Pupils as active researchers: Using engagement with research process to enhance creativity and thinking skills in 10-12 year-olds.

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Paper presented at BERA annual conference, Warwick University, Sep 06.

Abstract

In 2002 a longitudinal action research project was launched to explore innovative ways to engage 10-12 year-olds in active research (Kellett 2003; 2004; 2005; Kellett et al. 2004). The project is now in its fourth year and the growing numbers of pupils who have participated provides an opportunity to stand back and evaluate some of the impact this is having on pupil learning and self-development. Semi-structured interviews with pupils, and parents from participant cohorts across the first two years were undertaken. Findings show that engaging in original research of their own choice provides pupils with creative opportunities for enhanced learning catalysed by high motivation, a sense of ownership and raised self-esteem. Findings also point to the development of higher order thinking, enhanced communication and analytical skills which are transferable into other aspects of pupils' learning.

Keywords: *pupils as active researchers; creativity; thinking skills; pupil voices.*

Introduction

Recognition of children as social actors in their own right, agents in their own worlds (Corsaro, 1997; James, Jenks and Prout, 1998; Alderson, 2000; Christensen and Prout, 2002; Taylor, 2002) has provided the momentum to propel policy and practice agendas

towards research 'with' children and to the gradual acceptance that children can be more than participants in research, they can be co-researchers (Nieuwenhuys, 2001; Jones, 2004;). This new era has seen children invited onto steering groups and involved in some aspects of data collection. However, criticism is still levelled at the tokenism of this participation, the adult manipulation, unequal power-relations and the adult focus of such research. It is the adults who frame the research questions, choose the methods and control the analysis. For the most part, children are unequal partners.

This power imbalance, along with increased interest in participation agendas (Hill et al., 2004; Pinkerton, 2004; Green Paper, *Every Child Matters,* 2003; *Children's Act,* 2004), has brought us to a consideration of children as researchers in their own right. Such an initiative acknowledges the importance of affording children and young people a voice which is listened to and heard by adults (Alderson, 2000; Alderson and Morrow, 2004; Fielding, 2004). The *Students as Researchers* project, in which teenagers were supported in investigating school issues of concern to them, is well documented (Fielding, 2004), but similarly empowered research is relatively rare and particularly rare for children in the middle years of childhood (Kellett and Ding, 2004; Kellett et al, 2004). Pupils engaging in their own research has considerable potential for children's self-development and learning. The recently established *Children's Research Centre* (http://childrens-research-centre.open.ac.uk) at the Open University is a centre dedicated to supporting and promoting research *by* children. A similarly empowering school-based initiative in Hungary (Zsolnai, 2004; Jaeger and Zsolnai, 2004) values the role of children as researchers. Fifty-one schools in Hungary now have research methods as a taught part of

their national curriculum for 10-14 year-olds and students are given dedicated curriculum time to undertake their own research.

Despite increased involvement of children as participants and co-researchers (e.g. Johnson et al. 1998; Jones et al., 2002; Nieuwenhuys, 2001) and a growing body of literature on the role of children and young people as researchers (Alderson, 2000, Boyden & Ennew, 1997, Hill, 1997) it is still relatively rare for children to initiate and drive a research project of their own choosing, from their child perspective. In part, this is because most children aged ten to twelve do not possess the research knowledge and skills to be able to design their own empirical studies. However, age need not be a barrier. Social experience is now viewed as a more reliable marker of maturity and competence than chronological age (Alderson, 2000; Christensen and Prout, 2002) and children's competence, while 'different' from adults' should not be regarded as 'lesser' (Waksler, 1991; Solberg, 1996;). Many, perhaps most, adults would not be able to undertake research without some training. A barrier to empowering children as researchers is not their lack of adult status but their lack of research training. *So why not teach them?*

Teaching research process to primary pupils

There are many obstacles to overcome if children are to be taught research process in a meaningful way. There is no obvious place in the primary curriculum for pure research. Some research skills, such as information seeking, are encouraged across the curriculum and most pupils do undertake school 'projects'. A school project typically 'researches' a topic area by finding out, amassing and presenting information. The 'finding out' part of

this is an important learning tool but it is frequently approached superficially and often children go to secondary sources – even pre-prepared 'summarised chunks' of information – rather than to raw data and primary sources which require organisational processing skills. Nor do these kinds of 'finding out' projects include other core elements of research which can extend pupils' learning and develop critical thinking, such as:

- a scrutiny of validity;
- critical evaluation of other people's work;
- a focus on ethics;
- collection of 'raw' data;
- multiple layers of analysis;
- the generation of new knowledge.

