Usage guidelines

The development, implementation and evaluation of an academic research scaffold to support trainee teachers in classroom based research.

Dawne Bell, Design and Technology Education, Edge Hill University,
belld@edgehill.ac.uk
David Wooff, Design and Technology Education, Edge Hill University,
wooffd@edgehill.ac.uk
Chris Hughes, Department of Higher Education Research, Lancaster University,
chughes22@fsmail.net

Abstract

This paper presents findings of the second phase of an impact study originating from the authors' need to improve the ability of Professional Graduate Certificate of Education (PGCE) design and technology teacher trainees to research at postgraduate level. The work emanates from observations that many talented trainee teachers who are excellent classroom practitioners frequently struggle to disseminate research work based on traditional academic formats.

The methodological approach adopted throughout the study is grounded theory. This has been selected as it enables the simultaneous gathering of data which, following analysis, allows the findings to inform subsequent phases of research. In the second phase of this work, twelve trainee teachers engaged with the study and the work conducted here set out to explore their perceptions, perspectives and experiences in relation to their adoption and implementation of the 'scaffold' as a tool to improve their ability to work successfully at post graduate levels of study.

Data gathered was designed to elicit further information in relation to their perceptions of the suitability of the scaffold and in the evaluation of its use. The focus for the semi-structured interviews focused on two primary lines of questioning:

Did the trainees find the alternative methodological approach 'helpful' and if so how?

Could they (trainees) identify any areas for improvement?

Preliminary findings indicate that through engagement with the research scaffold attainment of trainees is raised. Findings strongly suggest that the scaffold is a useful tool in supporting trainees to structure their Level 7 (L7) work and of the trainee teachers utilising the scaffold in this phase of the study each achieved L7 in the production of their research work. Drawing on this, the paper also discusses issues about the validity and value of the 'practitioner based' educational research which could well be of significance to the wider educational community.

Introduction and context of the study

This paper discusses issues about the validity and value of the 'practitioner based' educational research described by commentators such Cochran-Smith and Lytle (1993) Black-Hawkins (2004) (Burnaford et al. 2009) (Ebbutt et al. 2000) and (Hammersley 1997). The work presents findings of the second phase of an impact study originating from the authors' need to improve the ability of Professional Graduate Certificate of Education (PGCE) design and technology teacher trainees to research at postgraduate level. The work stems from the authors' observations that many talented trainee teachers who are excellent practitioners in the classroom situation frequently struggle to disseminate research work based on traditional academic formats for example, a five thousand word term paper or written report on work carried out.

Working with trainees over a number of years on classroom based research projects it has increasingly become clear that the 'traditional' academic format has had a restricting effect on the type of research carried out by many design and technology trainees. In many instances, this had the effect of stifling trainees' research creativity, and impacting on research achievement. The authors have further noted that many trainees' research proposals had a practical focus with tacit understandings of a research problem which is often difficult to evidence and convey to others.

Initial work with a small cohort of trainee teachers explored alternative ways in which individuals could present findings which related to standards of academic rigour, particularly when taking into consideration the potential for criticism which could arise as a result of the adoption of this research approach by a curriculum subject which is perceived by some to be a non academic. Central to the respondents' understanding and development of research in their specified design and technology field is the notion of Mode 2 research, as opposed to Mode 1 that according to Hargreaves (1999) is more akin to 'traditionally' oriented research, which is more applicable to the type work they undertake in practice. Underpinned by the work of Gibbons et al (1994) Mode 2 research as presented by Hargreaves (1996), (1998), (1999) makes use of Nonaka and Takeuchi's (1995) model of the theory of knowledge creation, and is about teachers creating knowledge in the classroom where mistakes are often treated as 'paths to learning' (Hargreaves 1998).

