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Participant research in design and technology education

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Participant research in design and technology education from the perspective of a design and technology participant researcher

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Abstract

IDATER 2000 began with Phil Roberts' address on the importance of participant research. Speaking from a primary school perspective in which design and technology is being squeezed out by default through constant focus on improving SATs scores, and yet having been engaged in researching children's developing design skills for the past five years, this paper presents a personal view of participant research.

There are two halves to the paper; examining my pursuit of a research paradigm under whose umbrella I could feel comfortable. The first half considers the options. The second discusses the problems, practical and philosophical, faced by would-be teacher researchers within the option most readily available.

By sharing my perspectives and experiences as a participant researcher into children's design skills, I hope to be able to contribute to the debate on how to encourage more participants to do research and how their results can contribute to the shared knowledge base about design education.

Keywords: participant research, action research, teachers as researchers, primary education

Educational research paradigms

Educational research is usually seen as falling within one of three main paradigms:

- empiricist
- interpretive
- action research

and the assumption is frequently made that teachers conducting research are engaging in action research. However, when I examined the underlying assumptions of this tradition, I was not so sure that I either was, or wanted to be, part of it. It seems to me to be too easily used by those who want to see teachers forever needing to improve, but never becoming fully respected as capable professionals.

The empiricist tradition

The empiricist tradition has its roots in the desire of the social sciences to be seen as scientific. Thus the methods of physical sciences were emulated in

the belief that this would make the results valid. The essential feature of this approach is that only data from the senses, collected by an external observer, counts as scientific data. Views and interpretations of events do not count.

The data produced by empiricist research is frequently numerical and a range of statistical techniques are applied to determine their significance. Hence the need for the kind of test which produces quantifiable answers. This can be difficult to apply in a real-life educational setting, especially in areas such as design and technology where the subjects' answers are expected to be diverse.

Lave (1988: 35) criticises those researchers into problem solving who have the problems constructed 'off-stage', their construction process being hidden from the experimental subjects who are then deemed to have 'failed' if they do not produce the intended response:

This absence of a normatively defined response as failure is so central a hallmark of

experimental ... practice that it may be surprising to note that there are substantive alternatives in most other social situations ... Transfer theory presupposes that problem-solving activities are always a quest for truth or 'the right answer' to a given problem. (Lave, 1988: 35–36)

The interpretive tradition

The interpretive tradition has its roots in anthropology and ethnography. Its aim was to observe and report on a natural human situation. Researchers went out of the laboratory to become 'participant observers', mixing with the people being observed as an honorary participant. They did not originate from and were not part of the culture being described.

Although most teacher research is inevitably descriptive due to lack of training in and commitment to statistical methods, their situation is not that of the traditional participant observer who tries to be as unobtrusive and non-participant as possible (as recommended by Ely [1991] for example). Most teachers conducting research are participating at the fullest level, frequently as the power figure in the situation. In the interpretative tradition the researcher is actually a 'non-participant observer.'

A further problem lies in the interpretation of the observations. Gitlin, Seigel and Boru in *The Politics of Method* (1989) observe that the researcher uses their privileged position to say what things mean (even interpretations made by the observed are treated to re-interpretation by the researcher). In their discussion of Apple and King's studies of reception classrooms, they comment that the reader is expected to take the researchers' interpretations as givens. Despite studying the social constructs of the children and teachers, they do not consider their own. Apple and King are not alone, say Gitlin, Seigel and Boru, of being guilty of:

a naive realism by editing themselves out of their text. They assume that non-reflexive, spectator-like research is possible and even essential to the writing of thick descriptions. In a sense these researchers use the language of traditional positivist research. (Gitlin, Seigel and Boru, 1989: 203)

Academic researchers of all persuasions did not anticipate their subjects turning into researchers and researching themselves and their own setting, nor of seeking to change it as a result of their own findings.