A further obstacle is that many classroom teachers do not have sufficient specialist knowledge and skills to be able to teach research methodology to their pupils. Collaboration between schools and university research departments can be very effective in bridging this gap. University researchers are frequently to be found in schools albeit generally when they are collecting data 'on', 'with' or 'about' pupils not empowering them to become active researchers in their own right.

Early pilot work

Early pilot work in five primary schools (Kellett 2003; 2004; Kellett et al. 2004) explored effective ways of engaging 10 and 11 year-old pupils in research process. This enabled a step-by-step programme of research training to be designed (Kellett 2005) which could

be differentiated for pupils aged 10-14 years. The programme is built around a series of weekly teaching sessions delivered over a term. These can be facilitated as an extra-curricular research 'club' or as class teaching in areas such as PSHE, citizenship and project work. It has also been successfully used as an independent programme for Gifted and Talented pupils. The training course uses a range of interactive activities and games to distil some of the complexities of research process and to encourage pupils to engage in core principles. Key research terms are selected, given glossary-like prominence and frequently revisited so that concepts become increasingly familiar. The taught programme is divided into four parts:

1. Research Design:

    i. What is research?
    ii. The relationship between research and truth
    iii. Different kinds of research
    iv. Research ethics
    v. Learning from other people's research

2. Data collection tools:

    i. Observation techniques (participant observation and systematic observation in real and suspended time)
    ii. Interview techniques (structured, semi-structured, unstructured, focus groups, questionnaires)
    iii. Experiment (controlling variables, determining validity)

3. Data analysis:

    i. Coding and analysis from qualitative (descriptive) data
    ii. Measurement, scaling, graphical representation, coding and analysis from quantitative (numerical) data

4. Dissemination:

    i. Identifying and targeting appropriate audiences
    ii. Clarity and structure of report writing

Outcomes

The quality of the research from participating children, some as young as nine, has been recognised in academic circles (Kellett, 2003; Kellett *et al.* 2004), in the media (*Times Educational Supplement*, 7-11-03; *BBC Radio 4,* 25-11-03; *The Guardian,* 23-03-04) and among practising teachers (e.g. *Research in Practice* Conference, Oxford, 16-06-03; *Spotlight on Learning* Conference, NUT London, 26-05-04). An example of a typical small-scale research study by a Year 5 pupil follows.

Investigating what children think about the way they travel to school
Ben Ward, aged 10

Introduction

I have been attending a research club, called the OK club at school on a Monday lunchtime (O K stands for Original Knowledge!) We learn about research and the different ways of collecting information, and also the things you need to think about, like ethics, which means making sure no-one is hurt by the research, and how your research needs to be systematic and scientific.

I am concerned about the environment and about pollution from vehicles. I have noticed that lots of my friends come to school in cars when they live really close by and I was interested to find out what the real picture is and also children's opinions about how they travel to school. I think I am in a

better position than adults to find this out because I understand where children are coming from. I decided on my research question which is 'What do primary aged children think about how they get to school?'

Methodology

At first I was thinking about doing interviews, but I decided to do a questionnaire instead, because you can get information from lots more children that way. I didn't want it to be an adult questionnaire, I wanted it to be relevant to kids my age. These are some of the questions I decided to ask

- How far children lived from school (very near, fairly near, not so near)
- How they got to school (car, bike, walk)
- Who decided how they travelled to school (adults or children or both)
- Whether this choice was influenced by concerns for the environment and health
- *Children's* preferred way of getting to school (and how different this might be to their parents)

I made it quite simple so that children could easily understand it, and used tick boxes so they didn't have to write too much if they didn't want to, but left space for them to write more if they wanted. Then I tried it out on my brother and sister (who are 12 and 8) to se if the questions were clear.

