

How do Trainee Primary Teachers Understand Creativity?

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Abstract

This paper draws upon preliminary findings from research undertaken in three UK primary training providers as part of the *Creative Teachers for Creative Learners* project, funded by a Research and Development Award from the Teacher Training Agency. The project aims to support the development of primary trainee teachers' understanding of, and teaching for, children's creativity in design & technology (D&T) and other curriculum areas by producing an interactive bank of teaching and learning materials set within a Virtual Learning Environment (VLE). As an initial stage in the development of these materials, the project team has been exploring trainees' current understandings and perceptions of creativity, both as a personal attribute and as fostered by the primary curriculum in England. This paper will focus upon two sets of data generated as part of this process and the extent to which Harrington's (1990) 'creative ecosystem' is a useful theoretical and evaluative framework for trainee teachers. At Bath Spa University College, primary PGCE trainees have been set a directed task in schools during which they select lessons from two curriculum areas to observe: one which they expect to offer scope for creativity and another which they judge to lack creative potential. They have evaluated the support offered for children's creativity in each subject area using the framework drawn from Harrington (1990) and have frequently found their preconceptions challenged. At Manchester Metropolitan University and Goldsmiths' College, undergraduate trainees have produced cartoons to express their own notion of the 'creative person'. This has produced some interesting outcomes with regard to where opportunities for creativity can be found.

Key words: creativity, teacher education, primary, curriculum, trainee's perceptions

Literature Review

In contrast to the recent explosion of research literature, government directives and Non Governmental Organisation reports related to creative learning and teaching in schools, the most striking aspect of the literature on creativity in teacher education is its sheer scarcity. The words 'creative' and 'creativity' hardly appear in the last ten years' volumes of the major teacher education journals, nor is there a single book title bringing the

terms together in relation to primary education. In spite of the current vogue for creativity in official circles (DfES 2003, OfSTED 2003a) there has been scant attention paid to the needs of trainee teachers in preparing them to teach in an education system that has, on the one hand has reached new levels of prescription and control, while on the other, is calling into question the tight prescription of the last ten years and is beginning to promote a vision for schools that promote creative teaching and the creativity of the learner. (NACCCE 1999, Howe, Davies and Ritchie 2001, Kimbell 2002, OfSTED 2003a). There are also claims that teacher training is one of the key factors inhibiting creativity in the workforce (NESTA 2002) and repeated recommendations that:

...we should also encourage individual ITT institutions to develop initial training and CPD courses in creative teaching and learning. (Joubert in Craft et al 2001:33)

There seems to be scant attention paid to the needs of trainee teachers in preparing them to teach in an education system that is calling into question the tight prescription of the last ten years and promoting a vision for schools that promote creative teaching and the creativity of the learner.

The lack of attention to creativity in teacher education is not a recent phenomenon. Demetrulias (1989) noted a lack of congruency between the universally accepted belief that creativity is an important characteristic of a teacher and its lack of development and/or nurturing in teacher education programmes. OfSTED (2003b) in their review of quality and standards in primary initial teacher training, make no mention of creativity whatsoever. It might well be expected that:

Prospective teachers who are trained in thinking and teaching creatively and in creative problem-solving will be better prepared to value and nurture the same creative characteristics in their classrooms. (Abdallah 1996: 52)

What may also be required is a shift in attitudes towards creativity or self-belief as a creative individual on the part of trainees – an approach which has come to be known as a 'conceptual change' model of teacher education (Smith and



Neale 1989). This is based on the premise that:

Prospective teachers...bring their implicit institutional biographies - the cumulative experience of school lives - which, in turn inform their knowledge of ...curriculum. Britzman (1986:443)

This assertion finds support in much of the teacher education literature. John (1991) working with trainee teachers of mathematics, found that their experiences of the subject at school had a marked effect upon their attitudes towards it. This may lead them to regard certain subjects, such as mathematics, as devoid of creative potential, a hypothesis explored in the Bath Spa University College directed task below.

Bath Spa University College directed task

This study aimed to explore primary trainee's preconceptions of creativity within the subjects of the primary curriculum, and to challenge these notions through observations in school of actual lessons. The theoretical framework for this was adapted from Harrington's 'creative ecosystem' (1990). Creativity continues to be a contested and complex concept, one not easy to define yet easy to misuse. To introduce the term and its multifarious connotations to trainees at the start of their course, we felt a straightforward, research-based framework was required. Harrington's work seemed to meet both these criteria. Through analysing descriptions of creative episodes, Harrington identifies common process features and argues that, in a similar way that life processes make biochemical demands upon organisms and their ecosystems, these creative processes make psychosocial demands upon individuals and their support networks, which must provide sufficient resources to enable creativity ('life') to be sustained. The use of this analogy seemed a useful strategy when faced with explaining the concept in a limited time to a cohort of 213 trainees, although we heed Harrington's warning that:

'The ecological study of human creativity, for example, will almost surely need to include a role for the concept of information and information flow that is in some respects analogous to but importantly different from the concept of energy and energy flow in biological ecosystems.' (1990:151)

One such difference may be that in the case of energy flow there is a one-way flow from producer to consumer, whereas in a creative ecosystem the two-way relationship between teacher and pupil is likely to be highly significant.

Harrington's framework consists of the following elements:

- Opportunity for play and experimentation/ exploration.
- A non-threatening atmosphere in which children are secure enough to take risks and make mistakes.
- Activities presented in exciting or unusual contexts
- opportunity for generative thought, where ideas are greeted openly.
- Opportunity for critical reflection in a supportive environment.
- Children given a sense of engagement and ownership of ideas and tasks.
- Respect for difference and the creativity of others.
- Choices given to children in terms of resources and methods.

We discuss below the difficulties this framework posed in practice.

