Learning from BPRS – improving boys' attitudes to writing through design and technology

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Learning from BPRS – improving boys’ attitudes to writing through design and technology
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Abstract
This small-scale school-based action research project funded through the Best Practice Research Scholarship (BPRS) (DfES) considers how boys’ attitudes towards writing can be improved by contextualising activities through design and technology. This study was born of a teacher’s wish (as a primary school’s English co-ordinator) to investigate further a ‘gender issue’ which had come to light during analysis of a whole school writing assessment and an overall wish to raise standards in writing by increasing enjoyment of writing.

Although warned to use the word ‘underachiever’ with care, ‘particularly when we use it to define boys’ academic abilities’ (Spendlove, 2001), there can be no doubt that nationally, boys’ levels of achievements in writing are lower than that of girls:

‘boys are still doing less well than girls at both key stages’ (The National Literacy Strategy – 3rd year HMI Evaluation) (HMI, 2001)

This research attempts to combine existing teaching resources in a primary school and, although writing, reading and speaking and listening skills will be developed during the unit, the focus is on improving attitudes to writing by changing the writing context (thus in the long term raising standards in writing levels).

This research began as a case study and attempted to examine pupils’ attitudes to school, writing and other curriculum subjects. The analysis of the results of the initial questionnaire (135 Key Stage 2 pupils) showed (among other things), that around 50% of both boys and girls didn’t think they were ‘good at’ writing and 48.4% of boys and 33.8% of girls didn’t enjoy writing activities. However, the results also showed that 88.3% of boys and 97% of girls enjoyed ‘designing and making things’.

This knowledge led to a piece of action research where a unit of work was taught, (based on the National Curriculum and recommendations by QCA, DATA and DfES and incorporating existing teaching resources), combining literacy and design and technology objectives, in order to examine the possibilities of changing boys attitudes to writing by changing the writing context. The project entailed composing, designing and making a pop-up book based upon an imaginative story or poem, and then a verbal and written explanation of the processes involved. Each session incorporates structured activities, which meet objectives for both literacy and design and technology as appropriate.

Questionnaires, observations and semi-structured interviews were used to gather information. The effectiveness of the Best Practice Research Scholarship in encouraging reflective practice will also be considered.

Keywords
literary, design, technology, writing, gender, boys
Introduction

Although the introduction of the National Literacy Strategy has been hailed as a success ‘The strategy continues to be the major influence on the teaching of reading and writing in English primary schools’; HMI (2001:6), there are gender related differences in the level of success. Ofsted (1993: 4) stated ‘Boys do not do as well as girls in English in schools. There are contrasts in performance and attitudes in the subject.’ The picture nine years hence is little changed, the report by the HMI on the third year of the National Literacy Strategy found that ‘Girl’s response to the literacy hour is significantly better than that of boys. The differences are noticeable from the reception year onwards and need to be considered in any discussion of the underachievement of boys in English.’ (1999: 11).

However, the word ‘underachiever’ should be used with care ‘particularly when we use it to define boys’ academic abilities’ (Spendlove, 2001: 4). Thorndike (1963: 3) identifies that the notion of underachievement within a culture may be more to do with limitations in the ability to forecast attainment and the ‘phenomenon of errors of prediction or failure to predict’.

Noble (1999: 1), reporting on the work carried out by Kirklees LEA on the ‘problem of boys’ achievement’ noted that, from a teachers’ perspective in general, boys do ‘misbehave more, get suspended and excluded more, disrupt classes and don’t work as hard as girls.’ Teacher perceptions may therefore be based upon assumptions and ultimately influenced by pupil behaviour which may impact upon their teaching style and the nature of their interactions with boys on a daily basis. A consequence of this is that ‘this type of labelling could become a self-fulfilling prophecy.’ (Spendlove, 2000: 15)

One of the factors identified, as a contributory factor in boys’ notional underachievement is motivation. Shipman and Hicks conducted research on boys in single sex lower ability groups in year 9 and 10 for science. They found lack of motivation to be a contributory factor particularly with less able boys, and the problem seems to increase or become compounded with age.