I gave out the questionnaire to a Year 6 class (aged 11) and a Year 5 class (aged 10) and got 57 completed questionnaires back (some people were away).

Analysing the data

First of all I did tally counts on all the questions and then my adult supporter helped me turn these into percentages and then into graphs to make it easier to see where the patterns were. Here are the graphs of what I found out.
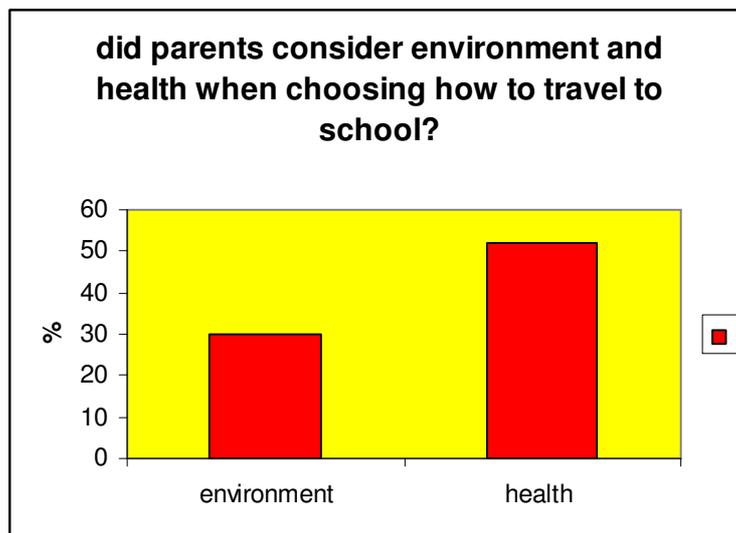
did parents consider environment and health when choosing how to travel to school?

Figure 1: What do parents consider when they choose how to travel to school?

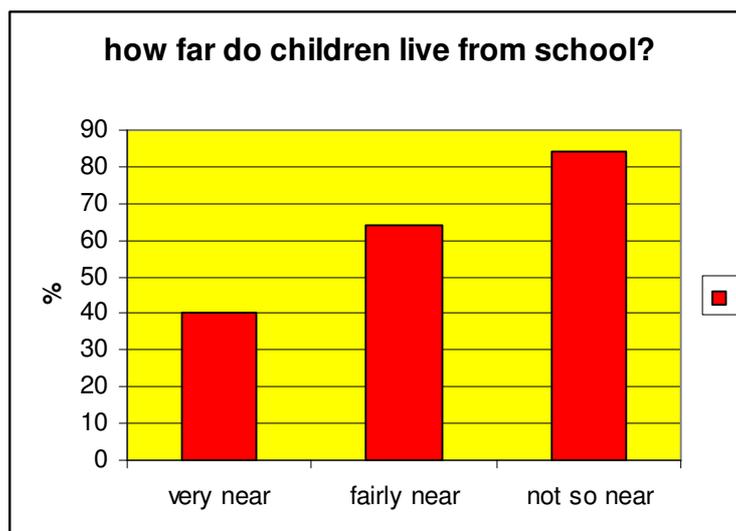**how far do children live from school?**

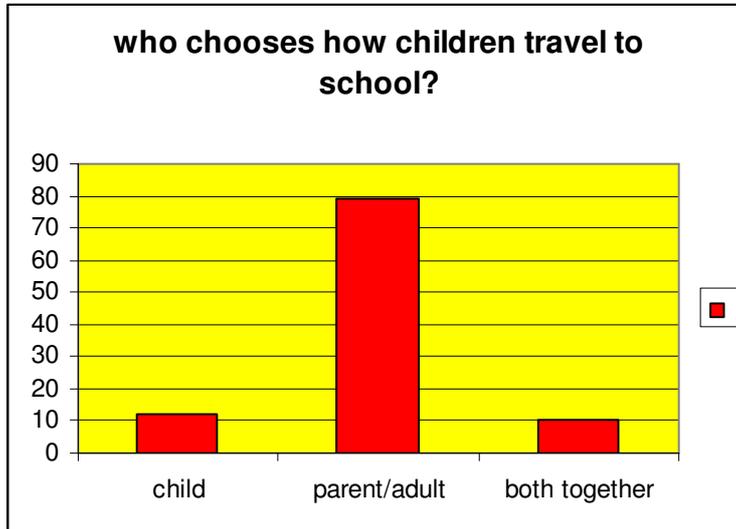Figure 2: How far do children live from school

