



Johan Verbeke

Vice-president at eCAADe / Hogeschool voor Wetenschap & Kunst / School of Architecture Sint-Lucas

Email: [johan.verbeke@architectuur.sintlucas.wenk.be](mailto:johan.verbeke@architectuur.sintlucas.wenk.be)

## **Research by Design is up and running**

### Abstract

This paper explores the context of and developments in Research by Design (RbD) as currently developing in Schools of Architecture. It starts from noticing that the design studio is the core of the bachelor and master curriculum. Extending this position to PhD research implies the search for research where the design process is the main method of researching and creating knowledge and understanding. These developments connect to similar developments in the arts.

Mode 1 and mode 2 knowledge, reflection and other knowledge processes are the base for developing knowledge for the field of architecture when practice and designing are the main method of research.

The paper concludes with observing many PhD and research projects building on design activities and practice are currently under way and are supported by academia. They produce a specific type of knowledge and understanding, usually opening up problems and exploring boundaries.

Keywords: research by design, artistic research, architecture, practice.

## Introduction

Since the joint Bologna declaration on the European Space for Higher Education (19th June 1999) by the European Ministers of Education, Higher Education in Europe is evolving towards a bachelor-master-PhD structure. The underlying principles force Schools of Architecture (as well as design and art schools) to focus more on their research endeavours. Moreover, accreditation procedures require schools to report in an explicit way on research output and structures. The consequence of this is that schools started exploring how the core of the field (designing) and its related activities can be the base of research. In this paper we use the term research by design (RbD) for that kind of research where the process of designing and experience from practice plays a crucial role in the research, not only as input to be observed, but more importantly as the method and outcome of the research.

A growing number of research conferences on artistic research and research by design have been organized during the last decennium. The many proceedings of conferences are the tangible result of these activities. These include, for example: *The Unthinkable Doctorate* (2005) Brussels, Belgium (eds. M. Belderbos and J. Verbeke, 2007); *Design Enquiries* (2007) Stockholm, Sweden; *Research into Practice Conference* (2008) London, UK; EAAE/ARCC Conferences, *Changes of Paradigms in the Basic Understanding of Architectural Research* (2008) Copenhagen, Denmark and *The Place of Research / the Research of Place* (2010) Washington Dc, USA; *Communicating (by) Design* (Brussels, 2009), and many others. Also the European Association for Architectural Education (EAAE) as well as European League of Institutes of the Arts (ELIA) and the professional world (eg. Royal Institute of British Architects (RIBA), Architects Council of Europe (ACE)) pay more and more attention to research and research developments, especially research which is grounded on practice and designing.

## The design studio and practice

Since long the design studio has been the core of the education in the field of Architecture (as it is even more in the arts and design). The design knowledge, thinking and understanding in the design studio and the experience and knowledge from practice is the core of the field. It is transferred in a tacit way through projects, discussions, workshops, etc. In most schools the practice oriented courses take at least 25% of the credit and in the design oriented ones usually even more than 50%.

This holds for the bachelor as well as for the master. Moreover, most schools have a large group of staff which combine their academic activities with architectural practice. This is very similar to the arts, where most staff are active artists. The inputs from these practices are crucial for the development of the field.

For its bachelor-master-PhD structure, the overall trend is to evolve towards a bachelor of 3 years, a master of 2 years and a PhD research training of a minimum of 3 years. This has a clear impact on the type of research which can be finished by the time of completion of a PhD.

As is visualized in figure 1, for the bachelor and master degrees, in a typical design oriented school of architecture, the practice-based and design component is around 50% (or sometimes even more). When developing research, the question then emerges what profile to develop for the PhD level. It then seems sensible to keep a similar proportion of design work and practical components on the PhD level.

	Curriculum	
	Theoretical components	Practice based and design components
Phd	?	?
Master	50%	50%
Bachelor	50%	50%

Fig. 01 – A visualization of the proportions of theoretical components in the architectural curriculum in the bachelor and master courses and the question what proportion for PhDs in a typical design oriented school of architecture should be applied.

