Eight criteria for practice-based research in the creative and cultural industries

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Abstract

This article addresses two core problems in practice-based research: the identification of fundamental conditions and, therefore, the identification of actual examples. It is critical of the methods in many earlier case studies involving circular argumentation. The article assumes that research in the creative and cultural industries is both situated in the larger field of academic research and that it is a cumulative process. From this it develops a criterion-based approach to the necessary conditions for such research, thereby enabling the identification of actual examples. This approach solves the circularity problem of earlier case studies. The article concludes that there are four generic and four discipline-specific criteria for academic research in the field. From these criteria other consequences follow for the content of practice-based research. These eight criteria are currently being used by the authors to identify and study cases of practice-based research.

Keywords

academic research
practice-based
practice-led
criteria
method
art and design

Introduction

The title of this article contains a few provocations from the outset.[1] One is the term 'practice-based research', which invites the question: what does it mean? The authors have previously used the term 'arts-based research', which is currently more common in Sweden, where the term applies to research in which practice is integral to the method and not just the medium of the output. An initial search of the literature available on this subject revealed a range of analogous terminology besides 'practice-based research' and 'arts-based research' such as 'art-informed research', 'artists-as-researchers', 'creative researchers', 'artistic Ph.D.', 'practice-based Ph.D.', 'arts-based Ph.D.', 'practice through research', 'practice as research', etc. There do seem to be some discipline and nation-specific preferences for the use of each term as indicating slightly different relationships between practice and research (Biggs and Büchler 2008: 86). However, in making even these small changes in how one describes such links, one changes the nature of what is being discussed.[2] A second provocation is the use of the term 'criterion', which may seem very deterministic. In this article we explain how we think these 'criteria' are a consequence of practice-based research being a putative sub-set of academic research in general, and how a criterion-based approach can overcome a number of persistent problems that we believe have caused stagnation in the debate.

Our intention in this article is to make connections between the cutting-edge professional practice claimed as research in the creative and cultural industries (CCI) on the one hand, and academic research in traditional subjects on the other, in order to find the commonality between the two. This means that one of the concerns that we have in using the term practice-based research (PbR) is that it might suggest that we are looking for what is special to CCI. This is not the case; our aim is rather the opposite. In this article we aim to structure how one might respond to the question of whether or not academic research in areas of creative practice is in some way different to dominant models of academic research in other disciplines. We are trying to identify what, if anything, artists, architects and designers do that is different from the practice of research in other areas that would justify the existence of a distinct label such as PbR. The rationale is that if all CCI research production can be accounted for through extant research models, i.e. those from the humanities and human, technological and natural, social and applied sciences, then PbR would be an empty set and therefore redundant. Although this approach might have the effect of focusing attention on what constitutes (inevitably) subject-specific evidence, we do not intend to focus on those special attributes alone.

One of the reasons for choosing to focus on the areas of commonality between creative practice and other disciplines, rather than on the differences that might make areas of creative practice special, springs from the context of the university. In the university there are various committees such as the Research Committee and the Research Degrees Committee that control quality across all subject areas. In such forums it is advantageous if all disciplines can be compared and discussed on an equivalent basis to ensure equitability of treatment. It is often necessary, for example, to argue whether a Ph.D. in fine arts should be awarded by a committee composed not only of 'creatives', but also of engineers, psychologists and scientists. Our position is that it is advantageous to have equal conditions, and we call this the Situated Position. Its opposite, which claims that CCI is somehow special and should be granted special criteria and regulations, we call the Isolationist Position. Humpty Dumpty resolved a disagreement with Alice by stating that: 'When I use a word, it means just what I choose it to mean, neither more nor less' (Carroll 2008: Chapter VI). This is an example of the Isolationist Position. To claim that CCI is an independent subject in which we can define for ourselves what research means, and we will do so without reference to anything else, is equally unhelpful and results in poor scholarship. If one never had to interact with any other discipline, this isolationist approach might be acceptable. However, this is not the case in academia. Academics exist in a comparative competitive environment and must therefore find and place themselves in relation to their peers. They are members of the academic community as a whole and not just a community of kindred colleagues from similar creative disciplines.[3]

Comment [PK1]: Should this be 'in universities' generally, or is it a specific university – in which case give details.