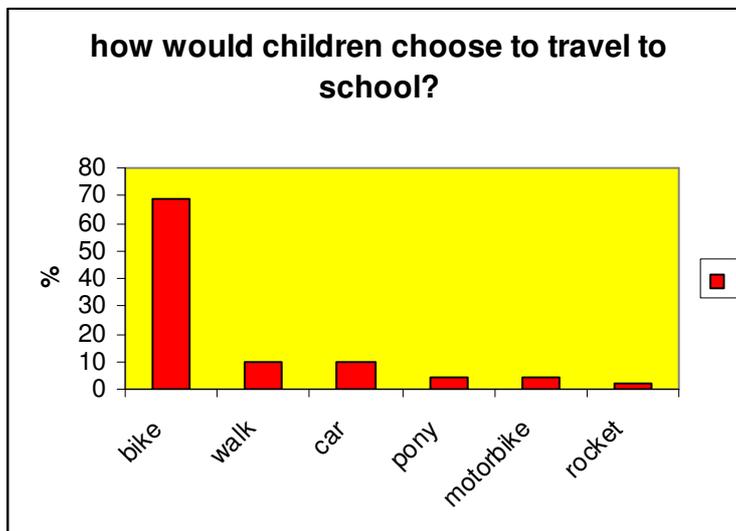Figure 3: Who chooses how children travel to school?

Figure 4: How would children choose how to travel to school?

From figure 1 you can see that children think that just under a third (30%) of their parents are concerned about looking after the environment when they choose their method of transport. This was less than I expected, but that may be because I think it's important and therefore assumed that other children would agree with me but apparently not so many did. However, the questionnaires showed that just over half of the parents said that health was an important aspect in their decision about getting to school. I thought health would be quite high, because most people want to stay fit.

Figure 2 shows that 40% of the children who live very near their school travel by car every day. I find this very surprising because it is quite easy to walk, and would only take a short time, and might even be quicker than driving! The figure for children travelling to school by car who live fairly near is 64% which means that every day nearly two thirds of children living this close to school still travel by car. In the final category for those children living not so near the number is 84% but I would have expected this to be high because it is not easy to walk if you don't live near to school. (Although they could probably manage to cycle if they were allowed to). If you average out the findings from all of the children together (those who live very near, fairly near and not so near) then you can see that every day, nearly 60% are driving to school. For a primary school, where most children live fairly close, that seems a large percentage of people driving.

I think maybe it was this high because adults have other things to take into consideration, which children wouldn't have to worry about. For example they might have to drive on to work, straight after dropping the children off, so need the car for that – but it still might be quicker to walk the short distance to school and then go home for their car. Also, families may be in a rush in the

morning, and not have time to walk or cycle. The other reason might be that adults are less energetic and active than children and so would rather use a less tiring way of travelling! But I was interested to find out if children agreed with their parents' decision to get to school by car.

From figure 3 you can see who chooses how children travel to school; in 12% of cases the children had the choice themselves, and in 10% of cases it was negotiated by both the children and the adults. I was amazed by the number of families where it was the adults who chose how the children travel to school; the figure was 79% which was much higher than I expected. And, as we saw from the last graph, often they decided to drive!

Figure 4 is the most important graph in my research because it shows what children themselves would choose to do if they were able to. I expected at least half of the children to want to go to school by car, and the other half choose to walk or perhaps cycle. In fact, as you can see, an amazing 69% of children want to cycle and only 10% of children want to drive. Also 10% of children want to walk. If we compare this graph with the results of how they really travel to school, it proves that the adults who usually choose, do not choose what the child would prefer and usually choose to drive even when cycling or walking would be quite easy (59% of adults choose to drive, 69% of children would choose to cycle.)

