AN INTRODUCTION FOR IDATER-ONLINE 2006 FROM AN IDATER PERSPECTIVE

Action research: a perennially controversial designerly mode of enquiry

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Abstract
This paper seeks to summarise the contributions which have been made to on-going conversations regarding action research at DATER and IDATER conferences and their context. Contributions by Archer, Green and Roberts in IDATER Keynote Addresses are particularly noted, but papers by other authors acknowledged. Contributions by Loughborough University's Design Education Research Group (DERG) beyond the IDATER arena are also cited. The paper and its concluding remarks, alongside the Keynote Addresses by Archer, Green and Roberts set the context for IDATER-online 2006 which focuses on action research

Keywords: *Action research, DATER, IDATER, DERG*

Action research has been an aspect of the on-going discussions at the DATER and IDATER conferences since their origins in 1988. At the inaugural Conference the late Professor John Eggleston discussed the task ahead in his Keynote Address.

> *Perhaps the task that this conference needs to lend itself to most urgently is that of recognising that research and development is an integral part of our educational activities. It is something that we have to take on board as an essential component of the whole process of teaching Design and Technology. The need has never been greater than now as we are set to deliver a major expansion of Design and Technology. If one listens to the politicians you will hear that Design and Technology is expected to provide virtually the whole range of the new learning opportunities that are seen to be particularly relevant to the kind of society into which we are moving.*
> (1989:129)

Eggleston was concerned about the preparedness of the profession in the late 1980s to face the challenges that the introduction of the National Curriculum in England and Wales in 1990 would present and particularly about the research foundations.

> *At the moment we are in such an uninformed position that we cannot even be specific about what we hope to deliver and therefore we cannot even devise strategies to respond.* (ibid, 130)

Well the 1990s have come and gone, and the extent to which the design and technology education profession equipped itself to face its immense challenges is a matter for analysis on another occasion. In relation to the matter in end, it is in many ways curious that action research remained, and probably still remains a controversial strategy, for addressing some of the shortcomings. Eggleston drew parallels between action research and designing, which are echoed and described more fully in the late Professor Bruce Archer's 1991 Keynote Address, discussed later in this paper. Nevertheless, even within design and technology there is a concern about the validity of action research, and it is really time that such concerns were placed in an appropriate context. This is the task that the IDATER-online conference in 2006 has set itself.

Eggleston ended his 1988 Keynote Address as follows:

> *What I am trying to suggest, very simply, is that we cannot set up a new kind of activity which requires new people doing different things, but rather that we ourselves as teachers, lecturers, writers and administrators need to add research to the work we are currently engaged in. This is an addition, which is neither theoretical nor remote, but immediate, practical and relevant. If we fail to do so then, ultimately, all the other professional activities we undertake will be increasingly impaired and vulnerable. I hope this Conference will present the opportunity for us to make the move before it is too late and provide us with the support to do it well and effectively*.
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> (ibid; 131)

The words 'action research' might not be specifically mentioned in this quotation, but the call is clear enough. IDATER has always provided support for action researchers as the references below to contributions made over the years will demonstrate, but in 2006 it is now time for robust debate and strong statements. Action research is an appropriate designerly mode of research activity. The publication that follows the 2006 IDATER-online conference will bring together past contributions to IDATER's on-going debate concerning this research method together with the new ones, with the clear intention of supporting a strong theoretical foundation for action researchers, whatever their discipline.

The need for such an re- examination of action research as an appropriate strategy for teacher-researchers is clear from the general conclusion reached by Harris & Wilson following their review of some research literature from design and technology education in 2003.

> Our general conclusion is that despite the number of references to D&T in the literature few were research-based in terms of meeting peer-review standards. Many of the papers have been written by advocates of the subject and where research does exist, it tends to be small-scale or action-based. Whilst we recognise the importance of involving users, we recommend that

> the development of the D&T curriculum and learning and teaching would benefit from more funded and systematic research in D&T generally. (2003:62)

In a sense the conclusion that 'more funded and systematic research' might be regarded as inevitably correct, but it needs careful interpretation. Harris and Wilson's review referred to 11 of the IDATER papers published between 1988 and 2001, which were all peer reviewed. Clearly at IDATER we believe that the 400+ papers published should have carried rather more weight than they were judged to be worth. The conclusion also runs the risk of ignoring the objections raised by Roberts to the usefulness 'hypothesis-based and hypothesis-testing forms of enquiry' (1982:206) in the context of education research following an analysis by Bassey (1980) of 28 such research papers. Practitioner theories formed from the analysis of action arguably the most important for educational research and curriculum development, so it rather depends on what Harris & Wilson meant by 'systematic'. However whatever they meant it seems that an essential forward step towards strengthening the research foundations for design and technology education concerns the reinforcement of the value of action research outcomes and practitioner-researchers.