The question which then emerges is how designing (and architectural and artistic practice) can be incorporated into architectural research (and artistic research) as a method. Later on we will shortly describe a couple of running PhD projects where this

is actually taking place. Moreover, building on design experience implies a shift in the type of knowledge and understanding which comes out of the research. Focus is not on finding universal laws (homothetic), but on studying the single experience and the specific (idiographic). The researcher is no longer the distant observer, but is part of the activities. She/he is a maker and an actor. Hence, it is no surprise that many researchers refer to action research (Lewin, 1946) as is custom in sociology as their main research method.

Recently, other disciplines (outside architecture and design) have understood the value of designing and its specific way of developing knowledge for their own discipline and society in general. As is described in Boland and Collopy (2004), the Weatherhead School of Management, Case Western Reserve University decided to take a design approach for all its teaching and research. This was the consequence of the experience of establishing a new faculty building together with the Canadian architect Frank O. Gehry. The School understood the specific value of design thinking in their research and knowledge processes and decided to use it as a guiding principle for all its activities.

### Developments in the arts

Parallel to the developments in the field of architecture, artistic research emerged and became one of the important focus areas in schools of art. These schools were faced with the problem of exploring what artistic research can be (as being different from art history research, criticism, musicology, etc). Active artists and musicians now undertake research, communicate, share and exchange experiences. In these fields, research processes include a major component of artistic practice and making art to develop understanding and knowledge. The developments have led to the publication of the Routledge Companion for Research in the Arts (Biggs and Karlsson, 2010) where foundations as well as examples are discussed.

Although some people take the position to try to define artistic research and establish quality criteria as soon as possible, Søren Kjørup (2010) argued it is much more important in this phase to keep routes open and to have a position of pluralism and inclusiveness in approach and method:

As my title makes clear, my present contribution is a plea for **plurality**, and first of all plurality in concepts and understanding of what artistic research may be and how it should be conducted. Not only will this be the only way of doing justice to what is actually going on in the artistic world and not

imposing restrictions for purely formalistic reasons, I also feel convinced that a pluralistic approach that leaves problems of quality and category to a discussion about each research achievement and not its formal setting, will secure the most interesting and diverse results of artistic research.

(...)

And I hope to have made it clear that any attempt at squeezing artistic research into one single format with reference to 'the scientific method' (in the definite form of the singular) or to one single concept of research, will be a miss undertaking: there are many different kinds of sciences using many different methods to solve many different kinds of research problems.

So, we are in need of an open inclusive attitude which fosters exploration within a positive research climate. We should not aim, at this moment, for focus and for strict definitions of method, quality and research by design, but should use the current developments and research projects as learning material to better understand possibilities and ways of doing and developing RbD.

Within the field of the arts, ELIA has been developing research policy documents and parts of its conferences are devoted to developments in artistic research.

Moreover, in spring 2011, the first issue of the Journal for Artistic Research ([www.jar-online.net](http://www.jar-online.net)) has been published. For current academic research, double blind peer review is seen as the method to establish excellence, it is clear that for architecture, design and the arts, this is impossible as every reviewer/expert will immediately recognize the author on the base of his/her artistic and/or design projects. This implies the social networking and the construction of joint understanding of research by design will be more important than in other disciplines. This, on the other hand, also allows for more explicit involvement of the cultural sector and architectural practice.

## Knowledge

The underlying theories for these developments go back to research in the field of management and philosophy of science. The ideas of Donald Schön (1983) of reflection are well known in the field of Architecture. Since then, these ideas have been further developed by others. R. Glanville and J. Verbeke stated in 2006:

Nonaka and Takeuchi (1995) claim (and we generally agree) that 'explicit knowledge can be expressed in words and numbers and can be easily

communicated and shared in the form of hard data, scientific formulae, codified procedures or universal principles... Tacit knowledge is personal, context-specific and hard to formalize and communicate... Subjective insights, intuitions and hunches fall into this category.'

In the field of Architecture and Design, explicit knowledge is available in the form of codes used to draw plans, sections, etc..., theory of Architecture, information on how to contract, how to develop structure.... Implicit knowledge is knowledge used in the initial stages of the design process to develop the first design concepts; it is the knowledge of how a specific design office works.... It is clear to us that the field can only perform when using both types of knowledge.

In addition, we wish to introduce the distinction between Mode 1 and Mode 2 knowledge as introduced by Gibbons et al. (1994). Mode 1 knowledge is defined as 'The complex of ideas, methods, values and norms that has grown up to control the diffusion of the Newtonian model of science to more and more fields of enquiry and ensure its compliance with what is considered sound scientific practice.' Mode 2 knowledge, on the contrary, is 'knowledge production carried out in the context of application and marked by its transdisciplinarity; heterogeneity; organizational hierarchy and transience; social accountability and reflexivity.... It results from the parallel expansion of knowledge producers and users in society.'