Humpty Dumpty also illustrates the authors' belief that the words we use to talk about a problem constitute how and what we think the problem is, what we can say about it, and even, of course, whether we should use words at all. We are aware that ineffability is one of the concerns that some creatives want to raise, and it will be discussed in this article, i.e. whether we are not already compromising the potential of PbR if we talk about it rather than do it, or paint it, or dance it, or build it.

Critics will claim that it is a bold move to specify a definite set of criteria as well as a definite number, e.g. eight rather than seven or nine, because it will inevitably bind us to these claims that, the authors admit, were motivated by a certain level of frustration over the lack of progress in the area. Despite some fifteen years of debate in the United Kingdom on PbR, and a great many congresses, symposia and so on, it seems

there are very few answers, although the questions keep mounting. The proliferation of terminology, as shown at the beginning of this article, reinforces this impression.

It is important for the community laying claim to these concepts and practices to be clearer about what PbR is. This is the aim of the present enquiry. The eight criteria will enable a response to that problem because they will give initial grounds for judgement, even if it is subsequently decided by the community that they need modifying or rejecting. Having explicit criteria will enable the selection of cases for discussion.[4] A lack of criteria will inevitably handicap such judgement and, therefore, any progress in the field. It may also be that the question of 'what is PbR?' is a poorly constructed one. Indeed, the debate that has lasted for fifteen years in the United Kingdom may indicate that the question itself is unanswerable, a paradoxical question or one that is problematic or controversial in terms of what could constitute evidence. The authors tend towards the latter and, therefore, do not anticipate the response to the problem coming from empirical investigations.

One of the methods that is commonly adopted in the United Kingdom to address the problem of what PbR means is to take as evidence those activities that have already been given the label 'PbR'. An example of this would be the Matrix conferences hosted by the University of the Arts, London. Such analyses compile the activities that bear the label of research in order to infer a generic model of what constitutes PbR. The problem with this approach is that the cases that are taken as exemplars beg the question: on what basis are they labelled PbR if that is the very matter under investigation? This describes a circular argument that is bound to reinforce the status quo. We call this the Circularity Problem. We believe it is a direct consequence of the uncritical implementation of this approach and it has led to the stagnation and lack of progress by many well-intended groups attempting to make a contribution to this debate.

Framework

The UK Arts and Humanities Research Board, established in 1998 and raised from a Board to a Council in 2005, took a constructive provisional step when it first published a description of what would constitute research in all of their subject areas. Much of the other work that has been developed on PbR in the United Kingdom over the last fifteen years can be characterized as being pioneering. We accept that these efforts have all been made in good faith, and we acknowledge the difficulty of the task, but these pioneering steps were conducted in an academic vacuum that lacked clear criteria. As

a result, these early examples may not survive as paradigms of effective PbR, and in the future academia may come to adopt a view of what is paradigmatic that is quite different. Nevertheless, it will have been able to reach future conclusions because academics made these initial studies and benefited from them, and from reflecting on them.

Methodologically, to contribute to the identification of criteria for what constitutes PbR, one requires a normative process. If one considers how certain key terms, such as research, are used in other more established disciplines where there is perhaps a general agreement about the effectiveness of the model, one can consider how that model could be translated into the creative context in a relevant and meaningful way. However, to take an example from Ludwig Wittgenstein (1953: 50), it is a particular kind of problem to query a norm such as the correctness of the length of the standard metre in Paris, i.e. what would it mean to say that the standard metre was too long or too short? The problem of defining the length of the first metre by appeal to an exemplar is comparable to that of defining PbR by reference to pioneering early examples, i.e. it suffers from the Circularity Problem.

Comment [PK2]: In Paris? Does the example need further clarification or will it be clear to your readership?

The argument advanced in this article as an alternative to the Isolationist Position and a solution to the Circularity Problem is that of a criterion-based approach in which one identifies and analyses how terms are used in other subjects, even if a particular specialist interpretation is needed in order to map them onto actual cases and to judge whether a particular example is PbR or not.

