
Rigor and Practice-based Research

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Rigor is one of the cornerstones of high-quality academic research. For example, the UK Research Assessment Exercise 2008 (RAE) describes the highest grade of research as possessing “quality that is world-leading in terms of originality, significance, and rigour.” This paper addresses the criterion of rigor in the context of so-called practice-based research in design. It is the authors’ view that difficult questions regarding whether arts or design practice is a distinct kind of research do not simply go away just because we would like them to. Therefore, we propose to examine the problem of rigor in design research as illustrative of the more general problem of whether design research needs to have special conditions or criteria applied to it.

An etymological approach may mislead us, since some have associated rigor with *rigor mortis*: a certain stiffness of intellectual attitude or worldview that is incompatible with change and the new. Naturally, design communities would be opposed to the presence of rigor in practice if it were synonymous with inflexibility, because this would inhibit creativity. Thus, if Wood’s definition of rigor in research were adopted, it would encourage the differentiation of traditional academic research from research that is conducted in areas of design practice; i.e., practice-based research (PbR). Such a separation between academic research and PbR would allow each type of researcher to develop their own criteria independently; for example, omitting or modifying the criterion of rigor.

Ongoing debates discuss whether academic research in areas of design practice is, in some way, different from the research that is developed in other disciplines. Some of these debates originate in the UK as a result of the merger of polytechnics with universities in 1992. The effect of this merger was to establish a link between the presence of subjects in universities and the capacity of awarding Ph.D. degrees and conducting research. Some subjects including design and fine art, etc. had hitherto been unrepresented in this academic context. Furthermore, this merger coincided with, or further caused, a broadening of the remit of the research funding agencies to include arts with humanities, and the broadening of the scope of the national research quality assessment exercise to include these new subjects. As a result, the criteria of what constituted research in any subject was opened to discussion and debate. Owing to the intellectual autonomy of the universities in the UK, they began to diverge in terms of what criteria they adopted for the award of doctoral degrees and for submission of research for national assessment, leading to

what Karlsson called “a range of different variants and quality levels.”

The national debate and difficulties in the UK are symptomatic of a more general issue concerning the academicizing of knowledge. This tension is particularly pronounced in subjects in which professional practice also makes a strong contribution, such as design, education, nursing, and law. In these subjects, some practitioners concluded that the research activity that they were developing in and for their own practice could count as academic research. This conclusion implies that any kind of research could be translated into academic production, and is especially problematic for the research funding councils and for quality control because it risks creating fuzzy boundaries. An activity that appears to be, on the basis of the academic debates conducted by its participants, on or near this fuzzy boundary is “practice-based research.”

Research without practice is, of course, an anachronism. But in the context of design, what is meant by “research without practice” is research that is not explicitly “practice-led” as the UK Arts and Humanities Research Council now prefers to call it. Research without practice includes, for example, both traditional empirical scientific work in which the artifacts provide evidence for the conclusions in a written research report; and research conducted entirely in the library such as research into English literature. This seems to be synonymous with the dominant model of academic research, and therefore it can be inferred that research “with” practice; i.e., practice-based research, must be different from this kind of academic research. If practice-based research is thought of as different from established models of academic research, it is understandable why certain research-defining criteria such as rigor would need to be revisited.

As a result of the UK experience of changing the context of academic production, various views have arisen on what are the defining criteria of academic research in the design practice area. If one compares doctoral regulations, funding council definitions, and quality assurance statements, the UK does not offer a coherent response to this question. One unexpected benefit of this situation has been that PbR has become visible as a potential, if contested, category. In a sense, PbR has been normatively defined by market forces. However, when there is a change in that context, it can become almost invisible. Even when visible, PbR needs to be less ambiguously or opportunistically defined in order to determine what this type of research entails, and to regulate its development in a productive manner.

