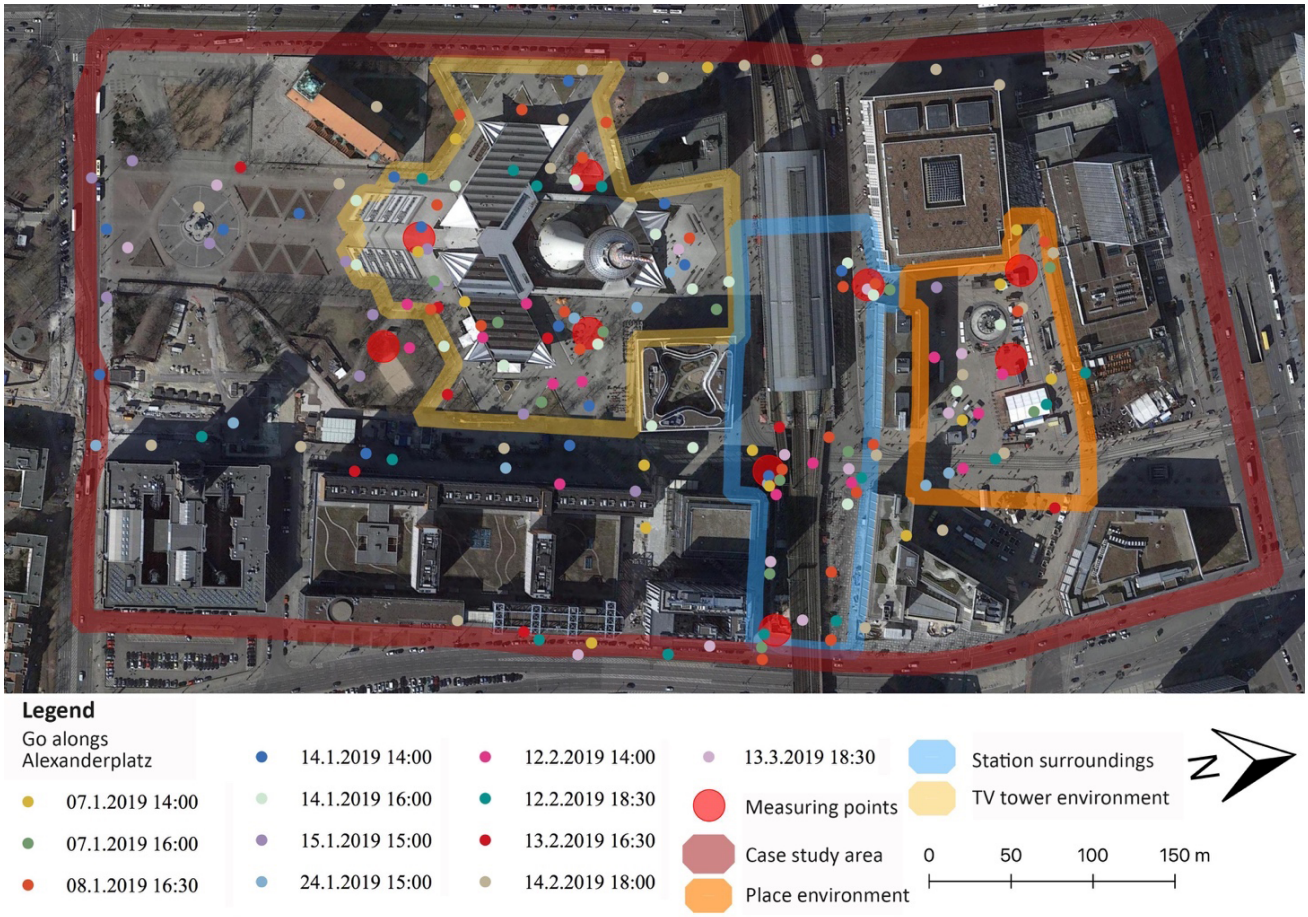

Figure 6. Map of security perception. Source: IRS.

surveys. Whether and how one combines the methods presented here always depends on the research question or the research subject and should, therefore, be appropriate to the subject.

The presentation in hybrid maps closes a gap between research and practice, as the various quantitative and qualitative data for the structural-spatial focus areas are characterised and related. However, the representation of the perceptions by icons can only be used temporarily because the perceptions of the users can be influenced by seasons, day and night times and short-lived changes on site. This form of presentation is quite new and represents an added value for experts. However, it must be considered that stereotypes and

Figure 7. Hybrid map of security perception in public areas. Source: VirtualCitySystems GmbH.

stigmatisations of a place can arise with the experts, which must be reflected exactly.

In cities, structural and spatial factors, among other things, are responsible for the (in)security perceptions of citizens, and in the future, planning practitioners will be particularly called upon to design secure urban spaces. For this purpose, a three-dimensional planning tool is being developed so that architects and planners can better recognise when a location to be planned creates uncertainties. Through 3D simulations, spatial qualities of urban planning designs can be made tangible (Gebhardt, Klemme, & Wiegandt, 2014; Yin & Shiode, 2014), thus enabling new forms of communicative planning, i.e., communication with and participation of stakeholders and citizens (Al-Kodmany, 2002; Billger, Thuvander, & Wästberg, 2016, p. 7; Craig, Harris, & Weiner, 2002; Czerkauer-Yamu & Voigt, 2016; Müller Arisona, Aschwanden, Halatsch, & Wonka, 2012; Silva, 2015).

7. Conclusions

With the methods presented here and particularly through the measurements, the perceptions, thoughts, and feelings of public spaces can be made comprehensible and substantiated. Table 1 shows a summary of the methods for collecting subjective perceptions of security in public spaces with their advantages and disadvantages, the time required for implementation, the target groups, the gain in knowledge and the possibilities for presentation in a geographic information system tool. As Sommer and Töppel point out: "With these methodological steps, our analysis of the results clearly showed that despite the different socio-demographic data and backgrounds of the respondents, certain subjective security perceptions concerning visibility, brightness, and audibility are shared. Therefore, the perception of spaces is always embedded in socio-spatial situations" (Sommer & Töppel, 2021, p. 204).

In qualitative survey methods such as go-alongs, the user path observation and the short survey were carried out in-situ and allowed us to examine the perception of urban space for its topicality and immediacy. In our experience, these methods can be used to make perceptions, feelings and thoughts related to urban spaces comprehensible. The combination of different methods allows an empirical insight to reconstruct socio-spatial perception in everyday life on different time levels, concerning the past and the future, and in the context of impression and experience (Sommer & Töppel, 2021, p. 206). Some of the statements of the respondents were redundant and revealed clear deficits with regard to structural and spatial factors. The respondents regularly commented on the lack of orientation and lighting and the limited quality of stay at Alexanderplatz. Particularly due to the inadequate lighting, secure movement, good spatial orientation, sufficient detail perception and early recognition of danger is even impossible. The quantitative data (measurements of light, sound and distances) underpin the qualitative data (perceptions of insecurity) of the study participants. The visualisation in map views enabled us to gain insights into the frequency of (in)security perceptions. For all the methods presented here for the subjective perception of security in urban areas and its representation in maps, the fact that the perceptions of public

Table 1. Collecting methods for subjective perceptions of security in public spaces.

Qualitative Methods of Encoding Spatial Perception									
Categories		**User Paths**	**„Questionnaire"**	**Expert Interviews**		**Go alongs**	**Short Survey**	**Participatory Mapping**	**Operationalization**
Time Required		low	low	medium		high	low	high	high
Watched Target Groups		Visitors, Commuters	Students	Security Experts, Urban Planners, Architects		Residents and Non-Residents of different age, gender and cultural background	Visitors, Tourists, Residents	Experts and Residents	x
Advantage of Perception	explorative	First insight into the area to be examined	Much data on perceived visibility and audibility, animated/invigorated	Knowledge of spatial planning data, plans and measures	descriptive	Perceptions of attitudes, impressions, experiences and feelings in relation to materialized elements are collected in situ. Also, when and why a place is avoided	Statements about the location can be checked again. Image of a place can be determined	The interviewees decide for themselves what they think is important in the map	Measurements of light and sound at different times of day and night can provide a sound basis for statements on the perceptions of the respondents
Disadvantage of Perception		No knowledge about why the paths are used and how the environment is perceived	Little in-depth information on the perception of security through closed questions. Only students questioned. Does not reflect everyday perception	Perception to space rather professionally, perception usually refers to the time of day on site		How many survey methods an artificial arrangement, which should be reflected with regard to the mentioned perceptions	Does not depict everyday perception	Vulnerable groups, such as homeless people or young people hardly use these formats, so these perspectives are missing	Quantitative data only. Measurements must be taken several times to adjust the values for accuracy
Results		Is it a transit or dwelling space? Which user groups can be found, and which are missing? Frequency at night and day	Small-scale areas with deficits were identified	The experts' statements, in conjunction with the inspections and mapping, can answer a research question more comprehensively		Structural spatial factors and user conflicts of the location are determined	Attitudes, experiences and feelings about the place are recorded	Tendencies towards spatial perception patters between different groups of people can lead to a gain in knowledge	Can substantiate the statements of the respondents
Results can be displayed in a 3D Tool		Drawings of the paths can be transferred	Can be displayed chronologically and comparatively	Only displayable as quotations		Tracked routes, geo-coordinates of photos can be displayed	Only displayable as quotations	The marking can be transferred to a tool	Sound, light and distance measurements can be displayed

Source: Töppel and Reichel (2020); IRS.

space by the citizens are dependent on the seasonal changes must be taken into account, i.e., can always differ depending on the point in time. As spatial researchers, we assume an understanding of social space, but we cannot assume this perspective in the everyday perception of people. The challenge for spatial research is to make the supposed physical conditions part of the communication in the collection of data (Sommer & Töppel, 2021, p. 195).

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Conflict of Interests

The authors declare no conflict of interests.

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Article

The Precarious Absence of Disability Perspectives in Planning Research

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Abstract
One in five people in the world are said to have some type of disability. Disability is not merely individuals' compromised capability in navigating the built environment, but rather the 'misfit' of capabilities with how a given living environment is organized. Planning, therefore, has a crucial role to play in responding to the needs of this significant population through changes to the built and social environment. However, discussion on planning theories and practices with a focus on persons with disability (PWD) has been limited to more specific realms of 'design,' and precariously absent in broader planning research. This systematic literature review aims to inform potential directions for planning scholarship by exploring the current and historic planning research investigating the needs of PWD. We compiled relevant papers from five prominent English language planning journals, some of which are long-standing (*Town Planning Review*, 1910–, *Journal of the American Planning Association*, 1935–). A very limited number of papers (n = 36) on topics related to PWD of any type have been published in the five journals throughout their existence, with even fewer focusing on the population. The subareas of planning these papers addressed include housing, transportation, land use, policy, and urban design. Many papers called for participation by PWD in the planning and decision-making processes, and some recent papers advocated for the production of evidence related to costs of creating accessible infrastructure. A critical look on some disciplinary divides and enhanced roles of planning research would be beneficial.

Keywords
accessibility; disability; persons with disability (PWD); systematic literature review

Issue
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1. Introduction

The United Nations Convention on the Rights of Persons with Disabilities (United Nations, 2006) has renewed the member states' commitment to enhance the rights of persons with disabilities (PWD) at the federal level, prompting them to establish legislation that articulates how accessibility for PWD is achieved (Brolan, 2016). Local governments in many countries are now mandated to develop accessibility strategy plans, making a better understanding of issues related to PWD by planners not only timely but urgent. While the need to facilitate better living conditions for PWD in our built and social environment has been increasingly recognized by planners, how planning can play an effective role in addressing the needs of PWD has been unclear. In light of this knowledge gap, our article asked: What is the state of planning research pertaining to the needs of PWD, and how should the planning scholarship evolve on this topic?

2. Background

2.1. Disability and the Built Environment

The United Nations calls persons with disabilities (PWD) the world's largest minority group (United Nations Development Programme, 2018), making up over two bil-

lion people worldwide (Wagner, 2019). Trends in global population-aging—due to decreasing rates of fertility and mortality, with improved sanitation, diet and health care—is contributing to a greater number of individuals at risk of experiencing disability associated with chronic and non-communicable diseases (Higo & Khan, 2015; Lee, Lau, Meijer, & Hu , 2020).

Disability is a global term used to encompass problems with bodily functions, body structures, activity limitations, and participation restrictions (Patel & Brown, 2017). The medical model considers the root cause of disability as health-related conditions, which can (or should) be treated through medical procedures, rehabilitation, or personal accommodation (Goering, 2015). The understanding of disability has more recently evolved towards a social model, where disabilities experienced by individuals stem from barriers in one's social and built environment that prevent them from finding, moving through, and using a place, and from participating fully in social life in the community they live. Therefore, disability is not merely individuals' compromised capability in navigating the environment, but rather the 'misfit' of capabilities between individuals and how their living environment is organized (Hamraie, 2013). The social model of disability places the responsibility on those who design and construct these environments to eliminate barriers and enable equitable access for PWD (Pineda & Corburn, 2020). As such, PWD in this article is defined as persons who face barriers conducting their lives due to a mismatch of their physical and mental functional capacities and organization of the built and social environment (Hamraie, 2013). PWD often experience poorer health outcomes due to barriers in the built environment that hinder them from pursuing healthy lifestyles (Eisenberg, Vanderbom, & Vasudevan, 2017; Gray, Zimmerman, & Rimmer, 2012).

2.2. Research on Disability-Built Environment Relationships

A wide range of disciplines have explored barriers existing in the social and built environments that negatively influence the lives of PWD—including, gerontology (Lehning, 2012; Rosenberg, Huang, Simonovich, & Belza, 2013), disability studies (Imrie, 2012; Korotchenko & Hurd Clarke, 2014), urban geography (Wilton, 2000), health sciences and occupational therapy (Botticello, Rohrbach, & Cobbold, 2014; Clarke, Ailshire, Bader, Morenoff, & House, 2008), heritage (Heylighen, 2012; Pezzo, 2010) and tourism (Buhalis, Eichhorn, Michopoulou, & Miller , 2005; Pavkovic, Lawrie, Farrell, Huuskes, & Ryan, 2017). Many of these studies identify issues related to planning, including land use (Botticello et al., 2014; Clarke & George, 2005), neighbourhood composition (Ng, Qi Lim, Ying Saw, & Tan, 2020; Pineda & Corburn, 2020), transportation (Bjerkan & Øvstedal, 2020; Suen & Mitchell, 2000), housing (Harrison, 2004; Imrie, 2004), and public policy (Enders & Brant, 2007).

Design fields—e.g., architecture, urban design, landscape architecture, and industrial design—also present a mounting body of literature on accessible environments for PWD. Urban design, which is considered by some to be a subarea of planning or architecture, or a combination of the two (Abd Elrahman & Asaad, 2020; Gunder, 2011; Talen, 2011), has been more active in its inquiry on barrier-free environments for PWD (Evans, 2009; Hussein, 2005). 'Universal Design' and 'Design-for-All' are popular principles that propose the development and application of design standards that meet the needs of as many users as possible, regardless of age, gender, or ability (Hamraie, 2017). These principles are applicable to the broader built environment and systems that enable persons to use and navigate the built environment, such as wayfinding tools, transportation systems, and information technologies (Federing & Lewis, 2017; Hamraie, 2017).

