

The Solution that Works

Abstract

In *The Reflective Practitioner* (1991), Schön describes an iterative process of question-forming and solution-finding. One of the judgements that the practitioner makes is whether a solution 'works'. This concept is not fully unpacked by Schön, but a sceptical reading might lead to the conclusion that the concept relies on a researcher-dependent value and function analysis which would reinforce the worst charges of subjectivism. This would be a weak reading of the concept.

This paper proposes a strong reading of this common art and design concept: 'the solution that works'. It results from the observation that there is a necessary and reciprocal relationship between the research question, the method, the solution, the audience, and the context in which they are located. This relationship is also highlighted in so-called Mode 2 (cf. Gibbons, M. *et al* (eds.), *The New Production of Knowledge*, 1994) but is here considered particularly in relation to art and design. The paper proposes that the practical procedure of solution and audience finding must occur in reverse order. The issue of what constitutes a solution to a problem depends on the perception of the nature of that question by the audience. Indeed, not all questions would be regarded as meaningful or legitimate by them, and so the identification of this actual or hypothesised audience is the primary consideration in the design of a research project. From this, the paper argues, the meaningful question and the range of possible meaningful responses can be determined. Finally the method that connects the question to the range of responses or solutions can be determined. Only once this network of relationships has been established can the project be designed and the iterative 'reflective practice' described by Schön be operated so that a contribution to the peer group is made by a consequential outcome.

The Solution that Works

The art and design community is familiar with ‘the solution that works’. Perhaps every community has a similar concept of efficacy; but to what does it refer? The solution that works is not necessarily the solution that has a particular function, i.e. ‘working’ as in ‘mechanical performance’. When Donald Schön mentions the term in *The Reflective Practitioner*¹ he is referring to some other kind of functionality in relation to a problem in professional practice. It is a design solution; in his case, an architectural solution that satisfies certain issues that the design teacher finds implied by the design problem. For this kind of solution to work it requires the audience to share a cultural concept of what is the problem. In Schön’s case the audience is the student being taught. The student will either learn the meaning of ‘the solution that works’ from this example, or if she already has such a concept then agreement in judgements will reinforce their shared professional culture. This is the context of the ‘practitioner of knowledge production’ described by Gibbons as operating in ‘Mode 2’². In general, the concept requires agreement by a community that the solution is efficacious, and conversely, we might define a community as being those persons who agree that this sort of solution is efficacious. Such communities form intellectual cultures.

Let me develop the second point first. Concepts such as ‘the solution that works’ are important in their relationship to defining disciplines. Disciplines are not just populated by persons who share an enthusiasm for activities such as design, physics, history, etc., although of course personal motivation is important in any kind of human endeavour. As Emerson said: ‘nothing great was ever achieved without enthusiasm’³. However there is more to a discipline boundary than the falling away of enthusiasm by its community in what lies beyond. Disciplines are characterised even to those who do not share an interest in them, by the questions they ask, by the methods they employ, and by the solutions they provide.

through their training, especially if it remains mono-disciplinary, individuals come to share a specific world view and learn to value what are considered significant problems, how they are to be framed and solved⁴

One can illustrate this by comparing the astronomer and the philosopher. For the astronomer, the beginning of the universe is a complex physical problem which is investigated by observing phenomena at the far reaches of the universe because they infer from simple physical laws that the particles travelling away from us at the edge of the universe had their origins at the centre of the universe at the beginning of time. However, for the philosopher, the beginning of time or the universe is a conceptual rather than a physical problem. The beginning of time is a contradiction. If we notice ‘time’ through processes of ‘becoming’, then ‘the beginning’ of time seems

¹ Schön, D. *The Reflective Practitioner*. Aldershot : Ashgate Publishing, 1991: 89

² Gibbons, M. *et al* (eds.), *The New Production of Knowledge*, London: Sage 1994: 138

³ Ralph Waldo Emerson, “Circles” in: *Essays*. New York : Franklin Watts, [n.d.]

⁴ Gibbons, M. *et al* (eds.), *The New Production of Knowledge*, London: Sage 1994: 149

contradictory and conceptually problematic. The philosopher therefore does not use empirical but conceptual methods to apply to this problem. Indeed, we might argue, as this paper does, that we differentiate philosophers from astronomers by observing which tools they reach for when confronted by such questions. To this extent there are not just two cultures, as C.P. Snow⁵ said, but many.