Methodology

Primary PGCE trainees, in the first few weeks of their course, were set a school-based directed task to:

1. Choose two lessons to observe. One should be in a subject area that you consider to be 'creative'. The other should be in an area that you think has less potential for creativity. Write a brief rationale for your choices.
2. As you observe each lesson, take note of any elements of a 'creative ecosystem' that exist in the classroom. Use the list above or other criteria of your own to help you make a judgement. Watch how the teacher introduces the activities, how she/he interacts with children and how the children respond. Talk to them about their work and take particular note of any children who are taking a novel approach to an activity or expressing interesting ideas.
3. Compare your notes from the two lessons. Which offered the greatest potential for creativity? Why? Did this confirm your hypothesis? How could the other lesson have been made more creative? What are the key factors in teaching for creativity in your view?(PGCE primary course handbook 2003-4)

Written accounts of this task were submitted to the authors in a suggested format (specifically not as an assessed piece of work). The subjects selected and elements of a creative ecosystem observed were coded and entered into an SPSS spreadsheet for analysis (N = 128). Qualitative data from a random sub-sample (n = 68) were entered into the qualitative data analysis package Atlas.TI.



Findings

Reported below is a selection from the findings generated using the analysis tools within SPSS, supplemented with trainee quotes selected during the qualitative analysis.

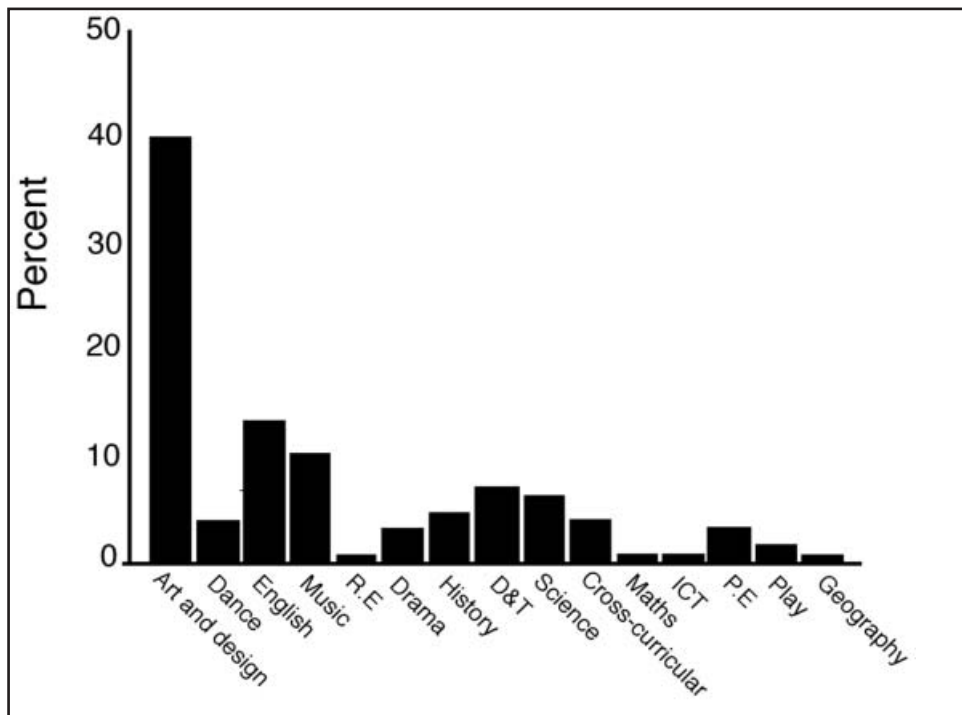


Figure 1: Subject selected as likely to offer scope for creativity (N = 128)

As can be seen from Figure 1, Art and Design was far more likely to be chosen as the ‘creative’ subject to be observed than any other, with 39% of trainees selecting it:

‘Art was chosen based on the assumption that it allows for personal expression and excludes the notion of right or wrong.’

‘Traditionally a creative area in which there are opportunities for exploration and experimentation. Individual approach and techniques to create a variety of results’

‘The differing pieces of work produced from children relating to the same task set, highlights art’s ability to engage children’s creative mindsets.’

D&T fared relatively poorly, with only nine respondents (7%) making this choice:

‘I chose D&T because it was mentioned in the National Curriculum twice for creativity. There are a wide range of resources and materials that can be used. Children are perceived to enjoy these lessons more- and they can take ownership of their task.’

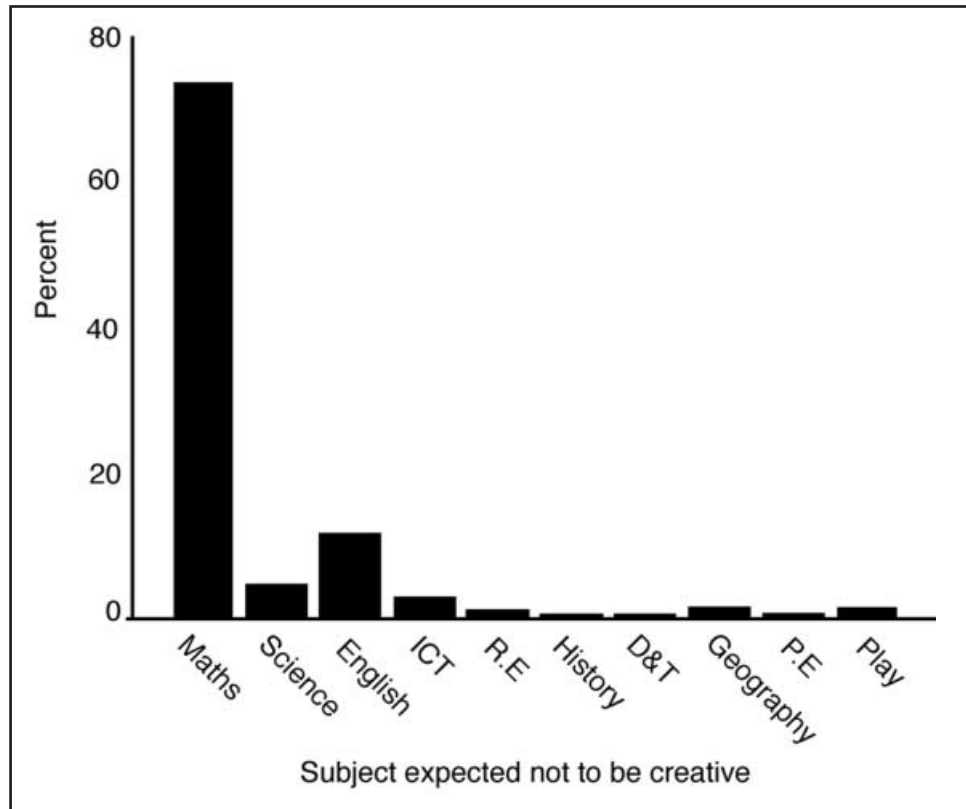


Figure 2: Subject selected as unlikely to offer scope for creativity (N = 128)

The data in Figure 2 is even more polarised than those in Figure 1, suggesting that the majority (73%) expected mathematics to offer very limited opportunities for children’s creativity:

‘I believed that a maths lesson would be very structured with little space for creativity. I thought the children would be expected to work in a certain way using a particular method.’