Mode 1 knowledge includes the scientific knowledge developed in university labs, concepts from architectural theory, etc. Mode 2 knowledge is the knowledge which is transferred by architects from practice in the design studios and which is crucial for the development of the field.

Cook and Brown (1999) distinguish between tacit and explicit knowledge, combining this with a second distinction between individual and group knowledge. In the field of architecture and design it can be noted that especially individual implicit knowledge is very well developed. Explicit knowledge, however, especially related to design and creative processes, is much more difficult to develop. We propose this issue for further investigation as the interaction between explicit and implicit is crucial for the development and innovation of a discipline and/or field of enquiry (Cook and Brown, 1999).

From the above mentioned work, it is clear that Mode 2 knowledge processes are dominantly present in the field of architecture (and art and design) as well as the transfer of individual tacit knowledge. This is why processes of peer review and

research rooted in design studios and practice should be a key focus for the coming years.

Essential aspects of excellent research (in general) include:

- communication;
- validation through review;
- documentation;
- rigour.

It is also worth noting that following Glanville (1999) research is a subclass of design. Research competence is needed for design, but design also incorporates different and wider competences. This implies it becomes useless to try to impose research criteria on design, but opens up the possibility to complement research with design aspects opening up towards experience, practice and the specific ways of thinking in architectural design.

### Design and Project based PhD

That research in relation to practice is gaining momentum is also nicely shown by the establishment of the RIBA president's award for research. The call specifically mentions research by design and the selection criteria include: originality, significance, rigour and communication.

Since mid 1990s master and PhD by project degrees have been established under the leadership of Professor Leon Van Schaik at Royal Melbourne Institute of Technology (RMIT) in Australia. Projects are rooted in practice and research is developing over a period of time, always including new design projects. The research is structurally reviewed on a half-yearly base during Graduate Research Conferences (GRC) where international panels comment on the research developments of the past period. Both aspects - research rooted in practice and including new projects as well as the constant peer-review - ensure relevance and quality in research outcomes. Since 2009 a similar event GRC-Toonweekend has been established at Sint-Lucas School of Architecture in Ghent, Belgium.

A couple of interesting PhD projects which are currently undertaken will be discussed in the following paragraphs. They are all taking place at RMIT, Melbourne, Australia and 3 of them are embedded in the School of Architecture Sint-Lucas, Belgium and discuss the role of the artistic practice/architectural practice in the research.

### 1. *The salmon came back to the mountain*

The project of Johan Van Den Berghe focuses on *Techné & Poiesis*: a mutation process of intertwined phenomena within the act of making architecture. It explores the mental space (Van Schaik, 2009) underlying his work and deepens understanding through a set of newly realized projects. It explores the tension and interaction between the dream at the start of the project and the impact of technical aspects while realizing it.

### 2. *The painting as a time machine*

In his artistic practice Lucas Devriendt is exploring how paintings can be used as a way of transferring experience from the past to the current and from the current to the future. This is done through making new paintings and exhibitions. The results are presented and peer reviewed on a regular base. His artistic practice is the vehicle and the way to explore the theme of his research. New work has emerged from the research, they contribute to the understanding of the theme as well.

### 3. *Sacrality of space*

Tom Callebaut has been involved in a lot of architectural projects which relate to sacred spaces. As churches in Belgium become less used, he contributed to projects which try to make these spaces again more spiritual for current generation. He is looking for ways in which architecture and new spatial forms can contribute to experiencing the spiritual dimension. He is, through his involvement in projects, exploring possibilities and tries to increase our understanding. New projects are being designed to increase understanding and experience.

### 4. *The looping Baltic Riviera*

In het project *The looping Baltic Riviera: nature-inspired design for creativity enhancing connectivity in the Baltic Sea Region (BSR)* Veronica Valk build on her understanding from previous creative interventions to articulate and develop specifically 'joyful' approaches to design activity.

