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**A PEDAGOGICAL PROPOSAL IN AN AREA OF EPISTEMOLOGICAL UNCERTAINTY**

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## **Resumo**

Em áreas profissionais onde existem elementos de prática projetual, como arquitetura e urbanismo, o modelo acadêmico de conhecimento não está ainda claramente articulado. Isso significa que, muitas vezes, valores da prática profissional colidem com os modelos tradicionais de conhecimento e investigação adotados. Como resultado, surge um problema na formulação de um conceito de investigação nestas áreas que as façam reconhecidas e valorizadas por ambas as comunidades.

Atualmente, há um debate sobre as melhores maneiras de lidar com e de refletir estes valores de investigação que são, de um ponto de vista acadêmico, valores não tradicionais. Este debate substanciou um tipo de investigação que atualmente se coloca e que é específica às áreas de prática projetual. Este tipo de investigação é normalmente conhecido como 'Practice-based Research' (PbR) ou Investigação Prática. PbR propõe que a prática projetual tem um papel instrumental na atividade de pesquisa em áreas como projeto e planejamento urbano. Este papel é diferente do papel da experimentação em investigação empírica tradicional, e também diferente de papel da prática na prática projetual profissional.

Este trabalho descreve o desenvolvimento e realização de um curso de metodologia de investigação em planejamento e projeto urbano (Stedenbouw) na Universidade Técnica de Delft (TU Delft, Holanda). Este curso toma como base conceitos desenvolvidos num projeto de pesquisa intitulado 'Non-traditional Knowledge and Communication' (Conhecimento e Comunicação não Tradicionais), da Universidade de Hertfordshire, Reino Unido.

Este trabalho analisa a maneira como investigação e prática são problematizados no curso da Universidade Técnica de Delft. A hipótese levantada é de que o problema da pesquisa prática põe em evidência as diferenças de visão-mundo entre a investigação acadêmica e a prática profissional, com seus distintos propósitos e objetivos. Como resultado, educação e competência nos valores profissionais da prática projetual parecem ser insuficientes para a investigação acadêmica, levando à necessidade para um treinamento específico em investigação que reconheça essas diferenças. Este fato deve ser aceito a nível institucional em várias universidades na Europa, e o curso da Universidade Técnica de Delft representa um exemplo de programa de educação nesta área.

## **Palavras-chave**

Conceito / Incerteza / Processo

## **Eixo**

Situação

## **Abstract**

In professional areas in which there is an element of design practice, such as architecture and urbanism, the academic model of knowledge has not been clearly articulated. This means that often the values held in professional practice run counter to the traditional models of knowledge and research that are adopted. As a result there is a problem in accounting for research in these areas in ways that will be recognised and valued by both communities.

There is an ongoing debate about the best way of dealing with and reflecting these values that are, from the academic viewpoint, non-traditional. The debate has substantiated an emergent type of research that is specific to areas of design practice that is called 'Practice-based Research' (PbR). PbR claims that design practice has an instrumental role in research in areas such as design and urban planning. This role is different from the role of experimentation in traditional empirical research, and different from the role of practice in professional design practice.

This paper describes the development and delivery of a research methods training course in the department of spatial planning and design (*Stedenbouw*) at the Technical University Delft (TU Delft, Netherlands) that builds on research by the 'Non-traditional Knowledge and Communication' project (NtKC) at the University of Hertfordshire (UK). The paper will analyse the way in which research and practice are problematized in the TU Delft course. We claim that the problem of PbR manifests the differences between the worldviews of academic research and professional practice, with their differing aims and values. As a result, training and expertise in the professional values of design practice is insufficient for academic research, leading to a need for specific training as a researcher that recognises these differences. This need has been accepted at an institutional level in many universities in Europe, and the TU Delft course represents one such training programme.

## **Keywords**

concept, uncertainty, process

## **Axis**

situation

## **Resumen**

En áreas profesionales con elementos de práctica de diseño, como la arquitectura y el urbanismo, el modelo académico de conocimiento no está todavía claramente articulado. Eso significa que, a menudo, valores de la práctica profesional van en contra los modelos tradicionales de conocimiento y investigación adoptados. Eso resulta en un problema en la formulación de conceptos de investigación en estas áreas que las legitiman y las valoran frente a ambas comunidades.