Sukhnandan, Lee and Kelleher (2000: 2) undertaking NFER research, based on 19 case study schools, found that the key to engaging boys’ interest is in teaching styles and learning contexts, ‘the process of investigating gender differences helped to raise levels of awareness, encouraged staff to think about and modify their teaching approaches to cater for the variations in pupils learning styles’ (ibid). Shipman and Hicks, in their conclusions agreed that teachers need to be aware of and adapt their teaching styles specifically to boys’ literacy levels and learning needs. (1999: 11).

Millard (1997: 180) found that boys and girls are ‘differently literate’ whilst ‘most boys are less tolerant than girls of activities and focuses which they consider to be irrelevant to their lives … this is an important indicator of the need for a more appropriate and demanding curriculum for all pupils’. It can also be argued that current literacy practice is too narrowly focused. Alloway (1995) believes that ‘surfing the net, reading video screens and engaging with computers all demand levels of literate competence that do not figure highly in school measurements of literacy’. Parry (1996: 12) illuminates the topic further, he considers literacy as being an integral and essential life skill. Links between literacy and gender indicate boys’ reluctance to read due to the claimed feminisation of literature and lack of ‘role models’. This is reflected in the significant attention now being given to raising boys’ performance in reading and writing.

The link between masculinity and literature is considered incongruent by some, and the current momentum to masculinise English so that boys can be accommodated is considered to only further exaggerate the differences. Martino (1995), for example, believes that ‘this will only serve to reinforce a polarisation of masculinity and femininity as it is reflected in the structuring and organisation of the curriculum around gendered dualism’s (sic) …Dominant models of masculinity and femininity are not challenged but rather endorsed. In other words, making English more masculine does not solve the problem but only reverses the binary’. (1995: 7)

It is also considered that masculinising literature will be to the detriment of girls (Gilbert, 1988: 13). Clearly, the current issue is complex and by simply adopting aggressive and counter-sexist texts, boys’ reluctance to read will not be solved. Byner and Parsons have identified that ‘the consequence of failing to become securely literate at school amounts to a vicious circle of disadvantage and marginalisation’ (1997: 17). The true picture, however, indicates that boys’ literacy skills have not declined whilst girls’ have improved.

‘The National Literacy Strategy definitely helps boys, but it helps girls just as much, so it doesn’t narrow the gap’ (Barber 1998: 4). Furthermore, boys now have many more distractions than ever and whilst it is essential to have concern for their literacy skills, their success and participation in other activities (multi-literate) should be celebrated. Many of the issues of learning can also be addressed without resorting to social engineering and theories of masculinity, but by recognising the biological, sociological and psychological differences in each case.
As previously identified, there is a danger of ‘labelling’, this being particularly perilous at a young age, but there is no doubt that, in primary schools, particularly as children move through Key Stage 2, differences in attitudes to writing appear to be gender related. Millard reports that, ‘The APU surveys, carried out between 1979–83, found that a greater number of boys agreed with the statement ‘I hate writing’ with more girls endorsing the statement ‘I like writing’. As boys reach high school, the differences can become more apparent as students are set in ability groups. Clark and Trafford (1995) and Powell and Batters (1985) looked at the performance of boys in modern foreign languages. They recorded that setting led to some predominantly male low ability groups, which caused disengagement of boys to be reinforced by peers resulting in a lowering of aspirations.

Kress (2000: 141), suggesting a ‘Curriculum for the future,’ states that:

‘The world of communication is multimodal, no longer reliant on language-as-speech or on language as writing alone.’ He suggests a very different pedagogy and a fundamentally different notion of learning … putting design at the centre of the curriculum and redefining the goal of education as the making of individual dispositions oriented towards innovation, transformation and change.’ It is also considered that the development of literacy skills is best developed through a contextualised approach, however, within design and technology, the delivery of literacy has been considered weak. Ofsted (2000: 4) identified the teaching of ‘basic skills of literacy and numeracy through design and technology is weaker than in most other subjects.’

But how do these quite complex theories link with a small scale BPRS in a primary school in Lancashire?