In building these criteria we aim to find some definite terms that we think are essential and that are characteristic of research in all academic areas. We believe that by using this approach we can precipitate a definition of what kind of research is practice based. Of particular interest is the potential to forge tools that can be used to make judgements, such that could respond to the general question: is that research or is it something else?, i.e. addressing the Circularity Problem. In developing these criteria we too are making assumptions about what research is. However, our method is not circular, but axiomatic. Axiomatic argumentation proceeds from a few unverifiable statements that lie outside the system of argumentation, paradigmatically employed by Euclid (2000). One axiom that we have identified in our own approach is that we assume research is a cumulative process.

That research is cumulative functions as an axiom in our reasoning process. It is a fundamental assumption that cannot be explained and for which our system cannot give any justification. Other scholars do not necessarily adopt the same assumption and as a result their arguments and their rationale are different to ours. Axioms are discretionary and it is important for the transparency of academic argumentation that the ones that are adopted be identified from the start because, aside from their ineffability, i.e. they are not explained by the researcher who adopts them and cannot be explained within their system of thought, being discretionary means that it is equally valid to adopt a different axiom. One system is not necessarily better than another. However, there must be consistency in the use of the one that is adopted.

If research is cumulative, then what is done simply for the personal advancement of the individual is not research. In English it is common to use the word 'research' in its more broad sense, meaning to investigate in order to discover something. However, academic research is different in that it requires the discovery of something that nobody knows, not just something that the researcher didn't know, and that is what makes it cumulative. In this academic usage, the individual researcher needs to find out what has already been found out: what is the current state of knowledge, the current state of imagery, and so on. One of the implications of this situation is that the outcomes of research must be archived, must be stored in some way so as to make them accessible, so that others can ascertain what it is that is already known or understood, and undertake a gap analysis.

Four criteria for academic research

The eight criteria that are presented here correspond to two groups of four criteria: the first four relate more closely to traditional models of research while the second four relate more to the specific interests of creative practitioners. The first four criteria form the core model that also characterizes traditional and dominant models of academic research, and as such are comparable to scholarship about research in other areas. For example, Robert Merton identified four norms of scientific research: Communalism, Universalism, Disinterestedness and Organized Scepticism, known by the acronym CUDOS (Merton 1942). However, these norms might be more recognizable in CCI if considered in the context of qualitative research, e.g. 'transferability' and 'generalizability' instead of 'Universalism' (Lincoln and Guba 2000).

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Questions and answers

It is unavoidable that research has explicit questions. However, even asserting something as simple as that seems to be confrontational to some people from CCI. It is common that artists, for example, become uncomfortable when they are asked to name the central question in their investigation (cf. Balkema and Slager 2004: 157–179). This may be because these professionals are not used to working in a context in which an explicit question is central or necessary. The reason it is unavoidable that research has a central question, issue or focus is that it is essential that the researcher come up with an answer or some kind of response in order to make a contribution. It may seem trivial, but simply pursuing an interest is not a good starting point for research because it is unlikely to precipitate an outcome that is going to be relevant for the academic audience that is going to consume it in order to start the process of accumulation. Question and answer is a fundamental issue that stands at the forefront of research activities in other disciplines but that is are all too often ignored in areas of creative practice. The research process becomes easier if the question is brought to the surface, even if it is framed as a theme rather than as a particular question. The term 'framing' comes from Donald Schön's *The Reflective Practitioner* (1991), in which he finds a number of useful substitutes for unfamiliar or unaccommodating terms from traditional research domains. The absence of a question and answer, or their terminological equivalents, may be an indicator of professional practice rather than research.

Knowledge

Research takes place in a context of relevance that is supplied by the audience, i.e. the audience gives meaning to the research activity. For example, if astronomers were asked 'What is the moon?', they might reach for tables of measurements and satellite photographs in order to answer the question. However, if artists were asked they might reach for some paint and a canvas, or write a poem. There are different ways of responding to a single question that are relevant and meaningful to different audiences. This means that questions, answers and methods cannot be transferred freely from one discipline to another because questions and answers may become meaningless as they become re-contextualized. Give a poem to astronomers and they would be deeply dissatisfied with it as an answer, and the same can be said for the arts community who would be deeply dissatisfied with an answer involving rocks and orbits. Beyond the interests of particular disciplines, the answer to a question is also dependent on the general nature of questions: what it is to ask something and particularly what it would be like to answer this question – what would satisfy us. In the beginning of *The Blue Book*, Wittgenstein asks: 'What is the meaning of a word?'

because one of his interests is: ‘what does the explanation of a word look like?’ (Wittgenstein 1958: 1).