‘(Maths) is something that I would traditionally consider to be uncreative, consisting largely of ‘closed’ questions, with only one correct answer.’

‘Mathematics is usually considered by people of my generation to be a dull and difficult subject to learn.’
‘It is a factual subject, which focuses on logic and the understanding of particular set rules.’

‘I regard maths as being a subject in which a high proportion of the work is done individually, concentrating on work extracted from a text book involving little interaction with the teacher and amongst the children.’

Only one respondent out of 128 selected D&T as their expected ‘non-creative’ subject – a reassuring finding perhaps for those concerned with the promotion of this area of the primary curriculum. Although few conclusions can be drawn from the small sample (n= 10) that selected D&T as a lesson to observe, we have compared observations for D&T with those for all subjects selected as being likely to offer scope for creativity. The figures below indicate the areas in which there were significant differences.



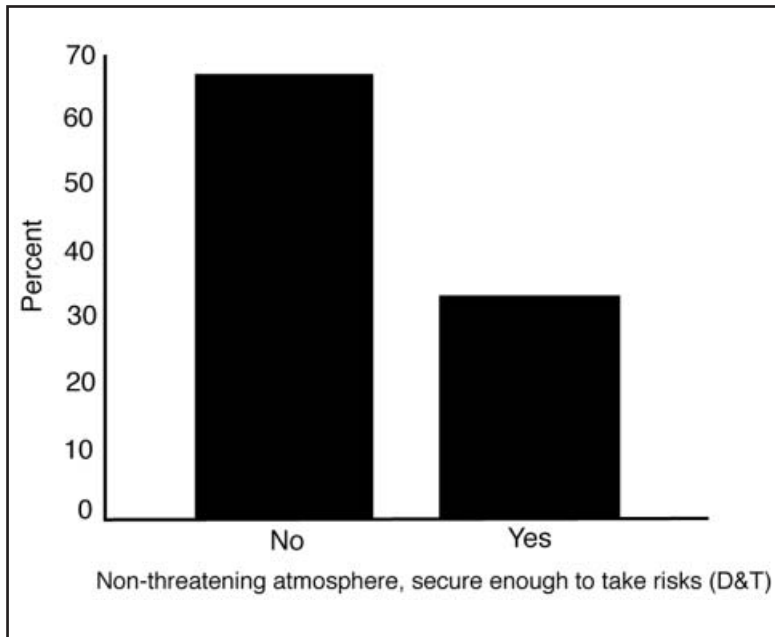
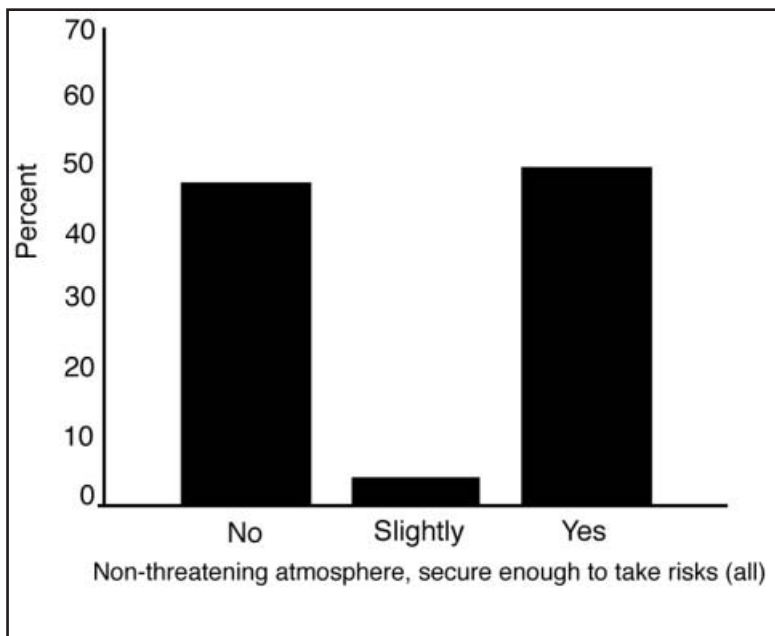


Figure 3: Comparison between D&T and all subjects: support for risk-taking



Disappointingly, from Figure 3 D&T appears not to fare very well in relation to risk taking (only 33% by comparison with 53% 'yes or slightly' for all subjects).

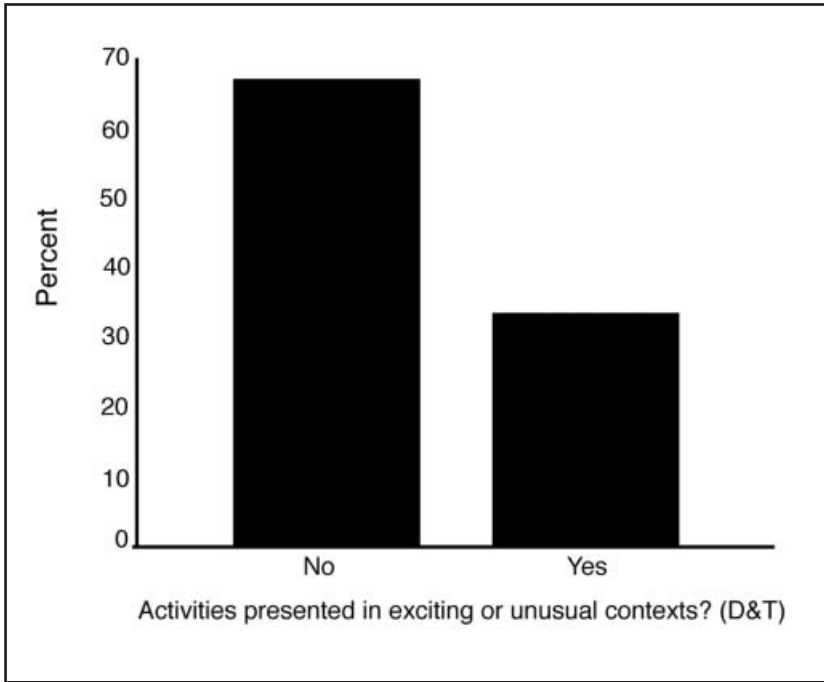


Figure 4: Comparison between D&T and all subjects – use of exciting or unusual contexts