It is anticipated that by investigating and acknowledging present research and learning theories and by carrying out school-based action research, empowering the teacher through reflective practices, an insight may be gained into the dynamics of learning in order to take action and ultimately improve both attitudes and, consequently, achievement levels. With the theory of a future curriculum in mind, yet acknowledging government and local authority guidelines, this research project evolved.

Research framework
The research began as a primary teacher’s wish (as joint English co-ordinator) to further examine the reasons behind gender differences noted in a whole school analysis of writing levels and an overall wish to raise standards in writing by increasing enjoyment of writing. The research began as a case study and attempted to examine pupils’ attitudes to school, writing and other curriculum subjects. The analysis of the results of the of the initial questionnaire led to a piece of action research where a unit of work was produced and taught, combining literacy and design and technology based upon Stables and Rogers’ (2001: 124) enriching literacy initiative. The aim was to examine the possibilities of changing boys’ attitudes to writing by changing the writing context.

The project entailed composing, designing and making a pop-up book based on the National Curriculum and recommendations by QCA, DATA and DfES and incorporating existing teaching resources within an imaginative story or poem context. This extended into the inclusion of instructional writing, i.e. ‘How to make a pop-up book’. Each session incorporates structured activities, which meet objectives for both literacy and design and technology as appropriate (appendices available from DATA web site).

The ultimate aim of this research is to raise standards in writing, particularly boys’ writing, but in recognising this need, it was necessary to examine contributory factors for lower achievement in boys’ writing and to incorporate teaching and learning styles and methods appropriate to boys.

Research methods used were:

- analysis of whole school writing levels for the years 1999, 2000, 2001
- Key Stage 2 questionnaires to examine children’s perceptions of their ability and enjoyment of writing, design and technology and art and a look at preferred writing genres.
- identification of a target group (from results of questionnaires)
- semi-structured interview of a target group of boys, before, during and after project (see Table 2)
- observation of students during project
- second semi-structured interview after writing section of project has been completed (see Table 3)
- final semi-structured interview of a target group of boys (see Table 4).

The research project spanned seven months from September 2000 to end March 2001. It was undertaken in a small, semi-rural Roman Catholic Primary School (212 pupils). The children are from a mixture of socio-economic backgrounds with varied family structures. The local industry, since the demise of the flourishing textile industry, is mainly manufacturing. PIPS results show children to be below national average on entry but at the end of Key...
Stage 2, most children achieve well in all areas. However, levels in writing are below those achieved in other areas (as is the national picture).

An analysis of whole school assessments in writing over three years showed a gradual increase in gender related differences in achievement levels. The 2001 figures showed:

- Reception – 12 boys, 4 girls at lowest level (P4)
- Yr 1 – 11 boys, 5 girls at P8 or below
- Yr 2 – 7 boys, 2 girls 1c or below, 7 girls, 4 boys 1a or above
- Yr 3 – very little difference
- Yr 4 – 10 girls, 4 boys 2a or above, 14 boys, 5 girls 2b or below
- Yr 5 – 6 boys, 0 girls below level 3
- Yr 6 – 8 boys, 5 girls level 2 or below.

A questionnaire (available from DATA web site) was designed so as not to deter less able writers, it was child/user friendly and ‘easy to the eye’ Denscombe (1998). The questions were also read out to ensure access for children with special learning needs/low abilities. There were four choices of answers so as to avoid any ‘middle of the road’ answers. The questionnaire was drafted, piloted and amended. The main amendment was that of a final question being taken out of the questionnaire. The question asked whether, having written a story, the pupil would rather:

- read it to a friend
- read it to the class
- make a pop-up book out of it.

Out of the four boys who piloted the questionnaire, three said they would like to ‘read it to a friend’. When questioned about this answer, they said they would like to make a pop-up book but that it ‘sounded like hard work and a lot more work!’ This question was promptly removed and left a researcher determined to show the boys that ‘hard work’ and challenge had their rewards!

Question 6 (‘If you answered ‘not at all’ or ‘sometimes’ to Q3, can you say why you don’t always think you are a good writer?’ required a fuller answer, dependant on the answer given in question 3 (‘Are you good at writing?’), some children (mostly boys) were seen changing the previous answer so as to avoid writing! This had to be addressed and pre-empted.