Planning practitioners and academicians who do not focus on urban design appear to be relatively reticent about the issues related to PWD. Some argue that "people with disabilities have for too long been an invisible constituency for [architects and] planning practitioners" (Pineda, 2008, p. 111) and "despite great strides in legislative and regulatory approaches, just spatial perspectives of disability have not fully penetrated planning policy, practice, or research" (p. 120). McCormick, Schwartz, and Passerini (2019) also pointed out the "paucity of attention" by planning scholarship (p. 2). These statements suggest that the planning needs for PWD have, so far, been under-investigated.

3. Method

This study performed a systematic literature review to synthesize the planning scholarship focusing on issues and needs of PWD, and to identify ways to advance the area of planning research and practice. We chose five prominent and reputable journals which represent mainstream English language planning scholarship (See Table 1). Since there are a number of other journals that represent planning scholarship in the world, keeping the scope of this study to these five journals necessarily limits our ability to extend our observation beyond the scholarly works represented in the journals, which are essentially of the English-speaking world in the North. Likewise, we intentionally did not include journals that are focused on design as we aimed to articulate the state of planning knowledge beyond 'design problems.'

We used search engines including NovaNet (a consortium of academic library catalogues in Nova Scotia, Canada), Web of Science, and Google Scholar. Searches were conducted using keywords such as disab*, access*, handicap, impair*. We also included diseases that are common causes of disability and impairment such as dementia, autoimmune, and stroke as keywords. The research team screened results by title, abstract, and keywords to identify those relevant to planning and

Table 1. Journals reviewed.

Journal name	Dates in circulation	Number of all issues (as of August 2020)
Town Planning Review (TPR)	1910–present	385
Journal of the American Planning Association (JAPA)	1935–present	361
Journal of Planning Education and Research (JPER)	1981–present	140
Planning Practice & Research (PPR)	1986–present	140
Planning Theory & Practice (PTP)	2000–present	81

disability. The selection process yielded 36 articles. Each of these articles were read by at least two research team members to confirm they meet the criteria and to synthesize the contents. We identified subareas of planning that these papers focus on and their target population of interest. We then synthesized key issues in policy and planning practices addressing needs of PWD highlighted by the papers, while identifying historic trends where applicable.

4. Results

Out of the 36 papers, large proportions of those selected are studies from the US (16) and the UK (13), and the rest are from Canada (3), Australia (3), and New Zealand (1). Table 2 below summarizes the counts of papers published by the five journals from 1910—the conception of the oldest journal reviewed, *Town Planning Review*. The numbers are shown by: the early half of the 20th century (1910–1949), up to the 1990s when the Americans with Disabilities Act (1990) and the UK's Disability Discrimination Act (UK Government, 1995) were enacted, and every decade since (1990–1999, 2000–2009, 2010–present).

The papers included a variety of approaches, including policy/practice reviews (12), case studies (8), literature reviews (5) and discussions (4). Only 20 of the 36 papers had PWD as a central topic of interest. On the average, these journals each have published 1.7 papers that focus on PWD per decade. Of these 20 papers, seven pertain to urban design, six to housing, five on aging populations or aging-in-place, four on social services (e.g., supportive and subsidized housing, community programming, rehabilitation services), three on transportation, three on the evaluation of policy and programs, and two on children. Disability was of peripheral interest to the rest of the papers, which merely acknowledge PWD as one of many target beneficiary groups (others being visible minorities, low income groups, seniors, immigrants, etc.). Table 3 presents a summary of the 36 papers.

Most papers described PWD in general terms such as 'disabled people,' 'handicapped' (in earlier years), or 'persons with physical disability.' Physical disability (mostly mobility disability) appeared most frequently as the focus in the literature (1, 3, 4, 6, 7, 9, 10, 14, 16, 21, 27, 29, 33–36). Visual impairment was also mentioned in several papers (3, 6, 7, 9–11, 27, and 36), but was the focus of only one paper (11). No other types of disability—such as hearing, and intellectual disability—appeared as their focus, if mentioned at all. Dementia and autism (medical terms and not conditions of disability or impairment per se) were also depicted in a few studies (29, 31, and 32), for which some planning needs—such as clearer signage and more intuitive street layouts—were identified.

Earliest papers tended to take the form of discussion (1–3) rather than empirical study, which may have been more common in planning scholarship in general at the time. The very first paper we found was by Meadows (1916), who advocated for planning to alleviate the challenges of returned soldiers who were "discharged, disabled, and deranged" (p. 72) in being reintegrated into society along with other community members. Lewis Mumford's paper in 1949 illustrates an earlier idea akin to '8 to 80' (Farrelly, 2014) and advocated for planners to facilitate "the provision of an environment suited to every phase of life and growth, from infancy to senescence" (Mumford, 1949, p. 5), also suggesting that housing for the 'crippled,' 'infirm,' and 'the old' is integrated into the community.

Several papers in the 1980s to early 2000s (8, 12, 13, and 17) addressed the issue of NIMBY-ism related to

Table 2. Counts of the papers that include PWD in their papers.

	TP (1910–)	JAPA (1935–)	JPER (1981–)	PPR (1986–)	PTP (2000–)	Sum (sum of papers with PWD focus)
1910–1949	2	—				2 (1)
1950–1989	1	5	—	1		7 (6)
1990–1999	1	1	2	2		6 (3)
2000–2009	1	2	2	1	2	8 (3)
2010–present	—	3	2	5	3	13 (7)
Total	5	11	8	9	5	36 (20)

Table 3. Summary of reviewed papers.

Article	Country (Year)	Journal	Type of paper	Target population	Area of planning
1. Meadows, D. = "A Letter from the Front: Town Planning after the War" *	UK (1916)	TPR	Discussion	Veterans (discharged, disabled, deranged, returned soldier)	Housing
2. Mumford, L. = "Planning for the Phases of Life"	UK (1949)	TPR	Discussion	Population at different life-stages	Aging-in-place
3. Altshuler, A. A. = "Transit Subsidies: By Whom, for Whom?" *	US (1969)	JAPA	Discussion	Poor, physically handicapped, old	Transportation
4. Lawton, M. P. = "Planner's Notebook: Planning Environments for Older People" *	US (1970)	JAPA	Literature review	The very impaired, aging people,	Aging-in-place; housing; urban design disadvantaged older people
5. Muraco, W. A., Vezner, K. O., & King, J. A. = "Deconcentration of Community Mental Health Services under the Constraint of Concentrated Geographic Demand" *	US (1977)	JAPA	Geographic analysis	High risk mental health populations	Land use; location-allocation
6. Rosenbloom, S. = "Federal Policies to Increase the Mobility of the Elderly and the Handicapped" *	US (1982)	JAPA	Policy/practice review	Elderly and handicapped	Transportation; social services; aging-in-place
7. Borsay, A. = "Equal Opportunities? A Review of Transport and Environmental Design for People with Physical Disabilities" *	UK (1982)	TPR	Review of design practices for PWD	Blind and partially sighted, the deaf and the hard of hearing, and all other people with 'some kind of physical disability or handicap'	Transportation; urban design
8. Taylor, S. M., Hall, G. B., Hughes, R. C., & Dear, M. J. = "Predicting Community Reaction to Mental Health Facilities"	Canada (1984)	JAPA	Statistical modeling of community attitudes	Community members at large health facilities)	Social (attitudes toward mental
9. Bennett, T. = "Planning for Disabled Access" *	UK (1988)	PPR	Case study of planning practice	People with disabilities	Legislation; policy implementation
10. Thomas, H. = "Disability, Politics, and the Built Environment" *	UK (1992)	PPR	Literature review	Persons with disabilities	Accessibility for PWD
11. Amedeo, D., & Speicher, K. = "Essential Environmental and Spatial Concerns for the Congenitally Visually Impaired" *	US (1995)	JPER	Theoretical discussion	The congenitally visually impaired	Accessibility for PWD

Table 3. (Cont.) Summary of reviewed papers.

Article	Country (Year)	Journal	Type of paper	Target population	Area of planning
12. Takahashi, L. M., & Dear, M. J. = "The Changing Dynamics of Community Opposition to Human Service Facilities"	US (1997)	JAPA	Assessment of NIMBY attitude toward mental health facilities	Community members at large	Social (NIMBY attitudes)
13. Takahashi, L. M. = "Information and Attitudes toward Mental Health Care Facilities: Implications for the Addressing the NIMBY Syndrome"	US (1997)	JPER	Assessment of NIMBY attitude toward mental health facilities	Community members at large	Social (NIMBY attitudes)
14. Imrie, R. = "Challenging Disabled Access in the Built Environment: An Evaluation of Evidence from the UK" *	UK (1997)	TPR	Policy/practice review	Disabled people	Accessibility for PWD; social
15. Gleeson, B. J., & Memon, A. = "Community Care: Implications for Urban Planning from the New Zealand Experience"	New Zealand (1997)	PPR	Assessment of NIMBY attitude toward community care	Community members at large	Social; policy
16. Light, J. S. = "Separate but Equal? Reasonable Accommodation in the Information Age" *	US (2001)	JAPA	Historical practice review/discussion	Population with physical disabilities	Accessibility for PWD; technology; social
17. Walker, R., & Seasons, M. = "Planning Supported Housing: A New Orientation in Housing for People with Serious Mental Illness" *	Canada (2002)	JPER	Practice review/ discussion	Persons with serious mental illness	Housing; social
18. Harris, N., & Thomas, H. = "Planning for a Diverse Society? A Review of the UK Government's Planning Policy Guidance"	UK (2004)	TPR	Policy/practice review	A diversity of population groups (gender, disability, race & ethnicity, children & young people, older people)	Policy
19. Booth, C. = "Managing Diversity and Mainstreaming Equality: Reflections on Initiatives in the Planning Inspectorate"	UK	PTP (2006)	Case study/ practice review	A diversity of population groups (race, gender, disability, age, sexuality)	Policy implementation
20. Gibson, K. J. = "The Relocation of the Columbia Villa Community"	US (2007)	JPER	Case study on a public housing	Residents of public housing	Housing; social
21. Smith, S. K., Rayer, S., & Smith, E. A. = "Aging and Disability: Implications for the Housing Industry and Housing Policy in the US" *	US (2008)	JAPA	Statistical projection of housing needs	Elderly people with disabilities	Aging-in-place; housing

Table 3. (Cont.) Summary of reviewed papers.

Article	Country (Year)	Journal	Type of paper	Target population	Area of planning
22. Gilroy, R. = "Places that Support Human Fourishing: Lessons from Later in Life"	US (2008)	PTP	Literature review	Older persons	Aging-in-place; urban design
23. Bevan, M. = "Planning for an Ageing Population in Rural England: The Place of Housing Design"	UK (2008)	PPR	Literature review	Older persons in rural areas	Housing, Aging-in-place
24. Manville, M., & Williams, J. A. = "The Price Doesn't Matter If You Don't Have to Pay: Legal Exemptions and Market-Priced Parking"	US (2012)	JPER	Policy/practice review	The public (pay parking users)	Transportation; other (misuse of disable parking placard)
25. Hockey, A., Phillips, J., & Walford, N. = "Planning for an Ageing Society: Voices from the Planning Profession"	UK (2013)	PPR	Policy/practice review	Older population	Policy implementation; aging-in-place; urban design
26. O'Brien, E. = "Planning for Population Ageing: Ensuring Enabling and Supportive Physical-Social Environments—Local Infrastructure Challenges"	Australia (2014)	PTP	Case study/ practice review	Older population	Aging-in place; infrastructure; policy implementation; urban design
27. Whitzman, C. = "Partnerships for Disability-Inclusive Road Development in Papua New Guinea: Unusual Suspects and Equivocal Gains" *	Australia (2015)	PTP	Case study	Persons/people with disabilities	Multisector partnerships; policy implementation; urban design
28. Loukaitou-Sideris, A., Levy-Storms, L., Chen, L., & Brozen, M. = "Parks for an Aging Population: Needs and Preferences of Low-Income Seniors in Los Angeles"	US (2016)	JAPA	Participatory needs assessment	Low income seniors	Parks; aging-in-place; urban design
29. Staples, J., & Essex, S. = "Design, Disability and the Planning Challenge: The Reality of Living with Severely Disabled Children" *	UK (2016)	PPR	Participatory needs assessment/ practice review	Families that include severely disabled family members	Accessibility for PWD; housing
30. Mondschein, A., & Moga, S. T. = "New Directions in Cognitive-Environmental Research"	US (2018)	JAPA	Literature review	Diverse populations groups	Urban design
31. Biglieri, S. = "Implementing Dementia-Friendly Land Use Planning: An Evaluation of Current Literature and Financial Implications for Greenfield Development in Suburban Canada" *	Canada (2018)	PPR	Policy review/ feasibility assessment	Older persons with dementia	Accessibility for PWD; policy implementation; land use; urban design
32. Bowkett, A., & Norman, H. = "NHS Healthy New Towns Programme"	UK (2018)	PTP	Program report	Those with long-term conditions	Aging-in-place; health(care) systems

Table 3. (Cont.) Summary of reviewed papers.

Article	Country (Year)	Journal	Type of paper	Target population	Area of planning
33. Loukaitou-Sideris, A., Wachs, M., & Pinski, M. = Toward a Richer Picture of the Mobility Needs of Older Americans" *	US (2019)	JAPA	Case study/ needs assessment	Low-income inner city-living older adults	Aging-in-place; transportation; urban design
34. McCormick, L., Schwartz, A., & Passerini, C. = "Housing for People with Disabilities: A Review of State Olmstead and HUD Consolidated Plans" *	US (2019)	JPER	Policy/practice review	People with disabilities	Housing; Accessibility for PWD
35. Baldwin, C., & Stafford, L. = "The Role of Social Infrastructure in Achieving Inclusive Liveable Communities: Voices from Regional Australia" *	Australia (2019)	PPR	Case study/ needs	PWD and seniors	Aging-in-place; Accessibility for PWD; urban
36. Adams, D., & Ward, L. = "Disability, Terror and Safety in the City: Charting Individuals' Spatio-Temporal Encounters with Counter-Terrorism Measures in Birmingham, UK" *	UK (2020)	PPR	Case study/ design practice review	People with cognitive, physical, or motor impairments, vulnerable people	Urban design; CPTED; Accessibility for PWD

Notes: * = Papers with PWD as a focus (20).

mental health institutions, reflecting the trend of deinstitutionalizing social services at the time. These papers asked questions about how to locate services associated with mental illness, which are often considered by community members as undesirable. Lack of access to mental health services due to NIMBY attitudes could hinder persons with mental disabilities from participating in social life in the community. These studies, however, focused on characterizing types of population groups having NIMBY-attitudes instead of persons with mental illness or disability per se.