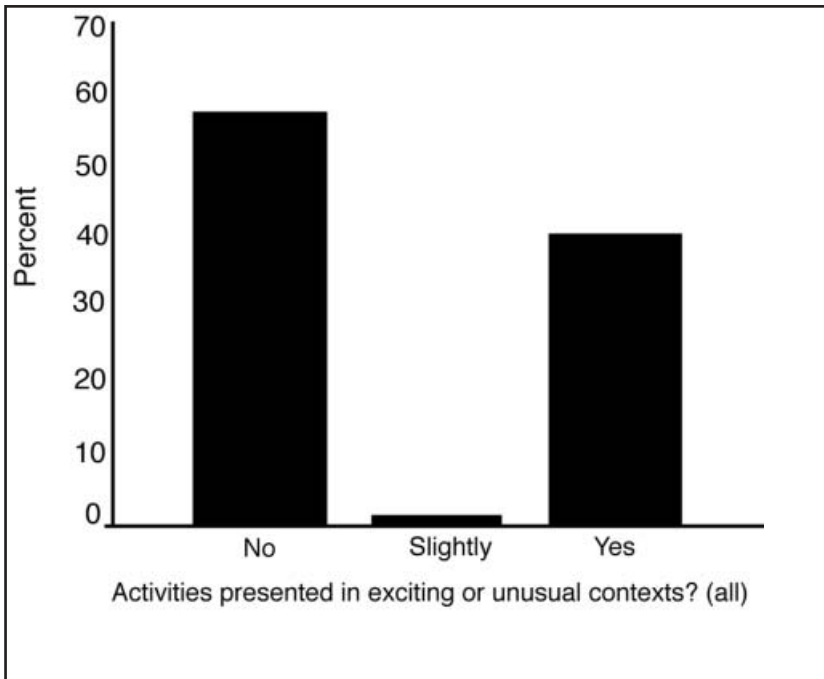


Figure 4 reveals another disappointing result – 33% observing exciting or unusual contexts used to introduce D&T activities, by comparison with 42% for all subjects.

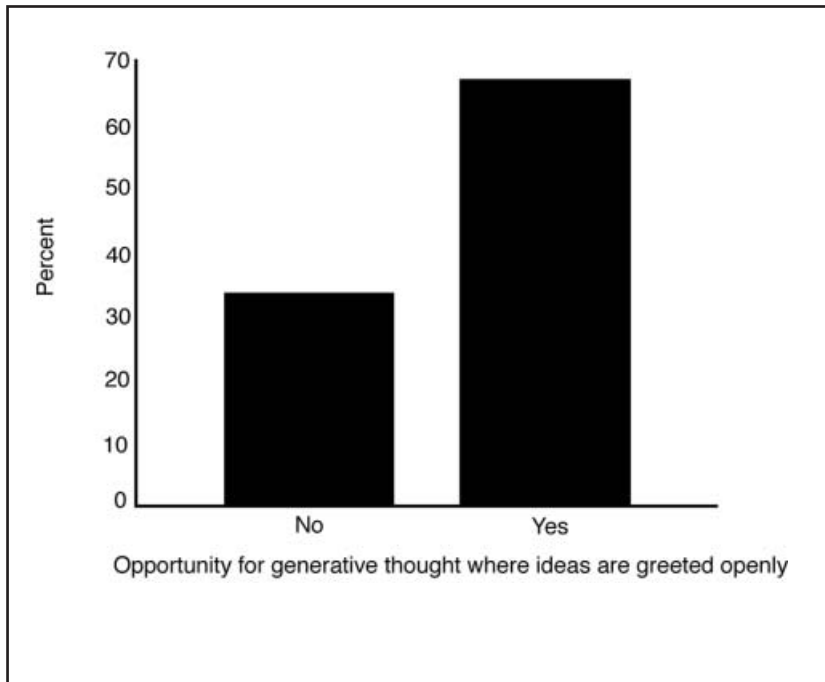
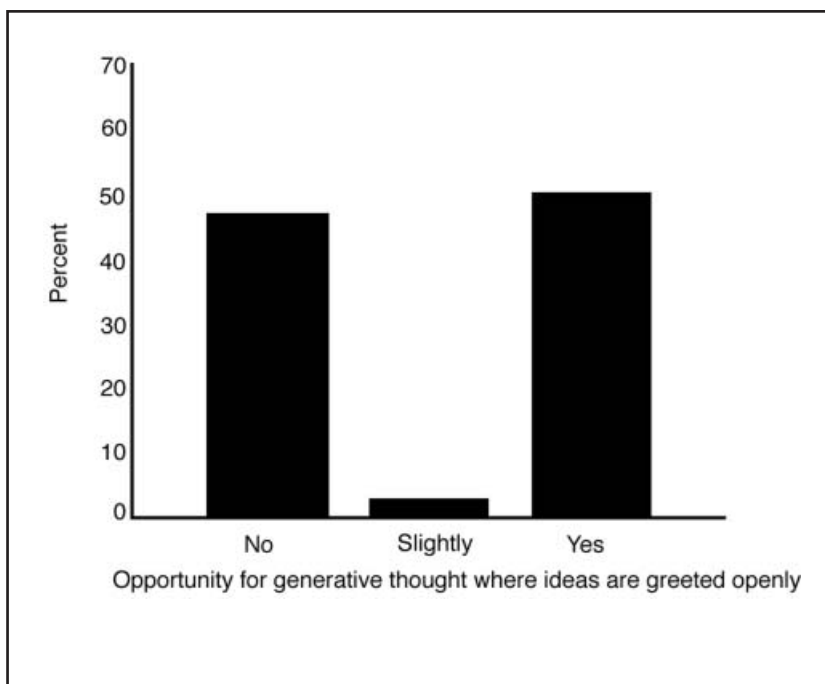


Figure 5 Comparison between D&T and all subjects – generation of ideas



From Figure 5, D&T does appear to be a subject where respondents have observed children being encouraged to develop and share their ideas (67% compared to 53%).