What a question and an answer would look like is a result of a community’s understanding of knowledge. Knowledge can be of different kinds, and depending on the nature that is attributed to it, there are different expectations as to the contribution that it will make. Knowledge can contribute in an explicit and/or theoretical way, a practical way that can pertain to skills, or an embodied and/or personal way as part of personal experience, etc. The understanding of knowledge and the expectation of how and what that knowledge will contribute is in turn conditioned by different conventions that belong to different audiences.

Methods

If question and answer are brought to the fore, the troublesome issue of method also becomes easier. It may be helpful to express the link between the necessary conditions for academic research in diagrammatic form (Figure 1). There is initially an overlap between question and answer, because a well-formulated question implies its answer within an audience-led context: a philosophical question begs a philosophical answer, a causal question demands a causal answer, and so on (Büchler and Biggs 2007: 68). Different disciplines have discipline-specific interests for which discipline-specific answers are required. There is a linkage that is represented by the overlap between question and answer, and method provides a further connection, i.e. if one is interested in this particular question, then a particular route would be appropriate in order to find out something or develop the interpretation of this issue and precipitate a meaningful outcome.

(Insert fig. 1)

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This way of describing the connection between the necessary conditions for academic research renders a practical and pragmatic structure by which to evaluate the appropriateness of method, which is something that is not very obvious in the creative and cultural industries, and which apparently also strikes fear into the hearts of philosophers too. An anonymous philosophy tutor reported to the authors that research students in philosophy find it difficult to describe their methods because those methods consist of ‘reading a few books and coming up with a new point of view on them’. Nor

do the creative industries follow a single specific or dominant model of enquiry, as happens in other subjects. In chemical engineering, for example, the 'leaching test' is currently administered as a means of verifying the stabilization/solidification of hazardous waste in pollution prevention and control. The technique and analysis involved in the leaching method would therefore form part of professional training that should be adopted by all researchers in the area. This does not happen in areas of creative practice and it is therefore necessary to find a pragmatic way of evaluating the appropriateness of a method for a person and their work. Our proposal for determining the appropriateness of method is based on how the answer is a consequence of, and relevant to, the question, in the context of the needs of the audience.

Audiences

The audience provides the rationale for deciding whether a question, an answer and a method are relevant. This concept may, however, be too liberal a way of describing the decision-making context, because it would mean that particular communities could describe and define what constitutes research for themselves. This is exactly one of the concerns expressed at the beginning of this article, because it is our belief that researchers in CCI are not best served by making a definition for themselves that does not overlap with that of other research communities, i.e. the Isolationist Position. If we say that it is the audience that both originates and consumes the research, and give them authority to decide whether questions, answers and methods are relevant, appropriate or meaningful, then this audience is in a position to decide almost anything. The fact that this is a cause for concern is evidence that there is more than one audience to be addressed.

We propose that there exists, in addition to the general academic audience, a specialized audience who will consume the research. In Figure 2, the smaller box represents the specialist academic audience that is in a position to decide about relevance and appropriateness of the question and method and so on. The specialist and her audience are situated within the greater academic audience represented by the larger outer box. This shows that the specialist audience, in this case CCI, are not in a position to decide definitions unilaterally. Although there may be a specialist interpretation and topics of interest in the smaller box that other people do not necessarily share, people from the outside, from the academic community at large, are entitled to criticize what that specialist audience is, and is not, validating as 'research'. This is a consequence of the Situated Position.[5]

(Insert Fig. 1)

The smaller box in the centre of the diagram in Figure 2 contains questions, methods, answers or responses that are meaningful for the specialist academic audience. Within the meaningful response produced for that audience, there is new knowledge and new interpretation that is, again, meaningful for that community and, with appropriate mediation, for the academic audience as a whole. For example, we have already suggested that Schön can be interpreted as mediating some traditional research concepts for the CCI audience. This argument would therefore indicate that PbR is a subset of academic research rather than being a different kind of research all together. As such, it is inextricably bound to practices and transferable concepts from the academic world of knowledge generation and management, and not infinitely renegotiable by practitioners.

