

## **A typology of designs for social research in the built environment**

<sup>a</sup> Jacques Louis du Toit and <sup>b</sup> Johann Mouton

<sup>a</sup> *Department of Town & Regional Planning, University of Pretoria, Pretoria, South Africa;* <sup>b</sup> *Centre for Research on Evaluation, Science and Technology, Stellenbosch University, Stellenbosch, South Africa*

Department of Town & Regional Planning  
University of Pretoria  
Private Bag X20  
Hatfield, 0028  
Republic of South Africa

Tel: +27 12 420 5765

Fax: +27 12 420 3537

Email: [jacques.dutoit@up.ac.za](mailto:jacques.dutoit@up.ac.za)

Jacques du Toit is a senior lecturer in the Department of Town and Regional Planning at the University of Pretoria. His areas of interest include research methodology, planning methods and techniques, and environment-behaviour studies.

Johann Mouton is Director of CREST and the African Doctoral Academy at Stellenbosch University. His areas of interest include research methodology, philosophy and sociology of science and monitoring and evaluation studies.

This article presents a typology of designs for social research in the built environment. Currently there is no such typology, while the notion of ‘research design’ is less known in the built environment compared to the social sciences. Twenty-five subtypes are identified and clustered into 10 prototypical designs, namely (1) surveys, (2) experiments, (3) modelling, simulation, mapping and visualisation, (4) textual and narrative studies, (5) field studies, (6) case studies, (7) intervention research, (8) evaluation research, (9) participatory action research and (10) metaresearch. After determining the extent to which these designs feature in actual studies, the designs are classified according to six design considerations, including research- context, aim and purpose, methodological- paradigm and approach, and source of data. The typology contributes toward greater clarity in terms of ‘research design’, improved teaching of research methodology and greater methodological coherence in projects.

Keywords: typology; research design; social research; built environment

## **Introduction**

The term ‘built environment’ refers to disciplines such as architecture, urban design, urban and regional planning (or just ‘planning’), housing, construction, surveying and real estate (CEBE, 2011). These disciplines are primarily applied sciences (Knight & Turnbull, 2008, p. 73), which traditionally, and perhaps justifiably so, focus more on the application of existing knowledge than the generation of new knowledge (Klosterman, 1983, p. 216). They also tend to focus more on the training of professionals rather than research (Forsyth & Crewe, 2006, p. 172-173; Forsyth, 2007, p. 470). However, the ‘publish or perish’ game has caught up with built environment disciplines (Stevens, 1998, p. 153-155). Dyck (1994, p. 143) refers to architecture and planning, and states that knowledge in these fields is valued more for its instrumental rather than intrinsic value. Consequently, there is less motivation in built environment disciplines to concern themselves with research methodology, since research methodology, historically the domain of the social sciences, involves the meta-study of designs and methods to generate rather than apply knowledge.<sup>1</sup> A further consequence is that built environment disciplines have in turn never really developed their own designs and methods, at least to the extent to which, for example, sociology has come to be associated with surveys, anthropology with ethnography, certain sub-areas of psychology with experiments, and so on. Instead, they borrow from other fields (Rapoport, 1973, p. 135; Wachs, 1986, p. 38; Dyck, 1994, p. 143; Amaratunga

---

<sup>1</sup> Blaikie (1993, p. 7) defines ‘research methodology’ as ‘the analysis of how research should or does proceed. It includes discussions of how theories are generated and tested – what kind of logic is used, what criteria they have to satisfy’, thus, the meta-study of designs and methods. On a practical level, ‘research design’ refers to the overall plan for conducting research (a more detailed definition follows later). ‘Research methods’ refers to techniques or procedures within a research design to collect, analyse, and interpret data (De Vaus, 2001, p. 9; Bryman & Teevan, 2005, p. 24; Creswell, 2009, p. 15).

et al., 2002, p. 24-25; Goldstein & Carmin, 2006, p. 69), especially the social sciences (Madsen, 1983, p. 113; Feldt, 1986, p. 37; Dandekar, 2005, p. 130-132).

‘Research design’, which is the focus here, is less known in the built environment than in mainstream social science disciplines. For example, Moudon (2003) provides a detailed mapping of what is termed ‘epistemologies’ and ‘methodologies’ in urban design research, but does not address research design in particular. None of the chapters in a text on planning research addresses research design, while the editor briefly refers to it in the introduction (see Dandekar, 2003). Similarly, of 19 chapters in a text on built environment research, only one addresses research design (see Knight & Ruddock, 2008). Farrell places greater emphasis on design considerations, e.g., choosing between qualitative as opposed to quantitative approaches (2011, p. 6-9), but only briefly discusses seven prototypical designs as ‘approaches’ to research (2011, p. 77). Instead, texts on built environment research tend to focus on the application of particular designs in particular contexts – usually applied contexts, but seldom on a comprehensive range of prototypical designs for both basic and applied research. Yet, this characteristic of research texts in the built environment is likely to be more a reflection of the applied and contextual nature of research in this field rather than a shortcoming.