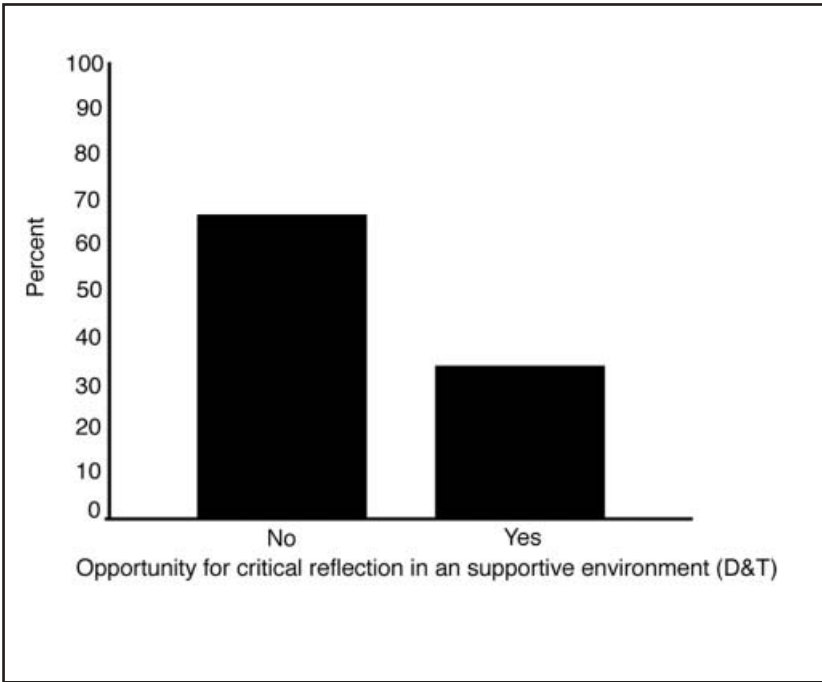


Figure 6: Comparison between D&T and all subjects – support for critical reflection

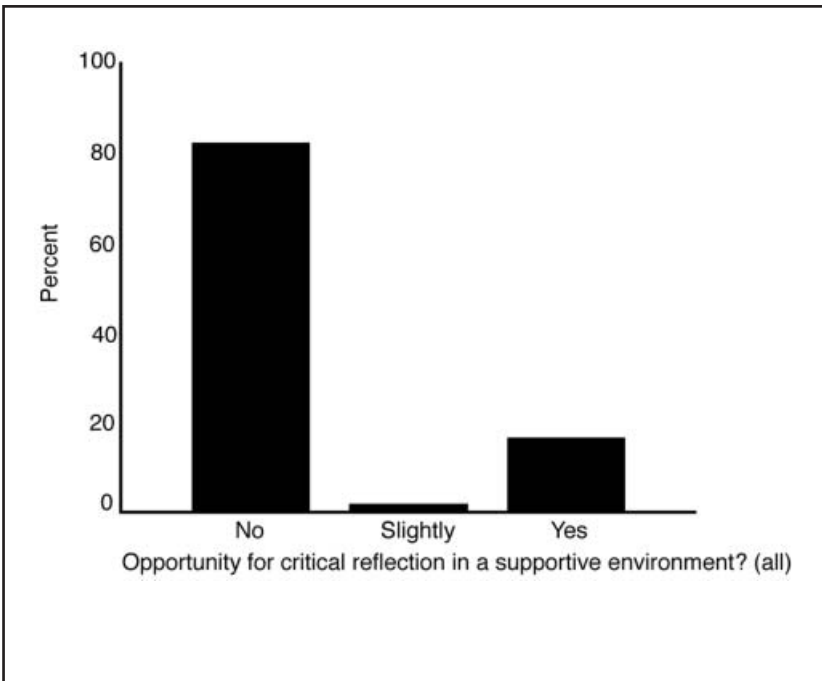


Figure 6 indicates another positive result by comparison with other subjects (33% of D&T lessons observed supporting children’s critical reflection by comparison with only 18% for all subjects).