Four additional criteria for PbR

Within the larger box in Figure 2, we believe, in common with Merton, etc., that there are criteria that define academic research per se. In our case we believe there are four, and this section will consider whether in the smaller box there are discipline-specific issues that will help identify any discipline-specific criteria. Using our normative argument, we have identified a series of core concerns and problems in conducting academic research in the discipline-specific areas of creative practice and have organized these into criteria for PbR. As we claimed in part three, most established academic communities would accept the first four criteria, whereas the next four criteria belong to the particular interests of practitioners. These latter criteria for PbR are introduced provisionally, as a means of exploring the connections between them and the first four criteria and their relevance for the practice-based communities. As a result, this article proposes some specifically practice-based criteria in order to offer our peers something to react against, rather than perpetuating the vagueness and irresolution criticized in this article's opening section. These criteria were identified by taking a step away from particular concerns and by exploring what is trying to be achieved in academic research through institutionalized practices such as journal publications or exhibitions. Finally, we recognise that at present these are perhaps framed as issues, or indicators rather than criteria, but it is part of the authors' continuing research to develop them in a way comparable to the first four criteria.

Role of text and image

In order to justify the use of the non-textual or non-linguistic part of their practice in their academic research (be it image, audio, etc.), PbR-ers need to find a necessary and sufficient role for such parts in their research. However, images are not always necessary and may fall into different categories depending on what their role is. For example, an illustration may accompany a text such as *Alice in Wonderland*, but one could read an un-illustrated version and not be worse off. Indeed, some people might prefer to do so, and create their own mental images. Imagery steers one into a particular vocabulary of form and line, and some might prefer a version with more contemporary illustrations than Tenniel's originals, or none at all. For the appreciation of the work, images are optional. On the other hand, there are successful examples of the use of, for communication, of imagery instead of words. For example, the international furniture store IKEA could use multi-lingual written instructions but instead have developed an effective visual vocabulary for how to assemble their furniture using illustrations alone.

However, the most interesting examples for our purposes are of practices that enable discovery through drawing, through imagery or through sound, in which something is discovered that could not have been discovered by any other method. For example, Graphical Statics is a graphical method that is used for calculating forces in structures. Rather than functioning numerically, this is a diagrammatic technique for making calculations in which one draws lines and measures angles and lengths in order to discover something non-visual. It is a visual method of calculating forces. An alternative visual example comes from architecture. When designing the *Parque Güell* in Barcelona, Gaudí hung chains from the ceiling, photographed them, then turned these images upside-down and copied the arches that were formed, thus creating the catenary curves that would be used in the construction. These are both very interesting examples of a practice – whether it is drawing something or doing something or making something – that results in a solution to a particular problem without the intervention of text-based language.

Although this may be a fruitful paradigm within which images contribute to knowledge, it is hard to imagine that academic research could be solely supported by the use of images. The first book ever published about graphical statics contained text (Culmann 1865), so one could argue that the method was validated by a textual description as well as through graphical paradigms and examples. One can write about the catenary

Comment [PK5]: 'statistics'?

curves used by Gaudí as well as generate them using that technique. This exemplifies a fundamental difference between practice and academic research: the latter seeks to make explicit its claims and rationale, often through text because text allows a meta-commentary on why the technique works and not just a demonstration that it does so, as occurs in practice.

Relationship of form and content

The relationship between the textual and the non-textual component may be regarded as the relationship between form and content. Although it is probable that words are necessary for the effective defence of an academic argument, we would like to invite the questions: why is there an established number of words in a Ph.D., why that number, on what basis and why do we think this is at all necessary? To answer these, using our method, we suggest it is necessary to stand back from particular institutionalized responses and consider why we need words at all, to reconsider what it is that the Ph.D. has to achieve. From this we can further infer what the model of knowledge is that is assumed by that community, and what medium, e.g. words, is necessary to communicate it.