Disciplines do not exist naturally. They are made and used by communities. The idea that there are natural classifications into which the world falls is something that we have inherited from Aristotle⁶, that has been systematised by Linnaeus⁷, and has been criticised by Foucault⁸. Increasingly we speak of topics being trans-disciplinary, inter-disciplinary, or cross-disciplinary: each term eroding the classificatory boundary that enables us to differentiate one discipline from another.

Why one might worry about the location of discipline boundaries is related to what is included and what is excluded in the discipline, what journals one should read, what problems one should be addressing. If nobody in my discipline is interested in the origin of the universe then even the best paper on the topic will not be published in the best journal in my discipline.

conformity is encouraged by disciplinary collegiality, by expectations and rewards from the disciplinary peers⁹

More seriously, if I reach for my telescope in order to investigate a subject that my peers think is philosophical rather than empirical then I will be regarded not merely as an eccentric but as somebody who is ignorant and does not understand what the question means. Thus discipline boundaries are defined by identifying communities of practice that share certain interests and concerns, and expressing it in this way brings to the fore the relationship of the community to its research and knowledge base.¹⁰ It identifies that certain questions are meaningful,¹¹ that certain methods are preferred, certain solutions are regarded as satisfying, and others are not.

Unfortunately, expressing it in this way also apparently institutionalises a conservatism in research, in which one is only encouraged to pursue questions or create solutions that are demanded by our peers and which satisfy that demand. What about the unorthodox research question, the novel research method, the radical conclusion that upsets our comfortable ways of thinking? 'Satisfaction', in the way that I am using the term, is not in any way related to comfort or pleasure. 'Satisfaction' is about fitness for purpose. 'Satisfaction' is about recognising the affordances that are offered by a solution¹². 'Satisfaction' is about putting certain

⁵ Snow, C.P. *The Two Cultures* Cambridge: Cambridge University Press, 1993

⁶ Aristotle, 'Categories' in: *The Complete Works of Aristotle*, Princeton University Press, 1984.

⁷ Linnaeus, C. [Carl von Linné] *Systema Naturae* [1735]

⁸ Foucault, M. *Power/Knowledge* Brighton: Harvester Press, 1980: 117

⁹ Gibbons, M. *et al* (eds.), *The New Production of Knowledge*, London: Sage 1994: 149

¹⁰ Wenger, E. *Communities of Practice*. Cambridge University Press, 1998: 113f.

¹¹ Gibbons, M. *et al* (eds.), *The New Production of Knowledge*, London: Sage 1994: 108

¹² cf. Gibson, J. *The Ecological Approach to Visual Perception*, London : Houghton Mifflin, 1979.

problems to bed, even if as a result we lie awake with anxiety about all the other things that must be changed as a consequence.

On that basis, this paper argues that disciplines are cultures that can be identified by their actions and beliefs. They are not exclusive either in terms of domain or participation: there are many disciplines and they have fuzzy boundaries. There are also persons who work in multiple domains, e.g. there are philosopher-astronomers. But the discipline-based process of peer review, which is used to determine what is published in academic journals in discipline domains, will tend to reinforce the homogeneity of disciplines in terms of those questions that are recognised as meaningful and therefore worth asking, the methods that are regarded as applicable in the field, and thereby the solutions that are culturally acceptable. This paper further argues that defining the audience is what clarifies each of the other elements: who is in the audience and who is not in the audience will determine which questions concern them, which methods they find acceptable, which outcomes constitute solutions to the problems that trouble them.

Let me return to the first point: the problem and the efficacious solution. Hitherto I have used the simple antonyms of 'problem and solution', 'question and answer', because they are like convenience foods: quick although not very nutritious. Unfortunately, arts and humanities research rarely asks specific questions and even more rarely gets specific answers. This was the subject of a seminar at my university at which we decided such terms needed translating¹³, or as Schön would say 'reframing'¹⁴, before they could be easily recognised by researchers. One proposal was that in our discipline we investigate 'issues' that we 'address'. Why does it feel more comfortable to talk about addressing issues rather than questions and answers? One possibility is that question and answer sound somewhat final: they relate to the world of facts, of cause and effect, of mechanical relationships. What makes the piston move in the steam engine? Answer: steam is introduced into the cylinder. Once one has the answer one need not ask the question again, or at least not for a very long time. It is only when scientific paradigms change that these sorts of answers are considered inadequate and are revised. And perhaps even then we can see a characteristic difference because it is the answer that is revised rather than the question. We might ask the same question in a slightly different way but the question is basically persistent. In arts and humanities, both questions and answers, both issues and how they are addressed, are more volatile. They are what I would describe as 'culturally determined': as the culture changes certain issues become pressing and certain other issues fall away from our field of view or interest.