While the social sciences are abound with comprehensive and generic-like research texts, the built environment lacks similar texts to help students and researchers better understand what constitutes a prototypical ‘research design’, which designs are in fact applicable to social research in the built environment, and when, where and how to apply such designs. The problem is not so much the borrowing of designs from the social sciences, but finding a way of representing those designs in a manner that makes more sense for students and researchers given the particularities of

social research in the built environment. Hence, this article presents a typology of designs for social research in the built environment.

Typologies should ideally be exhaustive and mutually exclusive in their classification of different items. In this case, the typology had to include a comprehensive range of prototypical designs applicable to social research in the built environment classified in terms of important design considerations. The typology is intended to help students and researchers make more informed choices between designs and to have a more articulate, reflexive and critical approach to designing research in general. In the subsequent section, a comprehensive index of applicable designs is first presented. The extent to which indexed designs feature in actual built environment studies is subsequently examined. After discussing their applicability, the designs are then classified along six design considerations to comprise the typology. The article concludes with a discussion of the benefits and limitations of the typology.

### **Designs applicable to social research in the built environment**

The first step towards constructing the typology was to compile a comprehensive index of applicable designs. Based on a synthesis of definitions by prominent methodologists, ‘research design’ was defined as a logical plan involving strategic decisions with the aim of maximising the validity of findings (De Vaus, 2001, p. 9; Robson, 2002, p. 79; Yin, 2003, p. 20; Bryman & Teevan, 2005, p. 24; Leedy & Ormrod, 2005, p. 85; Creswell; 2009, p. 3&5). Any ‘logical plan’ for research therefore comprised the basic unit that had to be indexed. To ensure comprehensive coverage, a lower denominator than ‘designs’, i.e. ‘design subtypes’, were identified from a systematic review of 12 research texts published since 1990 in the built environment. The review was limited to research texts, since other methodological

sources, like journal articles for example, usually discuss the application of a particular design rather than a range of prototypical ones that introduces the reader to different options.

Reviewed texts included Shefer and Voogd's *Evaluation methods for urban and regional plans* (1990), Sanoff's *Visual research methods in design* (1991), Andranovich and Riposa's *Doing urban research* (1993), Groat and Wang's *Architectural research methods* (2002), Dandekar's *The planner's use of information* (2003), Vestbro et al.'s *Methodologies in housing research* (2005), Zeisel's *Inquiry by design* (2006), Gaber and Gaber's *Qualitative analysis for planning and policy* (2007), Wang and Vom Hofe's *Research methods in urban and regional planning* (2007), Knight and Ruddock's *Advanced research methods in the built environment* (2008), LaGro's *Site analysis* (2008) and Farrell's *Writing a built environment dissertation* (2011). To complete the index, a few subtypes were identified from Mouton (2001) and Berg (2007), two generic texts not specific to the built environment. Subtypes were indexed if authors specifically called them 'designs', or if they clearly comprised logical plans for research. Table 1 lists 25 subtypes in the first column, clustered into 10 prototypical designs in the second, with their corresponding core logics in the third.

[Insert Table 1 about here.]

Subtypes were clustered based on those deriving from a single prototype, for example, 'cross-sectional surveys' and 'longitudinal surveys' are both evidently 'surveys'. Certain designs that are characteristic of built environment research were not indexed, since they are similar to existing subtypes. For example, Lynch's (1960) 'cognitive mapping', although sounding similar to 'mapping', is actually a phenomenological field study, since the logic of cognitive mapping is to interpret how

people make sense of their environments in a phenomenological way. Lynch's method of making people draw maps is unique, but the design of a phenomenological field study is not. Flyvbjerg's (2002) 'phronetic planning research', with its focus on power in planning practices, is epistemologically and methodologically similar to 'participatory action research' (PAR), since the logic is to uncover hidden underlying structures and to participate and take action in planning practices with the intention of changing it for the better.<sup>2</sup>

Yet, in terms of what criterion are the 10 designs prototypical, i.e., what makes them unique? Prominent methodologists differ in their criteria for distinguishing designs. Some criteria pertain to aspects of (1) control, resulting in a distinction between experimental vs. non-experimental designs (e.g., see De Vaus, 2001, p. 43-84; Bryman & Teevan, 2005, p. 27-35); (2) time, resulting in cross-sectional vs. longitudinal designs (e.g., see De Vaus, 2001, p. 49-50; Bryman & Teevan, 2005, p. 35-42); or (3) methodological approach, resulting in quantitative vs. qualitative vs. mixed-method designs (e.g., see Neuman, 2006; Creswell, 2009, p. 3-5; Leedy & Ormrod, 2010, p. 94-97). However, these criteria result in a distinction between two or three designs at best, while we required a criterion to distinguish between all 10 designs. We argue that the 10 designs are prototypical based on their unique 'core logics' and that 'core logics' should be the primary classification criterion in our typology. 'Core logics' pertains to the essential logic or mode of reasoning that distinguishes a particular design from any other design, while Table 1 shows that each design indeed has a unique core logic. Surveys essentially generalise about populations more so than any other design, experiments attribute causality between

---

<sup>2</sup> See Du Toit (2010, p. 125-128) for a more detailed outline of the 10 prototypical designs with their subtypes, specialised subtypes and areas of application in built environment research and practice.

variables, modelling predicts (the strength of) relationships between variables, and so on.