In a criterion-based description of what constitutes a Ph.D. it is necessary to create a content model, including statements such as 'the work must make an original contribution to knowledge or interpretation, and place that in an historical and critical context' (Frayling 1997: 21). The second part of that description, '...place it in an historical and critical context', necessitates that the researcher step beyond the object, and that is more efficiently done by discussing the relationship of this object to other objects. Although it might be possible to place something in an historical and critical context without using words, perhaps by holding an exhibition of comparative examples, it seems unavoidable that one must step away from the actual artefact itself. Writing is an *efficient* way of addressing the content-requirement to place the study in an historical and critical context. However, it is perhaps not the only form, e.g. the researcher could contextualize an exhibition with another one, or take the viewer through a process prior to being presented with the work in question.

The recommendation to step away from prescribed form and consider content aims to revisit what is trying to be achieved in the process of research before assuming that *this* particular form is the best way of achieving *that*. The desire to include, for example, paintings in the research should be scrutinized so that it can be decided whether this is the most effective way of dealing with the issues at hand in the research. The

consideration of the content of the research should help the researcher to move away from assumptions, particularly ones that are led by stereotypes or preconceptions about form. Perhaps, rather than asking about the role of form for the efficient transmission of content, a more fruitful question would be to ask what would be lost if a non-traditional form were *not* used, i.e. if the content of the non-traditional academic thesis were presented in the traditional form.

Function of rhetoric

The third proposed criterion is rhetoric, by which we mean 'constituting things through language', rather than 'being a persuasive orator'. As such, rhetoric refers to the impact that language has on what one can and cannot think (Wittgenstein 1971: §5.6). This means that how something is said, and indeed saying anything at all, begins to direct thoughts in a particular way. This seems to be an objection of many PbR-ers, as they feel the potential for description, argumentation and outcome (or their non-linguistically determined alternatives) in the visual realm may be compromised by speaking, because these aspects of creation do not necessarily share the linear structure of language, for example (Lin and Biggs 2006).

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Although this is an important objection, it does not mean that the work has to be left to speak for itself: what Peter Vergo calls the 'aesthetic' approach (Vergo 1989: 48). It does mean, however, that there is potentially a completely different model of knowledge and communication in non-linguistic areas. This is a powerful proposition, and one which is alluded to in concepts such as Mode-2 knowledge (Gibbons 1994). This alternative paradigmatic issue is a large-scale problem, aspects of which are currently being researched by the 'Research into Practice Cluster' at the University of Hertfordshire. Nevertheless, the objection that language constrains the visual is a powerful one that must be dealt with critically, even though we regard it as outside the scope of this article.

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One of the limitations to considering the issue of rhetoric in research in the creative areas relates to the Situated Position that is adopted in this article. This means that a critical approach to the matter of rhetoric needs to be meaningful within the academic community. Certain issues such as the potential for non-linguistic communication can be foregrounded, but then need to be communicated in a way that the academic community regards as meaningful and consequential. This iterative procedure is necessary if we are to make a claim for the potential of non-linguistic communication in academic research in creative areas that is recognized beyond the creative areas. In

order for research in CCI to be acknowledged, it is necessary to consider and adhere to the demands of the larger academic community. A criterion-based approach is helpful here because it identifies and breaks down stereotypes that are often very hidden and deeply rooted in communities. The approach helps to steer away from preconceived notions of what research should look like, which is a consequence of the problem of rhetoric (Biggs 2002).

Function of experience

The final one of the four criteria that relates to CCI research is the function of experience. PbR-ers often consider experience as the most important contribution of the object and that it therefore has an essential role in the outcome of PbR. However, experience is a problematic component in research because of its philosophical subjectivity, by which we mean that it relates to the individual's personal experience. What is experiential is first-person, and therefore non-transferable to other people.