Understanding the reciprocal relationship between these two points: between the audience on the one hand and meaningful questions and answers on the other, will also help us with the problem of methodology. Methodology is about the appropriateness of the approach to tackling the problem. If you do what you propose will it generate a response that has the potential to answer or address the question in ways that will be meaningful and respected by your peers? Thus the problem can be

¹³ see discussion paper at <http://www.herts.ac.uk/artdes1/research/cr2p/2001a.doc>

¹⁴ Schön, D. *The Reflective Practitioner*. Aldershot : Ashgate Publishing, 1991: 63ff.

‘reframed’ as one concerning how best to generate a solution that works for the intended audience. There is an important difference between ‘the solution that works’ and ‘the solution that is correct [true]’.

Such relativity generates scepticism from other disciplines who use accusational words such as ‘subjective’ in relation to arts and humanities research, but I refer the reader to what we have already discussed in terms of discipline boundaries and audiences. Arts and humanities questions are ones that are regarded as meaningful by the participants in the discipline. The fact that these questions, or more particularly these answers, are not so recognised by, for example, some astronomers, demonstrates the difference between the audiences for astronomy and for art rather than the correctness [of the correspondence theory¹⁵] of astronomy and the arbitrariness [of the pragmatic theory¹⁶] of arts.

If one embraces this idea then there are consequences for the provision of methodology training. One of the consequences is that it is not possible to equip a researcher with a basic toolkit of research methods. The reason that this is not possible, or at least difficult, time consuming, and therefore inefficient; is because of the plurality of answers for various audiences, and the observation that there are no preferred methods, only methods that are pragmatically prioritised in relation to context and audience. Therefore the task of methodology courses should be to provide the researcher with tools for the analysis of the relationship of context, question, answer and audience, so that a method may be tested for its appropriateness. It is the task of methodology: the study of methods, to provide a decision-making strategy for the researcher to answer the question: not ‘which method shall I use?’ but ‘how shall we determine which method is appropriate?’ If the focus of the purpose of methodology courses is thus changed, so too is the content changed: from discussing particular methods, to discussing the problem of appropriateness.¹⁷

The claim in this paper is that the context dependency of research questions, methods, answers, audience and context, is an important way of bringing together a number of important concepts that I have discussed elsewhere. Amongst these are the roles of ‘the work’¹⁸, language¹⁹, and the various concepts of knowledge as part of professional expertise in art and design²⁰. The professional context is described by

¹⁵ e.g. definition of ‘truth’ as ‘agreement with reality’ *Shorter Oxford English Dictionary*

¹⁶ e.g. ‘Ideas become true just so far as they help us to get into satisfactory relations with other parts of our experience’. James, W. *Pragmatism* London: Longmans Green, 1907

¹⁷ cf. Biggs, M. "Learning from Experience: approaches to the experiential component of practice-based research" in: Karlsson, H. (ed.) *Forskning-Reflektion-Utveckling*. 6-21. Stockholm, 2004 (online version at <http://www.herts.ac.uk/artdes/research/tvad/mb/2004a.pdf>)

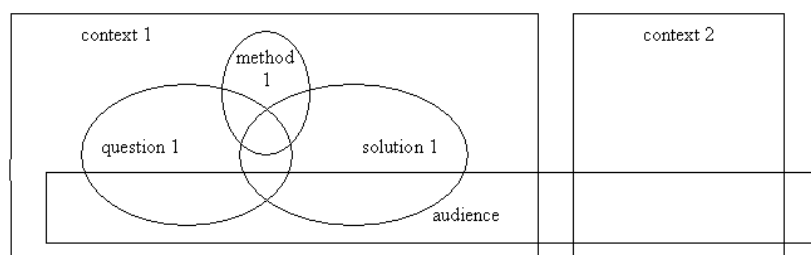
¹⁸ ‘The role of "the work" in research’. Electronic publication. Bristol, UK: University of Bristol, 2003. <http://www.bris.ac.uk/parip/biggs.htm>

¹⁹ "The Rhetoric of Research" in: Durling D. & Shackleton J.(Eds.) *Common Ground Proceedings of the Design Research Society International Conference at Brunel University*, 111-118. Stoke-on Trent, UK: Staffordshire University Press, 2002. online version at <http://www.herts.ac.uk/artdes/research/tvad/mb/2002a.pdf>