The 'action research' context for the DATER and IDATER conferences

Of course the origins of action research precede the DATER and IDATER conferences by many decades, and full accounts occur of these elsewhere (eg Cohen & Manion, 1989, 217-241). This introductory paper is essentially intended to summarise prior contributions made at these conferences to the discussions concerning action research, and so the brief notes which follow focus on the context provided by the debate concerning action research which had developed by the late 1980s[1]. Cohen & Manion provide an extensive discussion of the characteristics of action research nd summarise the criticisms as follows.

> That the method should be lacking scientific rigour, however, is not surprising since the very factors which make it distinctively what it is – and therefore of value in certain contexts – are the antithesis of true experimental research. The points usually made are: that its objective is situational and specific (unlike the scientific method which goes beyond the solution of practical problems); its sample is restricted and unrepresentative; it has little or no control over independent variables; and its findings are not generalisable but generally restricted to the environment in which the research is carried out. Whilst these criticisms hold in most cases, it is important that we refer again to the qualification made earlier; that as action research programmes become more extensive and use more schools, that is, become more standardised,

[1] The first conference *DATER88* was held in 1988 and the conference became 'international' in 1992 (ie *IDATER*) as it became clear that the growth of design and technology in school curricula was a truly international phenomenon and delegates from all around the world attended the *IDATER* conferences.

> less personalised and more 'open', some of these strictures at least will become less valid. (ibid, 1989:226)

They then go to describe the occasions when action research as a method is fitting and appropriate.

> The answer in short is this: that action research is appropriate whenever specific knowledge is required for a specific problem in a specific situation; or when a new approach is to be grated on to an existing system. More than this, however, suitable mechanisms must be available for monitoring progress and for translating feedback into the on-going system. This means, that other things being equal, the action research method may be applied to any classroom or school situation where these conditions apply.
> (op cit, 1989:226)

And following a line of argument not dissimilar to one of those Roberts (1982) pursues, might well lead to the conclusion that because the research outcomes relate to specific problems in specific situations they are potentially inherently likely to be more useful to practitioners.

Action research had enjoyed something of a revival in the UK following te establishment of the Schools Council in 1964. One of the major action research projects they funded was the Humanities Curriculum Project (jointly with the Nuffield Foundation), although there were others. So, considerable experience of action research was built up during the 1970s and 1980s in educational contexts. By the time of the last IDATER conference in 2001 research studies of action research itself were being published (eg Dodds & Hart; 2001). Their book concerns an analysis of seven action research programmes and explores the reasons why the researchers 'break with convention and find their own creative and unique paths'. (ibid, 2001). Many of their conclusions are interesting, and the following quotation indicates one of the perhaps predictable, but nevertheless unsettling for traditionalists, outcomes.

> At some point in their research, group members had found themselves experiencing a tension between the models of research that they were encountering in their studies and what they felt they *needed* to do, intellectually, emotionally and professionally, as they developed and wrote up their research in the interests of their professional practice. In different ways, and for different reasons, they felt impelled to step outside what they perceived to be conventional approaches to research if they were to be satisfied with their work, and if they were to achieve the purposes that they had set themselves. (ibid, 2001: 143-144)

Predictable because if each of the research problems with which they were dealing was a 'wicked problem', then there are no unique methods by which they

can be solved (Rittel & Webber, 1974: 276). But how then to ensure validity and reliability. If only practice were more straightforward!

Action research and disciplines other than design

As a research method, action research is used in many areas and disciplines (eg medical practice, the social sciences and management). The full range and scope of action research is well expressed by the mission statement' for Educational Action Research: an International Journal. (Loughborough University staff and students can access the journal through the University's online resources at http://sfx.lboro.ac.uk:9003/sfx_local/a-z/default?perform=textSearch).

