

Areas of Design Practice as an Alternative Research Paradigm

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Abstract

The view of the world from different subjects is quite distinct, resulting in a different view of what it is to know, and what it is that is known about. Scientists are stereotypically Realists who seek objective facts about an independent external world. Literary theorists are stereotypically Constructivists, seeking insightful interpretations that are relevant to their community. Each overarching set of values and beliefs about the world is called a worldview, which determines the ontological, epistemological and methodological attitudes of the researcher to the object of investigation. These attitudes form a research paradigm within which certain activities are regarded as appropriate by peers and, as a result, produce relevant responses to perceived research questions.

This paper presents an investigation that was funded by the Swedish Institute into architectural research as evidenced in Swedish doctoral theses. The sample was mapped and analysed in terms of clusters of interest, approaches, cultures of knowledge and uses of design practice. This allowed the identification of the ontological, epistemological and methodological attitudes of the researchers, and hence a glimpse of the implicit worldview. The authors claim that the relationship between values and beliefs (worldview), and actions (paradigm), in emerging areas of design research such as architecture is often under-scrutinised, resulting in a disjunction between actions and aims.

One outcome of the project was a diagrammatic representation of various approaches evidenced in the theses. This representation made explicit the similarities and differences between the researchers' attitudes to the ontological, epistemological and methodological issues; and exposed distinct roles for practice in academic research. The responses to these issues in architectural research reflect the different values and beliefs regarding the roles of design practice in research. The project concluded that research in areas of design practice may constitute a new worldview requiring its own, more appropriate, research paradigm.

Prefatory comment

A funded research project has formal deliverables that can be described in terms of its intellectual components such as applications for funding, reports and responses to formal questions. In these terms, the format of the project is predetermined – there are clear questions, methods and an anticipation of the sort of contribution it will make to the area (cf. AHRC 2009: 29). A research project also consists of an informal speculative process of investigation and discovery which grounds and executes the formal project in terms of the particular reasoning, iterations, interim outcomes and stages that lead to the structuring of consequential questions (Guba & Lincoln 1994: 11). In the case of the Swedish Architectural Theses project, the latter description is the one that characterizes the main contribution of the research. The speculative process of investigation rather than the statistical findings are at the core of the contribution made by this study. Therefore in this paper, the research will be described in terms of the questions that the

research raised and the structure within which fruitful discussion on these significant questions occurred and can continue.

Problem Statement

The aim of the study was to enable a discussion of so-called Practice-based Research (PbR), sometimes known in Sweden as arts-based or artistic research (*konstnärlig forskning*). PbR is sometimes claimed to be particular to areas of creative practice (e.g. Creative and Cultural Industries [CCI]), and consists of claiming that the artefacts produced have an essential role in the conduct of the research, and therefore that the research could not be conducted without them. The study aimed to clarify the characteristics of this kind of research in architecture through the analysis of a sample of doctoral theses. In the process, a selection and mapping of this sample was conducted. A critical analysis of this mapping enabled the proposition of an ontology of academic research in which the role of research in CCI, and its possible PbR elements, was clarified.

The deliverable research project hypothesised that academic research containing PbR may constitute a novel paradigm. Such a paradigm is being recognised in Europe but is not universally recognised elsewhere, and the existence and nature of this activity has raised a number of different discussions in different national contexts (Biggs & Büchler 2008a). This surprisingly context-dependent description of the basic nature of an activity prompted us to undertake a study that conducted a critical analysis of the situation in order to identify the epistemological, ontological and methodological positions of research that has an element of creative practice. By identifying these positions it is possible to differentiate one research paradigm from another (Guba & Lincoln 2005). This use of the term paradigm differs from Kuhn's (1970 [1962]) earlier use. For Kuhn, a paradigm is a large-scale set of dependent concepts that determines a view of the world across a wide range of subjects. It forms a way of thinking that pervades enquiry in all fields until it is replaced by a new paradigm. For Kuhn, paradigm shifts occur when the existing way of thinking becomes stretched to breaking point. For Guba and Lincoln, paradigms do not shift. For them, a paradigm is a way of addressing the world according to a set of fundamental beliefs, or "worldview". At any one time there are many different paradigms in operation, such as Positivism and Constructivism, presenting the possibility of what Gage (1989) calls "paradigm wars".