²⁰ "Introduction: the concept of knowledge in art and design" *Working Papers in Art and Design*, 2, Electronic publication. Hatfield: University of Hertfordshire, 2002. <http://www.herts.ac.uk/artdes1/research/papers/wpades/vol2/intro02.html>

Schön. The broader context of knowledge production is described by Gibbons. The impact of my claim is to affect the way that we approach the concept of research methodology. Finally, the claim can be used to reinforce the difference between the individual practitioner developing professional competencies, and the concept of research which is characterised by the generation of knowledge or interpretations that have impact on our peers. Impact does not imply that everybody's lives will be transformed by the research but that one can at least identify the potential for impact because the research meets a number of conditions. These include that there is a clear outcome that is disseminated. The vehicle of dissemination implies the audience. *If* the audience receive and understand the research outcome then the audience *should* behave differently, e.g. in the professional context.

A transitional stage between the professional judgement and the research judgement is the stage mentioned by Schön as the judgement of 'the solution that works' This might be translated into research language as 'the solution that offers affordances' or 'the solution that is instrumentally affective on the question in the context for the audience.' The concept of 'the solution that works' has the potential to express instrumentality if the concept is unpacked, but Schön does not do this. Unpacking this concept requires the provision of an account of the relationship between the research question, the research method, the research answer, the audience and the context. This can be represented diagrammatically:



Such an account is also traditionally to be found in a PhD thesis because it is a criterion of achieving the award:

The degree of PhD shall be awarded to a candidate who, having investigated and evaluated critically an approved topic and its associated literature resulting in an independent and original contribution to learning, for example by the discovery of new knowledge or by new interpretations of existing knowledge, *has demonstrated an understanding of research methods appropriate to the chosen field*, has presented a thesis in accordance with the regulations and has defended it in an oral examination to the satisfaction of the examiners.

(Criteria for awarding a PhD from University of Hertfordshire [*my emphasis*]
<http://www.herts.ac.uk> [accessed January 2005])

and in a research project meeting the requirements of a funding council, e.g. AHRB, UK:

The Board's definition of research is primarily concerned with the definition of research processes, rather than outcomes.

— it must define a series of research questions that will be addressed or problems that will be explored in the course of the research. It must also define its objectives in terms of answering those questions or reporting on the results of the research project

— it must specify a research context for the questions to be addressed or problems to be explored. You must specify why it is important that these particular questions should be answered or problems explored; what other research is being or has been conducted in this area; and what particular contribution this particular project will make to the advancement of knowledge, understanding and insights in this area

— it must specify the research methods for addressing and answering the research questions. You must state how, in the course of the research project, you are going to set about answering the questions that have been set, or exploring the matters to be explored. *You should also explain the rationale for your chosen research methods and why you think they provide the most appropriate means by which to answer the research questions.*

(Definition of research by the Arts and Humanities Research Board, UK [*my emphasis*]
<http://www.ahrb.ac.uk>, [accessed January 2005])

This could all sound like game-playing, and if one has suffered from bad experiences with PhD examiners or funding councils then it might feel like game-playing as well. Is it an arbitrary game in which those with power make demands on those without it? No, the game is played in order to assess quality in the circumstance in which one is generating new knowledge. By definition, others should not be in a position to judge the significance of the knowledge, interpretations or practices *precisely because* they are new; or the veracity of the knowledge independently of its argument *because* of its novelty. What one can examine are the surrounding related conditions and one can agree it is legitimate to *claim* certain things. In this respect it is necessarily these conditions and relationships that are being judged by research councils prior to the research being undertaken, or by examiners prior to the research being published. It is only after the research is completed and disseminated, and subsequently referred to by others (e.g. citation indexing) that one can determine whether the research has actually impacted significantly on professional practices and been *received* as research. There are therefore two kinds of research judgement: at the time of its origin: the quality control mechanism referred to by Gibbons, and subsequently the impact measured by (for example) citation.

The issue of what constitutes 'the solution that works' depends on the perception of the nature of the question by the audience. Not all questions would be regarded as meaningful or legitimate by them, and so the identification of this actual or hypothesised audience is the primary consideration in the design of a research project. From this, the paper argues, the meaningful question and the range of possible meaningful solutions can be determined. Finally the method that connects the question to the range of responses or solutions can be determined. Only once this network of relationships has been established can the project be designed and the iterative 'reflective practice' described by Schön be operated so that a contribution to the peer group is made by a consequential outcome.