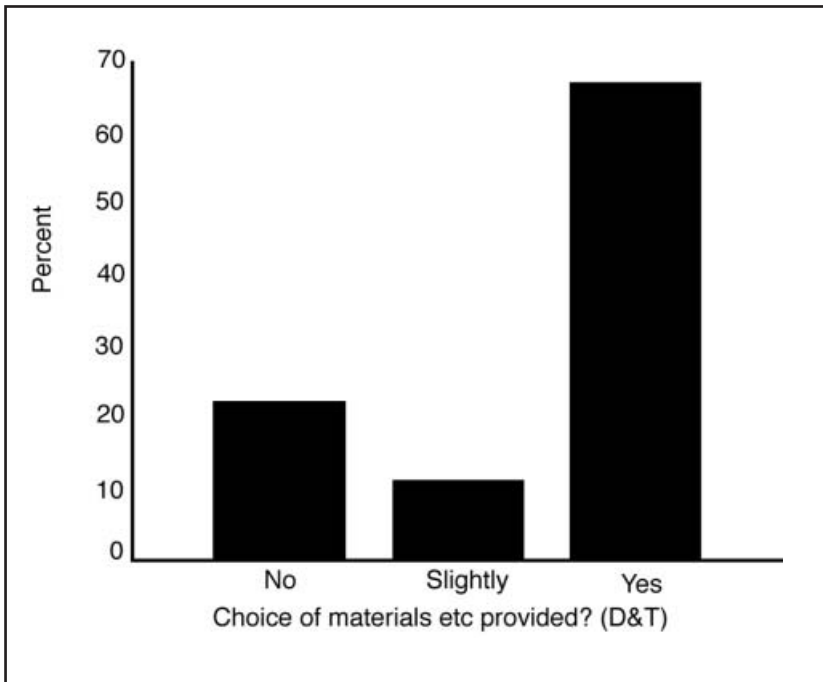
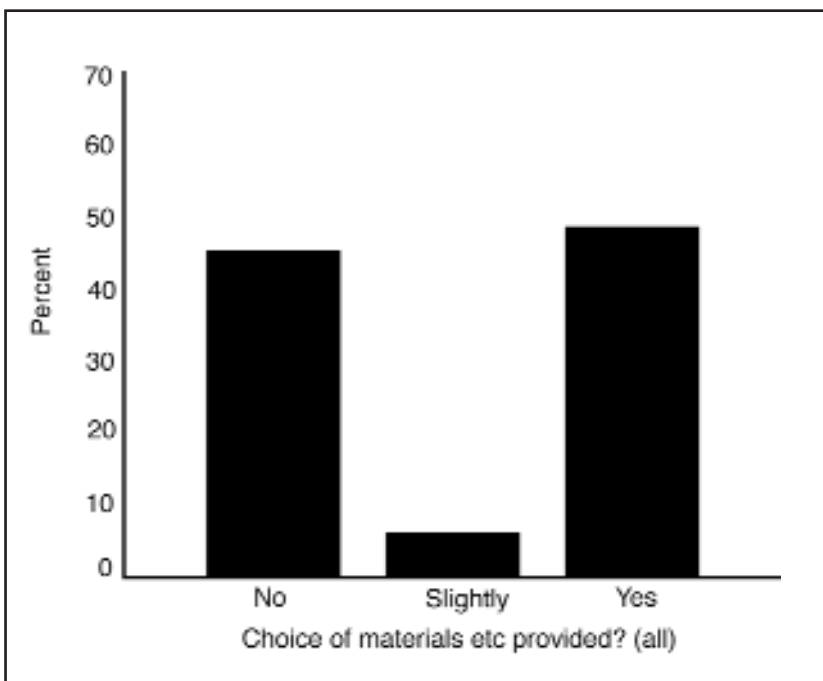


Figure 7: Comparison between D&T and all subjects – choice of materials and methods



From Figure 7, choice appears to have been one of the defining factors of observations of D&T lessons (78% offering at least a degree choice of materials or methods by comparison with only 55% for other subjects).

So overall, bearing in mind the limitations of the sub-sample size, trainees appeared to have observed D&T lessons offering more scope for generation of ideas, critical reflection and choice of materials and methods than the curriculum as a whole, though critical reflection was generally observed as weak. In

no area of the 'creative ecosystem' did D&T appear to perform significantly less well than other subjects:

'As expected the D&T lesson offered the most potential for creativity. It got the children far more enthused and motivated than the maths lesson. The atmosphere was more relaxed and rewarding for all children. They were far less afraid of failure. Also there was more opportunity to explore with different ideas such as a number of puppets and different backgrounds.'

Overall, 36% of respondents were surprised by the creativity they observed in their 'non-creative' choice, with a further 21% having their expectations only partly confirmed.

Usefulness of Harrington's framework

Almost all of the 220 trainees attempted the non-assessed task and the majority submitted it. Some returns were omitted because the trainee had obviously mis-understood or mis-applied the elements but overall the quantity and quality of the returns indicate the framework provided the trainees with a useable structure to their classroom observations. When coding the responses for analysis we found room for interpretation between the elements: 'non-threatening atmosphere' (e.g 'the teacher said there was no right or wrong answers') can be difficult to distinguish from 'opportunity for generative thought where ideas are greeted openly' (e.g 'the the children were encouraged to use any ideas that sprang to mind'); 'Children given a sense of engagement and ownership' arose because activities were 'presented in exciting or unusual contexts'. There is obviously a need to develop this framework to enhance its usefulness to teacher education.

'Draw a creative person'

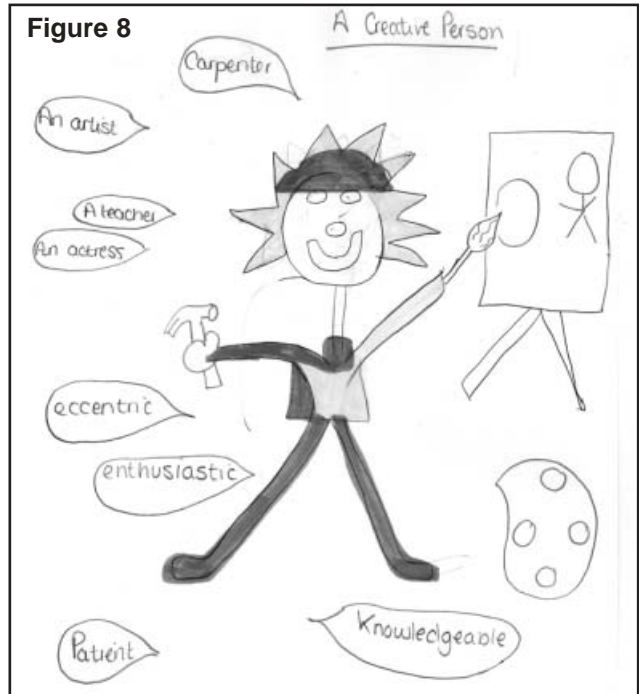
This aspect of the research project set out to explore how trainees at Manchester Metropolitan University Institute of Education and Goldsmiths', University of London, perceived particular aspects of creativity within individuals. These were explored through drawing a cartoon of a 'creative person', a tool used by Chambers (1983) and others to investigate stereotypical images of scientists.