Actualmente, hay una discusión sobre las mejores maneras de hacer frente y de espejar estos valores en la investigación; valores que son, desde un punto de vista académico, valores no tradicionales. Esta discusión ha engendrado un tipo de investigación que surge actualmente y que es específica a las áreas de práctica de diseño. Este tipo de investigación académica es generalmente conocido como 'Practice-based Research' (PbR) o Investigación Práctica. PbR propone que la práctica de diseño tiene un rol instrumental en la actividad de investigación en áreas como diseño y planificación urbana. Este rol es distinto al rol de la experimentación en investigación empírica tradicional, y también distinto al rol de la práctica en la práctica de diseño profesional.

Este trabajo describe el desarrollo y realización de un curso de metodología en la investigación en planificación y diseño urbanos (Stedenbouw) en la Universidad Técnica de Delft (TU Delft, Holanda). Este curso toma como base conceptos desarrollados en un proyecto de investigación que lleva el título 'Non-traditional Knowledge and Communication' (Conocimiento y Comunicación no Tradicionales), de la Universidad de Hertfordshire, en Reino Unido.

Este trabajo analiza la manera como investigación y la práctica están problematizadas en el curso de la Universidad Técnica de Delft. La hipótesis es de que el problema de la investigación práctica pone en relevancia las diferencias de visión-mundo entre investigación académica y la práctica profesional, con sus distintos propósitos y objetivos. Como resultado, educación y experiencia en los valores profesionales de la práctica del diseño parecen ser insuficientes para la investigación académica, llevando a la necesidad de una educación específica que reconozca estas diferencias. Este hecho debe ser aceptado a nivel institucional en varias universidades de Europa, y el curso en la Universidad Técnica de Delft representa un ejemplo de programa de educación en esta área.

### **Palabras-clave**

concepto, incerteza, proceso

### **Eje**

situación

The department of spatial planning and design (*Stedenbouw*) in the Faculty of Architecture at Technical University Delft (TU Delft, Netherlands) runs a research methods training course, the aim of which is to clarify the nature of academic research in an area with strong elements of practice, such as urban planning and design. The implementation of the course has provided us with the opportunity to get insight into the way in which research and practice are problematized in the TU Delft course. The authors claim that the problem of PbR manifests the differences between the worldviews of academic research and professional practice, with their distinct aims and values (Büchler, Biggs *et al.*, 2009). As a result, training and expertise in the professional values of design practice is not wholly sufficient for academic research, leading to a need for additional training as a researcher that recognises these differences (Rocco, Biggs *et al.*, 2009). The need for specialist research training has been accepted as part of the Bologna Process in Europe (Bergen, 2005) and the TU Delft course represents one such training programme.

There are challenges that arise when structuring a course within an area for which the epistemological, ontological and methodological questions are still under discussion by the community (Guba e Lincoln, 1994). The broad aim was to offer insight into academic research tools and methods for different areas of urban design and planning within a broader academic context. This included the analysis of different academic traditions that were relevant for urban planning and design. It started from the position that research is defined as a systematic investigation of a subject that leads to the production of explicit knowledge, and adds to the existing body of knowledge and understanding about the subject (Biggs e Büchler, 2008). Its objectives were to provide students with a background on established academic research tools and standards in different areas of activity within the field of urban planning and design, so that they might build up a robust research project at Masters level. This involved seeking answers to the following four contextual questions:

*What are some defining characteristics of academic research?*

*What are issues surrounding academic research in areas of design practice?*

*How can academic research be developed in areas design practice?*

*What are issues involved in communication and dissemination of academic research in areas of design practice?*

The course started from two basic premises: urban planning and design is not a 'pure discipline' as it draws input from a myriad of other disciplines such as human geography, sociology, engineering, computer sciences and mathematical modelling. In the context of the present paper it is significant that the production of physical plans in the form of drawings and designs is more emphasised in the Dutch planning tradition than in, for example, the British tradition of town planning. Consequently, the role of design in the research process is emphasized, and the expression 'Research by Design' is often used. According to Marchand and Walker (2009)

the terminology denoting the integration of a design component in the research process is abundant and rather confusing. Different expressions refer to the same approach and the same terminology is being used to refer to different ways to integrate design activities in design research, which explains some of this confusion.

However, beyond the profusion of terminology around the integration of practice into academic research, lie more profound differences about how various traditions of practice-based research have evolved and how different communities of practice have solved the problem of academicization (Büchler e Lima, 2008).