Still, intervention research, evaluation research and PAR can also be seen as types of research other than designs, since all three usually incorporates other designs. For example, evaluation research often incorporates surveys such as needs assessments and post occupancy evaluations. Yet, the essential logic that determines when, where and how such surveys are conducted within a larger project is one of *evaluation*. Nevertheless, the extent to which the 10 designs feature in social research in the built environment highlights their relative importance as prototypical designs.

### **Extent to which designs feature in social research in the built environment**

Prior to constructing the typology, the extent to which the 10 designs feature in social research in the built environment was determined through a systematic review of journal articles across three disciplines, namely architecture, urban design and planning. Reasons for focusing on these disciplines only were (1) the more prominent role of social research in these disciplines (compared to construction, surveying and real estate), (2) the interdisciplinary nature of research in these disciplines and (3) a decision to cover a longer time-span within a discipline, i.e., ‘depth’, rather than including more disciplines, i.e., ‘width’. We also argued that a review of a substantive amount of articles across architecture, urban design and planning would cover the possible range of prototypical designs used in the built environment. Indeed, the primary purpose was to confirm the validity of our typology of 10 prototypical designs rather than a comparison of designs featured across all built environment disciplines. Thus, we recognise that the review might not be completely representative of unique or specialised designs in built environment fields other than architecture, urban design and planning.

Journals first had to be selected from which articles could be reviewed. Following the compilation of a list of journals using the *ISI Web of Knowledge*, the *International Bibliography of the Social Sciences* and the *Thomson Reuters Master Journal List*, the most relevant social research journal in architecture, urban design and planning were selected considering the editorial policy of each journal, i.e., the extent to which social research forms the bulk of the journal's content compared to other journals in the discipline. For architecture and urban design, the selection was relatively simple, as both these disciplines have only one journal that can be considered social science oriented. For planning, however, there were a number of possible journals. Here we selected the social research journal with the highest Sourced Normalised Impact (SNIP) factor in *Scopus*.<sup>3</sup> The three journals selected to represent architecture, urban design and planning respectively are *Journal of Architectural and Planning Research (JAPR)*, *Journal of Urban Design (JUD)*, and *Journal of Planning Education and Research (JPER)*.

All empirical and nonempirical social research articles from 1996 to 2005<sup>4</sup> were reviewed, excluding (1) publications such as editorials, practice notes, book reviews, etc., (2) articles that were evidently not reporting social research (such as articles featuring building and construction technology, information and communication technology, computer programming, etc.) and (3) articles that had not been cited at the time of the review. A total of 381 articles were finally reviewed, 101 from *JAPR*, 99 from *JUD* and 181 from *JPER*, although total numbers of actual architectural, urban design and planning articles differed due to the cross-disciplinary

---

<sup>3</sup> See Du Toit (2010, p. 131-137) for a more detailed description of the selection procedure.

<sup>4</sup> This time-span was chosen for three reasons; (1) *JUD* was first published in 1996 only, (2) the 10-year span ensured an adequate dataset for analytical purposes and (3) there was a sufficient gap between 2005 and the time of conducting the review in 2009 to examine the scholarly impact (citations) of articles published as late as 2005.



nature of all three journals. Table 2 shows the distribution of designs across architecture, urban design and planning based on articles published in *JAPR*, *JUD* and *JPER* from 1996 to 2005.

[Insert Table 2 about here.]

Most importantly, all 10 designs feature across architecture, urban design and planning, while the review identified no design not already indexed in Table 1. Thus, we considered the index reasonably applicable to the built environment as well as comprehensive in its listing of designs. Metaresearch featured most (26%), followed by case studies (about 22%) and evaluation research (about 12%). The predominance of metaresearch is probably due to the longstanding relationship between built environment disciplines and the more empirical research-oriented disciplines such as environmental psychology and urban- geography and sociology. It makes sense for built environment researchers to utilise existing empirical research in these and their own disciplines and conduct further nonempirical- or metaresearch such as literature reviews, research syntheses, conceptual analyses, etc. While the contextual nature of many built environment studies makes case studies popular, evaluation research also proved popular probably due to a longstanding association between planning and evaluation research. Khakee indeed argues that shifts in planning theory from rational to communicative theory correspond with shifts in evaluation research from first- to fourth generation evaluation (1998, p. 363-371). Despite built environment scholars arguing for the importance of textual and narrative studies, especially discourse/conversational analysis (e.g., see Richardson & Jensen, 2003; Lees 2004; Jacobs 2006), as well as field studies (e.g., see Watson, 2002, p. 184-185) and PAR (e.g., see Flyvbjerg, 2002), the occurrence of these designs was limited. Intervention research featured least (about 3%), possibly because this type of research is associated

more with a practitioner audience involved in tangible planning/design projects rather than an academic audience.

The review also captured the number of citations each article had received at the time of the review.<sup>5</sup> Although citation impact is more a function of authorship, institution and subfield rather than research design, and notwithstanding its arbitrary nature at times, it also holds that review-, theoretical- and methodological articles, i.e., metaresearch articles, tend to receive more citations (Moed, 2005, p. 39-40). In fact, the mean number of citations of metaresearch articles was the second highest of the ten designs after modelling, suggesting the importance of nonempirical research skills such as abstract reasoning, critical thinking and logical argumentation in maximising scholarly impact in social research in the built environment. Having confirmed the applicability of all 10 designs and their relative importance as prototypes, they could now be classified into the typology.