Methodology

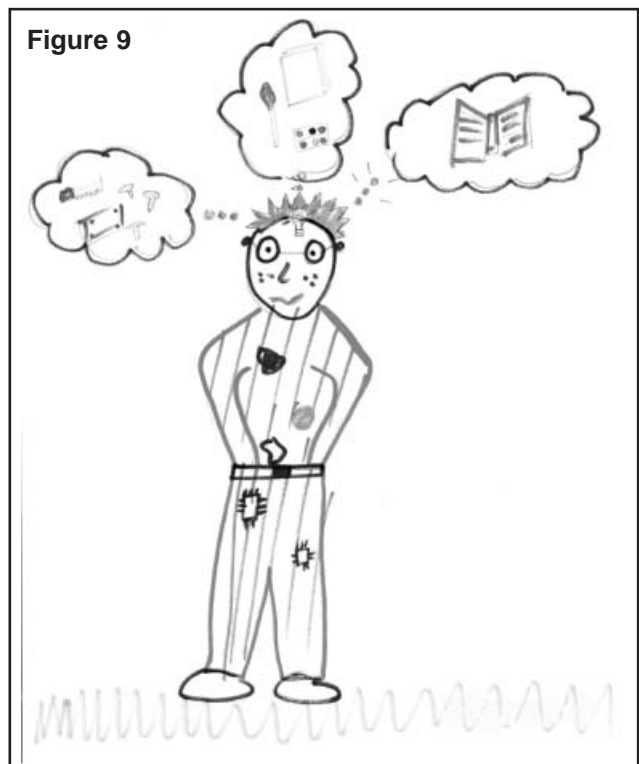
At Manchester Metropolitan University (MMU) second year trainees on a four year BA in Primary Education took part in this project. The activity was undertaken in the third session (of four) of D&T in their second year. The drawing task was followed by a discussion about what makes a creative teacher and how to recognise a creative learner. There were seven groups of trainees, giving a total of 112 responses. The Goldsmiths' sample was made up of 23 first year BA(Ed) student teachers on their return from an extensive school experience placement. The drawings were analysed in terms of shared notions of creativity by the students, for example, observable features (gender, clothing, activity, equipment, annotation). When these features were identified and comparisons made between the responses from (MMU) and Goldsmiths distinct similarities were apparent.

Findings

At MMU, the creative person cartoons varied from the very simple to the well-drawn and complex. The very simple were often stick figures augmented by annotations, either pictures or words (Figure 8).



Picture annotations included tools and equipment, which provided the evidence for the 'reference to' categories (art, product design/D&T and science) (Figure 9).



Occasionally these appeared in thought 'bubbles', but the most common illustration in a thought bubble was either a light bulb or a question mark (Figure 10). These were interpreted as representing thinking or inspiration.



Figure 10

Evidence of creative output was taken as being a product which was clearly the result of the cartoon person's endeavours, such as an artist painting at an easel, a smiling chef with a cake and a bespectacled designer with a racing car (there was just one of each of these)

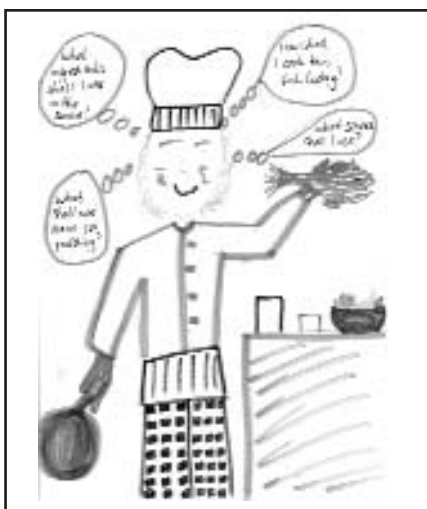


Figure 11

There was also only one reference to a creative teacher and one reference to a scientist. Overwhelmingly, it was art - 52 allusions (46%) - which was seen as the occupation of a creative person, with a small number of references to product design (12 or 11%), usually in the form of a few random woodworking tools, rather than a product outcome (Figure 12).



Figure 12

No trainees showed a drawing board or monitor with a technical drawing; it was always tools and equipment, for example a sewing machine or a drill. There was a wide range of other interests and occupations included in the cartoons: writing, CND, clowns, music, football, drama, dance and Greenpeace (Figure 13).



Figure 13

Most of these were mentioned only once or twice. Even though the trainees were being asked to draw the cartoon in a D&T session, still only 20 (15%) made any reference to D&T or product design.

As with the groups at MMU, the 'creative person' cartoons at Goldsmiths' varied considerably with some students needing reassurance that 'the ability to draw' was not a criterion for the task. The outcomes were a mixture of images, words and annotations. Unlike the trainees at MMU, there were more references at Goldsmiths' to product design/ D&T overall (10 or 43%) than Art (7 or 30%) with proportional evidence of product design output 6 (26 to artistic outputs 2 (8.7%). There were no references to science. The focus overall appears narrower in the Goldsmiths' cartoons (even taking into account the smaller sample) with only one reference to other careers - a female fire-fighter who had visited the trainee's placement school.

Clearly, for the majority of the trainees at MMU, the most important aspect of portraying a creative person was their clothing and a large number of trainees decided to give their creative person an 'artistic' appearance. The major categories were wildly coloured 'hippy clothing' (49 or 44%) (Figure 14), moustaches and beards (11 or 10%).



Figure 14

Smoking references were only found in three cartoons (3%). There were ten (9%) trainees who drew 'French' artists, complete with easels, moustaches, stripy T shirts, onions and berets and singing 'I am 'appy Oh so 'appy... (Figure 15).

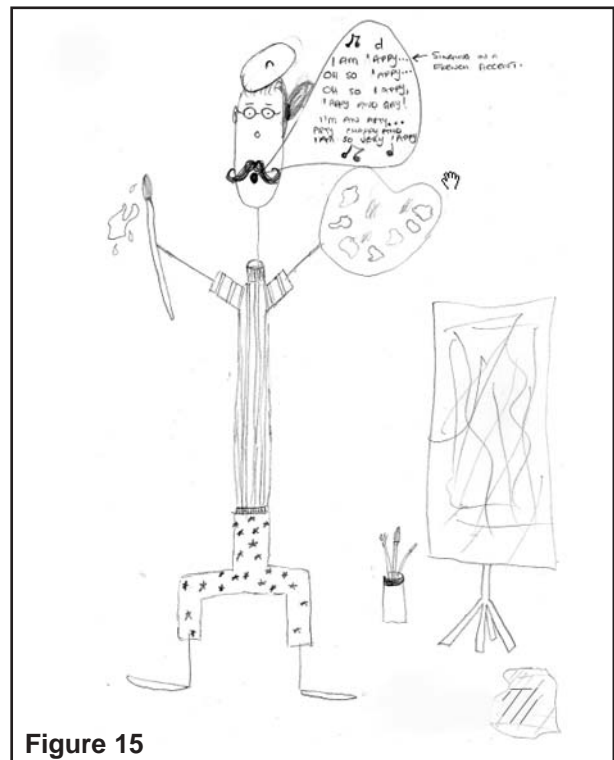


Figure 15



It is interesting to note that 22 trainees drew 'Everyman', in the form of a mirror, a sea of faces, an 'ordinary' person or simply by using words.

