

## **HOW IS RESEARCH CHANGING? CONCEPTIONS OF SUCCESSFUL RESEARCHERS**

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There is now an established literature on studies which investigate students' conceptions of learning and a growing body of literature on teachers' conceptions of teaching. There is not, however, an equivalent literature on conceptions of research. Research is central to academic life. Yet since the process of research and how researchers view it have not traditionally been subjects for investigation, there are many unanswered questions concerning the way research is perceived by academic researchers. This paper reports on some findings from the first phase of a study designed to investigate the way in which academic researchers conceptualise the research process. The paper discusses findings of the study concerning how successful researchers conceptualise the ways in which research is changing.

The study focuses on a key area which is grossly under-explored at present; namely, empirical work on the way in which the process of research is perceived by those who carry it out. I am distinguishing here projects which are about the process of research (such as the one proposed here) and research projects (which may be investigations of any kind in any discipline area). Examples of the former are Startup (1985) who researched academics' ideas about the impact of changes in higher education on how they viewed their research, and Bruce and Bahrck (1992) who looked at psychologists' perceptions of past research. Some accounts about how researchers carry out their research, detail historical studies of famous researchers and research institutions. The sociology of science literature including ethnographic studies of science laboratories is a related area. Latour and Woolgar (1986) in their study, for example, show how scientists generate scientific facts.

Much of the literature on research methodology in a variety of disciplines is also related to this research. Indeed, it is clear that what is known about the process of research mainly comes, not from empirical studies, but from such theoretical literature. In this literature there is a great deal of debate about the nature of research which is uninformed by empirical studies. It suggests that research is in a state of transition from a relatively stable view of its methodology and purpose towards an uncertain and far more diffuse pattern of studies and that the nature of knowledge is changing. This paper explores the empirical basis for this claim. It suggests that successful researchers perceive the changes which are taking place in research to be externally driven; not arising from broad disciplinary shifts.

### **The Study**

Ten academic researchers in each of three discipline domains were invited to participate in the first phase of the study. The three discipline domains reflect Habermas' (1987) definition of three knowledge constitutive interests. Habermas' project was to show that knowledge is shaped by the needs and desires of human beings. Scientific knowledge is built up because humans have a desire to exercise control over their world. Such knowledge has what he terms a technical knowledge interest, "interest in technical control over objectified processes" (Habermas 1987: 309). However, in the social sciences, knowledge is constructed in a process of mutual negotiation and communication and is more a question of interpretive understanding. Such knowledge has what Habermas (1987: 310) terms a practical or communicative knowledge interest.

But people not only either build up objective knowledge or engage in a process of interpretive understanding. They also reflect on the processes in which they are engaged. Knowledge therefore, Habermas suggests, includes a meta-level analysis. This is given expression in the humanities where reflection is part of the process of building knowledge. This third domain of knowledge pursues what Habermas terms an emancipatory knowledge interest.

The researchers interviewed were all holders of large ARC grants. ARC grants are highly competitive and there is evidence that a high level of seniority is required to acquire one (Bazeley et al 1997). They were therefore all successful researchers and, by and large, they were from traditional academic disciplines. Phase Two of the study will extend to a similar number of academics engaged in a wider range of types of research. The two phases of the study will make it possible to determine whether there are, as has been suspected in some discipline areas (eg. McGaw et al 1992), differences between ARC and non-ARC conceptions of research.

In the study, some background information was sought concerning the nature of the research participants were pursuing. Interviewees were encouraged to reflect upon their research and their views about knowledge and learning. The interviews have been transcribed and analysed. The study was conceived as following a phenomenographic approach to the analysis of data, so there is no attempt here to quantify the extent of conceptions about how research is changing; merely to represent the 'outcome space' (Dahlgren 1997) which characterises the views of participating researchers concerning the ways they saw research changing.

### **How is research changing?**

Over the course of this century, as is now well documented in the philosophical and epistemological literature, there has been a serious questioning of traditional ideas about knowledge and truth. Indeed, an enormous wealth of discussion and debate has surrounded these issues over a number of decades. The mechanistic, objectivist, realist empiricist tradition of inquiry known as positivism has been challenged on many levels and in many disciplines (see for example; Capra 1982; Usher & Edwards 1995):

*Science has . . . been seen as transcendent and decontextualised. Knowledge as well as the knowing subject, therefore becomes context-free. Rationality is cast as universal and transcendental, operating across all historical and social contexts and practices but independent of all of them. . . . Kuhn (1970) redirects our gaze from the disembodied subject of reason as the source of knowledge to a source in paradigms, traditions and knowledge-producing communities. . . . Kuhn points to the scientist, the subject of science, who is formed and acts through an unconscious acceptance of traditional, community-based authority, an authority which provides a way of theorising or understanding, working in and changing the world. (Usher & Edwards 1995: 36-37)*