Papers in the 1980s and 1990s offered some insightful accounts of challenges in legislation and policy related to PWD and accessibility—especially in the UK and the US, reflecting their earlier start in establishing versions of disability rights legislations than other countries. Some of the main criticisms towards practices of enhancing accessibility in the built environment were—and have been since—weak enforcing power of regulations (6, 14, 15, and 26) and the narrow definition of PWD primarily as wheelchair users (10, 14, and 29). Planners' reluctance to take a stronger stance to developers to push the accessibility agenda was also observed by several papers (9, 14, 23, and 31). For example, Bevan (2009) observed, in the context of housing regulations by the UK government, "any imposition of new standards in the current financial climate would be politically heroic" (p. 246). Biglieri (2018), again in the context of accessible housing provisions, also acknowledged the need for policymakers to maintain the "delicate balance" (p. 277) to "not scare the developers" (p. 284). Such attitudes were indicated by various authors as a product of socio-political influences (10, 14, 15, 18, 19, and 29). Several papers also pointed out fragmented efforts to accommodate PWD by different governmental departments, such as transportation and social services, and housing and mental health services (6, 9, 15, 17, 27, 29, and 32).

Another pertinent subject raised by a few authors in more recent years was the cost of accessible infrastructure and services. O'Brien's (2014) case study, for instance, found that city councils often have limited ability to provide community amenities "primarily due to disparities in the extent and standard of infrastructure provision and discrepancies in their fiscal positions" (p. 231). While Staples and Essex (2016) also spoke of a similar issue of financial limitation in governments, they pointed out that the real issue is the lack of evidence for housing needs (market) for persons with disabilities and therefore, "planners did not possess the confidence to impose conditions or obligations or refuse planning applications…(without incurring costs against the Council at appeal)" (p. 343). Biglieri's (2018) study was the only one discerning the projected cost of accessible (dementia-friendly) development, using a proforma analysis, based on scenarios that employ some accessible urban design and land use-related recommendations

in empirical studies. She found that the profits from more accessible development were not substantially reduced.

Actively engaging PWD in research and practice was another prominent issue appearing in many studies. Of the 20 papers focusing on issues related with PWD, 14 suggested that planners should engage PWD in the process of designing space, developing accessibility standards and policies, or implementing services that cater to the group. Only a half of the papers actually conducted their studies involving PWD (9, 20, 27, 29, 33, 35, and 36). Five of the seven (27, 29, 33, 35, and 36) were published in the last decade. Three studies conducted a survey targeting PWD (9, 20, and 29), and four took a more participatory approach, directly engaging PWD using walk-alongs and photovoice interviews (27, 33, 35, and 36).

The last two decades have seen some increase in volume of research relevant to disability and PWD, partially due to an increasing number of studies on aging-in-place. About a half (10) of the papers published since 2000 discussed a wide range of challenges faced by an aging population. However, with a few exceptions (21 and 26), these studies viewed their challenges more broadly beyond the declining physical mobility and cognitive ability of older adults, from economic conditions after retirement (2, 6, 22, 25, 28 and 33), their desire to keep their social networks intact (2, 4, 22, 23, 25, 28, 32, 33, and 35), to needs for a more comprehensive healthcare system embedded in communities (2, 4, 22, and 32).

5. Discussion

Our study investigated the state of planning research and practice focusing on the needs of PWD and explored possible future directions to advance planning scholarship in the area through a systematic review of five prominent planning journals. Planning encompasses a wide range of subject matters concerned with human conditions in urban (and non-urban) environments, where planners seek to improve these conditions through configuration of land use, transportation infrastructure and networks, and provisions of fundamental needs such as housing, food and health services, while seeking "to balance the conflicting demands of social equity, economic growth, environmental sensitivity, and aesthetic appeal" (Fainstein, 2020, p. 1). As such, problematization of built environmental barriers experienced by PWD and the social inequity they produce is well within the key interests for planning. Given the rapid population aging and the already significant proportion of PWD in the world, better understanding the experience of PWD and disability perspectives in how to create more equitable built and social environment is not only desirable but urgent for planning practitioners and researchers.

However, there seems to be a clear lack (or 'paucity') of attention to the issues related to PWD by planners. Our findings confirm the claim at least in the scholarly works represented by the five mainstream planning journals of the English-speaking world. Collectively, these five journals, including long-standing journals established in early 1900s, have published merely 36 papers of any relevance to PWD. Out of them, only 20 had PWD as the central topic. Put another way, on average, fewer than two papers focused on PWD have been published per decade by the journals. For many papers that did mention PWD, they are simply one of the vulnerable population groups in society, along with other groups such as visible minority groups, low income families, and older residents, for whom planning should ensure more equitable distribution of benefits from services.

5.1. Gaps and Agendas in Research

While the total counts were low, the papers we reviewed did point to several important insights and identified critical gaps in research. First, there is a clear absence of discussion around the experiences of PWD in planning, perhaps due to a general perception by planners that disability needs are design needs (Lawton, 1970; Thomas, 1992). On the contrary, challenges experienced by PWD would encompass not only those of navigating physical space, but also of their day-to-day interaction with other people (with or without disability) in the community, obtaining employment, and fighting discrimination by services. A more holistic understanding of the 'lived experience' by PWD would be necessary to inform planning solutions that address these challenges beyond the design needs, even if the planning solutions may remain within the confines of spatial (re)configuration of built spaces. For example, barriers in obtaining employment due to mobility restriction could be reduced if places of work and places of residence are closer in proximity and connected with accessible transportation infrastructure. Policies that encourage mixed housing developments for different types of families across incomes, ages, and abilities, strategically located across communities, could enhance social interactions across groups, reduce stereotypes of 'the others,' and foster inclusiveness.

Second, and related, little is yet known about differential needs by persons with a wider range of disabilities. Very few studies have been found (both within the five journal and elsewhere) that assess, for example, how persons with mobility and visual impairments navigate the built environment differently, or, as another example, how different combinations of housing and other services in the community would best accommodate older adults with dementia versus children with autism. Existing policies and regulatory tools are often inadequate for many PWD whose challenges are other than mobility disabilities, as their specific needs are often not well-articulated (Hammel et al., 2008; Sherman & Sherman, 2013). Likewise, mixing population aging and disability as a common issue also requires careful thought, as the more nuanced needs of PWD may be excluded from the discourse (Biglieri, 2018).

Many studies in our review advocated for engaging PWD in the process of developing policies and standards,

as they know best what about their surrounding environment works and does not work for their lives (Baldwin & Stafford, 2019; Hockey et al., 2013; Staples & Essex, 2016). Participatory research methods such as photovoice and walk-alongs can help break stereotypes and prevent further stigmatization by demystifying the lives of persons with various disabilities (Heylighen, 2012; Mahmood et al., 2012). However, researchers should also be careful with these methods, which can "reaffirm disability as an individual problem" (Barnes, 2011, p. 63) and inadvertently enhance stigma or over-simplify the barriers PWD experience (Nario-Redmond, Gospodinov, & Cobb, 2017). The principle of 'nothing about us, without us' will be a key ethical mechanism to ensure members of the disability community monitor and contribute to this body of research (Costanza-Chock, 2018).

Third, there is a substantial lack of evidence that clarifies the challenges and opportunities for private-public partnership in creating a more accessible and inclusive built environment—where market-driven distribution of goods and services is a reality. For private sector providers of services—from housing and transportation infrastructure to social and health services—there must be a viable market shown to ensure profitability. Some studies discussed the challenges of planners and policy makers in taking a strong stance on imposing more stringent accessibility standards on buildings (Bennett, 1988; Bevan, 2009; Biglieri, 2018; Imrie, 1997). Clearer evidence of demand could help them negotiate through sometimes delicate politics. Meanwhile, from the human rights perspective, both private and public sectors have a duty to accommodate until 'undue hardship.' What is considered as undue hardship for private businesses is ambiguous, and perhaps this too is determined by the market as well as the socio-political context. Papers like Biglieri's (2018) demonstrate valuable quantitative evidence that the making of accessible buildings is financially feasible for developers. Such evidence can clarify the assumed impossibility of overcoming the financial barriers for industries in building more accessible amenities. It can also inform planners on how to devise incentives and subsidies for accessible developments. Lastly, it is timely to assess the recent development of legislations in many countries and its impacts on subsequent accessibility plans in local jurisdictions.

Additionally, some papers pointed out that the efforts to address various needs by PWD have been fragmented across different units in governments such as social services, housing, and transportation, which do not necessarily operate in conjunction with a planning department. This fragmentation is also likely the result of historical lack of understanding of PWD experience and disability perspectives not only by planners but also by other institutions. Planners are in a unique position to coordinate the efforts across different units of government. Planning research should compile and compare different practices and governance mechanisms of coordinating the efforts, as well as how the different cultural, historic and socio-political context influence the way the divisions of tasks are devolved and negotiated across jurisdictions (Gurran, Austin, & Whitehead, 2014).

5.2. Limitation with the Scope of our Study

Our findings should be viewed with a caveat. The five journals chosen are well-established and represent major planning scholarly works primarily of the English-speaking world, but they are not representative of scholarly works in other regions such as other western countries, Asian countries or the global South. Nor do we claim so. It is also possible that the five journals are not wholly representative of scholarship of the English-speaking world. However, the same literature search method looking at some other planning journals published in English yielded similarly low numbers of publications—e.g., 0.7 papers per decade for *European Planning Studies* (1993–present); 1.3 papers per decade for *International Planning Studies* (1996–present); and 1.8 papers per decade for the *Journal of Planning Literature* (1985–present). The low number of publications does not seem unique to the five journals chosen, suggesting a broader lack of attention to the subject matter at least within journals published in English. The inquiry into how the needs of PWD and disability perspectives are addressed in non-English speaking regions should be a future agenda for research.

5.3. Precarious Absence of PWD and Disability Perspectives

Why is there such a dearth of research focusing on PWD or disability perspectives in planning journals? Aside from a possible (mis)perception that disability needs are design needs, the absence of inquiries into PWD and disability perspectives may reflect the fact that PWD have been historically 'tucked away' in society and are still not as visible as other vulnerable groups (Pineda, 2008). It could also be because the medical view of disability still persists, and 'solutions' to remove barriers for the individual PWD are considered by planners as outside of their realm (Gleeson & Memon, 1997; Staples & Essex, 2016). The laments by some scholars for planners' general lack of interest and understanding for PWD and disability perspectives are not new. For instance, three decades ago, Bennett (1988) stated: "I have found nothing in the planning literature…beyond the overabundance of design guidance notes" (p. 8). Bennett further speculated, "perhaps…it has been regarded by the academics within planning as a development control issue and therefore unworthy of philosophical thought" (Bennett, 1988, p. 8). Imrie (1997) also observed: "It is difficult to escape the conclusion that planning for disabled people's access requirements is a marginal and ephemeral activity" (p. 425). Baldwin and Stafford (2019) also posited that practices rooted in contemporary planning thoughts such as New Urbanism and Smart Growth

lack consideration for equitable distribution of social infrastructures and how differentially "they influence the well-being and participation of diverse groups…such as children, seniors, and people with disabilities" (p. 19). Further, they pointed to planning's "very normative view of human bodies and subsequent solution making based on stereotypes" (p. 2). Some planning scholars who investigate the issues on PWD seem to opt for publishing their work in other disciplinary journals such as disability studies, which may be the result of such sentiments.

The issue of 'disciplinary divide' also warrants some attention as it may help unpack the state of planning scholarship related to the needs of PWD. In particular, the still-widely-contested boundaries between planning and urban design require revisiting. While urban design as a scholarly pursuit well aligns with the purpose of planning for many, there are inconsistent views as to whether urban design is part of planning, likely due to its practice sometimes being considered as commercial activities (Banerjee & Loukaitou-Sideris, 2011; Gunder, 2011). Universal design and design-for-all have been promising theoretical thoughts that propose ways to equalize the opportunities and rights to space by people of all ages and abilities (Hamraie, 2017), but it has had "little official standing in policy and decision-making process" (Baldwin & Stafford, 2019, p. 21) perhaps due to the 'poor cousin' status of design as a discipline. Baldwin and Stafford (2019) caution that "poorly planned and designed communities are often hostile towards marginalised groups" (p. 19). Kitchin (1998) criticizes planners more strongly of the "'design apartheid' whereby planners…are guilty of constructing spaces which 'lock' disabled people out" (p. 347). Strategies to improve the complex life conditions of PWD require in-depth design knowledge as well as understanding of political, social, and economic dynamics in our communities. Therefore, this divide likely does disservice to both, as it hinders them from developing holistic solutions to a complex problem at hand.

More broadly, what Fainstein (2020, pp. 1–2) describes as the planning's theoretical core "being somewhat amorphous…[without] any dominant paradigm or prescriptive approach," or what Banerjee (2011, p. 208) calls the "eclectic" nature of the planning field, may contribute to the lack of clear consensus as to which issues surrounding contemporary urban society warrant attention in mainstream planning discourse. Some regional differences in theoretical concepts and approaches—e.g., spatial planning is sometimes considered as more typically UK and European concepts (Allmendinger & Haughton, 2010); communicative and collaborative planning processes are more typical of North American approaches (Watson, 2016)—likely also influence the mechanisms through which planners in the respective contexts play a role (Banerjee & Loukaitou-Sideris, 2011; Madanipour, 2006) in addressing the multifaceted needs of PWD.

6. Conclusions: Moving Forward

Planning researchers and practitioners, therefore, must continue to question what knowledge, assumptions, and biases we may have toward PWD and experiences of disability that manifest through our environment. More broadly, planning scholarship can be strengthened by continuous questioning of self—on the processes through which certain knowledge is produced or a pursuit of certain knowledge is prioritised within the discipline. The development of critical discourse focusing on PWD can be a vehicle for such self-reflection.

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Conflict of Interests

The authors declare no conflict of interests.

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Article

How Do Scholars Communicate the 'Temporary Turn' in Urban Studies? A Socio-Semiotic Framework

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Abstract
Interdisciplinarity broadens urban planning praxis and simultaneously deepens how urban research unfurls. Indeed, this breadth and depth diverges and converges the understanding of current and popular concepts such as temporary use (TU)—also recognized as short-term or temporally undefined use of space. Through a meta-research, or research about research approach employing socio-semiotics and bibliometric analyses for the first time in relation to TU, I clarify the increasing scholarly attention to urban interventions by asking: How are urban scholars communicating the TU discourse? A socio-semiotic framework helps unpack the production of meanings as well as symbols channeled through the scholarly institutionalization of TU. Supporting this, I use bibliometric analyses to explicate the production and reproduction of meaning through keywords and citation networks in research literature. This study illuminates epistemological activities and reflects on directions tied to our understanding and articulation of a potential 'Temporary Turn' in theory and practice.