> *Educational Action Research is a fully refereed international journal concerned with exploring the unity between educational research and practice. Increasing interest in action research in recent years has been accompanied by the development of a number of different approaches: for example, to promote reflective practice; professional development; empowerment; understanding of tacit professional knowledge; curriculum development; institutional change; and development of democratic management and administration. Proponents of all these share the common aim of ending the dislocation of research from practice, an aim which links them with those involved in participatory research and action inquiry.*
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> *This journal publishes accounts of a range of action research and related studies, in education, and across the professions, with the aim of making their outcomes widely available and exemplifying the variety of possible styles of reporting. It aims to establish and maintain a review of the literature of action research. It also provides a forum for dialogue on the methodological and epistemological issues, enabling different approaches to be subjected to critical reflection and analysis.*
>
> *The impetus for Educational Action Research comes from CARN, the Collaborative Action Research Network, and it is hoped by means of the journal to extend and strengthen this international network.*
>
> (Inside Cover, Vol 7(2), 1999)

I pursued my PhD through the submission of published work relating to action research, and published a paper in Vol 7(2 (1999) of this journal reflecting on the nature of the research with which I had been engaged and why I had pursued the route I did. Curriculum design is a wicked problem, and the inevitability, for me, of pursuing an 'action research' path is described in this paper in terms of the characteristics of wicked problems published by Rittel & Webber in 1974.

> *The essence of the challenge posed by wicked problems is that action must be taken without the luxury of complete prior knowledge of the outcome.*

Taking action is itself part of the process of developing understanding.
(Norman, 1999: 300)

So, although the 2006 IDATER-online conference is essentially concerned with action research as a designerly activity, and parallels between such researching and designing, it must be acknowledged that such IDATER contributions lie within a much wider contexts and traditions. This wider context was perhaps best demonstrated and acknowledged by IDATER's invitation to Kath Green (one of the leading advocates of educational action research) to give a Keynote Address to *IDATER98*. The paper she gave is reproduced here as one of the Lead papers for *IDATER 2006*.

IDATER contributions to the 'action research' debate

There have been two key theoretical contributions at IDATER conferences to the understanding of action research as a designerly mode of enquiry. The first was by Professor Bruce Archer in his Keynote Address to *IDATER91*. This is how he described a designerly approach to research.

> *A designerly approach, rather than a scholarly or scientific approach, can with advantage be made towards educational research and curriculum development. Design, in a certain sense, is research done backwards. Research starts with the particular, and moves towards the general. Design starts with the general and works towards the particular. Designers are told, or decide, at the outset, what their end product must be and do. They begin by conceiving of one or more broad configurations that seem likely to be, and to do, what is required. They then elaborate the structure of these configurations and develop the subsystems of one or more of the most promising proposals. They then detail the construction, working backwards to the particular, the bits and pieces, upon whose correct construction depends the efficacy of the whole. At various stages, the validity of assumptions is checked and performances are measured. The same basic design process can be, and is being, applied to the development of all sorts of artefacts and systems that had not hitherto been thought of as subjects for design. For example, providers of banking and other financial services now speak of their products (that is charge cards, insurance policies etc) as having been designed to meet the needs of given classes of the user. Curricula, courses, lessons and examinations are thus proper subjects for design. Happily, the National Curriculum Council's attainment targets provide ready-made design requirement specifications. A designerly approach to curriculum or course design might be to ask:*
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> >
> > *'What sort of capability profile would a pupil need to exhibit in order to be seen to have attained the target in question?'*

and then:

'What are the categories of knowledge, skills and values that contribute to such a profile?'

'What are the components of each category?'

'What kind of learning experiences are likely to imprint each of these components of knowledge, skill and value?'

'How can such learning experiences be provided?'

and so on, from the general to the particular, down to exercise design, performance assessment design and resource allocation. There is every reason for teachers of design and technology to use the techniques with which they are familiar to attain the objectives to which they are committed.

I opened this address with the question:
'What kind of research is appropriate to the study of education through Design and Technology?'

My answer has been:
'The designerly mode of enquiry is entirely appropriate to the study of education through Design and Technology. It is also less prone than the scholarly or scientific modes of enquiry to distortions arising from conflicts between the mental set of the practitioner and the mental set required of the researcher'.