The questioning of traditional academic discourse coming from the philosophers of science has been sustained by experimental and empirical findings in a number of disciplines. Initially led by the inability of physics to sustain, on a sub-atomic level, the notion of an objective material reality which was independent of the subjects who were studying it, Capra (1982), Briggs & Peat (1985) and many others have mentioned breakdowns in the fabric of disciplines. In addition, Habermas (1987), as we have seen, drew attention to the way in which knowledge serves particular interests. Post modern ideas have subsequently pointed staunchly to the context-bound nature of discourse and to the ways in which the 'grand narratives' (Skinner 1985) serve the interests of particular social groups. Lyotard (1993) has shown the ways in which what counts as knowledge and what counts as an appropriate method for generating it are intimately bound up with questions of power.

In this context, new forms of inquiry have emerged. These include attempts to define research methodologies which transcend the rules of positivism (see for example, Brew 1991; Guba 1990; Reason and Rowan 1981; Reason 1994); They also include feminist research (Lather 1991; Code 1991), critical ethnography (Carspecken 1991), and hermeneutic phenomenology (Van Manen 1990). This is not the place to enter into a discussion or critique of these various approaches. It is sufficient merely to note the emergence of a number of challenges to the dominant positivist framework and to draw attention to the existence of different perspectives existing alongside each other. One of the challenges of post modernity is the multi-perspectival character of academic discourse. The positivist notion that there is one right way of doing academic research and that there are clear, rational ways of deciding between different approaches can no longer be epistemologically sustained.

One common theme in these new perspectives, is the idea that knowledge is constructed; that it is created rather than discovered. Knowledge is viewed as a product of interpretation. Questions about how the interpretation is done (whether individually, socially or a combination), and about the relationship between knowledge and reality do not concern us here. Neither are we concerned with ideas about how dominant discourses are defined, nor with what are appropriate research methodologies. For the purposes of this paper it is sufficient to note that there are many varieties of interpretive approaches (Phillips 1993) which, it is argued, present significant challenges to many disciplines. In other words, the critique has profound implications for our understanding of academic work.

### **Conceptions of how research is changing**

In the context of these debates concerning the ways in which the nature of knowledge is changing, we might expect significant shifts in research to have occurred. However, when we come to look at the ways in which research was seen to be changing for our researchers what we find is somewhat surprising. In phenomenography there is no attempt to categorise individuals in terms of their conceptions. This paper is true to the spirit of phenomenographic research in presenting broad conceptions. Our preliminary findings in respect of how researchers conceptualised research as changing, suggest four clusters of response:

Research has not significantly changed

External pressures are changing research methods  
There is a shift to short term project-based research  
Content has changed due to changes in intellectual climate

Particularly surprising is the fact that some researchers conceptualised research as being essentially unchanged from the 18th and 19th centuries. A number of researchers mentioned the way in which information technology had changed research but, perhaps surprisingly, many were anxious to point out that these changes were superficial; not fundamental. In the natural sciences:

*there are gadgets which enable you to do things you couldn't do before but you still have to do the work: it's just the machinery costs more*

The use of the computer can speed things up but it has increased the expectations:

*now research has to be so detailed. You have to have huge footnotes with umpteen references because people expect you to have access to all those references. . . that's made it a bit more of a challenge*

The idea is that the computer changes techniques but it doesn't add to new knowledge (conceived as the ideas which come with the linking of facts). In some subject areas the existence of databases has transformed the discipline as there is information available which wasn't available before. Having material in a database means that the researcher is able to concentrate on higher level activities: 'You don't have to clutter up the brain with all that information'. In all of these ideas about the role of computers was the tendency to assert reassurance that in reality things had not significantly changed.

Secondly, changes to research were conceptualised as being a result of pressures coming from outside the discipline in which the research was being conducted. Several researchers mentioned increased pressure to find funding. No longer is it possible to do research which does not lead to publications or funding. Research is becoming more demanding and more competitive. The increased costs of research, or rather the devolution of these costs to the researchers, means that the researchers have to take on more of the responsibility for getting funds which are becoming more difficult to find.

Increased demands on other areas of academic life add to the pressure, for example, the teaching load has increased, collaboration with industry and applied research are 'the flavour of the decade', doing more managing of research projects and less 'hands on stuff', life has got consistently more difficult. The underlying idea behind all the ideas about funding and time pressure is that the government is dictating the research agenda; not the academics.