Keywords
bibliometrics; socio-semiotics; temporary turn; temporary use; urban studies

Issue
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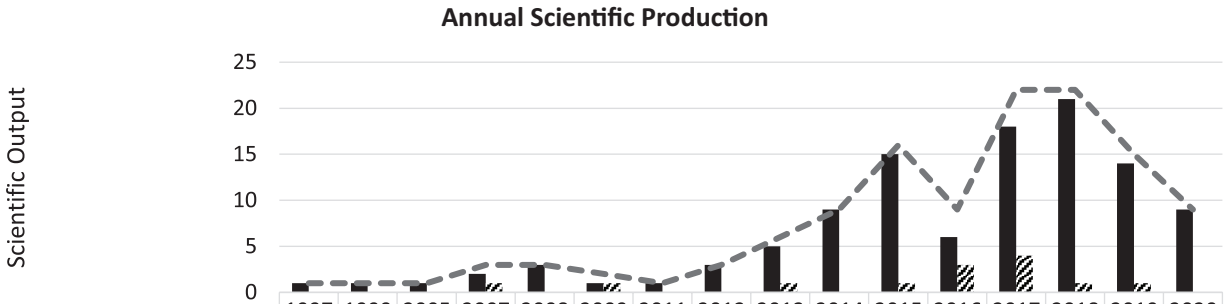
1. Introduction

Attention for temporary use (TU) grows and is marked by studies that consistently highlight how TU is leveraged for transformation (Martin, Hincks, & Deas, 2020). Recently, some outline a 'temporary turn' in urban research as well (Stillwagon & Ghaziani, 2019, p. 875). Motivated by this prospect, I look to the production of meanings in urban scholarship that steer current research orientations and ask: How are urban scholars communicating the TU discourse? One benefit of this pursuit is that it facilitates the momentary stock-taking of urban research on TU. Another benefit is that this builds on studies uncovering trends for the topic in urban planning literature (Stevens, 2018), policy (Honeck, 2018), and media discourses (Matoga, 2019b). Since the establishment of TU as a topic in scholarship, networked collaborations (Galdini, 2020; Stevens, 2018) or mobile and informal policies (Liu, 2017) continue to promulgate its relevance. This is also reflected by an ascending number of publications counts (see Figure 1) and thus invites better nuanced sensitivity towards the symbols and dynamics between practice and theory that support this trend. To set off on this task, I define TU by drawing on Bishop and William's (2012) identification of uses as well as interventions intended for short or undefined periods of time (see also Galdini, 2020; Kim, 2019; Vallance, Dupuis, Thorns, & Edwards, 2017).

Change-oriented intentions facilitated through TU evolve and are expressed in scholarship through a breadth of contexts. Since western European policy discourses in the 1990s introduced TU to address economic restructuring, deindustrialization and urban shrinkage (Colomb, 2012), the circumstances for TU have expanded to include creative cultures (Andres & Golubchikov, 2016), policy innovations (Honeck, 2017), design and activism (Tardiveau & Mallo, 2014) resilience (Chang, 2018) as well as post-disaster recovery and commons



	1997	1999	2005	2007	2008	2009	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Journal Articles	1	1	1	2	3	1	1	3	5	9	15	6	18	21	14	9
Proceeding Papers	0	0	0	1	0	1	0	0	1	0	1	3	4	1	1	0
Total Publications	1	1	1	3	3	2	1	3	6	9	16	9	22	22	15	9

Figure 1. The increase in literature featuring 'temporary use' from 1997 until 2020. This visualizes the climbing number of publications per year containing terms from the search query: ("temporary" OR "interim") AND ("use" OR "urbanism" OR "intervention" OR "design") AND including ("urban" OR "city" OR "town" OR "metrop*" OR "municipal*"). Years without publications are excluded for visual optimization.

(Dombroski, Diprose, & Boles, 2019). These shifts in praxis and policy position TU on a spectrum that extends from provisional responses in poorly performing cities to instruments leveraging time in neoliberal but also narrowly construed realms (Demailly & Darly, 2017; LaFrombois, 2017; Wesener, 2018). In parallel, this spectrum is continually propped up by an emerging logomachy of labels for TU; these undermine clarity for those trying to make sense of the topic (Matoga, 2019a). A potential way to reduce confusion and explain the increasingly numerous and variegated accounts for TU is to frame its discourse semiotically as an "articulation of ideology with settlement space" (Gottdiener, 1984, p. 101). This means that we must recognize how words and ways to articulate scholarship are "linguistic constructs," scaffolding abstract definitions or value-laden explanations for urban phenomena (Ledrut, 1986a, pp. 221–222). These may also help clarify a perspective on a 'Temporary Turn' in urban studies and relevant fields.

Semiotics, or the study of signs provides tools to highlight and explicate how certain symbols result and layer upon each other in the production of meaning (Li, 2017; Ogden & Richards, 1966). The Semiotic Triangle (Figure 2) delineates the relational production of meaning when a phenomenon (identified as 'referent') is perceived (by a 'signifier') and interpreted (as a 'signified'). These three entities link to form the corners of the Semiotic Triangle; together, they manifest the 'signification process.'

Theorizing in a semiotic manner supports my telos to reflect on how TU transcends from urban streets to studies. More precisely, this is possible by identifying and analyzing the mechanisms and dynamics with which scholarship communicates TU as micro-level "actions

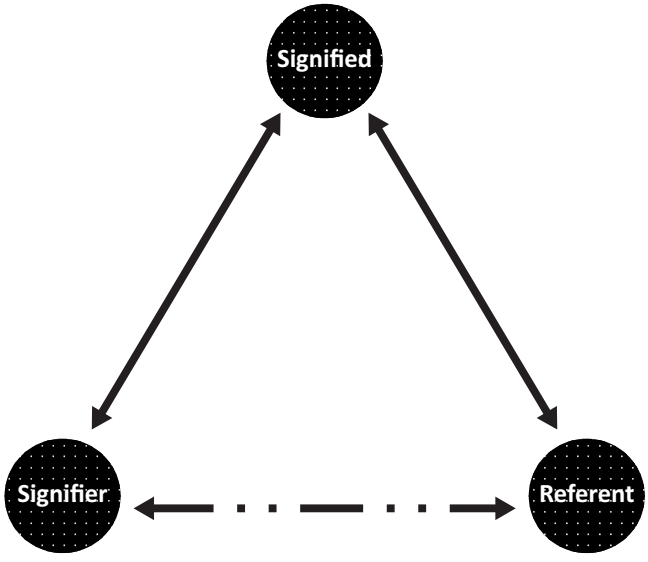


Figure 2. The Semiotic Triangle constituted relationally by the 'referent,' the 'signifier,' and the 'signified.'

and subjective intentions," to aggregate in "macro-level structures and objective meaning systems" (Li, 2017, pp. 522–523). The following sections undertake this research about research approach and pairs a socio-semiotic framework with bibliometric analyses. Up to date, this is unprecedented in relation to the topic of TU. This adds to few scholarly reviews of TU literature that currently include qualitative content analyses in empirical and policy studies (Stevens, 2018), discourse analyses (Honeck, 2017; Matoga, 2019b) and more common typological reviews of case studies in practice (Bishop & Williams, 2012; Bragaglia & Caruso, 2020; Oswalt, Overmeyer, & Misselwitz, 2013).

2. Introducing a Socio-Semiotics Framework

From early on, semioticians drew from language and communication studies to analyze signs. The reason being was to understand their associated meanings and how people, objects and the environment engage in the production of signs along with their representations (Ogden & Richards, 1966). As such, semiotics helps by recognizing verbal husks, such as keywords, and distinguishing them from their given meanings. We discern this after we see how signifiers interpret spatial referents by engaging in social processes of generating signifieds. This is emphasized visually through the Semiotic Triangle. Signs, united with meanings, affect and establish conceptual and emotional psychologies through relational and social signification processes (Li, 2017). Urban planning research is no stranger to this as demonstrated by comparable explications of topics such as 'urban practice' through textual analyses (Remm, 2016) or 'place' through linguistic and cognitive analyses (Möystad, 2018).

As a sub-method of semiotics, 'socio-semiotics' provides a tailored means to study signs specific to urbanity. This is because socio-semiotics foregrounds signification processes that relate to cities (Gottdiener & Lagopoulos, 1986), thus lending itself well to the explication of TU discourses. A socio-semiotic framework builds on urban semiotics by recognizing social interactions (i.e., temporary activities) as well as material objects (i.e., streets or buildings) as vehicles of signification processes; moreover, signification processes are not only social but can be ideological in quality (Gottdiener, 1984). Firstly, socio-semiotics integrates explication through the "scientific analysis of meaning in the urban environment" (Gottdiener, 1984, p. 112). Secondly, this accepts that many groups interpret urban life and generate "multi-coded" urban space (Gottdiener, 1986, p. 207). Ideology, in this case, is both context and mechanism in the production of meanings and influences how certain symbols dominate. As a result, the typology of socio-semiotic modes for producing meaning are not only spatial (material or environmental) and social (actor or activity) but also ideological (conceptual or theoretical). Lastly, these are interpreted both through arbitrary "readings" of the environment as well as through analyses of documented discourses (Gottdiener, 1984, p. 113).

2.1. Semiotic Triangle and Signification Processes

As introduced, the Semiotic Triangle is the primary tool to deconstruct signs and meaning by positioning together three fundamental mechanisms: the referent, the signifier, and the signified. Researchers operationalize these mechanisms when they perceive urban referents and interpret them selectively as TU signifieds. For instance, I do this when I observe a parking lot that is appropriated by pedestrians and describe it as TU. When referring to signifieds in scholarship, we can find them anchored as keywords. Authors or citation indices suggest or categorize these keywords (Aria, Misuraca, & Spano, 2020). Changes in keywords also superficially flag the stabilization and fragmentation of scholarly discourses, such as those relating to TU. In practice and reality, keywords may refer directly to referents that we recognize as enacting or interacting objects and phenomena. These often are the source of what a signifier, such as a researcher, communicates (in oral or written formats) to produce a final signified (representation of meanings, ideas, and experiences). Figure 3 illustrates the Semiotic Triangle with respect to TU. Spatial referents are represented in the bottom-right corner and could be temporary interactions between actors or artefacts; examples of these are flexible or modular installations such as appropriated and carpeted parking lots for pedestrian use. These active and social terms extend the inventory of spatial and conventionally passive or material referents such as 'road' or 'tree.' This is also a conceptual stretching of what a referent is and highlights socio-spatial qualities emphasized through socio-semiotics, while enhancing how we articulate spatial development.

In the bottom-left corner of the Semiotic Triangle are signifiers. These are the individuals investigating or engaging with referents. The resulting information they generate or disseminate about temporary phenomenon become coherent as symbolic concepts such as 'TU.' The latter can be identified semiotically as signifieds that sit at the top of the Semiotic Triangle. The linkage through this third and meta-level mechanism to complete the triangle is essential to the production of meaning channeled through signification processes.

Signification processes are not always one-off events. Sometimes, they build off each other through multiple and sequential iterations, during which the mechanisms of the Semiotic Triangle can switch positions. In a first order of signification, referent, signifier and signified relate and generate a denotational sign based on factual or physical perceptions and stimuli (Gottdiener, 1984; Li, 2017). The signs from this process have a "primary function"; these are real and indicative of utility (Eco, 1986, p. 65). For example, we see this through Indonesian civic initiatives converting parking lots into parklets and claiming to engage in TU (Prawata, 2015).

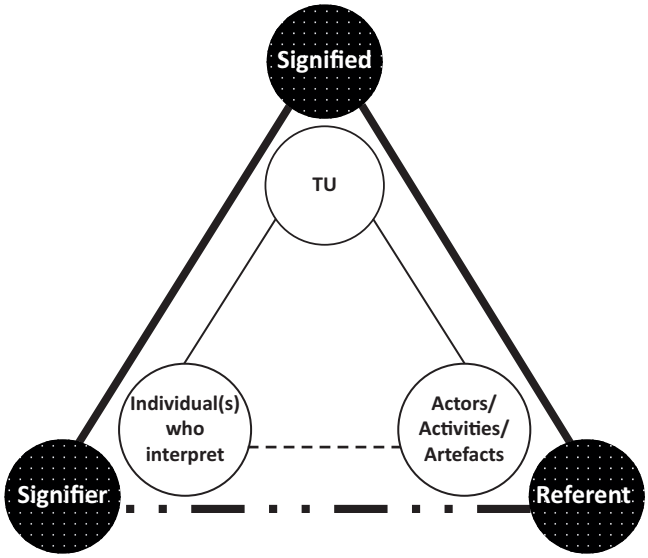


Figure 3. Semiotic Triangle and equivalent TU components.

The chain of signification processes, however, can continue at an abstract and connotative level to generate "secondary function" signs; these drive new, or distort established myths (Li, 2017, p. 526). Signs from second order signification processes represent symbolically and less functionally. In the case study by Prawata (2015), TU is a representation of a second order sign and also expressed as an instance of 'Tactical Urbanism.' The latter is a variant that potentially contests or superimposes itself on the former signified of 'TU.' Parklets in this vignette are no longer just temporary phenomena but place-making interventions that firstly drive TU and secondly contest or distort its myth through 'Tactical Urbanism.' Figure 4 illustrates Prawata's example of these layered orders of the signification process.

2.2. Institutionalizing Myths through Transfunctionalization

Both levels of signification involve the social production of meanings and engage different social groups. Returning to the parklet illustration, the first order of signification involves citizens and designer activists as signifiers. Whereas, the second order process involves a different social group including the author and other scholars who advance 'Tactical Urbanism' as an alterna-

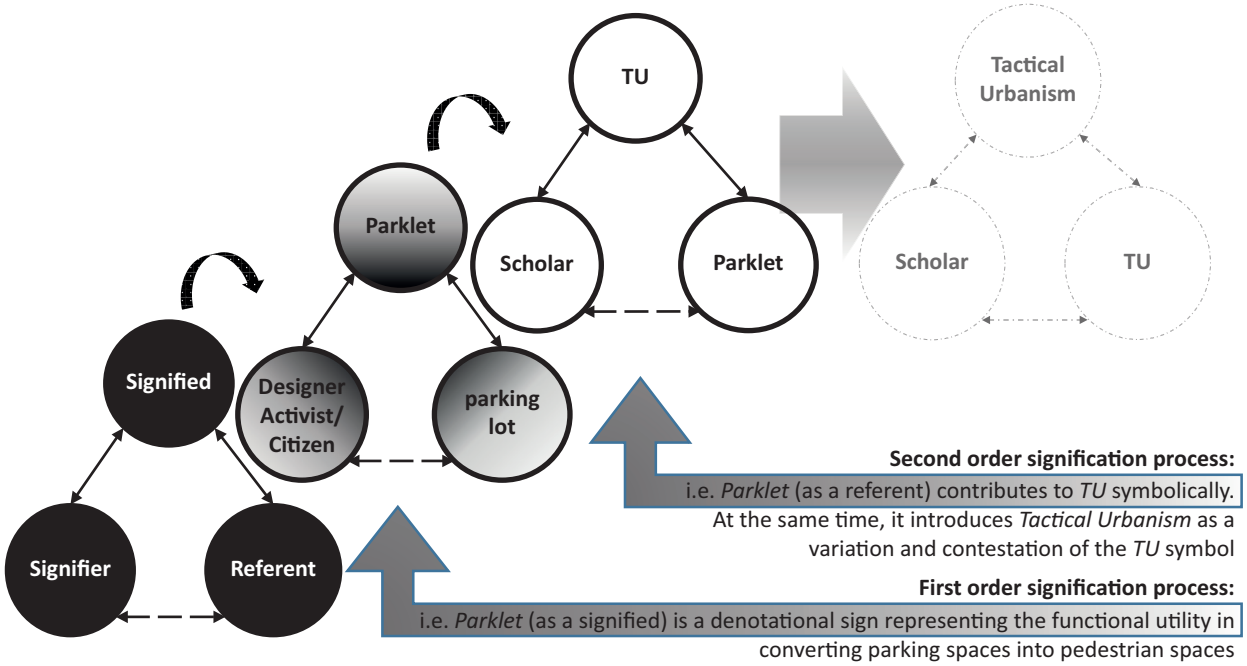


Figure 4. Illustration of the first and second order of signification through which 'parklet' as a semiotic mechanism switches positions, and 'tactical urbanism' is introduced as a variant of the 'TU' symbol.

tive signified. Attending to each iteration of the signification process are diverse perspectives that shape new and multiple meanings. As a result, interpretations abound with signifieds as "mythical creatures, extremely imprecise, and at a certain point [becoming] the signifiers of something else" (Barthes, 1986, p. 94). This characterizes plural or polysemic qualities in symbols such as TU, making them purposeful for many and yet increasingly nebulous for all. Signifiers engaging in the production of meaning can use these polysemic symbols as they see fit by taking advantage of, and contributing to rich overlays of ideological and second order signification processes (Gottdiener, 2011). An interpretation of TU, in this light, is that it metamorphoses unceasingly through a myriad of symbolic keywords. This is a process of abstraction (from a factual to functional symbol) and refraction (from theory to diverse meta-analytical myths) in scholarship. This is also a process of institutionalizing symbolic myths that are not yet coherent at the ground level, unless a symbol is explicitly articulated to create a new signified. For instance, 'TU' might appear in policy publications and thus progress a new symbol under the heading of 'Tactical Urbanism' for urban regeneration. Fortunately, it is possible to tease this out in detailed content analyses or through bibliometric techniques that analyse semiotic relationships. These analytical methods make clear how meanings and symbols aggregate in scholarship and are facilitated by epistemic communities who refract, channel and network their own interpretations (De Bruijn & Gerrits, 2018).