The central question asked *whether academic research in areas of creative practice is in some way different from traditional models of academic research that are used in other academic disciplines*. The structure of the empirical part of the investigation identified, within the sample, examples where traditional research criteria satisfied or did not satisfy the needs that the researchers themselves identified as relevant in CCI. When cases were identified in which the

traditional research criteria did seem to satisfy the needs, these cases were further analysed in terms of whether this agreement was due to the existence of shared concepts between the traditional model of research and CCI. When cases were identified in which the traditional research criteria did not seem to satisfy the needs, these cases were further analysed in terms of whether the inadequacies of the traditional models of academic research were due to the demands of CCI and the particular concepts that are adopted in these areas. Finally, a response to the original question could be made in terms of the relationship between worldviews and research paradigms, and in terms of the role of CCI-Research in academic research.

Method

Initially two searches were conducted in order to map defining characteristics of Swedish academic research in architecture, in the hopes of identifying elements of PbR in the sample. The first search was conducted in November 2007 and selected Swedish theses in architecture using the keywords:

“architecture/Arkitektur , theory/Teori, philosophy/Filosofi, art, department of architecture, department of architecture and town planning, arts based research;”

and searched in the databases: Swedish National Library: Regina and Libris, KTH (Royal Institute of Technology), Stockholm University, LUP (Lund University Press), MUEP (Malmö University Electronic Publishing), Chans (Chalmers library catalogue). This search identified 212 theses. A further selection of these removed the ones that did not centrally address architecture and that did not have an online abstract in English; this resulted in 79 theses that became the sample.

In order to enable a relevant mapping of the sample it was necessary to structure a provisional ontology of models of academic research. This structuring identified areas, disciplines and subjects adopted by research councils and universities in Sweden, the UK and Brazil. As a result of conducting a critical analysis of the various models of academic research contained in the sample it was possible to identify three emerging meta-categories using procedures derived from grounded theory (Glaser & Strauss 2007: 169). These categories were consistently identifiable worldviews of academic research areas that we could use consistently to organize research in general, and we named them: Humanities & Human [H&H], Applied & Social [A&S], Natural & Technological [N&T]. Each category contained a family of mutually comprehensible values and actions. We subsequently found an alternative set of categories in the so-called *Frascati Manual* (OECD 2002: 77), which we interpreted as reinforcing the general notion of meta-level categories. We initially defined each category as follows: research in the human and humanities [H&H] category explores theoretical, historical and philosophical aspects of issues through criticism and interpretation; research in the applied and social [A&S] category enhances knowledge of how society functions and how cultural values are developed and disseminated; and research in the

natural & technological [N&T] category as that which typically explores materials and/or techniques through empirical methods that imply objectivity or disinterest on the part of the researcher.

Analysis of the sample suggested that research 'on' or 'about' architecture (cf. Frayling 1993) was produced either in one of the three meta-categories, or where these overlapped. However, distinct from studies 'on' or 'about' architecture, studies 'in' architecture often contained an element of creative practice. Therefore, in addition to the three meta-categories of research, CCI-Research emerged as one further category that specified a particular and important role for some kind of creative practice. It had been found that CCI-Research was produced using theories, methods and/or frameworks from the other meta-categories, thus it was expressed as an overlapping category. Creative practices seemed to fall into two basic types: ones that were intended to have an instrumental role, and ones which happened as some kind of by-product or incidentally to what might be regarded as the main research. We named this overlapping category CCI-Research and we speculated that PbR elements, when present, would be found in this area.

This critical analysis enabled the formulation of a representation of academic research that was composed of these four categories (i.e. the three traditional areas plus CCI) that sustained the construction of a working ontology within which we could search for PbR. Individual research projects in architecture were found to use various structures, models, frameworks and/or methods from the three meta-categories and produce creative practice, to varying degrees. Owing to basing the classification on these factors, the various examples in the sample could be mapped onto the ontology independently of the subject area claimed for the research. This was relevant because architecture is regarded as a science in some institutions, an art in others, etc., and there are corresponding claims and concepts of identity on the part of the researchers. As a result, we wanted to adopt an approach to analysing the theses that would be as independent of authorial claims and intentions as possible. We therefore preferred to group theses and activities in terms of meta-category and presence or absence of creative practices, rather than use subject terms such as "architectural design". This also allowed us to find PbR in any subject area rather than adopting the prejudice that PbR was the province of CCI. Finally, this approach allowed us to differentiate between CCI-Research, i.e. the presence of creative practices; and PbR, i.e. the instrumentality of creative practices.