The Brazilian Academy provides an interesting counterpart to this permissive approach to PbR. In Brazil, academic research and design practice are seen as two distinct activities. The boundaries are clear about what kind of research can be financed by research funding bodies, and what kind of practice-based activity is ineligible for that support. This clarity presents the Brazilian professional with a dilemma, because it is common that the leading design professionals also conduct cutting-edge academic research. Since practice production is kept separate from academic production, these

individuals find themselves having to contribute doubly to both areas. As a result, the issue of PbR is visible only in the problem of what can be claimed as academic and/or practice production, rather than of what kind of research is academic. Therefore, although PbR outcomes potentially exist in Brazil, they are not visible and it is this differentiation between academic and practice production that is problematic for individual professionals.<V>8<P>

Despite the differing contexts and reasons for its appearance, the general issue of what constitutes academic research, how it is different from research that is conducted in practice, and the role of practice in academic research seems to permeate many research communities. In Sweden, the issue of PbR is being tackled in a productive way that is symptomatic of their conceptualization of the problem. The Swedish government recently passed a law that broadened the scope of the research council (Vetenskapsrådet) to include the creative and performing arts. The 2005 legislation, "Research for a Better Life," was the response to a three-year period of experimental ring-fenced funding in areas of national interest. In 2006, this experimental period was itself the subject of a quality review that included input from international visiting professors funded by Vetenskapsrådet. The commissioning of this review shows the concern at a national level with the potential competitive advantage of establishing and exploiting a category of academic research in areas of design practice. It also confirms the existence and visibility of PbR in the Swedish context. However, as distinct from the approach to the matter in the UK, the Swedish example suggests that this is an issue that could be investigated with a view to the definition and ultimate resolution of the problems that it precipitates.

It would seem that, depending on how the matter is conceptualized, the distinction between PbR and conventional academic research can go from visible and debatable to invisible and unproblematic. The authors of the present article argue that PbR should not be set apart from traditional concepts of academic research. We believe that rather than being a distinct category of research that should be guided by special concepts, PbR is a subcategory of academic research that can and should attend to and observe conventional research criteria. Some of these criteria may, however, need to be rearticulated so that they are recognized as meaningful to the areas of design practice. It is our belief that any academic research community would benefit from clearer research criteria that frame its methods and outcomes in a more inclusive way.

If PbR is to be regarded as a subset of academic research,<V>9<P> then elements of academic research need to be reframed in such a way as to account for the specificities of design practice, without losing their original purpose. Maintaining the link between design research and traditional academic research will enable design to show that it conducts high-quality academic research. But this will only be facilitated if the reframing meticulously addresses the problems and consequences of this differentiation, and builds a coherent and systematic theory of the fundamental conditions and criteria of research.<V>10<P> Unfortunately, the need for fundamental

criteria such as rigor have been contested in the context of PbR. Therefore, we propose to investigate how the reframing of this one essential academic research concept (i.e., rigor) can include design practice concerns and still respond to the accepted requirements for high quality academic research. In so doing, we intend to demonstrate that the separation of PbR is unnecessary, and to reassert the role that rigor can and should have in all kinds of research.

In limited agreement with Wood,¹¹ we learn from the *Oxford English Dictionary* (OED) that the word “rigor” does indeed derive from the Latin “*rigidus*” meaning rigid; but it is always wise to take note of the dictionary’s advice on context. *Rigor mortis* and similar corporeal ill-humor has been, since 1839, confined to the context of pathology and not the context of argumentation. “Rigor” in its research context finds its roots in Old French *rigueur*, meaning “harshness” or “severity.” This is how we find it applied in the rigor of argumentation: not an unbending conformity to earlier ideas, as Wood suggests, but in an unyielding severity of process that leads to valid conclusions.