A socio-semiotic term for second order signification processes is 'transfunctionalization'; through this, "a distinction is made between the [immediate] use of objects and [the] socially sustained use of the object" (Gottdiener, 1985, p. 988; Krampen, 1979). The basis of 'transfunctionalization' is social and ideological. It re-creates meaning sourced from ideologies of diverse epistemic communities. Figure 4, hints at this for instance, and is confirmed by detailed examination of Prawata's (2015) text, which draws upon the urban design community and scholars to advance TU as 'Tactical Urbanism.' Other parallel socio-semiotic patterns can be drawn between TU and terms including but not limited to 'DIY Urbanism' (Iveson, 2013), 'Insurgent Urbanism' (Groth & Corijn, 2005) or 'Austerity Urbanism' (Gillespie, Hardy, & Watt, 2018). These underline how mythical ideas build and layer upon functional facts. Understood this way, TU is just as much about the immediate and functional activities on a vacant site as it is the summation of new TU symbols that now thrust us towards a possible Temporary Turn in scholarship. Spatial and social production of meaning propel and elevate semantic symbols such as 'parklet,' which scholars integrate into the reproduction of existing ideological concepts such as TU, or the generation of new alternatives such as 'Tactical Urbanism.' This also underscores a political economic framing of how a Marxist approach to the production of space (Lefebvre, 1996) and production of knowledge in the Althusserian sense, influence the building environment through symbolic or socio-semiotic processes (Gottdiener, 1984).

3. Methodology

In the previous sections, I introduced a socio-semiotic framework to explicate TU as an institutionalizing and polysemic concept. This results from spatial, social and ideological processes. To support this, I use bibliometrics to identify, summarize and visualize trends at a static point in time (Aria & Cuccurullo, 2017). Bibliometrics is useful for detecting shifts in scholarly discourses and confirming intuitive conclusions about scholarship development and dissemination (Kirby, 2012). The findings from these methods support the suggestion that signifieds embodied in keywords, produce TU while challenging it symbolically with new signifieds. These could reflect how research orientations might attempt to balance and pursue innovative narratives instead of re-enforcing stable accounts (Stillwagon & Ghaziani, 2019). The pairing of a socio-semiotic framing with bibliometrics to study TU has not been conducted up to date. This extends the range of bibliometric studies on urban topics such as resilience (Meerow, Newell, & Stults, 2016), participation (Certoma, Corsini, & Rizzi, 2015) and industrial districts (Hervas-Oliver, Gonzalez, Caja, & Sempere-Ripoll, 2015). Bibliometrics draws information from three types of indicators: publication count, citations and impact factor, as well as co-citation and co-word analysis. I queried these meta-data information through Web of Science (established by ISI/Thomson) by means of categorical combinations of keywords that 1) either explicitly or implicitly refer to momentary temporality, while not adhering to regular, linear nor strategic planning processes; these relate to 2) functionality and form; and are situated within 3) urban areas. The queries consisted of: ("temporary" OR "interim") along with ("use" OR "urbanism" OR "intervention" OR "design") in combination with ("urban" OR "city" OR "town" OR "metrop*" OR "municipal*"). The '*' symbol denotes a word root, which includes all words with the root in the query. I derived an earlier version of this query from initial reviews of publications on TU and finally expanded the query to include more spatial parameters, similar to other systematic reviews or bibliometric studies (De Bruijn & Gerrits, 2018; Meerow & Newell, 2015). The search queries employed both 'temporary' and 'interim' as these represent the earliest modifying terms for 'use' in initial publications; they are also direct translations from terminology in pioneering policies and instruments from mostly German-speaking regions of Europe (Havemann & Schild, 2007; Rall & Haase, 2011; Stevens, 2018).

I ran an initial query in March 2019 and repeated a second iteration in August 2020 to gauge for changes in output. The second iteration of the query generated 4,842 documents (4,321 documents in first round). From this, 4,568 (4,034 documents in first round)

English documents remained that I filtered down to 518 (443 documents in first round) documents based off urban planning relevant research categories. Since English serves as the lingua franca for scholarly communities, the query excluded other languages. Eventually, 481 (358 documents in first round) documents in the form of articles and proceeding papers remained, of which only 123 (119 documents in first round) were determined manually, as relevant. After reviewing the final corpus of documents (see the Supplementary File), analytical insights generated through bibliometrics helped substantiate my conceptual and socio-semiotic framing. Figure 5 visually breaks down the stepwise approach to the query and filtering strategy.

The key source of information for my findings are authors' keywords and citations; the latter indicate interest and recognition from other fellow scholars as well as the usefulness and qualitative impacts of journals (Archambault & Gagné, 2004). It is important to note that citations as a proxy of quality favour older publications that have had more time to attract an audience (De Bruijn & Gerrits, 2018). Co-word and co-citation analyses distinguish research activity through visualizations (Archambault & Gagné, 2004) and are applicable to publication counts, citations, and impact factors; these illustrate more nuanced relations within and between research fields by identifying and mapping key or influential authors (Archambault & Gagné, 2004). I make use of both co-citation and co-word analyses to illustrate influential authors as well as subject-relatedness and clustering of co-occurring terms in keywords, abstracts or full texts. Cluster or semantic maps help draw or confirm conclusions on emergent themes in research fields and visualize relationships through patterns of centrality and density (Aria & Cuccurullo, 2017; Fu & Zhang, 2017). For the analysis in this contribution I made use of the tool bibliometrix R-package and the Biblioshiny user interface, which were developed with R language to support standard bibliometric workflows (Aria & Cuccurullo, 2017).

4. Evaluating a Temporary Turn

The results from the bibliometric analyses confirm an increasing attention to, and variation in conceptualiz-

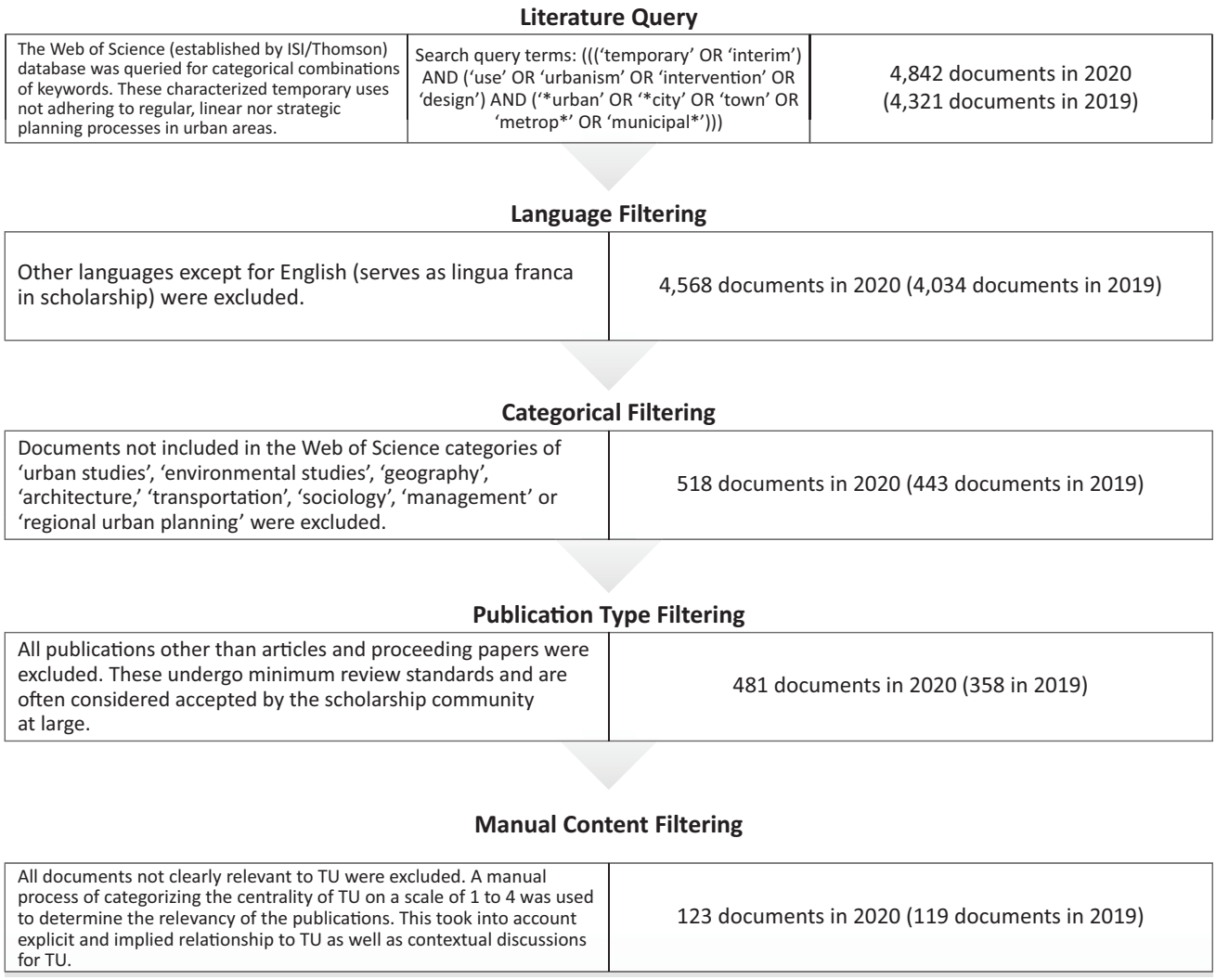


Figure 5. Breakdown of the stepwise approach to the literature search and filtering strategy.

ing TU since 1997. Figure 1 is a first indication of this. Along with publication counts, keyword dynamics can also be analysed through bibliometrics. Figure 6 traces the keyword growth associated with TU from 2007 and on; established keywords may as well serve as signifieds in this context. The analysis is generated through the cumulate occurrences of keywords with loess smoothing. At the surface, the keywords show how TU institutionalized and now contends with new and emerging signifieds. After 2011, new signifieds embodied in 'Temporary Urbanism' and 'Tactical Urbanism' appear. Also, they are increasingly more common than other keywords represented as modified 'urbanisms' (i.e., Austerity Urbanism, DIY Urbanism, etc.). Like TU, the use of 'Temporary Urbanism' and 'Tactical Urbanism' is pronounced according to keyword growth, since they achieved a minimum number of occurrences in order to aggregate enough significance. Notwithstanding, a manual content analysis substantiates that titular keywords such as 'Tactical Urbanism' or 'Temporary Urbanism' often subsume other keyword variants in the publication texts. These include but are not limited to 'grand urbanism' (Kassens-Noor, 2016), 'DIY Urbanism' (Talen, 2015) or 'Pop-up Urbanism' (Harris, 2015). 'Temporary Use' and 'Temporary Uses' are still comparably popular; most likely because they appear consistently in concert with the signifieds 'Temporary Urbanism' and 'Tactical Urbanism' as referent keywords. Only 53 out of the total 123 publications refer explicitly to TU as referents and discuss TU centrally as a signifieds. The remaining 70 publications imply TU through referents such as structures (Del Signore, 2017), interventions (Davis, 2008; Martini & Ramaccini, 2016), experiments (Copley, Bowring, & Abbott, 2015), spaces (McGlone, 2016; Muniandy, 2015) or clusters (Comunian, 2017) that are temporary. What is also inferred are distinct phases in scholarship; each of these frame TU differently. A first phase prior to 2011 discusses TU through denotative or first-order signification processes. Let us recall that these processes result in primary or functional symbols (Eco, 1986). The content analyses of earlier publications corroborate this as they feature typological studies of TU that discuss ranges and types of practices on the ground (Bishop & Williams, 2012; Groth & Corijn, 2005; Oswalt et al., 2013; Rall & Haase, 2011). Accompanying this, 'Temporary Uses' often appears to characterize the diversity of the pragmatic activities; these co-occur commonly with the keywords 'Temporary' and 'Design.' In this phase, initial and conceptual frameworks are presented. These are outcomes from studies that investigate transitions in governance or policy responses towards economic restructuring (Rall & Haase, 2011), neoliberalization (Groth & Corijn, 2005), or new forms of citizen engagement (Centner, 2012). Few publications, however, focus on TU through an entirely theoretical lens. Instead, the majority of the publications refer to provisional, diverse and utilitarian practices or methods (Dinzey-Flores, 2007; Havemann & Schild, 2007; Rian, Chang, Park, & Ahn, 2008; Schrooten, Coopman, & Kindt, 2007).