We applied this distinction and thereby further refined the sample from 79 to 17 theses in which the CCI-Research/PbR distinction that this study investigated, could be explored in greater depth. These 17 were theses in which the claim to PbR, or the element of practice that was found, did

not clearly define which of the above two types of practice it was. Through our reading of the theses, some doubts arouse in terms of the role of practice therefore we conducted semi-structured interviews in Lund and Stockholm with 8 of the researchers and supervisors from the refined sample.

In the construction of the working PbR ontology, it was found that the important distinctions that needed to be made concerned research that is CCI and research that has PbR elements. The sample provided insight into these distinctions and suggested, for example, that PbR is a kind of research that can occur when there is a translation between creative media, i.e. creative text to image, drawing to music composition, designing to creative writing, etc. One of the distinctions between there being a practice element in PbR and in CCI concerns the nature and use of the non-textual element, i.e. generative in the former and demonstrative in the latter. Essentially, PbR occurs when there is a unique and inner synergy between practice and the traditional academic research elements, namely question, method, answer and audience.

The speculative research project

When mapping the sample it became clear that any interpretation would have to be conditioned by the ontology that was being constructed of this material. This meant that in order to consider whether a thesis belonged to, say a Humanities research paradigm, the epistemology of this paradigm as distinct from other paradigms had to be defined. Rather than bringing with it a problem of circularity of cause and consequence (Biggs & Büchler 2008b: 7), this context fed an iterative reflection on and identification of some paradigm-specific characteristics.

We realised that the emerging categories could be regarded as “cultures of knowledge”, i.e. Human and Humanities [H&H], Applied and Social [A&S], Natural and Technological [N&T] research. These cultures shared a common language and expectations about the actions that would be relevant in pursuit of new knowledge. We claim that this is owing to an underlying common worldview. As a result of sharing a worldview, these cultures also operated within a common research paradigm, with broadly sharable methods and means of validation. However, we also noted that studies in CCI do not always belong to a single culture of knowledge but rather use a mixture of methods, frameworks, literature, approaches from many areas (Finley 2003: 283). This tendency to borrow from established research paradigms that individually represent coherent cultures of knowledge, perhaps indicated that there was not a clearly defined and coherent research toolkit to which the CCI-researcher could make reference. The situation also suggested that the role for the creative practice and artefact was not accommodated by these established paradigms (Biggs 2003).

Three-dimensional modelling techniques were helpful in articulating the network of relationships between the research paradigms – both established and in development – and the role of creative practice in this ontology of academic research. A molecular structure was chosen to represent the concept behind the initial conceptualization of academic research and the role of practice. Figure 1 shows the emerging categories, called cultures of knowledge, with their respective research paradigms; and the intersections between these, which represent cross-disciplinary studies. Research in any area often has an element of practice however its presence is unproblematic if the model of research that is adopted accommodates this practice. In our view the application of a design technique for using a new material can be equated to an experimental approach similar to that adopted by a scientist. Within the three meta-categories, there are studies that possess an element of creative practice but that use established research tools from other disciplines. Indeed, as was mentioned above, most CCI-Research borrows from other disciplines. This type of research, that has an element of creative practice, occurs within some established research paradigms and therefore is positioned within the molecule diagram.