### **Towards a typology of designs**

Earlier on, we defined ‘research design’ as, amongst other things, involving strategic decisions – decisions about various design considerations across the dimensions of social research. Neuman describes these ‘dimensions’ as ‘decision points for a researcher when moving from a broad topic to a focused research question to the design of a specific study’ (2006, p. 23). Bryman and Teevan argue that ‘a choice of research design reflects decisions about the priority being given to a range of dimensions of the research process’ (2005, p. 24). Yet, what are these ‘dimensions’,

---

<sup>5</sup> Because earlier articles have had more time to be cited compared to more recent articles, citations of more recent articles were weighed incrementally over time to make them comparable to citations of articles in a base period. See Du Toit (2010, p. 144-145 & 166-170) for a more detailed description of the weighing procedure.

and more specifically, what are the more important considerations across these dimensions along which designs may be classified?

Mouton and Marias define social research as a ‘collaborative human inquiry in which social reality is studied objectively with the aim of gaining a valid understanding of it’ (1996, p. 7-8). From this definition, they identify five dimensions of social inquiry: (1) a sociological dimension: social research is a *collaborative* activity, involving different people, social interactions, norms and values, etc., (2) a teleological dimension: social research is an intentional or purposeful activity, its fundamental premise being the *understanding* of social reality, (3) an ontological dimension: social research is directed at *social reality*, albeit with different philosophies and assumptions thereof, (4) an epistemological dimension: social research is aimed at a *valid* understanding of social reality, again, considering different philosophies and assumptions about what constitutes a ‘valid’ understanding, and (5) a methodological dimension: social research is *objective* – not in a positivist sense, but by virtue of it being a systematic and rigorous decision-making process. The sociological dimension draws our attention to, amongst others, the audience for which research is intended, i.e., the social and public context of research. The teleological dimension captures the aim and purpose of research. The ontological and epistemological dimensions address issues related to different conceptions of reality and knowledge, i.e., the methodological paradigm of research. The methodological dimension speaks to the ‘how’ of the research process: what methodological approach and source of data should be used. Based on this model of social inquiry, six considerations, along which designs can be classified, were discerned: (1) research context, (2) research aim, (3) research purpose, (4) methodological paradigm, (5)

methodological approach and (6) source of data. Table 3 presents the typology and classifies the 10 prototypical designs along these six considerations.

[Insert Table 3 about here.]

The classifications correspond with prominent methodologists' descriptions of different designs, including those of Babbie and Mouton (2001, p. 3-68 & 76-79), Robson (2002, p. 4-5; 10-15; 41-44 & 81), Bryman and Teevan (2005, p. 8-14), Neuman (2006, p. 23-33), Babbie (2007, p. 87-90) and Creswell (2009, p. 5-11). Each classification was also tested by examining the relationships between the research design and methodological characteristics of the 381 articles that were reviewed. For example, Chi-square tests and measures of association were applied to see whether significantly larger percentages of surveys and experiments were actually associated with basic-, descriptive-, post-positivist-, quantitative research and primary data, and so on.<sup>6</sup> Annexures 1 – 4 show perceptual maps for four relationships, including the relationship between designs and (1) research purposes, (2) methodological paradigms, (3) methodological approaches and (4) sources of data. The maps were generated through a multi-dimensional scaling method in SPSS known as 'Correspondence Analysis'. Correspondence Analysis takes a compositional approach and describes relationships between nominal variables in a correspondence table (similar to a contingency table) and a perceptual map in which the categories of the variables are represented in a multidimensional space using proximity to indicate the level of association among rows and columns.

The Chi-square tests and perceptual maps confirmed all classifications as the norm (i.e., the majority of articles featuring surveys are actually associated with

---

<sup>6</sup> Statistical significance was calculated at the 95% confidence level. See Du Toit (2010, p. 185-194) for detailed results from Chi-square tests and measures of association.

descriptive-, post-positivist- quantitative research, etc.), except four, while the wording of those four classifications was revised. In the first exception, a larger percentage of designs ranging from surveys to case studies were actually associated with applied research. Hence, those designs are classified as ‘basic (towards applied) contexts’. The wording ‘basic (towards applied) contexts’ suggests that these designs are strictly speaking associated with basic contexts, although in practice they are often associated with applied contexts, at least in social research in the built environment. Consequently, the horizontal lines between classifications are dashed to suggest flexibility, that no design in practice necessarily conforms to any particular classification and that the design of an actual study is often, if not always, unique and a matter of praxis.

## **Discussion**

We conclude by discussing the benefits as well as the limitations of the typology. The typology has three potential benefits, namely (1) greater clarity in terms of ‘research design’, (2) improved teaching of research methodology and (3) greater methodological coherence in projects.

As stated before, ‘research design’ is less known in the built environment than in mainstream social science disciplines. The typology provides **greater clarity** in terms of what constitutes (1) a research *design*, (2) *applicable* designs, and (3) appropriate names for different designs and design subtypes (as per Tables 1 and 3). These clarifications, together with the typology’s standardised terminology, may also help to establish a more articulate and coherent methodological language for the built environment. For example, the typology clarifies what the difference is between methodological- ‘paradigms’ as opposed to ‘approaches’. Built environment students

and researchers often use these and other terms inconsistently or even incorrectly (Du Toit, 2010, p. 5-6).