These pressures are making research more output oriented. Research methodology is affected by this for it means research is done in spare moments; rather than over a sustained period of time. Finishing is more important than the process:

*Research used to be something you steeped yourself in . . . a month or two at a time and then getting out there for an extended period whereas now. . . the culture of research and the climate of the present is that research is about . . . define a project in order to get a grant. . . you sort of do research . . . it's largely defined by which grants you get. . . . no time more money creates a very different kind of methodology in a way, which for me is problematic. I do spurts of work. . . I rush . . . and do it fairly quickly. There is no sort of sustained, ongoing developmental engagement with the material.*

Another facet of this changing methodological climate was the pressure to publish articles. This was a cause of concern for our researchers. It meant that there was not always time to do what they wanted to do. However, there were some more serious reservations including scepticism about what people were publishing. Counting publications again contributes to research being more outcomes oriented. This has led to researchers having to change the way they conceptualise their research and this is affecting the character of research. An atomistic conception of research was being forced on them by the funding agencies; research being conceptualised in terms of projects. This is unfortunate, particularly since some researchers conceptualised their life as one long research project. Some were seriously worried by the tendency to publish shorter articles which did not allow for ideas to develop over time, and which relied on having a number of good ideas:

*nobody has ten good journal ideas a year, nobody but nobody. One or two if you're lucky papers are tending to approach nearer and nearer to the least publishable unit the more you discover the more trivial your research becomes*

But to what extent were the intellectual changes which were mentioned earlier recognised by our successful researchers? If the implications of the numerous philosophical critiques are to be taken on board, then we should see at least the beginnings of radical changes in methodology. In what ways are post-modern and post-positivist ideas thought to be influencing the practice of research in different fields?

Postmodernism was perhaps most clearly articulated in the humanities. In fact, surprisingly few of our researchers mentioned this. Among our researchers post-modernism was only mentioned as a way in which the subject content had changed. It had brought into the arena new areas of inquiry, for example, popular culture:

*When I came into this department the emphasis was on fairly traditional kinds of history ... there were no courses in cultural history taught ... and I can't think of anyone who wrote cultural history. ... the sort of subjects on which I now write, which is largely popular culture would then have been regarded as totally trivial. And you certainly would not have been allowed to teach a course in it. And if you wrote books on it ... people would've thought that was a great joke. There are still conservatives in the department who do think that what I write is not real history ... but what I write is now ... accepted as legitimate research.*

Not one interviewee conceived of changes in research methods being brought about by postmodernism. For example, even though it was recognised that as a result of the post modern discourse '*the bottom has dropped out of English literature*' and that the questions which are asked had changed, it was avowed that this does not really change the methodology.

The ways in which post-modern ideas are influencing research were conceptualised, by and large, as being unrelated to what researchers personally were doing. The extent to which traditional research boundaries are being broken appears to be dependent, not upon the level of familiarity of researchers with post-positivist and post-modern ideas, but on their views of the ways in which the overall intellectual climate influences their research. There was, for example, a conception that paradigms are changing things all the time but that essentially this was concerned with the intellectual context. The actual activities researchers engage in are unchanged.

*at times there are shifts in paradigm where you can see some sections of what is known in a whole new light and that doesn't necessarily extend the boundaries of knowledge but it does expand people's consciousness*

There was an idea that disciplines change but that researchers continue doing the same thing; researching the same issues. Researchers appear to make adjustments to what they are researching and to carry on as before. This suggests that choice of methodology is a function of the study style and interests of the researcher. It seems they ignore intellectual storms around them and focus on their particular relatively narrow topic.

## Summary and conclusions

Research then, is seen as changing in response more to external pressures than in response to the intellectual climate. The post-modern and post-positivist critiques appear to have affected the emphasis of the research, i.e. its content; but does not appear to have had significant effects on research methodology. Changes to the ways in which people do research are perceived as largely unaffected. Indeed, changes brought about by pressures of government funding appear to have done more to change research methodology in traditional discipline areas than the shifts in intellectual climate. It may be the current context of the climate of funding in Australian universities which contributed to the dominance of views about extrinsic pressures. However, in view of the extensive intellectual debates which have been going on during the course of almost a century, it is perhaps surprising how funding decisions have become so much more dominant in the space of only a couple of years.

We cannot conclude from these findings, however, that academic research is not changing in the ways suggested by the epistemological literature; merely that it is not experienced as a major factor in our successful researchers' views of how research is changing. This may be a function of the largely traditional disciplines featured in this first phase of our study. It will be interesting to see whether the findings are replicated when we investigate conceptions of researchers with a wider range of research grants.

What this paper does suggest, however, is the need to be cautious in translating ideas about research which have been generated from the theoretical literature, to practice. Research policy is based not on empirical studies but on commonsensical understandings of the nature of research and how people carry it out. Indeed, interestingly a few researchers considered the kinds of questions we asked in our interviews to have self-evident answers; ones which were defined by their understanding of the intrinsic nature of their discipline.

Doing research on research appears to some to be investigating a phenomenon that does not need investigating; about which there are no problems. Our findings suggest there is a distinction to be made between ideas about the intellectual changes found in the literature on the one hand and the ways in which these changes are perceived by successful researchers in traditional disciplines on the other. There are clearly some important and interesting areas for further exploration.

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