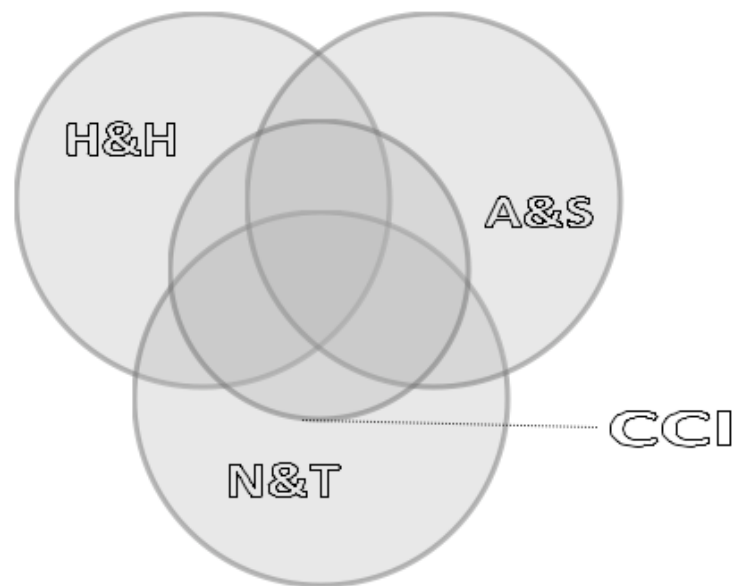


Figure 1: Two-dimensional representation of the three main cultures of knowledge in academic research (Human and Humanities, i.e. H&H; Applied and Social, i.e. A&S; Natural and Technological, i.e. N&T), expressing relationships across the research paradigms and the location of research that is conducted in areas of creative practice (CCI-Research) as existing through overlapping with the three main knowledge cultures.

When observing the theses sample, creative practice was found to be used for different purposes and played different roles in the theoretical argument. The role of practice in these theses ranged from practice serving to illustrate, demonstrate, prove or explore theoretical constructs, and was often not essential to the argument but added value to it in some way. However, there was also a role for practice that went beyond and somehow contributed to the generation of knowledge and

was therefore essential to the argument. In these cases, without practice, something would be lost. This observation meant that practice could contribute in terms of process and creative insight, but that practice could also create knowledge of a different kind. Although it is outside of the remit of the study, and still under discussion worldwide what this 'kind' would be that distinguishes incidental practice to consequential practice (e.g. Larkin 2009), the observation led to the creation of two different labels for research with an element of practice: CCI-Research and Practice-based Research. In order to represent this distinction between an incidental versus an essential role for practice, a third dimension was given to the molecule diagram (Figure 2). Through the use of a third-dimension it was possible to reveal that any area of research can possess an essential element of practice, i.e. be of the PbR kind, and not just areas of creative practice.

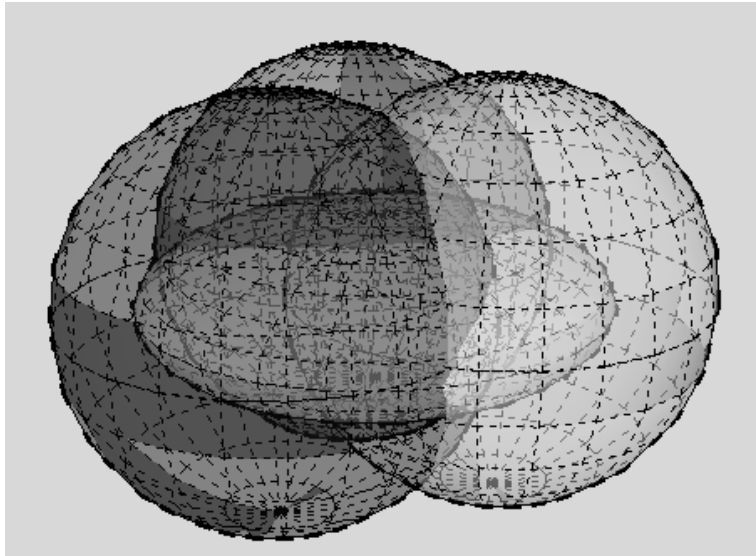


Figure 2: Three-dimensional representation of research activity across the three main cultures of knowledge and research in CCI that presents an element of practice, including the third (PbR) dimension where creative practice generates knowledge that is unique and essential to the contribution to knowledge.