To help design and technology teachers' to evidence their own classroom based practice a 'research scaffold' evolved to support students engaging with Mode 2 type research activity. Table one and table two present extracts of the physical scaffold used to support trainee teachers in the adoption of this methodological research approach.
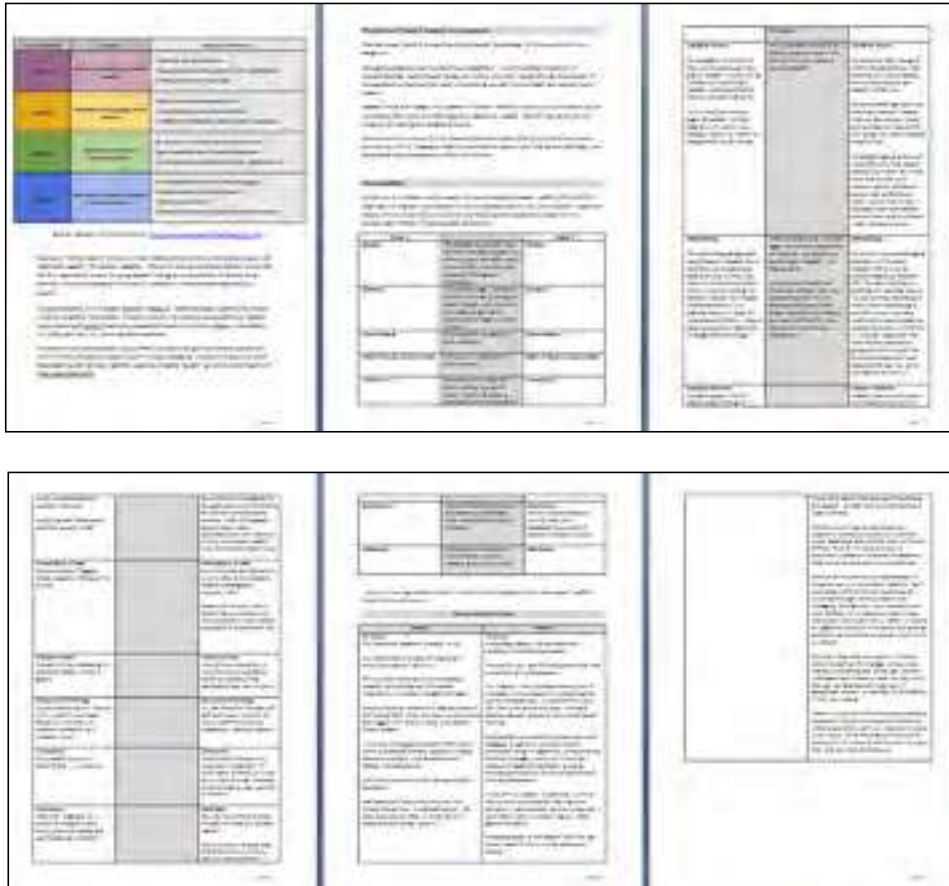
Table One:

Illustrated extracts of the research scaffold used with design and technology trainee teachers working to gain Level 7 in their research assignments

In addition to the physical research scaffold a 'package' of guidance was made available to the trainee teachers (illustrated in Table Two) to support them in the completion of their Level 7 research assignment. This comprised of taught sessions and tutorial and email support. An additional and important element of the research scaffold appertains to how it provides guidance to the trainees to ensure that submitted work is presented in order to meets assessment criteria and requirements of the academic module.

Table Two:

Examples of additional resources designed to be used in conjunction to support the implementation of the research scaffold

Practitioner based research

The notion of teachers as researchers has been well documented and literature reveals several, often contrasting schools of thought. Burton and Bartlett (2005) refer to 'a crisis' in academic and educational research and through examination of the arguments both for and against practitioner research Ebbutt et al (2000) explore the tensions that are considered to exist. Elliott (1991) and McNiff (2002) argue the case for action research and the **Economic and Social Research Council** (**ESRC**) has provided funding for a number of projects within the field of evidence based teaching and learning. Notable studies in this area include Bell and Colbeck (1984), Groundwater-Smith and Hunter (2000), (2004), Hiebert and Barkley (2002) and Zhou (2009).

However, practitioner based research is not without criticism. Hammersley (1997, 2005) is sceptic about the intrinsic value of educational based research. Elliot (1999b) makes clear that some theoretical underpinning is necessary to add validity to the work. This theme is a supported by Ashiwn and Trigwell (2004) who present three distinct outcomes of investigation, and argue that not all forms of output should be classified as 'research'.

Taking a more middle ground view, the work presented by Boyer (1990) encourages researchers to review how they approach investigative studies with a range of definitions that acknowledge the intrinsic value of all types of research.

Methodological Approach

The methodological research approach adopted for this study is constructivist grounded theory (Charmaz (2005) (2006)). This approach was selected because it allows for the simultaneous gathering of data which, following analysis enables emergent research findings to inform the study and thus set the direction of new subsequent phases of enquiry.

In this research phase twelve trainee teachers participated in the study, utilising the research scaffold in the production of their Level 7 research work. All research participants volunteered to take part in the study, during which empirical data was gathered through focus group work, tutorials, email correspondence and a series of one-to-one semi-structured interviews with a half of the participants who were selected at random (n=6)

All research has been conducted has been in accordance with the ethical guidance provided by the British Educational Research Association (BERA) (2004) and the authors institution's research ethics committee. Participants were assured that discourse would remain anonymous and as such, the names of respondents and have been changed. The rights of participants to either withdraw from the study or to refuse to allow materials to be used at any stage of the work was made clear.

The work set out to explore trainee teachers' perceptions, perspectives and experiences in relation to their adoption and implementation of the 'scaffold' as a tool to improve their ability to work successfully at post graduate levels of study. Data gathered was designed to elicit further information in relation to their perceptions of the suitability of the scaffold and in the evaluation of its use. The focus for the semi-structured interviews focused on two primary lines of questioning:

Did the trainees find the alternative methodological approach 'helpful' and if so how?

