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Mixing methodologies in research

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Of Farmers and Organisations

Farmers know a lot about the importance of harvesting the best possible crop and harvesting knowledge so that they can continue to produce. Over many generations farmers have learnt how to prepare the ground so that seeds literally jump up to greet the sun. They know about watering appropriately, whether crops are prone to be affected by the wind, how to nurture and when is the best time to harvest. This understanding has been developed through trial and error. But Farmers make their tacit knowledge more explicit for each successive generation so that trial and error is minimised and the same mistakes might be avoided. Farmers are researchers in the best possible way.

Paradigm Paralysis

There is a phenomenon in education and training circles, but most evident in academe, which can best be described as ‘paradigm paralysis’ when it comes to research methodology. It’s a phenomenon less known by people who undertake evaluations commercially, but I’ll come back to that later. Paradigm paralysis involves the almost exclusive use of a particular research methodology or design and, in my experience, the almost pathological eschewing of the apparent enemy - the other paradigms.

The traditional divide has been between quantitative and qualitative methodologies, although there are variations such as action research and the narrative post modern approaches, for example. Pick up almost any textbook on research and it makes this divide quite clear. In my own discipline, psychology, statistics is a compulsory component of accredited programs in Australian universities that lead to registration but there is no need for students to understand divergent or convergent interviewing, Grounded Theory or other relevant qualitative techniques. The Australian Psychologist, the official and refereed professional journal for psychologists in this country, is almost exclusively concerned with experimental design. It is almost incomprehensible to the average practitioner. I have had scientists tell me that action research is nonsense and, by the way, we already do it. From what they tell me it’s a sort of statistical anorexia which involves serial multiple regression analyses in an effort to reduce the already reduced.
On the other side of the track we see people locked into qualitative approaches. While the post modernists made an excellent contribution to the critique of the dominance of the positive paradigm they are, in my experience at least (and isn’t that enough), now guilty of the same sort of blinkered approach to research as the supposed enemy. Thus we see theses and research reports that go to great lengths to explain why a positivist approach is not appropriate, rather than simply describing why a qualitative approach is appropriate. This attitude is both apologist and win-lose. I know of at least one post graduate program that insists its students undertake a subject in qualitative research methods but not the quantitative counterpart – unless the student asks.

Real World Phenomenon

This divide has some interesting consequences. In the real world, as most people involved in undertaking evaluations commercially know, a problem or the research concern is not chosen on the basis of a preferred methodology. Rather, the question is asked and the methodology is chosen later. There is an important temporal relationship here and it appears to me that often it is ignored and the research question is chosen on the basis of the preferred research paradigm rather than the other way around.

It’s likely that we inadequately prepare people for research in the real world and are guilty of the preciousness Fred Emery (1974) has mentioned in relation to preserving an exclusive paradigm. By being precious we deprive learners of the opportunity of what should be an all round knowledge of research design and methodology. Fred’s point was that academics can be guilty of being gate keepers for pet theories in an inherent conservatism that would appear to contradict the real role of universities vis a vis knowledge.

This is also evident for anyone trying to get qualitative research proposals past committees with a membership consisting of ‘scientists’ knows what a problem this can be. The same can be said for research funding. On the other side of the coin, try talking statistics to post modernists and you’re in deep trouble.

It’s a Complex World

One of the more compelling theories that provides support for thinking about mixing methodologies in research is that of Complexity Theory (Waldrop, 1992). In its simplest sense the theory proposes that most phenomenon are highly complex and open to be affected by all sorts of interrelationships with other phenomena and by unpredictable events. The demise of dinosaurs and evolution come to mind as examples in the natural sciences and the area of human behaviour is obviously fraught with problems when it comes to simplifying what might be happening.

Quantitative researchers like to impose theories on data and see whether or not the data supports the theory. They are somehow happy with an explained variance of maybe 40 or 50%, if they’re lucky, and conclude that some other soul might like to
look for the other 50% because after all it's important to suggest areas for further research. No matter that the phenomenon in question is obviously more complex and that one theory is inadequate to really come to terms with it.

The qualitative minded, however, are eager to let the data drive the theory if they are really true to the paradigm, and many are not. Qualitative researchers like to design models and theory from data. Sometimes, however, this is oversimplifying things too by not being able to generalise beyond a single case and not being prepared to see if the model in fact holds water. Reducing data can be useful and there are times when it is important to have some idea of the possible correlation between variables.