Theoretical implications

In the Swedish Architectural Theses project, the construction of a representational model was a means to an end. The aim was to verify whether research in areas of CCI such as architecture, in which there is an element of creative practice, would constitute something different from the research that is undertaken in other areas. We concluded that the presence of practice is not in itself the defining factor in determining whether this kind of research is unique and would therefore possibly require a distinct paradigm for its effective development. Practice can contribute in different ways to research in CCI and this is why in Figure 2 we have used the third dimension to represent that practice may occur in all three meta-categories as well as in CCI-

Research. There is a distinction between the practice that occurs in the CCI-Research two-dimensional category and the practice that occurs in the third-dimension category that we have named PbR. In the first, CCI-Research, practice is not essential to the argument while in the second, PbR, practice is either essential to the argument or contributes something that could not have been contributed had practice not been present. Furthermore, the notions of 'established' and 'traditional' research paradigms had to be defined in terms of the question that was being addressed in the study. This meant that the many definitions of research had to be reconceptualised in terms of their uniqueness that would justify the research activities associated to these areas as belonging to a separate paradigm. Any identification and definition of these categories of formal research activity would have to be given in a way as to bring a response to this original question.

With this need for reconceptualization in mind, we propose that studies in the H&H culture of knowledge deal with conceptual and philosophical aspects of what, in the A&S would be dealt with either empirically or in terms of human impact, i.e. to study what is 'perceived' and/or 'experienced' may be conducted either within H&H or A&S depending on whether it is considered objectively or subjectively. Even in the event of analytical interpretation that, for being conducted by an individual researcher would hold elements of subjectivity, in H&H would be done with focus on the object of study rather than on the reaction to and reception of that object. The consideration of symbols and performance of interpretation can indicate H&H, while designing the symbol system would connote CCI. Within our sample of 79 theses and according to our iterative analysis, 11% could be classified as adopting the H&H research model exclusively in their studies. In addition, 57% of all studies contained some H&H element – either method, framework, approach etc. – to varying degrees.

We reconceptualise applied and social [A&S] research as a culture whose methods are typically those that value the personal and subjective judgements, either of the participant or of the researcher, i.e. opinions and observations that use subjective criteria, and/or those that are participatory. The act of 'reflecting' on one's own work could be an indicator of A&S, i.e. if there is a reflective participant, or CCI-Research, if there is a reflective practitioner/researcher. The investigation of the role of experience and creative processes would fall under this category because these are human/social elements, while the concern with process that arises from 'insider' knowledge of practice would indicate CCI-Research. The use of 'interpreted' rather than 'interpretation' would connote A&S rather than CCI-Research because the first presumes that the focus would be on the act of interpretation, i.e. be a subject, rather than on the (perhaps less subjective) interpretation itself. The empirical consideration of emotion, experience, perception, all fall under this category while the philosophical investigation of these would be case of H&H

research. Within our sample and according to our analytical classification, 7% of all studies adopt the A&S research model exclusively, and 62% of all studies take elements that are traditionally A&S to different degrees.

We reconceptualise research in the Natural & Technological [N&T] category as a culture in which results are analysed rather than interpreted, and therefore it is possible to produce subject-independent results that do not rely on personal interpretation, such as occurs during observation or description. The development of tools, for example, can be either N&T – when the tool itself is evaluative and can be objectified, is used to verify feasibility, weaknesses and that aims to enhance – or CCI-Research when it contributes to practice or when the development of the tool itself is a part of the research, such as when an information visualization system is created. Consideration of psychophysics and reaction to sense stimuli would denote a N&T study of perception, while an A&S study might consider the subjective opinion of stimuli. Similarly, ‘interaction’ could denote the user’s experience and therefore be A&S, however the term is most often used in connection to hypermedia and thus suggesting N&T. Likewise, words such as ‘impact’, ‘quality’ and ‘efficiency’ may indicate objective parameters and measurements and therefore N&T. We found no studies in our sample that exclusively used the traditional N&T research model, while 45% of studies used elements of this kind of research model to different degrees. It is perhaps significant that 90% of all the studies that adopted N&T research elements also contained CCI-Research elements of practice, and 30% of that practice we considered to be of the PbR kind.

While there is an assumption that practical and non-textual activities are related under a ‘non-traditional activities’ banner, this is not a rule and there are of course many examples of the use of creative practices in research that is conducted in the three meta-areas. However, in CCI, there is often a claim that any creative practice that is conducted by the creative practitioner in the process of or towards academic research, is itself either the contribution to knowledge, or instrumental to that knowledge. The distinctions between the essential and discretionary role of practice have informed the definition of the next two categories of research.