Could they (trainees) identify any areas for improvement?

Presentation of selected findings

Preliminary findings indicate that through engagement with the research scaffold attainment of trainees is raised. Findings strongly suggest that the scaffold is a useful tool in supporting trainees to structure their Level 7 work and of the twelve trainee teachers utilising the scaffold in this phase of the study each achieved L7 in the production of their research work.

Selected findings taken from the data; focus group outcomes, interview transcripts and private email conversations, indicate that the methodological approach advocated by the research scaffold was viewed by participants as leading to more interesting and valuable outcomes than their previous PGCE assignment work

> "I identified a problem and then began trying to work out how to make things better. I did this by trial and error, observing other teachers and asking for their advice. I wasn't as worried about making mistakes, it felt more 'real' and useful, and it was much more interesting than my other assignments. I wasn't implementing someone else's ideas, and it didn't involve handing out loads of questionnaires for the children and staff to fill in".

Trainees reported feeling more confidence in undertaking research work when adopting this methodological approach. During one interview a trainee described how she felt this approach led to an improvement in her ability to reflect upon her classroom practice, a view which was echoed by a significant number of participants who also believed that this approach enhanced their classroom practice and as a result enabled them to achieve high teaching placement grades.

In addition to an increase in trainee attainment for Level 7 assignment work, this research has highlighted several additional benefits.

A number of trainees reported that research work they instigated whilst on teaching placement has been adopted for use across their respective departments, and continues to be used within their placement schools after the placements end. A number of trainees also indicated that discourse in relation to their classroom based work had proven to be a useful and significant factor which enhanced their performance in securing first teaching posts

> "as part of my assignment work I implemented some electronics software into one of my classes on my teaching placement and being able to talk and show them at interview examples of real work I'd done, and could do for them, definitely helped me to get the job".

Furthermore three trainees, who gained employment in their placement schools, cite their assignment research work as being a contributing factor in their appointment

> "the head teacher came to see the club I was running to help me to gather research for my Level 7 study. He must have been impressed because he invited me to apply for a vacancy at a nearby school of which he was an executive head. I've no doubt that it helped me to secure the post"

In gathering data from the trainee teachers, the findings revealed some unexpected yet potentially interesting data. During interviews with participants it became noticeable that in a significant number of instances trainees reported an increase in academic discourse between them and their school based mentor, when compared to their experience of having completed two previous PGCE assignments.

> Initial findings indicate an increased interest by school based mentors to become involved in the work which the trainees were undertaking. As one research participant explained; "when I discussed the project (with my mentor) she said she didn't think you could do this type of work. When I showed her my ideas and she became enthusiastic. She said the children were sick of being given questionnaires to fill in and this might actually lead to something useful".

Curriculum mentors have been aware for some considerable time of the move to Masters Level (Level 7) work for those trainees following the PGCE route into teaching. The majority of mentors have supported trainees on placements previously and therefore this expression of interest was a new and unanticipated outcome. Early data gathered from trainees has highlighted a desire by school based staff, to become actively engaged in research alongside their trainees. In line with the methodological approach adopted for this study, this emergent data will set a potentially new direction of enquiry in any future study.

Analysis and Conclusion:

Whilst practitioner based research as a methodological approach to aid the generation of knowledge (Wagner 1997) (Reason 1994) and (Hartley and Benningtom 2000) is not classified by all commentators as 'research' (Ashiwn and Trigwell 2004) there is evidence that this approach has a positive impact on teaching and learning (McLaughlin et al. 2004) (Furlong and Oancea 2005) and (Gosling 2006).

If the work teachers undertake in their classrooms proves to be of value, and it can be validated and replicated, then the authors would argue does it actually matter if it is not perceived by all to be recognised as 'research'?

In the current political and economic climate, with the potential threats to the future of design and technology education (the introduction of the English Baccalaureate, the populous dip in secondary school aged children, educational establishments such as academies that need not follow the national curriculum, nor need they employ qualified staff and relocation of traditional design and technology subject disciplines into other curriculum areas i.e.: textiles into art) it is vital that we encourage teachers to utilise whichever tools are available to them so that they may help "shape the education system of the future, rather than simply functioning within it" (Hargreaves 1998). It is hoped that through adoption of this classroom evidence based research approach early in their teaching careers, trainees will gain an understanding of and therefore acquire an initial starting point from which to build future capacity to conduct good quality practice based research.

In line with emergent findings subsequent research would hope to explore the potential of working with curriculum mentors and other school based staff who have expressed an interest in becoming actively engaged in research. To encourage and support those with an interest to become active participants in policy and curriculum creation rather than passive vehicles for its delivery, if we are to secure the future of design and technology in the next phase of curriculum developments and revisions.

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