Most of her projects interact with the wider audience and try to enhance public city environments. She explores an invitational architecture, where people may develop varied possibilities of creative expression and activities in a multitude of stimulating ways. New projects are crucially part of the project and in order to develop profound understanding. The research aims to offer a toolkit for design interventions which allow the possibility for new kinds of interactions and social engagements to emerge.

## Conclusions

From this paper it is clear that most schools of architecture (as well as the schools of arts) have been starting to explore PhD research connected to design studio activities as well as activities in professional practice. The developments are still in its initial phase and subject to collective learning; especially supervision seems problematic.

There is a need for the development and establishment of a positive attitude and climate in the schools. Research by practicing architects teaching in design studios is usually explorative and challenging. But it can be concluded that research based practice with designing as its core method is developing, gets growing recognition and support and after an initial period is now up and running.

Finally it is worth noticing that Helga Nowotny, chair of the European Research Council supports the explorative endeavours in arts and architecture:

Research is the curiosity-driven production of new knowledge. It is the process oriented toward the realm of possibilities that is to be explored, manipulated, controlled, given shape and form, and transformed. Research is inherently beset by uncertainties, since the results or outcomes are by definition unknown. But this inherent uncertainty proves to be equally seductive: it promises new discoveries, the opening of new pathways, and new ways of problem-solving and coming up with novel ways of 'doing things', designing and transforming them. To put research (back) into the arts, to (again) make visible and explicit the function of research in the arts and in the act of 'creating knowledge' (Seggern et al. 2008) is a truly ambitious undertaking, because it takes up a vision and a project that originated in the Renaissance. After centuries of separation, it promises to close a loop.

But the techno-sciences, important as they are, are not alone in leading these explorations and pursuits. Artists have quickly realized the artistic challenges offered by hybrid forms and the vast domain of crossing the natural with the artificial. Most significantly, they extend their creativity beyond the range covered by the techno-sciences. True to the humanistic spirit of the Renaissance, they bring the human back into this world that continues to be transformed by the techno-sciences and their societal impact. It is this humanistic impulse that should continue to invigorate research in the arts. It has the potential to bring forth a new Renaissance.

## References

- Belderbos, M., & Verbeke, J. (eds) (2007). *The Unthinkable Doctorate*. In *Proceedings of the International Conference, April 2005*. Belgium: Sint-Lucas School of Architecture.
- Biggs, M., & Karlsson, H. (eds.) (2010). *The Routledge Companion to Research in the Arts*. Abingdon, Oxon: Routledge.
- Boland, R. J. Jr., & Collopy, F. (2004). *Managing as Designing*. Stanford: Stanford University Press.
- Bologna Declaration:  
[http://www.ond.vlaanderen.be/hogeronderwijs/bologna/documents/mdc/bologna\\_declaration1.pdf](http://www.ond.vlaanderen.be/hogeronderwijs/bologna/documents/mdc/bologna_declaration1.pdf) [accessed 5th May 2011]
- Cook, S., & Brown, J. (1999). Bridging Epistemologies: The Generative Dance Between Organisational Knowledge and Organisational Knowing. *Organisation Science*, 10 (4), 381-400.
- Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S., Scott P. & Trow, M. (1994). *The New Production of Knowledge*. London: Sage.
- Jakimowicz, A., & Verbeke, J. (eds) (2009). *Communicating (by) Design*. In *Proceedings of the International Conference, April 2009*. Belgium: Sint-Lucas School of Architecture.
- Kjørup, S., (2010). Pleading for Plurality: Artistic and other kind of Research. In Biggs, M., & Karlsson, H. (eds.) (2010). *The Routledge Companion to Research in the Arts*. Abingdon, Oxon: Routledge, 24-43.
- Lewin, L. (1946). Action research and minority problems. *Journal of Social Issues*, 2, 34-46.
- Nonaka, I., & Takeuchi, H. (1995). *The Knowledge Creating Company: How Japanese Companies Create the Dynamics of Innovation*. Oxford: University Press.
- Nowotny, H., (2010) Foreword in Biggs, M., & Karlsson, H. (eds.). *The Routledge Companion to Research in the Arts*. Abingdon, Oxon: Routledge, xvii-xxvi.
- Schön, D. (1983). *The Reflective Practitioner: How Professions Think in Action*. London: Basic Books.
- Verbeke J. & Glanville R. (2006). *Knowledge Creation and Research in Design and Architecture*. Marseille: EURAU 2004.