There is a philosophical discussion about the extent to which the external world is shared or personal that underlies discussions about appearance and reality. Although this is a discussion without a definite solution, it is important to recognize that because experience per se is something personal, its transferability is problematic and thus goes against the axiom of accumulation and the idea that there is something that can be shared in order to build a body of knowledge and interpretation. One characteristic of creative practice and PbR is that the initial motivation sometimes comes from a strong experience of some kind that precipitates an emotional or aesthetic response. Nevertheless, we do not recommend that this subjective experience be maintained as the actual focus of the research activity. Even if one seeks some transferable content within the overall form of experience, it is unclear what experiential content would be like. Even if experiential feeling were taken as an indicator of the presence of something else that is effectively of interest, it is still unclear what that something else is. Academic research requires that its contributions be unambiguous, therefore the lack of clarity in communicating experiential content presents further difficulties for the inclusion of experience in PbR.

Conclusion

As was discussed in part 3, regarding the correlation between question, answer, method and audience, the academic community may differ in what an answer to the question 'What is PbR?' might look like. This article proposes that, in order to respond to the question, the community needs to develop a set of criteria that can be used to

delimit the boundaries of research and to identify cases. We do not claim that there is a single answer to that question, but using the eight criteria proposed in this article we have provided a provisional toolkit with which to make some advances. The criteria have this potential because they address generic and transferable issues of what constitutes academic research, rather than being diluted by subject-specific labels and particularities of form. The criteria are currently being used in the Swedish Architecture Theses project at the Universities of Hertfordshire (United Kingdom) and Lund (Sweden). The question that the project addresses is the nature of PbR in doctoral research in architecture in Sweden, which the project team understands to be an ontological question that requires first the qualification of categories and concepts of academic research.

The eight criteria that we have proposed derive from an axiomatic examination of the necessary conditions for research using a criterion-based approach. One 'position' and one 'axiom' have been adopted in the argument: the Situated Position and the axiom that research is cumulative. The resulting criteria for PbR have a number of consequences or implications. One is that research must be disseminated, in order that it contributes to knowledge accumulation. When work is disseminated it demonstrates, through the possibility of comparison, whether the work is original or not. Originality is, therefore, another consequence of these criteria. Originality is important because of the assumption that research should be a cumulative process and that there is no interest in accumulating something we already have. The notions of originality and dissemination are, therefore, consequences of the axiom of research as a cumulative activity, and the Situated Position of research in CCI. We propose that all other core concepts in PbR can be derived from these eight criteria. We further propose that these criteria can be used to identify cases of PbR, thus providing a tool to address the Circularity Problem.

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Comment [PK12]: Comments on endnotes:
5. Are these last lines quotations that need referencing?

[1] Our provocations, and the positions that provoke us, are part of the academic debate that surrounds the topic. We have benefited from insightful comments from a number of sources and in this article we will use endnotes to comment on possible counter-positions and interpretations that may be held by readers who do not share our fundamental beliefs.

[2] Which is cause, and which is effect, is not something that needs to be determined for the purposes of our argument.

[3] We acknowledge that CCI does not only benefit from such a relationship, but that it has its own strengths that can benefit other subjects. However, we argue that such benefits can only be identified and validated as academically relevant once the problems that we identify in this article have been addressed.

[4] It has been argued by our critics that criteria have been established, for example by the UK Arts and Humanities Research Council (AHRC) and by the UK Research Assessment Exercise (RAE). In our opinion, although the AHRC criteria are a welcome milestone, they offer only a process model. We have argued that processes based on contingent rather than fundamental conditions offer at best necessary but not sufficient conditions for the identification of research (Biggs 2006). For this reason we believe that criteria formation should be an outcome of an explicit ontology of research in which the concept of research is fully unpacked. Similarly we would argue that institutions such as the UK Quality Assurance Agency (QAA) base their criteria not on an ontology of research but on an ontology of pedagogy.

[5] The constitution of the general audience, the specialist audience and the community as a whole is a complex one that we recognize warrants further consideration. However, this article contemplates firstly the academic audience and then, within that, the specialist CCI academic audience. Furthermore, one might ask: who should we 'authorize'

to take on these roles? Our article implies that the authorized specialists should be those who have ‘a set of criteria’ that ‘address[es] generic and transferable issues of what constitutes academic research’.

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