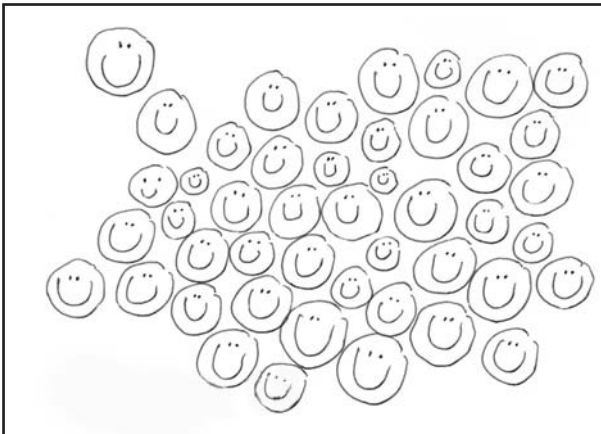


Figure 16

This represents 20% of the sample. Some cartoon were difficult to categorise: there were two fairies, a witch and a number of women in 'hippy' clothing without any other 'clues' about how they were creative.



Figure 17

A smaller percentage of the Goldsmiths' cartoons (6 or 26%) made reference to unusual clothing although some of the images depicted stereotypical artists with paint-splattered clothing and pockets

with brushes, rulers, scissors etc, at hand. It was more difficult to gauge whether the hair styles were unusual enough to be classified as such, so distinctive features such as words emerging out of the top of the head or interesting headwear were used to fit this criterion (10 or 43%). More than one of the people depicted had non-human/machine-like features such as a light bulb head or scissors and hammer for hands, tape and wood for legs

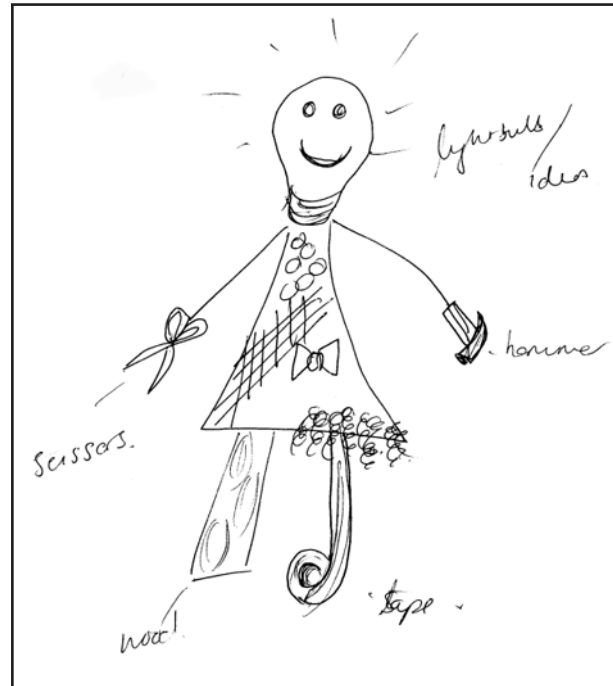


Figure 18

Two (9%) of these cartoon characters fall into the neuter category as being broadly 'humanoid'. Five (22%) of the cartoons contained symbols for thinking including light bulbs, words and expressions. Annotations and words or phrases were used by nine (40%) of the Goldsmiths' sample, including descriptions such as 'using junk material to make rockets' next to a drawing of the rocket; 'someone painting'; 'someone cooking a cake'; or 'Vivienne Westwood creative in style (clothes designer) uses v bright colours and wacky.'

Finally, it is interesting to compare the sex of the cartoon person with the sex of the person who drew the cartoon. At MMU there were 14 male trainees and 98 female trainees in the sample. It had been agreed that the creators of the cartoons would be unidentifiable so the majority of the cartoons were anonymous, but it is clear that at least 19 females (17%) drew male creative people. This figure comes from a comparison of the number of males in the sample with the number of male creative cartoon Figures. Three (13%) of the Goldsmiths' cartoons depicted the creative person as being male and ten

(44%) as female. The missing 43% in this case is made up partly of non-human forms such as two stars and a sun.

Summary and conclusions

What are the main findings from these two preliminary studies? Although the methodologies were completely different in the Bath Spa and Goldsmiths/MMU studies, certain common messages emerge. Of most significance is probably the emphasis on fine art as being the 'natural home of creativity' (selected by 39% of Bath Spa trainees, 46% of MMU trainees and 30% of the Goldsmiths' sample. Few Bath Spa or MMU trainees made any reference to designing and making using materials, indicating a disregard for D&T as a creative subject or designing as a creative profession. However, 43% of the smaller sample at Goldsmiths' made reference to product design or D&T, perhaps reflecting the higher status both enjoy at this institution.

Does this have significance for primary ITT in D&T?

Few trainees appear to have found the D&T they have observed in schools recognisable as a creative activity. As school students, what was their own experience as creative learners? Perhaps the most hope is offered by those who saw the creative person as 'Everyman' or who drew both male and female Figures (Figure 18) (22% of the MMU sample). These trainees did not rely on clichéd caricatures but recognised the potential for creativity that lies within everyone. Additionally, those Bath Spa trainees surprised by their observations (36%) also offer hope that preconceptions about creative potential of subjects within the primary curriculum can be challenged. Both sets of findings will inform the next phase of the *Creative Teachers for Creative Learners* project.

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