In terms of **improved teaching**, the typology provides a frame of reference for research courses and texts in the built environment. Lecturers may use the typology directly as a pedagogical tool to introduce students to prototypical designs. Using it as an interpretative map, students can reflect on the more important considerations when designing research and compare, choose and discuss designs with greater confidence and clarity in their research proposals and theses.

Although researchers often make compromises, there should be at least be *some* coherence between a project's actual design and its more important methodological characteristics if findings are to be maximised, especially if a researcher has worked in a particular methodological paradigm. As Knight and Turnbull (2008, p. 73) explain:

It is very important that researchers in these applied fields of enquiry, collectively termed the built environment, make their methodological and epistemological assumptions as clear as possible. This, of course, is particularly important for those defending a doctoral thesis. These decisions should not amount to a fashionable *pick and mix* of terms, but should be grounded in the genuine, and defensible, thoughts of the researcher and the subject of inquiry. It is also important that the whole methodological position put forward by the researcher is coherent. For example, to argue that your research is based on anti-realist ontological assumptions and some form of post-modern theoretical position is likely to undermine a methodology based on questionnaire surveys including significance testing of Likert scales. It should be clear that in designing a methodology to investigate a problem, the researcher is building on an edifice of assumptions around claims to knowledge and these assumptions should be explored and justified where appropriate.

Since the typology classifies designs in terms of important design considerations, it could contribute toward **greater methodological coherence** in projects by showing students and researchers the typical associations between different designs and important design considerations. The more students and

researchers are able to ensure coherence between their study's design and its methodological characteristics, the more they will be able to defend the validity of their findings within the context of a particular methodological paradigm.

The typology also has three possible limitations. Firstly, it includes only the more important considerations across the dimensions of social research that have proved most useful for classifying designs. Understandably, the design of an actual study requires numerous other possible considerations. For example, the sociological dimension alone includes considerations of epistemic cultures, research teams and networks, organisational interests and agendas, differences between Mode 1 and Mode 2 knowledge production, and so on. The typology may therefore give less experienced researchers the impression that the six design considerations are necessarily the only ones when choosing a design or designing a study. Yet, the possibility of other considerations does not suggest additional designs or different classifications to those in Table 3, just more considered decision-making when choosing a design or designing a study. Secondly, the typology may also create the impression that the classifications of designs along certain considerations are necessarily fixed, whereas the design of actual studies are often messier and no doubt more complicated than what the typology suggests. The typology should therefore be seen as an ideal-typical classification of designs. Thirdly, although the typology has a theoretical and empirical basis, its usefulness for intended users such as students, lecturers and research is still unknown, while further research is necessary in this regard.

## **References**

Amaratunga, D., Baldry, D., Sarshar, M., & Newton, R. (2002). Quantitative and qualitative research in the built environment: Application of "mixed" research approach. *Work Study*, 51(1), 17-31.

- Andranovich, G.D., & Riposa, G. (1993). *Doing urban research*. Newbury Park: Sage.
- Babbie, E. (2007). *The practice of social research*. Belmont: Thomson Wadsworth.
- Babbie, E., & Mouton, J. (2001). *The practice of social research*. Oxford: Oxford University Press.
- Berg, B.L. (2007). *Qualitative research methods for the social sciences*. Boston: Pearson.
- Blaikie, N. (1993). *Approaches to social enquiry*. Cambridge: Polity.
- Bryman, A., & Teevan, J.J. (2005). *Social research methods*. Don Mills: Oxford University Press.
- CEBE (Centre for Education in the Built Environment). (2011). *What is the Centre for Education in the Built Environment?* Retrieved 19 November, 2011 from <http://www.heacademy.ac.uk/cebe/aboutus>.
- Creswell, J.W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. Los Angeles: Sage.
- Dandekar, H.C. (Ed.). (2003). *The planner's use of information*. Chicago: American Planning Association.
- Dandekar, H.C. (2005). Qualitative methods in planning research and practice. *Journal of Architectural and Planning Research*, 22(2), 129-137.
- De Vaus, D.A. (2001). *Research design in social research*. London: Sage.
- Du Toit, J.L. (2010). *A typology of designs for social research in the built environment* (Doctoral dissertation). Retrieved 19 November, 2011 from <http://hdl.handle.net/10019.1/5142>
- Du Toit, J.L. (2010). The methodological rigour of South African master's and doctoral planning theses: 1963-2007. *Town and Regional Planning*, (56), 3-9.
- Dyck, R.G. (1994). Discipline vs. profession: A comment on the meaning of design. *Journal of Planning Education and Research*, 13(2), 143-146.
- Farrell, P. (2011). *Writing a built environment dissertation: Practical guidance and examples*. Oxford: Wiley-Blackwell.
- Feldt, A.G. (1986). Observations on planning methods. *Journal of Planning Education and Research*, 6, 37.
- Flyvbjerg, B. (2002). Bringing power to planning research: One researcher's praxis story. *Journal of Planning Education and Research*, 21, 353-366.
- Forsyth, A. (2007). Innovation in urban design: Does research help? *Journal of Urban Design*, 12(3), 461-473.
- Forsyth, A., & Crewe, K. (2006). Research in environmental design: Definitions and limits. *Journal of Architectural and Planning Research*, 23(2), 160-175.
- Gaber, J., & Gaber, S. (2007). *Qualitative analysis for planning and policy: Beyond the numbers*. Chicago: American Planning Association.
- Goldstein, H.A., & Carmin, J.A. (2006). Compact, diffuse, or would-be discipline? Assessing cohesion in planning scholarship, 1963-2002. *Journal of Planning Education and Research*, 26, 66-79.
- Groat, L., & Wang, D. (2002). *Architectural research methods*. New York: John Wiley.
- Jacobs, K. (2006). Discourse analysis and its utility for urban policy research. *Urban Policy and Research*, 24(1), 39-52.
- Khakee, A. (1998). Evaluation and planning: Inseparable concepts. *Town Planning Review*, 69(4), 359-374.
- Klosterman, R.E. (1983). Fact and value in planning. *Journal of the American Planning Association*, 49(2), 216-225.