I thought it was funny that a few children put rocket or pony as their preferred method of transport, but it also shows that they weren't influenced by adults to put what they thought they should put, but had a completely free choice. This is one of the advantages of me doing the research because I am the same age as them and they might be more honest with me and put what

they really think rather! Most children did not put silly things and I think this proves that children are usually very sensible and responsible, perhaps more than adults think!

Conclusions

Even though this is only a small study I think it has shown up a big difference between how adults choose to travel when taking their children to school compared to what children themselves would choose. Most children end up coming to school by car, even when they live very close by. This is mostly the adults' choice because only 10% of children would want this (about 80% would choose to walk or cycle). The children I have surveyed seem very concerned about transport and the environment but have little power or influence over what the adults choose for them. Perhaps if there could be more safe cycle paths more adults would let their children cycle to school then everyone would be happy and we would all be helping the environment.

There are many similar examples of research studies by primary pupils which can be found on the Children's Research Centre website http://childrens-research-centre.open.ac.uk. Examples include:

- *How does death affect children?*

- *How are nine to eleven-year-olds affected by the nature of their parents' jobs?*

- *How do children feel about their local housing estates?*

- *Getting around as the child of a wheelchair user.*

- *Social interaction between children and lunchtime supervisors.*

Evaluating the educational benefits

Some of the benefits of engaging in research process can be seen in the quality of the studies being produced by pupils such as Ben. Identifying longer term benefits e.g. self-development and transferability of learning skills requires more systematic evaluation. Evaluation data were collected via semi-structured interviews with pupils and their parents from participating cohorts in the first two years of the project (2003 and 2004). To minimise bias, the interviews were undertaken by a researcher who had not been involved in these two phases of the project and who was not known to the participants. The interviews were transcribed and then analysed and coded in order to cluster emerging themes. Seven themes were identified and are summarised below supported by illustrative quotes.

1. Raised self-esteem and sense of worth:

'Projects like this value children's perspectives. They value children's work. N was surprised at the interest that others had for her work. They genuinely wanted to know what she thought and what children thought…When doing their own research, their work was continuously valued. It was published in a journal. They were invited to conferences. The message that this sent out was that your work is valued.' (parent)

'It's made my friends sort of admire me more.' (10 year-old boy)

'I felt really important.' (12-year-old girl)

'It's made her realise that other people value her and what she thinks. I think for Ruth that's particularly important. I know that everyone wants to be valued, for Ruth it was particularly important. I think that's why it's increased her confidence. I think she realizes that other people do value what she thinks, who she is and the idea that she does not necessarily have to conform to what other people want her to do. She can have her own ideas and they can be valued.' (parent)

2. Increased confidence:

'Like now when we have to talk in front of others in class, before I might have not put myself first, but now I just say I'll go first. I don't mind.' (10-year-old girl)

'I think the biggest impact that the project has had on R is that it's increased her confidence. I think that's transferred to other things that she does now.' (parent)

'Doing the research also helped with my confidence. I was quite shy, but I stood in front of people at the conference and told them about the research.' (11-year-old girl)

'I think it has helped me as I have got more confidence. I know about and think about new things.' (11-year-old boy)

'Boosted my confidence. And I think it helped me with English too for learning new words and stuff. And it made my writing better.' (10-year-old boy)

3. Development of transferable study skills:

'I used to think that doing projects meant gathering stuff from books and the internet. Projects are more than cut things out and stick them in.' (12-year-old girl)

'The research, the process - that has transferred into his school work. I think it definitely has. His approach to school work is different. Whereas in the past he would have done his homework as quickly as possible so that he could have then played on his game, or go outside, whereas he now definitely takes more time thinking through the layout of things and I think that's from the research, the process before doing the research study where they learned the methodology. I think bits of that have definitely come out through his school work.' (parent)

'It's because of the project that I can write essays. It made it easier for me. I think the research helped with that and with organising my work too.' (10-year-old girl)