That is not to say that scholarly and scientific research methods do not have their place in educational research. I do say that scholarly and scientific methods need to be executed by people properly trained in their employment. (Archer, 1992:12-13)

As implied, it would be both possible, and instructive, to analyse the National Curriculum model of design and technology and its implementation along these lines. It would also be an entirely appropriate approach as the introduction of the National Curriculum was essentially action research at a national level. Archer is, of course, essentially writing about the design of a curriculum initiative, and many of the dilemmas and responsibilities become most keenly felt when the initiative is 'actioned'.

In a Keynote Address given to the *IDATER2000* conference, Professor Phil Roberts considered action research as one of the aspects of research concerning design education. Among the objectives of this Keynote Address were the support of action research as a mode of inquiry and development that is

especially appropriate to D&T educational practitioners; the support of the teacher-as-researcher (or practitioner-as-researcher); and the support of the position that action research within education (and D&T education) is intended to improve practice. Again interested readers can access the whole paper, but one of the more important passages in this context is shown below.

> *I want now to focus on action research in the context of pedagogy: there may be distinctions that should be preserved, but there is also an overlap so far as my purposes are concerned.*
> *So, more on action research:*
>
> *WHAT IS ACTION RESEARCH?*
>
> *At its simplest, classroom action research relates to any teacher who is concerned with his/her own teaching: to the teacher who is prepared to question his/her own approaches in order to improve the quality of teaching and learning. Hence, the teacher/practitioner is involved in looking at what is actually going on in the classroom [or studio/workshop]. He/she seeks to improve his/her own understanding of a particular problem (or state of affairs) rather than to impose an instant 'solution' upon that unarticulated problem. It is crucial that time be taken for thought and reflection, and it is implicit in the idea of action research that there should be some practical effect of, or end product to, the research which would be based on a now-increased awareness of what actually happens in the classroom. It is, as a consequence, towards the construction of a practitioners' theory, constructed from their experience; and it would intend to be useful.*
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> *On this view, some of the characteristics of educational action research are that:*
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> 1 *its activities and objects are concerned with the deepening of understanding of the studio, workshop, classroom, and school situation by the teacher/researcher adopting a critical, questioning stance. Its starting points are the 'practical problems' experienced by teachers, rather than the problems found within the formal theories of the 'education disciplines'.*
>
> 2 *The presentation of its reporting is in ordinary everyday language, and might well take the form of a case study or story. It adopts the action perspective of practitioners and employs their everyday language to describe and investigate its subject-matter states of affairs.*
>
> 3 *Reflection on experience is part of its processes.*

Not all would agree with this, obviously simplified, characterisation of action research, and one of IDATER's functions should be to stimulate discussion about its nature and nuances.

But it's worth noting that such a position justifies and explains the apparent huge diversity of 'low level' inquiries that are pursued by practitioners; the apparent absence of large formal theory (which, from the in-field perspective of some other research tradition, might be described pejoratively as 'no research tradition'). It also makes a distinction between it and the empirical-analytic mode of hypothesis testing paradigm of inquiry - and almost, in some cases, a separation between the two.

It's worth noting several points that begin to emerge:

The borderline between (action) research and development is not clear cut. Educational practice can contain both research and development. It is not in the tradition of traditional empirical-analytical research: while the traditional empirical researcher hopes not to change the educational structure or process being studied, the hope of the educational action researcher is precisely that of bringing about change. This coupling together of influence, intervention, and effect, which is the trademark of action research, is largely and regrettably repudiated by some traditional empirical researchers.

In traditional empirical research, the researcher's possible influence on the phenomena is viewed as a disturbing variable that must be diminished as much as possible. But educational action research assumes an attitude of consciously attempting to break down the separation (though not the distinctions) between theoreticians and practitioners. The assumption of equality of the implicated parties – that neither of the parties rules over the other – is a basic principle for upholding what the terminology of philosophy calls 'discourse'.

Discourse is a form of dialogue in which the course, or direction, (and not just the content) undergoes argumentative trial. (Brock-Utne, (1980, p13)) The point of discourse is not that it is without course, but that the direction of the course has not already been set. Action researchers are partners in discourse; the ideology is democratic. The resulting concept, that discourse is a key instrument of analysis in educational action research, is a fruitful one. It is to do with the skills of linguistic philosophy (as method), as distinct from the philosophy of language (which is a subject).