A linguistic problem must be clarified before we proceed with the discussion. The Masters course in spatial planning and design at TU Delft is delivered in English by the Department of Urbanism, in order to cope with the influx of international students to the university in the last decade. As a consequence, much of the documentation is written in English. Even the name of the department is problematic, because 'urbanism' is not synonymous with spatial planning and design. The former is used in English as referring to processes of urbanisation, or to city life, rather than the study of these processes and of the body of knowledge constituting disciplines related to spatial planning and urban design. In the Dutch tradition, spatial planning constitutes a different discipline altogether (*'Planologie'*), exclusively dedicated to understanding socio-economic trends in space and spatial planning policies. 'Urbanism', in the case of TU Delft, is a rough translation of the Dutch expression '*Stedenbouw*' (literally, 'the construction of cities'), where the design of the built environment plays a central role. In fact, the Dutch tradition makes little distinction between spatial plan and design of the built environment, as planning

and designing must supposedly result in visual representations of the build environment. The emergence of 'research by design' in this context is a response to the tendency to academicize knowledge that is generated through an eminently practical tradition (cf. Bourdieu, 1992), which is in turn related to a design activity.

The following excerpt from a first year Masters student essay illustrates the problem:

Before I can describe the role of design in planning it's necessary to describe both of these subjects: design and planning. With this description we will see the relation between these subjects clearly. We will see that a planning cannot exist without a design: a good plan depends on a good design. Or maybe even sharper: a good plan is a good design' (Oosterhuis, 2009).

The ontological foundation of this specific community of knowledge has evolved from a specific tradition. In contrast with other architectural schools, which have evolved from traditions related to the fine arts, the Faculty of Architecture at TU Delft, evolved from a technical school of engineering studies. The 'Royal Academy' for the education of civil engineers was established in 1842. In 1863, technical education was regulated in The Netherlands and one year later the Academy was formally transformed into a 'Polytechnic School', offering education in architecture, civil engineering, naval engineering, mechanical engineering and mining. In 1905, the academic level of the School's technical education was recognized and it became an 'Institute of Technology'. A Department of Architecture, Urbanism & Building Sciences had existed since 1900. In 1986, the Institute of Technology became the Delft University of Technology, also known as 'TU Delft'. The current Faculty of Architecture (*Bouwkunde*) offers education in the fields of Architecture, Urbanism, Real Estate Development and Management and Building Sciences. In September 2002, the Faculty, reflecting European Union directives, introduced a Bachelors/Masters model, consisting of a broad three-year Bachelors course followed by two-year Masters courses in Architecture, Building Technology, Real Estate Management and Urbanism.

The authors analyse the actions of communities of practice according to a worldview/paradigm model. A worldview is basically a set of beliefs that one holds about the nature of the world and one's place in it, that determines the activities one would undertake as a researcher. These activities form paradigms of inquiry, such as Positivism or Constructivism. Guba and Lincoln (1994) originally identified four academic worldviews, but responded to the criticisms of Heron and Reason, and later described a fifth (Guba e Lincoln, 2005). Each worldview is differentiated because their communities have different responses to the implied ontological, epistemological, methodological questions. The evolution of this particular community of practice resulted in a highly idiosyncratic worldview. In the research that is conducted at the Department of Urbanism of TU Delft, it is possible to distinguish several different paradigms in operation. This is not surprising, due to the enormous complexity and variety of approaches on urban studies. Urban studies are in essence multidisciplinary; therefore different research paradigms should be expected to coexist.

Within the scope of the research project 'non-traditional research and communication' [NtKC] at the University of Hertfordshire<sup>1</sup>, an initial mapping of different worldviews operating in the Department of Urbanism was conducted. This mapping was primarily done by analysing texts and lectures given by staff, as well as debates and essays written by students against a framework of analysis set by the project. We could therefore have an idea not only of how different paradigms were being dealt with by staff, but also how students were receiving these paradigms, how they reacted for or against them according to previously acquired notions and ideas about the area of knowledge and/or to their expectations about the education or training they expected to receive at university level. In our view, most of the debate revolves around education and the professional qualifications students ought to have when they finish their studies. This is, in itself, an indication of a certain position being taken towards education in urbanism. The debate on academic qualifications is more modest in comparison to the debate on practical or professional qualifications.

This debate can be roughly summarised by a (much simplified) opposition between a professional (or practical) approach to education on the one hand, and research and an academic approach on the other. In other words, the history of how knowledge in urbanism has been constructed, and how an education in urbanism has been constructed in The Netherlands, points towards a 'practical' approach.