'I learnt so much. If you would have given me a list of words like analyse or other research words, before I did the research I wouldn't have been able to tell you. If you asked me now, I'd know the meaning of all of them. It helped me with my English because now I feel more confident with writing. It really helped me. I think the research helped with that and with organizing my work too.' (11-year-old girl)

'In secondary school they have to be much more independent and organize their own homework and study and that sort of thing I think it really helped to prepare him for that change to secondary school.' (parent)

4. Sharpening of critical thinking skills.

'I have a different approach to work.' (12-year-old girl)

It gave her understanding. I can see that. When she looks at an article she can see the weaknesses. She has learnt what it is to do something systematically. She knows. She can apply that understanding to other things that she reads. She can think systematically. (parent)

'Research is allowing them to practise true empathy, of actually thinking about what other people are feeling and thinking about what the impact is on them. They won't ever get that apart from hard life knocks I suppose. You build up the ability to empathise. The research teaches that to begin with. You go out and you've got to think about people, their thoughts and not just on your thoughts.' (parent)

5. *More effective communication.*

We know how it feels to talk unrehearsed and answer questions from the floor, and she (daughter) handled it so well. She was answering questions. It was great. (parent)

'And all the language that he learnt about research was something completely new. That was all great for him to learn. He came home telling me all about it, and was quite excited about what he had been learning. That was really good.' (parent)

'I think it's helped them with clarity of speech. It's skills they wouldn't get until later in life. Thinking through processes, planning and the various sorts of skills they've gained. …it's helped them in the processes of structuring their thoughts and confidence.' (parent)

6. *Creativity and emergence of independent learning.*

'Being able to express themselves and work in a much more creative way.' (parent)

'Also, I think it gave him a chance to work independently, to take his own ideas and see them through and in a way that's different. At school, you're told do this or do that, and to be able to have an idea and get interested in it and then decide what he was going to do with it , it was challenging and stimulating.' (parent)

Mary kept parental involvement to a minimum. It was a chance for children to work independent of parents. I don't know if she intended that or not, but I'm pleased it worked out like that, because it allowed children to take control and to take ownership of the project. (parent)

'It was the first time she really got stuck into something and was doing something she was interested in and was really enjoying it rather than because somebody had told her to do it. I think that's transferred to other things that she does now. Maybe that's part of growing up, I feel that it started around the time that she was doing this.' (parent)

'We actually had to work really hard. And we had loads of responsibility. At school it's all just given to us. We just have to find out the answers. Here we had to find out where we were going to find the answers out from!' (11-year-old boy)

7. Original and valued contribution to knowledge:

'Everyone has their own point of view. Children have their own point of view and it's different to adults, because your point of view changes as you get older. When you're a teenager you have a different point of view. When you're a child you have a different point of view.' (11-year-old boy)

It's important to see things through children's eyes. Children see things differently to adults. I think if an adult had done this research he wouldn't have got the same responses. They wouldn't have asked the same questions.' (10-year-old boy)

'{It} gives me a chance to do original research.' (12-year-old girl)

'They were covering new ground and practising from a perspective that adults couldn't do because they could ask questions and perhaps get confidences that perhaps adults couldn't get. So, I was really intrigued by that aspect which I hadn't really thought about before. And I think that's a real benefit, because they actually finding out things that other people couldn't.' (parent)

'It shows them ways of actually making things happen. The fact that they were doing a study about why eleven year olds can't play together, is showing them that is a process where they can make a difference. Rather than them thinking that it's that way and it's never going to change. There can be changes. They've got a voice' (parent)

Concluding reflections

We all learn better - adults or children - if we are motivated and if we have a sense of ownership. The opportunity to design, carry out and disseminate a piece of original research about something that interests or concerns pupils embodies both of these concepts. It is the process of engagement in core principles of research which enhances learning and develops skills in pupils that might otherwise lie dormant in the middle years of childhood. Moreover it presents opportunities for pupils to work creatively through original project design and primary, self-generated data. Children as active

researchers can be harnessed to Gifted and Talented programmes, to extra-curricular activities - such as the setting up of research clubs - and to strategies aimed at re-engaging disaffected learners. The potential for creative learning is extensive and it is hoped that many more primary pupils will have opportunities to participate.

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