The latter and more recent phase in TU discourse is comparatively abstract with diverging keywords. This could signify the transfunctionalization of TU. There is a visible ascension of 'Temporary Urbanism' and 'Tactical Urbanism,' while the discussion of TU broad-

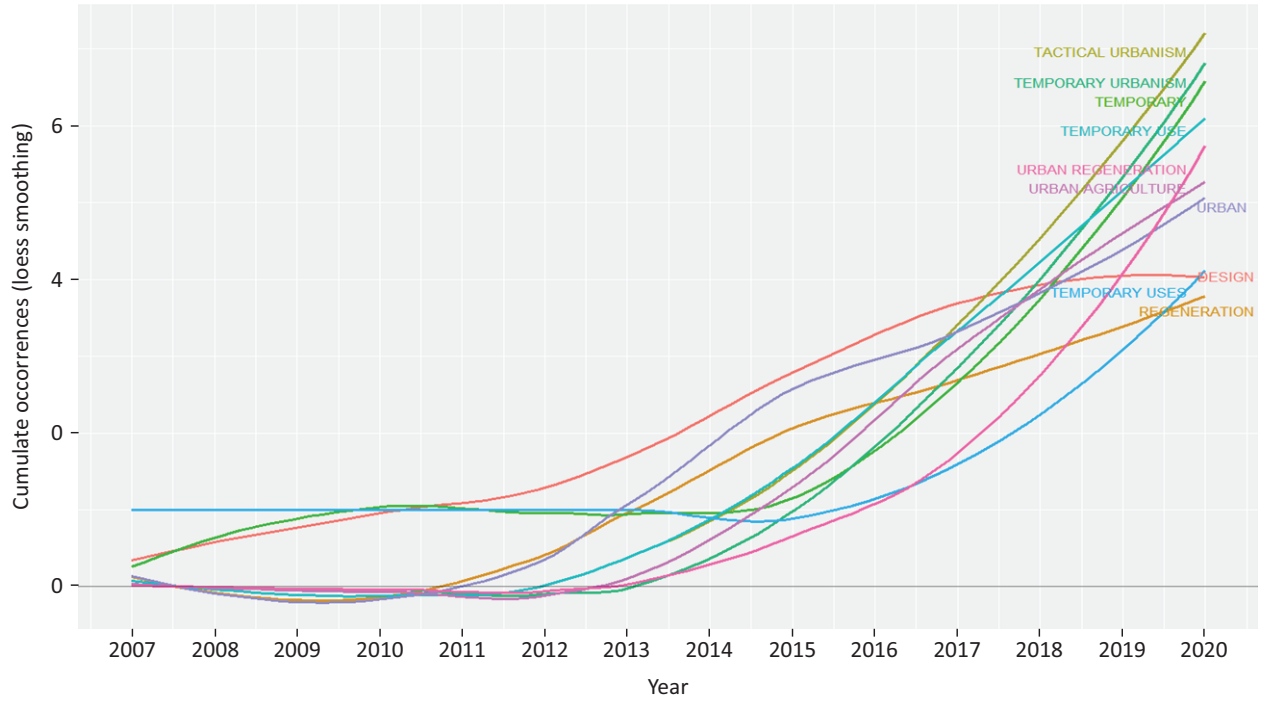


Figure 6. Growth of cumulative occurrences for top signifieds from titles, abstracts, and keywords, featuring topic of TU from 2007 until 2020.

ens to encompass general processes of urban transformation (Nemeth & Langhorst, 2014; Szaton, 2018). Put differently, the canvas for TU is expanding. What is notable, however, is the foregrounding of boosterist strategies for place-making (Galdini, 2020; Rota & Salone, 2014) that is repeated through other modes of action including but not limited to entrepreneurialism (Overdiek, 2018), creative cultures (Andres, 2013), or mega-events (Ferreri, 2019; Kassens-Noor, 2016). More prominently featured are also discussions on access to (Dubeaux & Cunningham Sabot, 2018) and the financialization of land through TU (O'Callaghan, Di Feliciantonio, & Byrne, 2018). These confirm or reproduce narratives and show that "urban space is not a simple container of social processes, but the condensation of often contentious group interactions"; these "[involve] signifying practices as much as non-semiotic processes, such as the class struggle at the place of work" (Gottdiener, 1986, p. 214). Political economic undertones sound and connect the production of knowledge through socio-semiotic processes with the built environment. At the same time, a Temporary Turn in urban practice that is catalyzed by socioeconomic pressures also reverberates in urban scholarship. These are reproduced through few, but prevailing TU signifieds that are nuanced with similar political and socioeconomic narratives.

Thematically, we can also discern this by mapping 500 of the most common and co-occurring keywords as illustrated in Figure 7. Distinct cluster bubbles feature the most common keyword in the cluster as the cluster label. Bubble size indicates the proportion of cluster word occurrences, and bubble location is a measure of Callon centrality and density (Aria et al., 2020). The latter is helpful for revealing themes that are "emerging or declining" (lower-left quadrant), "highly developed and isolated" (upper-left quadrant), "motor themes" (upper-right quadrant), and finally "basic and transversal" or relevant to a specific domain and the diverse research areas within a field (lower-right quadrant; Aria et al., 2020, pp. 821–822).

The most relevant clusters for a socio-semiotic framing of a Temporary Turn are positioned in the quadrants to the right. In the lower-right quadrant, TU represents the biggest cluster and co-occurs most commonly with 43 other keywords. 'Temporary Urbanism' follows suit as the second biggest cluster and co-occurs commonly with 40 other keywords. In comparison, 'Tactical Urbanism' is most weakly represented of the signifieds by co-occurring commonly with 30 other keywords (refer to *SM.2 Breakdown of Thematic Map of the 500 Most Common Co-Occurring Keywords and Keyword Clusters* in the Supplementary File for the full breakdown). The location of TU signals its fundamental and cross-cutting relevance. This affirms the status of TU as the more established signified within the diverse research areas of urban scholarship. In contrast, 'Temporary Urbanism' and 'Tactical Urbanism' are positioned towards the upper-right quadrant of the thematic map. Their locations indicate a high degree of development and importance for urban studies. In comparison to 'Temporary Use' however, there is not as high of a degree of interdisciplinary relevance for all urban research fields. A finer sweep of the co-occurring keywords show that ideologically or critically nuanced terms such as, but not limited

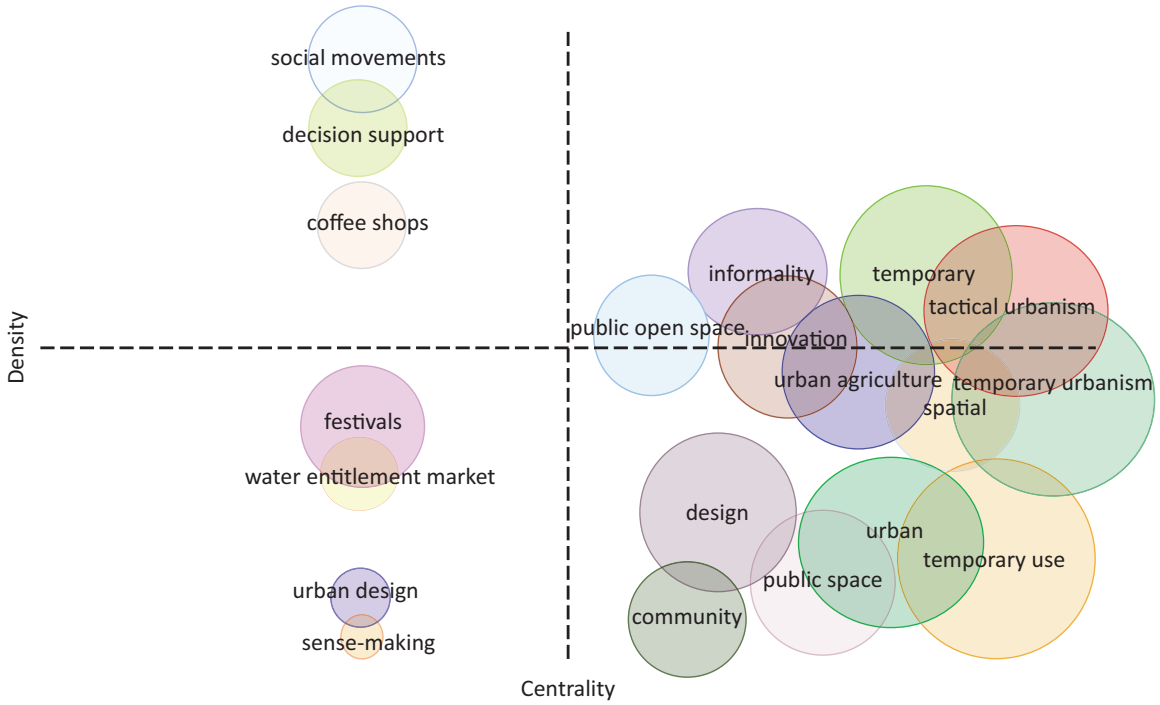


Figure 7. Thematic map of the 500 most common co-occurring keyword. Notes: Clustering and sizes are in relation the proportion of most common co-occurring words. Location determined by the Callon measure of density and centrality.

to 'utopia,' 'heterotopia,' 'spatial production,' 'planning theory' or 'intersectional feminism' do no occur often with TU. In contrast, they populate the clusters for alternative signifieds for TU; this supports transfunctionalization of TU through more recent and emerging signifieds. This also reveals new constellations of signifieds, referents and signifying authors, which extend the theorization of TU.

We need not stop here, however, as we can also relate the transfunctionalization of TU to specific and influential publications. Recall that the authors of the publications are signifiers in the Semiotic Triangle who shape the articulation and symbolisms of TU in relation to select referents. The historical citation network in Figure 8 visualizes how scholars draw on preceding contributions to cite earlier concepts and support new ideas (full list is included in the Supplementary File under *SM.3 Historical Direct Citation Network of Most Cited Publications*). Socio-semiotically speaking and confirmed through content analyses, these authors act as signifiers and link to the signifieds mapped in Figure 7 (i.e., TU, 'Temporary Urbanism,' 'Tactical Urbanism'). More recent contributions draw on the earlier concept of TU to propel new signifieds. At the same time, these also contribute to the reiterative and layered transfunctionalization of TU. These are patterned in different streams of citations with varying historical and topical legacies.

The stream with the longest legacy dates back to Groth and Corijn's contribution from 2005. Their publication centrally discusses TU through ranges of activities in the context of socioeconomic changes by means of multiple case studies. Further, it characterizes TU as facilitating shifts in governance and land policy; while new meanings for the production of space are discussed, 'Temporary Urbanism' and 'Tactical Urbanism' as signifieds make no appearance (Groth & Corijn, 2005). A second and denser stream of citations draw on multiple works. These discuss TU while also introducing 'Temporary Urbanism' and 'Tactical Urbanism' as alternative signifieds (Andres, 2013; Harris, 2015; Honeck, 2017; Madanipour, 2018; Nemeth & Langhorst, 2014; Patti & Polyak, 2015; Tardiveau & Mallo, 2014; Vallance et al., 2017). In addition, there is a divergence in the methods of investigating TU in these later works. This is evident in the range of case studies (they vary from none to 11—the majority feature singular, in-depth case studies), integration of theoretical and analytical frameworks, inclusion of policy and discourse analyses, proposition or prototyping for new designs and even encouragement for pedagogical activism. This strongly suggests that TU is transfunctionalizing methodologically as well. TU is no longer framed solely as a pragmatic signified, but instead, understood through a plurality of meanings, studied in a variety of manners, and entangled in signification processes that draw from diverse communities and authors in scholarship. A Temporary Turn is reflected in scholarship as it is in practice, but more importantly, it is refracted through multiple socio-semiotic channels of urban scholarship.

5. Discussion

The socio-semiotic framework and bibliometric analyses that I present here delineate the early degrees of a Temporary Turn in urban planning research that transfunctionalizes TU. This shows how urban scholars articulate multiple symbols alongside TU, such as 'Temporary Urbanism' and 'Tactical Urbanism', fuelling what some might view as a boosterist, politics of signs (Gottdiener, 1986). The epistemic culmination of this capitalizes on and entrenches "place-bundles" of meaning through spatial, social and ideological processes (Zhang,

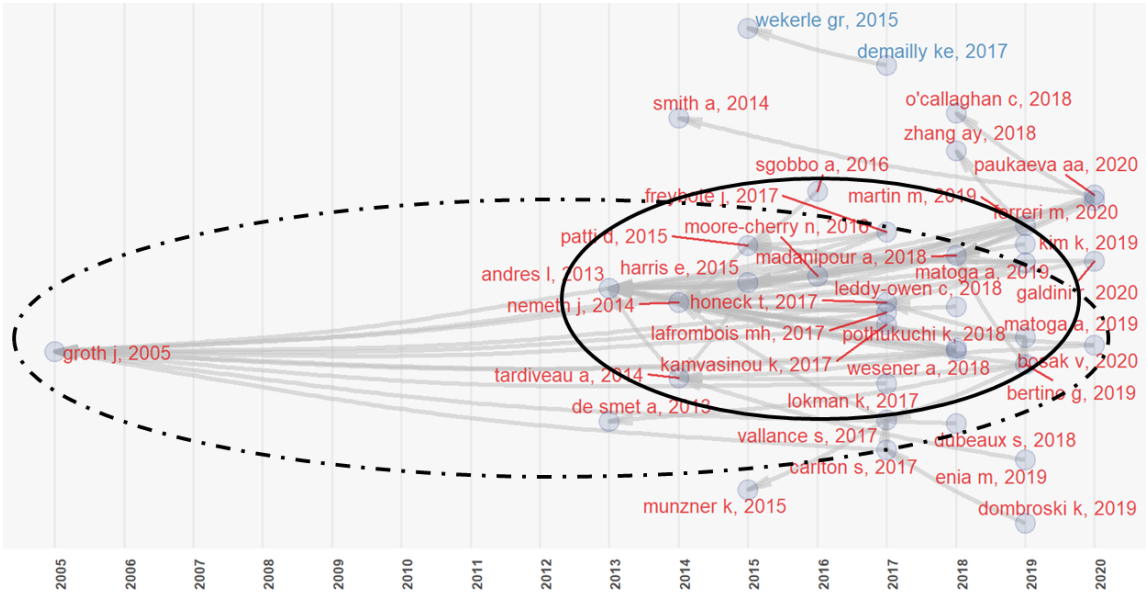


Figure 8. Historical direct citation network of most cited publications.

2018, p. 92). These are "contentious and contingent…on the ability of special interests to control the symbolic interpretations of processual outcomes in everyday life" (Gottdiener, 1986, p. 207). Urban scholars prioritize certain themes and represent these through their design of the Semiotic Triangle and advancement of TU-relevant signifieds. Depending on the narratives or inherited ideologies, patterns in the selection of signified and referents can be uncovered. These punctuate historical and scientific lines of inquiry, which we can trace through bibliometric methods. A socio-semiotic lens reveals that TU is polysemic; it links and qualifies space, experience, and ideology through many signification processes. These also emphasize Ledrut's claim that indirectly, "a city can never be more or less significant, it can only signify differently" (1986b, p. 115). Scholars, along with planners and other participants in signification processes, amplify and augment its meanings. In doing so uncritically, they risk perpetuating similar narratives and missing out on other symbolic realities or confounding TU discourse with diverging symbols.