The widely perceived appropriateness of action research to, first, the practitioner-as-researcher and, second, the 'problems' that are grounded in the experience of practice draws attention to the differences between educational and scientific research. Many mid-career practitioners working

> *in advanced studies or on inquiries that lead to the award of higher degrees try (initially at least) to employ a methodological approach and a vocabulary popularly associated with notions of how research activity is thought to be pursued in the natural sciences. The commonly understood approach in the natural sciences is thought to be the proper, and the required, research approach. And yet the large majority of practitioners are deeply sceptical towards the results of educational research that is based in the natural sciences approach: the results are frequently regarded as misleading, trivial, reductive, begging the questions, or simply as wrong-headed.*
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> *I suspect that a large part of a possible explanation for the mis-match between these researchers' results and their reception by practitioners is indeed in the natural science connection.* (Roberts, 2000:18-19)

Of course, research studies carried out through action research have been a regular feature of IDATER conferences. In one of the earliest conferences, *DATER89*, Chadwick reported a study of the continuity between primary and secondary phases in science, technology and maths, which was an action research project carried out in Hampshire (1989). At *IDATER95* Ritchie described a model of in-service education aimed at supporting action research by primary teachers (1995). Also at *IDATER95* Rogers and Clare reported on an action research project concerning the development of *The Renewables in View* CD-Rom; a resource concerning renewable energy for Key Stage 2 pupils (1995). At *IDATER99* Bowen presented the outcomes of a 'practical action research'[2] to facilitate the planning for design and technology within the primary school curriculum by using ICT and in response to the impact of literacy and numeracy developments (1999). At *IDATER2001* Hope discussed some of the philosophical and practical difficulties of action research as a strategy for would-be teacher researchers (2001). Also at *IDATER2001* Pavlova and Pitt presented the successful outcomes of an action research concerned with technology education in Russia (2001).

Contributions by members of the Design Education Research Group (DERG) beyond IDATER

Norman's reflections on the case studies completed for his PhD have already been noted (op cit, 1999), but there have been several other contributions by DERG members to the on-going debate concerning action research beyond IDATER. Baynes published a case study of action research relating to art and the built environment in 1982, and well before IDATER was even thought of.

There have also been contributions to the action research debate by DERG members since IDATER ended. At the *2006 DATA International Research*

[2] 'Practical action research' refers to a distinction made by Carr and Kemmis (1986) between this and emancipatory action research. In the former the researcher plays a Socratic role as a sounding-board for practitioners who evaluate their own educational practices. In the latter, the participants themselves take responsibility for the Socratic role.

Conference Thomas and Denton presented an important analysis of the ethical issues relating to action research in schools, which includes a checklist of appropriate behaviours and issues to resolve (2006). At the same conference, Thorsteinsson and Denton reported the results of some of their research concerning action research into virtual reality learning environments in Innovation Education in Icelandic schools.

Concluding remarks

It can be seen that IDATER and members of the DERG members have already done much to consolidate the place of action research as an appropriate research paradigm in design and technology education. However, the lingering controversies that surround research conducted in this mode require the topic to be given the full attention of IDATER-online 2006. It is essential that data resulting from action research is fully recognised within education if teacher-researchers are to feel fully supported in becoming reflective practitioners. It is this mode of research that has helped carry design and technology forward during the past few decades, and it is equally important that the results of such past research by practitioners are fully recognised within the educational research establishment.

Contributions are welcomed concerning:

- ethical issues associated with action research;
- practical issues associated with developing action research programmes;
- theoretical matters associated with the validity of evidence obtained through action research;
- case studies of good practice.

Although science and design and technology education are the primary concerns of IDATER-online, contributions would also be welcomed relating to other subject areas.

As can be seen from the hyperlinks to Loughborough University's Institutional Repository in the references, the possibilities of online access to research outputs is continually improving. From the up-dated IDATER-online website it is also clear that the possibilities for on-line conferencing are moving on apace. We very much hope that there will be contributions to the 2006 IDATER-online conference from all over the world, and that the subsequent Conference Book, which is intended to appear in the summer of 2007, will be a 'deep line in the sand' concerning the on-going discussions of action research.

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