There are some excellent examples of dealing with single variables and needing to see complexity in what we research. Some that come to mind are: the introduction of the cane toad; environmental impact studies; DNA mapping; the GST. It occurred to me when Viagra was released, that while it had passed all its drug trials, where was the research on how it might effect relationships? Suddenly a couple has to come to terms with the emotional intensity associated with sex after perhaps years of doing without. And all of a sudden men are having heart attacks – is it the drug or is it the result of unaccustomed physical effort?

As an aside, its interesting and surprising that no less a journal than the Lancet has recently started to look at looking more deeply into what are complex rather than simple phenomenon; and it is to their credit.

**Mixing Methodologies: Its all in the Design**

In the vocational arena there are ample opportunities to mix methods in either straightforward or quite creative ways. One example of a mixed study, funded by NCVER, involved an initial qualitative approach (Hase, Cairns and Malloch, 1998) that used Grounded Theory and a case study design to develop a model of organisational capability. Subsequently a questionnaire for measuring organisational capability has been designed from the model and refined using a randomised sample, item analysis and data reduction techniques such as factor analysis (Hase, 2000). The design does not stop there. We are about to embark on an Action Research design that involves using the questionnaire as a business unit diagnostic, do more in-depth analysis using interviews and focus groups to further analyse key issues and then implement incremental change in a cyclical manner. The end result is a much greater understanding of a complex issue as most of you involved in organisational change would agree as well as an attempt to generalise.

In a study undertaken with Thiess, a construction and mining company in Queensland, we were interested in how to improve occupational health and safety (Hase and Davis, 1999). Using methods based in Action Research, the company implemented what are similar to learning sets but which they called Work Activity Briefings (WABs), that involved all employees. The effectiveness of the WABs was evaluated using a quantitatively designed survey instrument that needed to identify changes in accidents and incidents, work days lost, costs, and so on against some independent variables.
The data was presented in the usual way with as much reduction as made sense for the purpose of reporting. Once it was realised that there were some tangible and very real results (the hypothesis was accepted) the design then involved a series of interviews and focus groups, to better understand exactly what is was that made these WABs work in what might have seemed a potentially difficult environment. Out of this comes a model for the use of this kind of method. The next step, if we can get funding, is a design that involves implementing the model in other settings using Action Research to enable a ‘just in time’ examination rather than a post hoc look at the phenomenon.

This latter point is important and a strength of Action Research. A good deal of research is post hoc and involves finding out what has happened rather than what is happening. There are obvious limitations in post hoc designs. Action Research provides the opportunity to look at a phenomenon while its evolving and to fiddle with it as you test out hypotheses ‘on the run’. It’s a chance to look at the potentially myriad variables that might be coming into play as they occur. Action Research designs are flexible enough to enable quantitative as well as qualitative methods to be used as the problem unfolds and as the need arises. There is a very real way in which the data and the problem as they change drive the methodology.

Some Implications

I began this paper with a metaphor of the farmer. Similarly, organisations need to harvest knowledge in this brave new world of rapid change, complexity and unpredictability (Levy, 1994). The effects of downsizing and other migration of people, in which human capital is frequently lost to organisations, is even more of a reason to ensure that organisations learn from what they do in a systematic rather than ad hoc way. It would be interesting to see a clear statement of how an organisation intends to harvest knowledge as one of the key objectives in the organisational mission. Ongoing and flexible research, built into the system may be a key competitive advantage for many organisations and communities. I mention the latter because the problems that confront organisations also confront communities. In fact there is an interesting and disturbing paradigm paralysis that affects research and decision making in communities.

It is my view, therefore, that education and training programs need to provide skills in mixed methodologies that are based around the research question or problem rather than paradigm preference. Moreover, all round research skills need to be a part of the repertoire of any manager and trainer. The implication for courses in research design is clear. The artificial divide between qualitative and quantitative methodologies needs to be breached in course design. In fact, quite an interesting curriculum might be designed around research questions in which methods are appropriately chosen and mixed.

There is a need now, more than ever, for researchers to look to working in teams in which skills complement each other, so that more complete research designs such as those described above can be developed and implemented. Many problems in vocational education and research are unclear, they are complex and need a multi-dimensional approach. Research funding should also recognise this.
References