With this knowledge, future work should continue to attend to TU and its symbolism, as is already being carried forth by those who highlight weaknesses in our understanding. Theoretically, this invites scholars to craft narratives with greater consciousness on temporary interventions by looking for new avenues to position and produce meaning in space and discourse (LaFrombois, 2017). This also demands that urban scholars studying TU look outwardly to find, scrutinize and integrate meaning through alternative lenses. Whether these lenses are angled, for example, through intersectionality to spotlight referents still shadowed by our eagerness to focus on exceptional practice (LaFrombois, 2017; Martin et al., 2020) or culturally to consider romanticized policies and antipathetic reactions (Bosák, Slach, Nováček, & Krtička, 2019; Honeck, 2018; Liu, 2017), there is still much work to do on TU. We have yet to fully understand more common forms and symbols of TU (Martin, Deas, & Hincks, 2019) or explore the intersection of meanings, as is the case with 'T/T Urbanism' that represents a "twofold concept" (Stevens & Dovey, 2018, p. 324). Indeed our capacity to "capture," "uncover" and "control" the symbols we communicate (Möystad, 2018, p. 48) about TU is still green. Most likely, this means that TU requires further study. There is place for this continued study in our journals, within our classrooms and even more so on our streets as recent challenges with the pandemic continue to heighten the immediate readiness for TU (Herman & Rodgers, 2020).

Considering the recent normalization of TU through pandemic-oriented policies and Covid-19 circumstances (Herman & Rodgers, 2020), citizens, practitioners and policy makers should also be made aware of the semantic challenges and socio-semiotic confusion involved with competing TU symbols. Certain social groups will prefer a particular TU signified over another. How these preferences finally present are often informed by the policy and research that urban scholars and planners perpetuate. In this light, the continuation of a critical and conscious treatment of TU is helpful in both theory and in practice. A more sensitive stipulation and re-working of how we communicate or manage communication about TU through collaborative transfer networks (Galdini, 2020) or policy publications (Patti & Polyak, 2015) could also be starting points for future learning and application. Since these are informed by scholarship, they offer comparatively direct opportunities for scholars to exercise their insights into policy and practice.

6. Conclusions

Here, I presented a research about research explication of how scholars communicate the TU discourse through a socio-semiotic framework. This contribution makes use of the Semiotic Triangle and its mechanisms (referent, signifier, and signified) to explain the transfunctionalization of TU signifieds that are represented in scholarly literature. Bibliometric methods support these analytical findings. These firstly, delineate how TU and new symbols embodied by keywords such as 'Temporary Urbanism' and 'Tactical Urbanism' are traced in keyword growth, as well as thematic and historical citation developments. Secondly, these also explain theoretically how urban scholarship is unfurling a Temporary Turn by representing and producing meaning for temporary practices through keyword symbols. We can discern these through different constellations of referent, signifier and signified. These advance multiple and dynamic signification processes that transfunctionalize TU as symbolic myths. Many of which repeat neoliberal undertones sourced from the functional signs we observe in practice. By illuminating the manners in which we communicate TU in scholarship and reproduce qualities from practice, I encourage urban scholars to ponder how we collectively produce space and symbols while engaging in an emerging Temporary Turn. The insights here can impact how we communicate about TU in scholarship, but also shine light on opportunities through semiotic processes to consciously and meaningfully advance TU. We can continue to engender specific socioeconomic agendas in scholarly discourse while confusing with symbolic variations. We also have the choice to more carefully attend to how we frame, abstract, and refract TU. Whether this is through greater criticality, inclusivity or objectivity—the degree to which we control and communicate TU or a Temporary Turn is our design.

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Conflict of Interests

The author declares no conflict of interests.

Supplementary Material

Supplementary material for this article is available online in the format provided by the author (unedited).

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Article

Urban Planning Academics: Tweets and Citations

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Abstract
This article discusses the relationship between Twitter usage and scholarly citations by urban planning academics in the U.S. and Canada. Social media and academic publications may be considered separate activities by some, but over the past decade there has been a convergence of the two. Social media and scholarship can be complementary not only when social media is used to communicate about new publications, but also to gather research ideas and build research networks. The analysis presented here explores this relationship for urban planning faculty using data for faculty who had active Twitter accounts between March 2007 and April 2019. Measures of Twitter activity were combined with Google Scholar citation data for 322 faculty with Twitter accounts. As expected, the results highlight that there are different patterns of Twitter activity between junior faculty and senior faculty both in terms of proportions of each rank using Twitter as well as activity levels on the social media platform. The results also suggest that Twitter activity does not have a statistically significant relationship with overall scholarly productivity as measured by citation levels.

Keywords
academic; Canada; citations; Google; planning; research; social media; Twitter; US

Issue
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1. Introduction

The emergence of social media has created new approaches for academics to engage with others about research topics, build new collaborations, and utilize new ways to communicate their scholarly outcomes. Twitter is one of the primary forms of social media used by academics to enhance productivity and elevate scholarly reputation. This study compares urban planning academic's Twitter and scholarly activities to explore these dynamics. Does more time spent on social media correlate with less scholarly output? Or are scholars actively publishing also active on social media as these activities converge? One way to examine this is by comparing levels of Twitter and scholarly 'productivity' for faculty in the planning discipline. This is of interest because scholars wishing to better communicate their research and potentially broaden their audiences. The following briefly reviews the literature on Twitter usage by academics, citations as a measure of productivity, and the relationship between Twitter and citations. A quantitative analysis using Twitter and citation activity data for planning academics is then presented that examines this question.

2. Literature Review

As with the Internet, some scholars predicted a revolution in information sharing via social media with far reaching benefits to society (Hilbert & López, 2011; Nie & Erbring, 2002). These benefits were expected from the shear amount of information that could easily be shared with unlimited geographic reach. At the same time, others warned of an increase in conformity through social influence (Bargh & McKenna, 2004; Creeber & Martin, 2008), particularly when certain ideologies are able to dominate broadcast channels and platforms. For higher education social media represented a significant change and an opportunity to increase communication beyond the academy (Kimmons, Veletsianos, & Woodward, 2017). But concerns have arisen from evidence pointing to the intersection of influence and

persuasion on social media in propagating misinformation along with trolling, inappropriate language, and a lack of civility common to online commentary (Allcott & Gentzkow, 2017; Schweitzer, 2014). This calls into question the long-term viability of such platforms as channels for serious academic discourse. Nonetheless, social media provides an added dimension to scholarly communication that is evolving, with academics being encouraged to develop their individual reputations and gain increased visibility in their respective fields. Not only are academics expected to publish, teach, and perform service, but now more than ever, they are urged to promote themselves both within and beyond their institutions (Weller, 2011).

2.1. Social Media

There is a growing literature on how and why academics use social media platforms such as Twitter. Twitter is based on short (140 character) messages posted to its platform that also combines hyperlinks, graphics, and tagging. Content is shareable to other platforms, therefore extending its reach even further. While there are many analyses of Twitter activity by academics, analyses of complete academic disciplines are quite rare. One reason for this is that data collection is difficult without standards or conventions capable of accurately identifying users. Similarly, name disambiguation for scholarly publications is challenging, limiting the coverage of academic disciplines, especially those with many faculty. This explains why there are so few empirical analyses of individual disciplines, and why many rely on sparse sampling of social media users (see Thelwall, Tsou, Weingart, Holmberg, & Haustein, 2013). ORCID and ResearcherID are examples of efforts to address the challenge of author identification by establishing protocols that link authors, affiliations, and scholarly products. These are voluntary systems with less than a majority of academics currently using them. In addition, these systems apply to only scholarly publications and no other types of accounts such as those for social media.

The literature identifies four general categories of Twitter use by academics. These include communications, professional development, self-promotion, and profile management (Carpenter & Krutka, 2014; Hall, 2014; Jordan, 2019; Veletsianos & Kimmons, 2013). Kassens-Noor (2012) and Carpenter and Krutka (2014) discuss the potential of Twitter for classroom instruction, but to date there is little evaluation of the practice. The four aspects previously mentioned connect with promotion and tenure criteria that emphasize external visibility (Schimanski & Alperin, 2018). Promotion and tenure committees often gauge the performance of a candidate by assessing their level of regard within a field based on limited metrics. This includes reviews by external academics, seen as objective, and representing the broader community of the discipline. Some universities, through their promotion and tenure processes and guidelines, are placing value on faculty social media participation (see Cabrera et al., 2017; O'Meara, 2016). Despite the lack of evidence to suggest that institutions actually benefit from these efforts, other than hopes that it serves university public relations.

The capabilities of Twitter to increase communications will continue to evolve across disciplines, platforms, and purposes. In the case of urban planning, benefits can take the form of increasing the volume of planning related discourse. This includes the conversational and 'chat' dimensions of Twitter, as well as virtual community-building (whether real or imagined) as reported by Gruzd, Wellman, and Takhteyev (2011). These conversations also combine 'real life' and virtual forums when Twitter is used in connection with academic conferences. This means that these conversations can extend beyond conferences in space and time, along with creating 'backchannel' communications (Li & Greenhow, 2015; Weller, Dröge, & Puschmann, 2011). This is likely true for urban planning academics who are assumed to use Twitter in similar ways as other academics in the social sciences. It is also likely, but too soon to conclude, how the Covid-19 pandemic will impact online communications and academic conferences into the future.

2.2. Scholarly Citations

Citation analysis for scholarly evaluation has an extensive literature that considers patterns across disciplines along with offering nuanced discussion of performance metrics (see Glänzel, Moed, Schmoch, & Thelwall, 2019). Citation analysis is one way to evaluate scholarly activity but is often limited to assessing productivity or output rather than other dimensions such as visibility, reputation, and impact (Sanchez, 2014). The following provides a brief discussion and background on citation analysis and urban planning scholarship for the purposes of the current analysis.

This analysis uses Google Scholar as a source of citation data. There is a substantial body of literature that discusses the application of Google Scholar to citation analysis and make comparisons to Elsevier's Scopus and Thomson Reuter's Web of Science (previously, ISI Web of Knowledge). With its release in 2004, one question about Google Scholar is whether its coverage of scholarly publications can match that of other sources (Falagas, Pitsouni, Malietzis, & Pappas, 2008; Harzing, 2013a; Meho & Yang, 2007). Acknowledging that coverage issues are discipline specific, there are many examples of Google Scholar-based citation analyses for particular fields ranging from oncology and condensed matter physics (Bakkalbasi, Bauer, Glover, & Wang, 2006), to business and economics (Levine-Clark & Gil, 2008), to health and medical research (Kulkarni, Aziz, Shams, & Busse, 2009). Most comparisons focus on citation counts for small samples of academics while others compare citation rates for academic journals (Moussa & Touzani, 2010). Other meta-analyses are helpful in understanding

patterns in bibliometric differences among data sources and analysis methods (see López-Cózar, Orduña-Malea, & Martín-Martín, 2019).

There are particular aspects of citation databases that emerge from comparative analyses including the age range of cited publication materials, languages included, types of materials cited, and disciplinary coverage (Harzing, 2013a ; Kousha & Thelwall, 2007). It is interesting to note that most of the analyses comparing Google Scholar with Scopus and Web of Science concentrate on citation totals and not on the accuracy of these data sources at the publication or author level. In other words, to determine how accurate citation totals are for an individual, the actual list of scholarly products (i.e., those listed in a CV) should be compared to the results extracted from the citation databases for an author. This is currently infeasible without a comprehensive source of accurate CV data that can be matched to publication records in Scopus, Web of Science, or Google Scholar. An effective author cross-referencing and identification system would help to solve this problem.

To date there are few bibliometric analyses specifically on urban planning scholarship. Examples of such analyses for urban planning academics include Stiftel, Rukmana, and Alam (2004), followed several years later by Sanchez (2017), Pojani, Olvera-Garcia, Sipe, and Byrne (2018), Stevens, Park, Tian, Kim, and Ewing (2019), and Sanchez (2020). The bibliometric literature has long recognized the differential rates of citation by topics, following the assumption that certain sub-fields are more popular, have more publications and therefore greater chances of citation (see Bornmann, Schier, Marx, & Daniel, 2012). In their analysis of factors effecting urban planning citations, Stevens et al. (2019) included variables indicating whether the publication topic was related to one of 13 selected subtopics. They found that compared to 'transportation,' nearly all other sub-fields were cited less frequently, with many of the regression coefficients being insignificant. Compared to Sanchez (2020), the findings of Stevens et al. (2019) were less comprehensive because of the sample size (580 article characteristics compared to nearly 15,000 publication titles by Sanchez, 2020) and the topic classification methods. Sample size issues likely introduce bias by over or under-representing certain planning topics, and topic classification methods provide varied outcomes, especially given the multi-disciplinarity of urban planning research. The analysis presented here relies on citation totals and the H-Index for each of the faculty having Twitter accounts and does not normalize for topics due to the complexity of matching Tweet topics with publication topics (see Sanchez, 2020, for an in-depth analysis of planning topics and citation levels).

2.3. Tweets and Citations

Along with Twitter usage and academic citations for planning academics, a third dimension is the relationship between Twitter and citations, some of which was discussed previously. One challenge is that while the vast majority of planning academics produce cited scholarship, only about one-third of them are active users of Twitter. So, any analysis of Twitter and citation activity will contend with the question of whether active scholars are more likely to be active on social media or vice versa. One theme among the bibliometric and Altmetrics literatures is whether tweets predict citation activity—that somehow tweets effectively draw attention to publications, and therefore generate citations. To date the evidence of this relationship is weak, but it is safe to assume that academics will continue using whatever methods are available to increase the visibility of their publications to hopefully increase citation levels (see de Winter, 2015; Haustein, Peters, Sugimoto, Thelwall, & Larivière, 2014).

3. Methodology

To examine Twitter usage by urban planning academics, data were obtained from two primary sources. A list of 1,107 urban planning faculty names from 106 universities across the U.S. and Canada maintained by Sanchez (2017), were searched using the Twitter's API to find associated accounts. Each query result was then reviewed to confirm it was being used for professional purposes by an individual faculty member. Accounts were considered being used for professional purposes if the user profile contained a professional title (e.g., professor), mention urban planning or an area of expertise (e.g., transportation, housing, environment), or employer's name (i.e., university name or academic department). In some cases, accounts were included when these criteria were not met but the content of tweets from the account were related to urban planning topics. Individuals who did not have their own Twitter accounts, but instead used organizational accounts, were not included. Organizational accounts accessed by multiple people do not represent the activities of the individual academic of interest and may inflate the number of tweets attributed to an individual. Because citations are individually based, Twitter activity for the analysis should be as well. The proportion of planning academics using Twitter was similar to that found by Mohammadi, Thelwall, Kwasny, and Holmes (2018) for academics in a variety of disciplines and being in the range of 30% to 35%. Their estimates were based on sampling, where the current analysis represents the complete population of academic planning Twitter users.

A total of 322 Twitter accounts were identified from the list of over 1,100 urban planning faculty. Lists of all profiles, tweets, followers, and friends were obtained through the Global Event and Trend Archive Research Project (National Science Foundation projects IIS-1619028 and 1619371). This included all account activity from March 2007 to April 2019 for these 322 accounts. The first part of the analysis focuses on general characteristics of the faculty Twitter users including:

age of accounts, frequency of participation, and user-engagement levels. These characteristics were also considered relative to academic rank. The next step was to collect the publication records for the same group of urban planning academics. Citation data were assembled from Google Scholar Citation Profiles and Harzing's Publish or Perish (also drawn from Google Scholar Citation data). Of the 322 planning faculty with Twitter accounts in 2019, 236 had Google Scholar Citation Profiles containing citation totals and H-Indices. For the other 86 faculty without profiles, the data were compiled using Publish or Perish.