Action research

McNiff (1988) perceives a problem with the application of both empiricist and interpretive methodologies to educational settings in that their point of origin is not educational and therefore neither address nor answer educational questions:

It is not part of their methodological design to ask such practical, problem-based questions and ... it is not part of their conceptual repertoire to answer them. They can make predictions and give descriptions of the phenomena of social settings. They cannot give educational explanations for the events within those settings. (McNiff, 1988: 18)

The work of Stenhouse (1975) has been highly influential, his view of curriculum research is that of pedagogical development, i.e. improving the teacher's practice. Stenhouse's definition of curriculum is not content (i.e. what the children are taught) so much as how it is presented. It is this that he sees teachers researching and improving.

It is significant that Elliott (1991) identifies a link between action research and teacher appraisal and quality assurance in education, to which he assigns a chapter apiece. Although denied by Altrichter, Posch and Somekh (1993), both action research and teacher appraisal can easily slide into a deficit model of teacher competence. Teachers have to continually evaluate their performance and set themselves new targets to achieve. They are never adequately competent. Whereas, on the other hand, the National Curriculum cannot be scrutinised, criticised or significantly altered, only delivered, by teachers. Action research has, by adopting an agenda of 'improve your own practice', played into the hands of the politics of curricular legislation.

Through having been encouraged to participate in action research as an appropriate way of reflecting on their own practice in order to make improvements to their personal performance, teachers' access to other forms of research in which they might participate has been limited by default. By focusing on praxis, issues of epistemology and ontology, for instance, are kept outside the domain of teacher enquiry. Far from liberating teachers, action research has side-channelled their curiosity and energy.

Where do I fit?

Being a teacher involved in researching designing by children in an ordinary classroom and

attempting to improve their understanding and use of drawing for planning has put me outside any specific tradition, whilst using understandings and approaches from more than one.

Unlike the action researcher, I am not, as first priority, seeking to improve my own practice, although it could be argued that my increased understanding of how children design things has an improving effect on my teaching. My focus is on the children and how they learn, not on me and how I teach. I am assuming my teaching style, expertise and praxis to be a constant over the duration of the four terms which my research project will last. Changes in me are not written into the equation.

In that my programme of lessons is devised to improve the performance of the children, I have more in common with the empiricist and interpretative traditions, since my questions are not about myself but about observed others. In complete contrast to the interpretative researcher, however, I am not merely observing but participating as the person in authority seeking to make changes to the behaviour of the observed.

I am aiming to test a hypothesis which rests on an epistemological assumption, that using drawing for designing is analogical and that children's understanding of how to do so can be improved. Further, I am testing the idea that making the process explicit to the children by using Lakoff and Johnson's (1980) container/journey metaphor will enable them to understand the principle and access the process. In order to do this I have devised a programme of lessons to be conducted weekly for four terms with a class of Year 2 children.

The programme is a designed entity, created from previous iterations of designed entities on which I have reflected and analysed the results. So as well as finding out about children, I am also testing and evaluating a product, which I conjecture will enable me to prove a hypothesis about how children can be helped to develop design ideas on paper. The data I am collecting is more descriptive than numerical, although the recording medium includes spreadsheets and databases. I am comparing their progress with a parallel class of children, who act like the control group of an empiricist study, except that my comparison class are not matched to my focus class for any variables apart from age and attendance at the same school and comparable in academic ability and family background.

My concerns about teacher research

My concerns focus on three main issues which affect those of us engaged in pedagogical research and employed as full-time teaching staff in a climate of top-down curricular initiatives:

- current training initiatives and performance management strategies start from a deficit model – that primary teachers (especially) are in need of being told what and how to teach
- the danger of perceiving action research as to do with improving one's own delivery performance and not as a means of creating knowledge about pedagogy
- the effect of a model of what constitutes knowledge as enshrined in nationally funded documentation which excludes other pedagogies and their supporting research from the arena of public debate.

The management of training

The rigidity of the National Literacy and Numeracy Strategies and the long-term training which has accompanied it has had the effect of wearing down both morale and resistance. The widespread acceptance of the QCA schemes of work for the other subjects, including design and technology, without evaluation of its applicability to local needs, has occurred through teacher weariness. That weariness has been caused by years of centralised initiatives telling teachers what to do.