- Knight, A., & Ruddock, L. (Eds.). (2008). *Advanced research methods in the built environment*. Oxford: Wiley-Blackwell.
- Knight, A., & Turnbull, N. (2008). Epistemology. In A. Knight & L. Ruddock (Eds.), *Advanced research methods in the built environment*. (64-74). Oxford: Wiley-Blackwell.
- LaGro, J.A. (2008). *Site analysis: A contextual approach to sustainable land planning and site design*. New Jersey: John Wiley.
- Leedy, P.D., & Ormrod, J.E. (2010). *Practical research: Planning and design*. Boston: Pearson.
- Lees, L. (2004). Urban geography: discourse analysis and urban research. *Progress in Human Geography*, 28(1), 101-107.
- Lynch, K. (1960). *The image of the city*. Cambridge, Massachusetts: MIT Press.
- Madsen, R.J. (1983). Use of evaluation research methods in planning and policy contexts. *Journal of Planning Education and Research*, 2(2), 113-121.
- Moed, H.F. (2005). *Citation analysis in research evaluation*. Dordrecht: Springer.
- Moudon, A.V. (2003). A Catholic approach to organizing what urban designers should know. In A.R. Cuthbert (Ed.), *Designing cities: Critical readings in urban design* (362-379). Malden: Blackwell.
- Mouton, J. (2001). *How to succeed in your master's and doctoral studies*. Pretoria: Van Schaik.
- Mouton, J., & Marais, H.C. (1996). *Basic concepts in the methodology of the social sciences*. Pretoria: HSRC.
- Neuman, W.L. (2006). *Social research methods: Qualitative and quantitative approaches*. Boston: Pearson.
- Rapoport, A. (1973). Some thoughts on the methodology of Man-Environment Studies. *International Journal of Environmental Studies*, 4, 135-140.
- Richardson, T. & Jensen, O.B. (2003). Linking discourse and space: Towards a cultural sociology of space in analysing spatial policy discourses. *Urban Studies*, 40(1), 7-22.
- Robson, C. (2002). *Real world research: A resource for social scientists and practitioner-researchers*. Malden: Blackwell.
- Sanoff, H. (1991). *Visual research methods in design*. New York: Van Nostrand Reinhold.
- Shefer, D., & Voogd, H. (Eds.). (1990). *Evaluation methods for urban and regional plans*. London: Pion.
- Stevens, G. (1998). Angst in academia: Universities, architecture schools and the profession. *Journal of Architectural and Planning Research*, 15(2), 152-169.
- Vestbro, D.U., Hürol, Y., & Wilkinson, N. (Eds.). (2005). *Methodologies in housing research*. Gateshead: Urban International.
- Wachs, M. (1986). Discussion of three papers on planning methods. *Journal of Planning Education and Research*, 6, 38-39.
- Wang, X., & Vom Hofe, R. (2007). *Research methods for urban and regional planning*. Beijing: Tsinghua University Press.
- Watson, V. (2002). Do we learn from planning practice: The contribution of the practice movement to planning theory. *Journal of Planning Education and Research*, 22, 178-187.
- Yin, R.K. (2003). *Case study research: Design and methods*. Thousand Oaks: Sage.
- Zeisel, J. (2006). *Inquiry by design: Environment/behavior/neuroscience in architecture, interiors, landscape and planning*. New York: Norton.

Table 1. An index of designs applicable to social research in the built environment.