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<sup>1</sup> <http://r2p.herts.ac.uk/ntkc>

The strong role of design in the approach of the problem makes it difficult to articulate a new academic model of knowledge that reconciles values held by the professional practice and values held by the academic community. This 'practical' approach would have, in principle, affiliations with the paradigms in operation in the physical sciences. However, because the understanding of the nature of the problem has changed in the last few decades (namely, the spatial organization of human activity over space), a purely technical approach based on the physical sciences is no longer possible. Other research paradigms have been incorporated in order to comply with the complexity of the problem, constituting a network of knowledge that is permanently changing. In fact, the engineering approach is not very strong in the courses offered by the Department Urbanism. Instead, much emphasis is put on design practice, and elements of creativity, spontaneity, and craftsmanship. These elements are valued by most students and teachers alike, and indicate a shared worldview. This brings us back to the main problem at hand, that is to articulate design practice and the requirements of academic research in urbanism.

The very ontology that determines these requirements seems to be contested, or perhaps there is no sufficient agreement on a specific ontology for 'urbanism', because of the plurality of coexisting worldviews. The epistemological question, which could supply a clear definition of the aims and objects of the discipline, remains fuzzy. If design education consisted only of design techniques applied to the built environment, then design itself, as an expression of rational organization of space, would be enough. Various TU Delft staff have tried to address the problem over the years, such as De Jong in 'Ways to Study' (Jong e Voordt, 2002) and Klaasen (2003) for whom

a scientific approach to urban and regional design involves the dissociation of objects of design from a specific context, resulting in spatial organisation principles and theoretical models. This way one can focus on generalised essentials, and designing becomes a way of doing research (Klaasen, 2007).

But the methodological question is just this; how to dissociate the objects of urban design from their context? The necessity of academicization, in this context, arises from the realization that a practical education in design skills alone is insufficient to deal with the broader task at hand: understanding the context, the role and wishes of stakeholders, and the socio-political forces that ultimately produce real world space. These are perceived as essential tasks for the urban planner and designer, and have helped constitute an epistemology that borrows heavily from the social sciences. Yet again, the strong elements of practice present in a tradition that barely makes a distinction between planning and designing, requires a better understanding of how that epistemology is being constructed, in order to respond to the methodological issues arising from the necessity to reconcile research and practice.

The necessity to strengthen alternative paradigms by reference to structural features in academic research has been identified by others, outside this particular community. It includes the Quality Assurance and Research Evaluation of the Royal Netherlands Academy of Arts and Sciences. *Evaluating Research in Context* (Spaapen, 2009) aims to improve the evaluation of social impact of research. In a communication, the Royal Academy asserted that the concept of 'Research by Design' remains 'elusive' and 'idiosyncratic', and therefore difficult to be assessed by commonly recognized academic criteria.

A course in Research and Design Methods was set up in 2007 at TU Delft in order to tackle this problem of the mediation between practice and research. Although the course was initially based on a collection of disparate discourses from various professionals and academics, from which students would be able to 'choose', the course has evolved towards a more grounded approach that tends to see design as just one of the available tools to advance research in urbanism. In this sense, the course adopts the position that elements of practice are taken *into* the academic field, and subsequently there is reflection which is grounded in traditional criteria of academic research. The course has therefore sought to re-establish traditional criteria of assessment for students' academic activities. It has reintroduced the need for a research proposal that follows established academic criteria, such as the necessity to describe the problem using both text and image, derive a research question and a set of sub-research questions, and an explanation of the methods that will be used to answer these questions. It has not ventured into seeking design methods that could be incorporated in academia, because it constructs the fundamental problem of an education in urban planning and design as a fundamentally academic one, not as a professional or a practical one.

This has generated varied reactions from staff and students alike, which can be briefly commented upon from our theoretical perspective. Among those who defend a professional education, the need to

academicize knowledge derived from the practice and indeed to follow recognised academic criteria is generally rejected. For this group, there is no need for scholarly validation of their practice, as it 'validates' itself within its own community of practice. This community has its own set of values that are consistent with its worldview, and generally does not perceive the necessity to adopt an explicit methodology or the necessity to make knowledge explicit and communicable through text, as it regards design as sufficiently autonomous in order to convey new knowledge *sui generis*. The values shared by this group are related to creativity, insight, originality, aesthetic value and craftsmanship (design skills). Design, in this case, is how the field is advanced and new knowledge gained, because only design itself can respond to the fundamental questions raised by this particular worldview. For many in this group, academic criteria seem unresponsive to this set of values and the questions that are significant within it. The majority of students identify with this group, particularly when they feel their creativity is being curtailed by the necessity to 'explain'. Students on the course have repeatedly manifested their dissatisfaction by asking questions such as 'why do we need a method?' or 'why do we need a research methodology?' The course has sought to explore this through counterfactuals such as 'what if you don't need a method?' The answers reveal the general incommensurability of design and academic practices.