The evidence that such an interpretation is appropriate is that research has the intention of change and creating the new, and that is how the term is applied in academic and professional research contexts. Thus, we have a context of use that connotes change and intellectual genesis rather than morbidity. Neither does the “re” in “re-search” etymologically indicate reiteration or repetition, as also has been claimed by the design community.¹² It is not “searching again” for something that was missed or lost. The OED defines it as “the act of searching (closely or carefully) for or after a specified thing ...” and “an investigation directed to the discovery of some fact ...” Etymologically, “research” derives from the French *rechercher*,¹³ as Friedman has correctly asserted.¹³ Although, in both English and French, the “re” can indicate “again”; there is no requirement to infer this construction in all words which appear to have the “re” prefix (e.g., read, relate, Renoir, etc.).

What is the purpose of such a “search for ...”? We already have claimed that both the design and the academic research communities have established a context of use that is about change and creating the new. Let us focus on the research community for a moment. That which is new in this context is that which is new for the community—not just for the researcher. There are many things known to humanity of which “I” am ignorant. Knowledge of these things comes to me as new knowledge. For me, it apparently is some kind of research or discovery to find these things out. But this is not research per se. I am only involved in research per se when I (am trying to) discover or create something new for the community. But how can I distinguish between what is unknown to me and what is unknown to the community?

This question is addressed in doctoral training, which is one reason why it is desirable to have doctoral training in design. The solution comes from the literature search or its equivalent in terms of exhibitions, etc. The researcher looks at the publicly available “texts” of the field to determine what already is known, thereby, as Newton said, to “stand on the shoulders of giants.” But

this method has a weakness in that it is built on the principle that what is known in a field also is published. This is not necessarily true. One cannot be completely confident that what is unpublished was not hitherto known. However, we do have a convention in the sciences that discoveries are claimed by the first person to publish the results rather than the first person to think the thought or discover the phenomenon. So it's important to rush into print. Arts and humanities seem to have a more relaxed view of such things. Nevertheless, the research process relies on making publicly available the body of knowledge and understanding that constitutes a field so that newness can be identified, and authorial claims made. This is a great weakness in design: that the formal vehicles such as core journals are not universally recognized. Nor is there an undisputed professional body that might promote or coordinate the dissemination of professional knowledge and understanding.

This brings us back to the concept of rigor in non-practice-based research. Rigor refers to the process of undertaking activities such as the literature search. It connotes a systematic and thorough search. As a result, the researcher can be confident that from a "null return" (i.e., when the researcher's knowledge and understanding has been identified as absent from the published body of knowledge and understanding in the field), it can be concluded that the researcher's knowledge and understanding is new knowledge and understanding. If the search has not been conducted rigorously, then there will be no difference in evidence between that which is absent and that which is present, but merely has not been found. This is why we require rigor. Contrary to Dallow, mere documentation of the process does not fulfill this requirement.

So what would be the place of rigor in practice-based research? Let us stay with the comparison to non-practice-based research for a moment longer. Rigor in the literature search belongs to a process. We say the process was rigorous, and therefore validates the claims of the outcome. We would not say that the outcome was rigorous. Therefore, if we consider practice-based methods, we might conclude that they must be rigorously undertaken. In this process model, the methodological rigor is comparable to our notion of a rigorous literature search.

The process model cannot apply to all of the professional competencies of research.

There is broad agreement in the sector that the key qualities of the completed arts/humanities doctoral researcher should be a capacity for original and autonomous thinking, an ability to command a field of knowledge, research skills (the ability to frame and explore research questions, and the ability to frame and test a hypothesis and manage a project), an understanding of the appropriate research methods, the ability to produce a cogent argument and, conversely, to engage in critical thinking, and an ability to communicate at a high level.

For example, writing in academically appropriate ways such as referencing is a professional competence that is, or should be, taught or tested

in doctoral training. But we would not say that writing is well done or rigorously done. The craft might have been rigorously learned, but the exercise of this competency is simply a prerequisite for the demonstration (showing) that, for example, the literature search has been thoroughly undertaken. Professional competencies become transparent, thereby revealing the rigor or otherwise of the process.