The Twitter and citation data were then matched for the 322 faculty to complete the dataset. It was expected that comparing Twitter activity and citation metrics would reveal a distribution of faculty types falling into the quadrants shown in Figure 1. As previously discussed, there are a variety of interpretations for these categories related to levels of productivity as well as potential citation benefits of tweeting about publications. It was not expected that this analysis could detect or explain these interactions because the analysis is only looking at general levels of activity and not at the individual publication level. This would also involve tracking the timing of tweets with online or print publications. The question is whether tweets effect citations or do citations result in more Twitter activity. To examine this at a fine level of granularity means the analysis would need dates of tweets (which are available) and dates of citations (which are not available—other than a volume, and issue number in the case of journal articles). There can be a relatively long time horizon for citations, beyond just the time of publication, often several years later. Another issue is how tweets can reference publications, whether by title, by author, or DOI. DOI is likely the best because it links directly to a publication. Unfortunately, there is no standard way that tweets reference academic publications so such an enumeration is currently unreliable.

An expectation associated with the quadrants shown in Figure 1 is that more senior faculty have higher citation counts and lower levels of Twitter activity due to less familiarity with social media, and 'youth' being associated with lower citation levels and higher levels of Twitter usage. It is possible that both junior and senior faculty tweet often, but not possible (or very rare) for junior faculty to have high levels of citations. The results of the analysis will explore these patterns in part, to understand the convergence of social media and scholarship, particularly by academic rank. A regression model was used to estimate the association of Twitter activity and scholarly productivity. The model controls for seniority (rank), years since completion of a PhD, and whether the person had a Google Scholar Citation Profile. A binary variable for Google Scholar Profiles is used to control for the source of citation data. Errors do exist in profiles such as inclusion of publications or citations not belonging to an author which inflate totals. In addition, publications or citations can be missing from profiles, therefore under-reporting citation metrics. Harzing (2013b) addresses issue and reports that systematic errors (particularly for inflated citation totals) do not appear to be a concern.

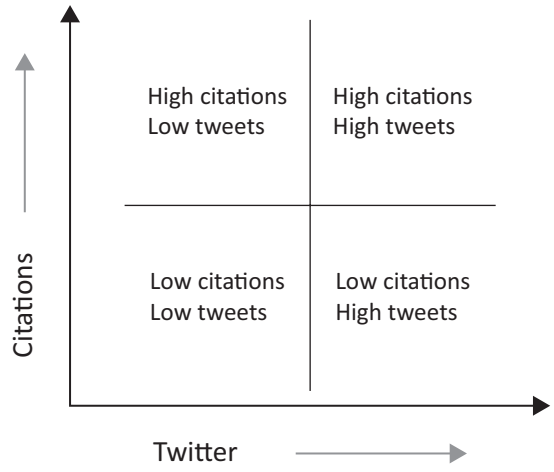

Figure 1. Faculty citation and tweet activity levels.

4. Results

Of the 322 urban planning faculty with Twitter accounts in 2019, a small number had not yet tweeted, but all of them had followers and friends. A 'follower' or 'friend' indicates the direction of relation and how posts will automatically appear in a user's feed (i.e., list of tweets). The number of followers and friends are also higher among junior faculty. The earliest planning faculty Twitter account was established in 2007 and there were a total of 560,119 tweets posted by urban planning faculty between March 2007 and April 2019. Planning faculty Twitter users are nearly split evenly by rank for assistant, associate, and full professors, and the age of all accounts average six to seven years (Table 1). In 2019, 26.5% of planning faculty were assistant professors, 33.1% were associate professors, and 40.4% were full professors. Junior faculty tweet (or retweet) more frequently than senior faculty, with a median of slightly more than once per week. It should be noted that the distributions are skewed, and therefore, the median values are more reliable indicators of central tendency. Tweeting activity (tweets per month) were analyzed to find the prevalence of outliers (those greater than three standard deviations from the mean). The data show that there were actually a small number of 'power users,' identifying three assistant professors, two associate professors, and one full professor. These individuals were left in the dataset to because their other characteristics were not anomalous. And as expected, the citation counts and H-Indices for senior faculty are higher than those of junior faculty.

The results are interesting in terms of the relative uniformity of indicators for what can be seen as the convergence of social media and scholarly productivity. Table 2 shows that these two activities are not exclusive, showing technology usage (e.g., social media) by

Table 1. Descriptive statistics by academic rank.

Position		N	Mean	Median
All Professors	Account age (mos.)	322	78.0	81.1
	No. of Tweets	322	1739.5	215.5
	No. of Followers	322	655.4	202.0
	No. of Friends	322	456.7	177.5
	Followers-to-friends ratio	322	3.1	1.0
	Tweets per month	322	19.8	3.3
	Citations	322	1545.4	494.5
	H-Index	322	13.1	10.0
Assistant Professor	Account age (mos.)	116	77.8	79.8
	No. of Tweets	116	1299.9	298.5
	No. of Followers	116	405.7	238.0
	No. of Friends	116	491.9	284.5
	Followers-to-friends ratio	116	1.2	0.8
	Tweets per month	116	14.6	4.5
	Citations	116	250.1	133.0
	H-Index	116	6.0	5.0
Associate Professor	Account age (mos.)	105	73.9	80.2
	No. of Tweets	105	1493.8	267.0
	No. of Followers	105	642.8	204.0
	No. of Friends	105	435.4	191.0
	Followers-to-friends ratio	105	2.3	1.0
	Tweets per month	105	18.9	4.0
	Citations	105	913.6	466.0
	H-Index	105	11.5	10.0
Professor	Account age (mos.)	101	82.7	83.9
	No. of Tweets	101	2500.0	106.0
	No. of Followers	101	955.4	182.0
	No. of Friends	101	438.5	114.0
	Followers-to-friends ratio	101	6.1	1.4
	Tweets per month	101	26.6	1.6
	Citations	101	3689.7	2314.0
	H-Index	101	23.0	21.0

younger faculty and significant overall productivity being attributed to more senior faculty. The characteristics of faculty falling into Quadrant 1 (higher levels of citations and lower levels of Twitter activity) tend to be older faculty members (by years since their PhD) as well as their rank. 62% of faculty in Quadrant 1 are full professors and 9% are assistant professors (Table 2). The proportion of assistant professors in Quadrants 1 and 2 are higher than expected, because these represent the high citation groups, however, the same is true for the low citation group which also have full professors among them (Quadrants 3 and 4). Overall, it is interesting to note the evenness of the distribution between Twitter and citation activity by rank.

Table 2. Twitter and Citation Levels Matrix.

Quadrant	Years	Assistant	Associate	Full
1. High C, Low T (79)	23.5	9%	29%	62%
2. High C, High T (82)	19.1	18%	35%	46%
3. Low C, High T (79)	9.6	62%	33%	5%
4. Low C, Low T (82)	12.6	55%	33%	12%
Total (322)	16.2	36%	33%	31%

Note: The threshold for 'high' versus 'low' is the median value for all faculty.

Finally, Table 3 presents the results of a regression analysis predicting scholarly productivity as measured by citation counts. Of particular interest was the relationship between Twitter activity (total and monthly tweets) and citation totals. The model controlled for seniority (rank), years since completion of a PhD, whether the person had a Google Scholar Citation Profile. The model explained approximately 50% of the variation in citation counts (natural log of total citations). While rank and years were statistically significant, the Twitter activity variable (tweets per month) was not. As expected, years as a professor was positively correlated with total citations, as was the use of Google Scholar Citation Profiles. While the coefficient for having a profile was positive, it cannot be stated definitively why this is the case. Two possible explanations are that profiles contain inflated citation metrics, or, that academics with high citation activity are interested in tracking their own metrics and represent self-selection within the population. Further analysis beyond the scope of this analysis would be needed to further assess this pattern. The model shown in Table 3 provided the highest level of explanatory value compared to alternative models using total citations and citations per year as dependent variables. In addition, each model was tested with total tweets instead of tweets per month as independent variables. One interpretation of these results is that planning faculty who tweet more do not publish less or have fewer citations, nor do they have more.

5. Conclusions

As social media is more commonly used by academics, one question is whether the effort put toward one displaces the efforts into the other, therefore impacting how faculty allocate their efforts. Urban planning is a small academic discipline with approximately 1,100 faculty in the U.S. and Canada. Of these faculty, about one-third actively use Twitter, similar to other fields and disciplines. However, there are no other empirical analyses of disciplines allied with planning such as public administration, urban studies, public policy, etc., to make comparisons. Some academic literature suggests that Twitter activity can be beneficial to scholarly communications, but these studies rely on small samples and lack data for compete disciplines like the analysis presented here.

Overall, the results of this analysis show that younger faculty are more likely to be on Twitter compared to senior faculty. Overall, 39.3% of assistant professors, 39.3% of associate professors, and 22.4% of full professors were using Twitter. On average, junior faculty are also more active on the platform. As expected, senior faculty have produced more publications and therefore are more highly cited. The higher levels of Twitter activity do not appear related to more citations, nor is it associated with fewer citations for each of the three academic ranks.

The literature suggests that the benefits of Twitter for faculty are potentially related to better scholarly communications and network building despite little evidence to support this. Previous research has examined these applications for other academic disciplines, but none to date for urban planning. Along with the data examined in this analysis, more can be learned about personal expectations and experiences through additional data collection directly from planning faculty, such as through survey research. Such research can better answer questions about motivations for using Twitter and perceived benefits associated with professional roles, responsibilities, and expectations.

One limitation of the analysis is that it represents a single point in time, not able to illustrate the process of change, especially for social media (i.e., Twitter) adoption as it occurred over time. An analysis over time and a snapshot like the one presented here (despite being limited in scope), can in fact highlight that there are different types of faculty with different roles, responsibilities, and professional styles. Future research should explore the relationship between social media activities, scholarly productivity, and promotion and tenure. This would involve additional data collection in the form of faculty

Table 3. Regression results.

	Unstandardized Coefficients B	Standardized Coefficients Std. Error	Beta	t	
(Constant)	5.616	0.390		14.413	< 0.001
Google Scholar Profile (0/1)	1.632	0.181	0.368	9.030	< 0.001
Years	0.025	0.012	0.141	2.182	0.030
Tweets per month	0.002	0.001	0.064	1.589	0.113
Assistant (0/1)	−2.564	0.304	−0.627	−8.448	< 0.001
Associate (0/1)	−1.153	0.245	−0.275	−4.712	< 0.001
Model Summary					
	R	R^2	Adj. R^2	SEE	
	0.711	0.506	0.498	1.394	

a. Dependent Variable: ln(Total Cites)

b. Full Professor is omitted variable

CVs, however, it could yield some interesting findings about dynamics of faculty evaluation and participation on social media platforms such as Twitter. Another path for future research could include the use of Altmetrics to assess academic productivity and online presence. Altmetrics extends beyond social media and has the potential to provide broadened evaluation. Again, the challenge is related to data collection, and how to accurately identify and compile these data for thousands of individuals. The hope is that like the initial promises of the Internet, more data will be within our reach.

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Conflict of Interests

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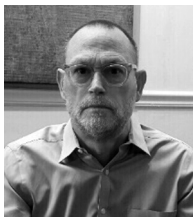

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Commentary

Are We Kidding Ourselves That Research Leads Practice?

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Abstract
The importance of learning from practice is underscored by the analysis in the articles on innovation and development in urban planning of this journal's thematic issue.

Keywords
innovation; research; urban planning

Issue
This commentary is part of the issue "Innovations and Development in Urban Planning Scholarship and Research" edited by Thomas W. Sanchez (Virginia Tech, USA).

1. Introduction

In this thematic issue, the editors and authors seek to interrogate if a better understanding of urban planning research activities can help to better understand the direction of planning practice. The five subjects analyzed—planning's boundary with urban design, planning for disability, researchers' use of Twitter, security in urban space, and temporary uses—are an eclectic snapshot, but they reveal key dimensions of the relationship of planning scholarship to planning practice.

Maybe most loudly, these articles show us that scholarship is often far from the driver's seat when it comes to innovation in planning. All five discuss subjects that have been on the mind of practicing planners for years, yet the authors seem to show us that researchers are only now, slowly, picking up key aspects of the subjects for in-depth investigation.

2. Research and Practice

Rivera's (2021) position is that planners have been reluctant to attend to design. She shows how a Texas NGO creates knowledge through design practice and calls for planning educators to more meaningfully integrate planning and design. The argument is persuasive, even if it should be obvious. How can it be that more than thirty years after the early New Urbanist voices we still speak of policy-oriented, and design-oriented planning schools, and policy-oriented and design-oriented national planning cultures?

Terashima and Clark (2021) find that five key planning journals each publish less than two articles per decade focused on planning for persons with disabilities. Could it be that this literature is found in specialized journals and only seldom breaks into our discipline-wide outlets? If not, how do we explain that twenty-nine years after the (U.S.) Americans with Disabilities Act, and despite wide-ranging adaptations in transit, building construction, universal design, and neighborhood design, these leading planning journals do not find more than a trickle of valuable research on how planning can better serve those who differ from the norm?

Planning researchers have been slower to adopt Twitter than planning practitioners have been. I suspect that many scholars wear this Luddite theme as a badge of pride, while secretly wondering if they are missing out on a tool that could advance uptake and use of their work. Sanchez (2021) puts their fears to rest, finding that, a half million tweets in, those researchers who are active in Twitter are no more or less cited than those who are not active. Yet, he warns us that the real value of Twitter may be in communication and network building, values we might ignore at our peril.

Töppel and Reichel (2021) illustrate a promising technique for qualitative surveying of attitudes toward safety in public spaces. Hybrid mapping has convincing potential for developing reliable inter-subjective assessments of perceptions of security. This is a welcome addition to the well-developed research on defensible space, yet these authors reveal that even in this well-developed field:

> Knowledge about structural and spatial factors named and discussed in the literature is usually not taken from systematic, empirical, or social science studies. Rather, the authors refer to experiences from police practice, in particular to results of simple inspections carried out by police experts with city planners and citizens. (Töppel & Reichel, 2021, p. 106)

Temporary uses launched on the planning scene in dramatic new ways two decades ago, and in recent years, have become major sources of housing and land use debates. Planning researchers have recognized the importance of these controversies and several of the most highly-cited articles in planning journals have examined aspects of these phenomena. Chang (2021) examines this research by asking how the framing of the concepts lead to patterns of use. The author reminds us that when new fields develop, word choice in description is influential.

3. Conclusion

Those of us schooled in the intricacies of empirical research like to believe that innovation most often occurs in research settings and that the practice world frequently lags behind. The five articles in this thematic issue should serve as a cautionary for us. Lots of innovation happens in the field; researchers are often scrambling to understand and make sense of what practitioners are already doing. This should not surprise us—the planning practice world exists in the midst of rapidly changing physical and policy realities; planning practitioners are frequently put in the position of inventing action to cope. If research is to meaningfully contribute, we researchers have to keep the lines of communication with practice open.

Conflict of Interests

The author declares no conflict of interests.

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