On the other hand, a smaller group strongly supports the approach adopted by the course. First of all, those in urbanism who rely heavily on disciplines related to the social sciences feel comfortable with the traditional criteria of academia, because their activities are mostly related to the analysis of socio-economic forces shaping urban space. They rely on a well-established body of knowledge that correspondingly relies on philosophical and empirical research whose ultimate output is generally traditional, i.e. textual. A minority of students feels comfortable with this approach. This has to do with expectations concerning a professional education and a somewhat naïve understanding of the urban designer as a contemporary urban 'seer', such as Le Corbusier or Frank Lloyd Wright (who were deeply rooted in the architectural design tradition).

Another group adopts what the authors in the NtKC research group define as 'critical or reflective practice'. In their case, practice is intact, but they try to validate it according to current models of academic research. For this group, there is both the need to validate their practice in terms of the values set by the pure practitioners, and the need to validate their findings in terms of academic criteria. This group may adopt values from cognitive sciences applied to design, or validate design by means of technical tools of behavioural analysis. For example, GPS tracking devices can provide designers with empirical evidence on people's behaviour while shopping, and this knowledge can be used quantifiably in designs).

## Conclusions

The course Research and Design Methods has served as a testing ground for many ideas stemming from the cooperation between TU Delft and the NtKC research group of the University of Hertfordshire. As part of the NtKC knowledge transfer initiative, a member of staff from TU Delft has been working on the NtKC project for a year. As a result, a new course at TU Delft has been designed entitled 'Research and Design Methodology for Urbanists' [sic]<sup>2</sup>. The course tackles the relationship between research, planning and design, through a concerted dialogue between different views on the activities of the urban planner and the designer. At first sight, the relevant question to be met by this course is: 'What kind of professional qualifications must be offered by the Department of Urbanism in order to fulfil its goals and achieve high professional and academic standards?' On closer inspection, however, we find that the Department offers a myriad of qualifications in different areas that are relevant to the activity of spatial design and planning: urban design, landscape architecture, spatial planning and strategy, metropolitan and regional design, to cite but a few. This begs the questions:

1. What is academic research? (traditional and non-traditional research methods and tools, including methods used in social sciences, physical sciences and practice-based research or 'research by design') and their relationship with the professional qualifications expected

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<sup>2</sup> The use of the word 'Urbanists', non-existent in the English language, is a linguistic requirement to comply with the name of the Department of Urbanism.



2. Why 'scientific' research? (relevance/ societal and scientific value/ communication/ dissemination of knowledge)
3. How to conduct good quality research? (basic tools and general standards in different fields of knowledge relevant to urban design and planning)
4. How to communicate/ disseminate scientific research? (scientific writing skills and alternative modes of communication)

Apart from recognised traditional academic models (formation and testing of a hypothesis), the course aims at providing students with a broadened view on academic methods related to practice-based research and other non-traditional forms of research, mainly related to the tools and parameters used in the design studios running in the first year of the Masters course.

The outcomes are related to the ability of students to fulfil basic standards of research in a higher education institution and to provide students with sufficient elements for a good academic and methodological performance in the second year of the Masters course, when they must conduct a research project that generally includes design proposals at the end. The course has been explicitly designed to respond to the findings of the NtKC project, and the long-term objective is to develop this into a doctoral training programme meeting European Union directives.

In summary, the course provides students with a basis for a sound methodological approach on the Masters as a whole; proposes a reflection on the running study tracks' activities and derives material for discussion from these studios; and promotes a discussion on specific urban planning and design methods of research, in a broadened academic landscape that includes different academic traditions (physical sciences, social sciences and practice-based research or 'research by design'). The aim of the course is to promote a dialogue between professional qualifications and academic requirements, by making their different academic requirements explicit. By acknowledging that there are different value systems in different fields of urbanism, we can start to address the specific requirements of each community in terms of:

1. clarifying what accepted academic research practices are in each of them;
2. achieving high academic standards;
3. identifying common and/or shared academic criteria and fundamental academic standards to be met by students who are developing studies in different branches of Urbanism.

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