Research design subtypes	Research designs	Core logics
Cross-sectional surveys	Surveys	Generalisation
Longitudinal surveys		
True experiments (aka laboratory experiments)	Experiments	Causal attribution
Quasi-experiments (aka field/natural experiments)		
Modelling; Simulation	Modelling, simulation, mapping and visualisation	Prediction/illustration
Mapping; Visualisation		
Content/textual analysis	Textual and narrative studies	Interpretation (hermeneutical)
Discourse/conversational analysis		
Historiography; Biography		
Ethnography (aka participant observation)	Field studies	Interpretation (ethnographical/phenomenological)
Phenomenology		
Single/multiple case studies	Case studies	Contextualisation
Comparative case studies		
Site/settlement analysis and assessment	Intervention research	Intervention
Plan/policy analysis and assessment		
Diagnostic/clarificatory evaluation (aka <i>ex ante</i> evaluation)	Evaluation research	Evaluation
Implementation evaluation; Programme monitoring		
Outcome/impact evaluation (aka <i>ex post</i> evaluation)		
Technical/scientific/collaborative PAR	Participatory action research (aka PAR)	Participation/action
Practical/mutual and/or collaborative/deliberate PAR		
Emancipating/enhancing/critical science PAR		
Literature reviews; Research synthesis	Meta-research	Various logics depending on the objectives of the research (e.g., to 'review', 'synthesise', 'analyse', etc.)
Conceptual analysis		
Typology/model/theory construction		
Philosophical/logical/normative argumentation		

Table 2. Percentage distribution of designs across architecture, urban design and planning.

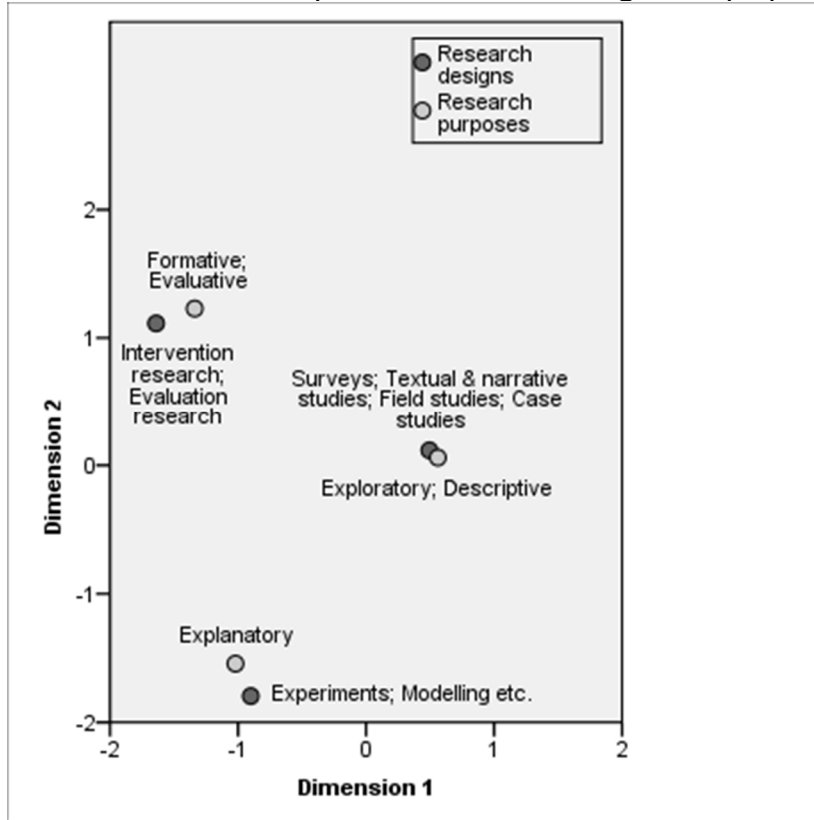
Research design	Field							
	Architecture		Urban design		Planning		Total	
	Count	%	Count	%	Count	%	Count	%
Surveys	8	14.8	9	7.3	27	11.3	44	10.6
Experiments	8	14.8	8	6.5	3	1.3	19	4.6
Modelling, etc.	1	1.9	1	0.8	17	7.1	19	4.6
Textual and narrative studies	2	3.7	13	10.6	16	6.7	31	7.5
Field studies	4	7.4	11	8.9	8	3.4	23	5.5
Case studies	12	22.2	21	17.1	59	24.8	92	22.2
Intervention research	1	1.9	10	8.1	2	0.8	13	3.1
Evaluation research	7	13.0	13	10.6	31	13.0	51	12.3
PAR	3	5.6	1	0.8	11	4.6	15	3.6
Metaresearch	8	14.8	36	29.3	64	26.9	108	26.0
<b>Total</b>	<b>54</b>	<b>100.0</b>	<b>123</b>	<b>100.0</b>	<b>238</b>	<b>100.0</b>	<b>415</b>	<b>100.0</b>

Note: The total of 415 designs is necessarily higher than the total of 381 surveyed articles due to some articles having featured multiple designs.