This leads us to the vexed question of whether practice is a research method or a professional competence, and therefore whether we can legitimately construe the word rigor with the word practice as in “rigor in research with practice” or “rigorous, practice-based method.” It is beyond the scope of this paper to provide a theory of methodology, but perhaps there is an opportunity here to clarify “What is a method?” A method is a means to an end. It connects a research question to a research answer: not just by its chronological position in the process, but rationally through a process of argumentation. The validity of a method is the appropriateness of the process to provide a solution to the problem at hand. Such solutions need to satisfy the community within which the question is seen as meaningful and needing to be answered. The answer also must fall within the purview of the community. For example, in philosophy it is common to approach a question such as “What is the meaning of a word?” by analyzing the structure of the question and considering, among other things, what would an answer to such a question be like and under what conditions would we agree that something satisfactory has been said in response to the question (i.e., that the question had been answered). On the other hand, this sort of philosophical approach is not satisfying to a translator, who wants to hear not principles, but practical examples of alternative words in context that will help to clarify which words have equivalent meanings to the one in question, and therefore which may be used in translation.

So there is something context-dependent about method that has to do with the needs and expectations of a community. Such a community “owns” the question and the conditions within which the question arises as meaningful and pressing. They own the judgment of whether a particular response constitutes an answer to the question, and therefore they own the judgment regarding the appropriateness of a particular method to provide that bridge between the problem and its answer. This is institutionalized in the process of “peer review.”

Apart from the function that method has as a practical tool to deliver a solution, it has an important logical role between the question and the answer. When we ask the question about rigorous method, of course, in part we want to know that the practical aspects have been carried out with due diligence and competence so that the researcher has precipitated the outcome that was intended. But more important, we test the validity of the method by testing its structure and determining whether the claims of the outcome can be substantiated by the method. So the minimum that we wish to claim here is that a valid method provides a rigorous logical connection between the question and its answer, and it is that rigor that is more important in

validating the outcome than the rigor of the competencies that are used to put the method into practice.

If we apply this to practice-based research, we would contend that, while rigorous practical competencies are important, they are not the most important aspect to be judged. What the practitioner has to demonstrate is the validity of a particular method to deliver the research solution. The peers must judge the merit of this solution, not as a creative contribution, but as an answer to a question.

Unfortunately, the UK RAE definition of research allows for “the invention and generation of ideas, images, performances, artefacts including design ...” but only “where these lead to new or substantially improved insights.” It is unclear how one would apply the term “rigor” to outcomes of that kind, because “insight” connotes a subject-dependent internal sight rather than an external, evidence-based assessment. However, if we consider the process model of research question and answer that is the one preferred by AHRC, then the present authors claim that it results in a concept of rigor as a quality of argumentation that legitimizes an outcome. It requires that practice is the method, and not just the means of communication, and furthermore that there is an argument that a certain practice is necessary, as opposed to writing or anything else. We certainly do not mean to suggest that practitioners have to defend the use of practice as a method any more than an empiricist would have to defend empiricism as a method, but that rigor in research is based upon making explicit the necessity of a particular method, and that is what legitimizes the whole process.

In conclusion, rigor in research is the strength of the chain of reasoning, and that has to be judged in the context of the question and the answer, for example, in the context of design as opposed to the context of physics or philosophy. The central links of the chain comprise the method. The appropriateness or otherwise of the method determines the validity or otherwise of the outcome, whether we call this outcome an insight or new knowledge and understanding. Part of the method is how “newness,” as opposed to “novelty,” is demonstrated. Therefore, there is no difference between the need for rigor in design research, in practice-based research, or in any other kind of research: it is a necessary condition of the process that demonstrates that these other criteria have been met. In response to our original question as to whether art or design practice is a distinct kind of research, this paper therefore concludes that it is both undesirable and unnecessary to create a separate category of research called “practice-based research,” since to demonstrate its validity it would have to meet all of the conditions of the existing academic model of research.

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