The latest initiative, performance management, likewise starts from a deficit model. The three strands of professional development, pupil progress and school development for which targets must be set assume that what I do already is not enough. I must do more and get better at it. My training needs must be recorded, catered for and results assessed. Fortunately, I have a sympathetic headteacher who agreed to my targets relating to my research. However, I was not willing to negotiate, on the basis that I do not have time for anything else in the next 12 months.

Teachers in pursuit of knowledge

I ran into problems attempting to find my niche in an appropriate methodological tradition. Both the empiricist and interpretative traditions assume that the researcher is an outsider. As teacher I am the power figure. But action research does not fit me either. This tradition is to do with 'praxis': improving practice and becoming a reflective practitioner.

But that is not my focus. I want to know how young children can access drawing as a modelling tool for design and technology. Is it possible? How do drawing, designing and making relate anyway? If I unravel that, will I find some basic nugget of truth that can be explained to a 6 year-old? Is what I find universally applicable? Would other teachers get the same results if they tried it (assuming I find the nugget)?

Whether or not this improves my personal classroom performance is secondary to my thinking. What excites me is finding out what is going on inside these little heads and whether they are able to grasp these big ideas about planning and modelling and taking ideas on a journey across the design sheet. I am on a journey of discovery, not about me and my professional performance, but about the children and their developing understanding of designing.

But action research is not geared towards creating knowledge about the children. This has been left to the non-participant researchers. Teachers can research teaching; academic researchers research learning, which rarely influences teaching because teachers are following national guidelines in fear of Ofsted.

The national ontology

My research does not radically challenge the status quo but it does mean that for four terms, the class I am studying are not following the QCA Scheme of Work which every other Year 2 class in the district is following. But it takes more than the determination of the confident to have sufficient self-belief and courage to try out something new and different in a classroom. It needs the backing of the school management structure, both headteacher and governors, which, fortunately, I have. It also needs money. So far I have spent about £7000 pursuing my research fees and computer equipment. I have six days release from school per year to visit Goldsmiths, University of London for tutorials, which to date has cost the school about £5000 in supply cover. Research activities conducted with children in classes other than my own are managed through swapping classes with colleagues and through a continual supply of competent ITT students from Christchurch College, Canterbury.

So I am fortunate; but what about others. What about teachers with really radical ideas who cannot afford to fund themselves? A more timorous

or less child-centred leadership team than mine might not be prepared to take risks, especially for projects which depart radically from national directives. There is a real danger that nationally orchestrated everything will stifle the creativity and initiative of an ever more highly qualified teaching force, who ought to be more likely to be interested in conducted original research but increasingly less likely to do so.

Conclusion

Practitioner research is essential. Practitioners as researchers need to be taken seriously. We teachers expend so much time and energy amassing data on what children have learnt and what works in classrooms for our own benefit, it is only a small step to sharing it with others. But there is a belief gap: with so many directives coming from above, who is going to listen to what is said from below?

The research community and government need teachers as researchers. Not to provide guidance on how to implement the latest initiative, better, smoother and with more paperwork, but to engage in the big issues.

Duckworth's (1987) lovely phrase 'The Having of Wonderful Ideas' to describe design and technology amongst young children could be the bright new future for visionary teachers, in all subjects, not just design and technology. But ham-strung by government directives and worn down by continuous change, is it not easier just to acquiesce or 'go supply'?

The young see visions and the old have dreams, says the *Bible*. I am beginning to approach the age of dreamers. Design and technology is still a young subject. It should have its visionaries. We need to encourage teachers to seriously engage in researching how children's understanding of the designed environment develops and how we can encourage them to see themselves as designers with the ability to make real changes to their world. Not just to inform the teacher's own practice but to build up a shared knowledge base of pedagogy which can gain recognition and to engage in the debate on the ontological and epistemological issues on which curriculum development needs to be based.

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For those interested in contributing to knowledge about young children's design drawing, I am setting up a web site 'Drawing as a Tool for Thought' (design.drawing.net) with the aim of becoming a 'knowledge node' for this subject, which will be useful to researchers, teachers and students.