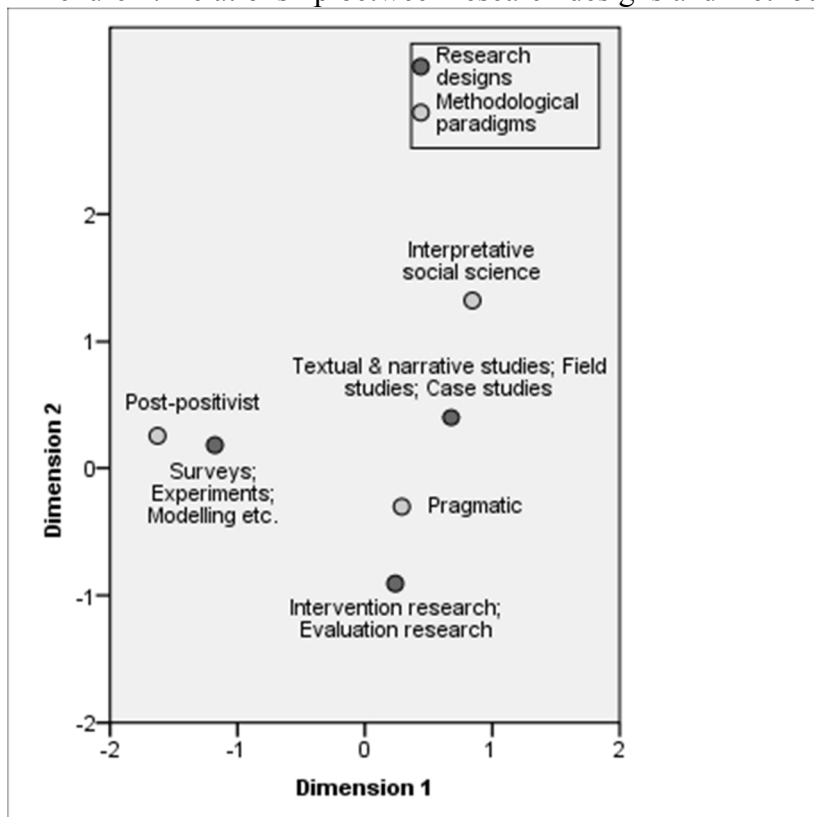
Table 3. A typology of designs for social research in the built environment.

Design considerations						Research designs
Research context & Research aim	Research purpose	Methodological paradigm	Methodological approach	Source of data	Core logic	
Basic (towards applied) contexts Theoretical aims	Descriptive Explanatory	Post-positivist	Quantitative	Primary	Generalisation	Surveys
					Causal attribution	Experiments
	Interpretative Exploratory Descriptive	Interpretative social science (towards pragmatic)	Qualitative	Secondary (numerical/spatial)	Prediction/illustration	Modelling, simulation, mapping and visualisation
					Secondary (textual)	Interpretation (hermeneutical)
				Primary (towards hybrid)	Interpretation (ethnographical/phenomenological)	Field studies
					Contextualisation	Case studies
Applied contexts Practical aims	Formative Evaluative	Pragmatic	Mixed-method (towards qualitative)	Hybrid	Intervention	Intervention research
					Evaluation	Evaluation research
	Emancipatory	Critical social science	Participatory	Primary	Participation/action	PAR
Basic contexts Meta-theoretical aims	Meta-analytical purposes	NA (Nonempirical)	NA (Nonempirical)	NA (Nonempirical)	Various core logics	Metaresearch

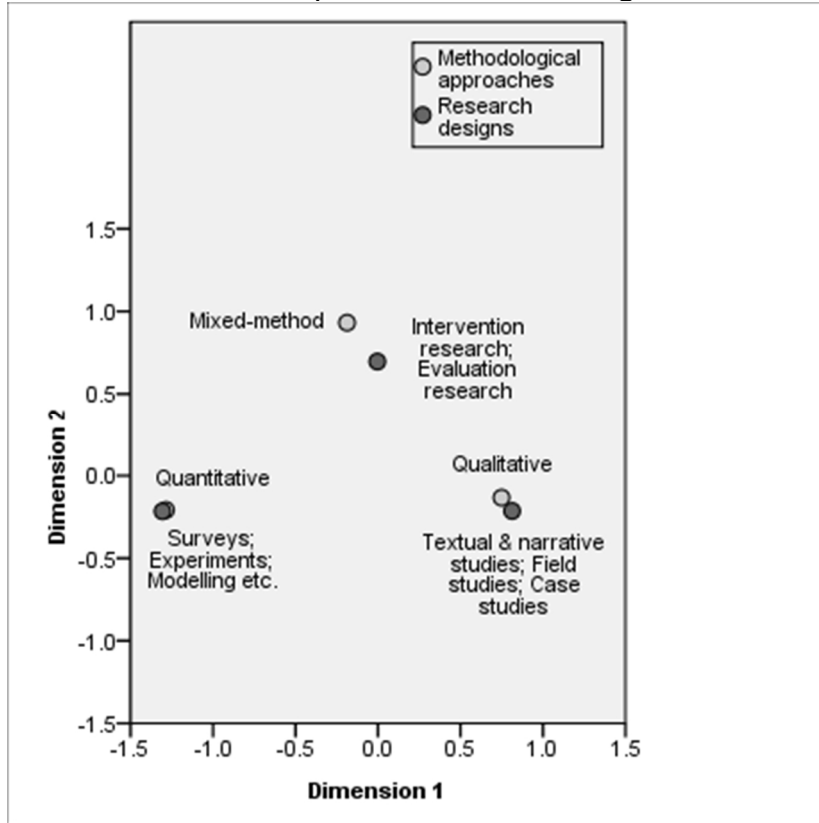
Annexure 1. Relationship between research designs and purposes.



Annexure 2. Relationship between research designs and methodological paradigms.



Annexure 3. Relationship between research designs and methodological approaches.



Annexure 4. Relationship between research designs and sources of data.