CCI-Research contains elements of creative practice which are used by the researcher or applied by the researcher on other subjects in order to explore, test and/or validate theories and methods. Research in this area can also propose improved processes and designs. Studies in this category generally have a concern, consider and/or contribute to practice in some way, i.e. recommending tools, processes or strategies. While ‘translation’ between creative media seems to be particular to PbR, translation between non-CCI media and CCI ones, i.e. text to drawing, statistical data to architectural design, would be of the CCI-Research kind. CCI-Research tends to be cross-, inter-

and/or trans-disciplinary and use, by definition, a range of methods, theory and practices from other areas. Applicable or applied research can be either CCI or N&T depending on whether the act of applying and testing out the research contributed to that research, or whether merely the resulting data was used, i.e. a focus on the findings would denote N&T while focus on the personal and/or creative process would denote CCI. Because our sample came from studies on, about and in architecture, it would be expected that the bulk of these could be grouped under the CCI-Research category. However, as we have chosen to define CCI-Research in terms of the presence and role of practice in the research, we found that only 71% of all studies responded to the requirements of the CCI-Research category, while the rest were either exclusively H&H (11%) or exclusively A&S (7%), or combinations of two or three of the meta-categories (11%). While expressive, this 71% of practice can be of different kinds, and it was found that over 15% of all practice was potentially of the PbR type.

Research is practice-based [PbR] when artistic and/or non-textual/traditional practice is an integral part of the development of the research; when the conceptualization of the problem and solution to that problem is born out of the practice of research rather than out of the artistic practice as separate from that research process and when there is no discernable distinction or separation between research and practice. This kind of research can occur when there is a translation between creative media, i.e. creative text to image, drawing to music composition, designing to creative writing, etc. One of the distinctions between the presence of a practice element in PbR and in CCI-Research concerns the nature and use of the non-textual element, i.e. generative in the former and demonstrative in the latter. 'Applied' research denotes a planned contribution beyond the creation that would denote research that is not practice-based; PbR methods and/or outcomes are not prescriptive and by definition exclusive to that research. PbR occurs when there is a unique and inner synergy between practice and the traditional academic research elements, namely question, method, medium, answer and audience, and although it was found that all PbR research was also CCI-Research, i.e. presented an element of practice, the presence of practice is not a requirement of PbR. Indeed, it was found that in the cases where there was an intention to include practice in the research, the study turned out to be CCI rather than PbR. In the 79 theses, 5 were found to be potentially PbR, being 11% of the total. While this is an expressive percentile, because this category is the very issue that we are querying, the definition of the category can only be tentative at best and was useful in the discussion of it rather than helpful in categorizing studies that would fall within it. This means that, as is the case with the rest of the 'statistical analysis' that has been presented here, the numbers are only indicative and the significant contribution is found in the discussion of the situation itself.

Research in areas of creative practice such as architecture often has an element of practice in it. While H&H and A&S research elements are used more readily in research in the CCI area, N&T elements of research are almost always accompanied by an element of practice, i.e. elements of N&T are not used in isolation but as a structure through which elements of practice can be introduced into the study. It seems that while the presence of practice is not a requirement for PbR, all PbR studies had an element of practice, i.e. lied within the CCI-Research sphere, but this may be an aspect of the sample that came from a CCI area and hence it would be expected that most studies would fall within the CCI-Research category.

Conclusions

Although the investigation into the distinctions that practice brings to research was the catalyst of this study, we found that significant creative practices may exist in any 'sphere' of research activity (cf. Figure 2). Such creative practices contributed to, but were not essential to, the research methods and outcomes. Therefore we concluded that the mere presence of practice was insufficient as an indicator of the category of research known as PbR. We also identified that much research in CCI, the subject area in which PbR is normally assumed to take place, borrowed its methods from the three traditional cultures of knowledge and when doing so were therefore not undertaking research in a novel paradigm. Finally, if certain kinds of creative practice might be essential to the conduct of research, there was no reason to restrict these activities to the subject area of CCI. We therefore concluded that an ontological category of PbR could be hypothesized, and that it could be found in any academic area.

Some questions for further research that arise in response to the representation in Figure 2 are: in academic research in general, are some questions knowledge-culture specific or is everything transferable, e.g. can engineers judge humanities research? Do the established models of knowledge somehow exclude or marginalize research in CCI? Would this research thus be better served by operating in a specifically PbR paradigm?

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