The questionnaire was used primarily as a starting point for the research. It proved feasible in terms of time available and appropriate for collecting the data needed. The data produced from the questionnaire can be said to be reliable (children are nothing if not frank and honest when it comes to preferences and reasons for them). The questionnaire was produced and presented with inclusion (of all abilities), interest and enjoyment of the children in mind. The children were told of the reasons for the questionnaires and were interested in the outcomes and were pleased at the interest in them and their views/opinions.

The answers were tallied and the results presented in graph form (available from DATA web site) and table form (see Table 1).

The results show that, of 135 Key Stage 2 pupils questioned, none of the children, regardless of gender said they didn’t like school at all. This question was included to ensure that negative answers were not down to a pure dislike of school, rather than a subject or activity. They also show that the majority of boys and girls think that they are at least sometimes ‘good

<table>
<thead>
<tr>
<th>Subject</th>
<th>L</th>
<th>K</th>
<th>J</th>
<th>JJ</th>
<th>Total</th>
<th>L</th>
<th>K</th>
<th>J</th>
<th>JJ</th>
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<td>28</td>
<td>11</td>
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<td>15.7</td>
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<td>35</td>
<td>22</td>
<td>65</td>
<td>0.0</td>
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<td>33.8</td>
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<td>28</td>
<td>22</td>
<td>70</td>
<td>1.4</td>
<td>27.1</td>
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<tr>
<td>Question 2 Girls Good at Reading?</td>
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<td>27</td>
<td>65</td>
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<td>20.0</td>
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<td>34</td>
<td>29</td>
<td>4</td>
<td>70</td>
<td>4.3</td>
<td>48.6</td>
<td>41.4</td>
<td>5.7</td>
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<tr>
<td>Question 3 Girls Good at Writing?</td>
<td>4</td>
<td>31</td>
<td>22</td>
<td>8</td>
<td>65</td>
<td>6.2</td>
<td>47.7</td>
<td>33.8</td>
<td>12.3</td>
</tr>
<tr>
<td>Question 4 Boys Like Drawing?</td>
<td>2</td>
<td>3</td>
<td>11</td>
<td>54</td>
<td>70</td>
<td>2.9</td>
<td>4.3</td>
<td>15.7</td>
<td>77.1</td>
</tr>
<tr>
<td>Question 4 Girls Like Drawing?</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>53</td>
<td>65</td>
<td>3.1</td>
<td>7.7</td>
<td>7.7</td>
<td>81.5</td>
</tr>
<tr>
<td>Question 5 Boys Like Designing/ Making</td>
<td>5</td>
<td>5</td>
<td>9</td>
<td>51</td>
<td>70</td>
<td>7.1</td>
<td>7.1</td>
<td>12.9</td>
<td>72.9</td>
</tr>
<tr>
<td>Question 5 Girls Like Designing/ Making</td>
<td>0</td>
<td>2</td>
<td>7</td>
<td>56</td>
<td>65</td>
<td>0.0</td>
<td>3.1</td>
<td>10.8</td>
<td>86.2</td>
</tr>
<tr>
<td>Question 7 Boys Like Writing?</td>
<td>15</td>
<td>19</td>
<td>19</td>
<td>17</td>
<td>70</td>
<td>21.4</td>
<td>27.1</td>
<td>27.1</td>
<td>24.3</td>
</tr>
<tr>
<td>Question 7 Girls Like Writing?</td>
<td>1</td>
<td>21</td>
<td>21</td>
<td>22</td>
<td>65</td>
<td>1.5</td>
<td>32.3</td>
<td>32.3</td>
<td>33.8</td>
</tr>
</tbody>
</table>

Table 1: Results of Key Stage 2 questionnaire. (Sept 2001)
at’ writing. Only 4.3% of boys and 6.2% of girls said that they didn’t think they were ever ‘good at’ writing. This question was included in order to ascertain whether the children had negative attitudes towards their own writing ability.

The results show that 77.1% of boys and 81.5% of girls always enjoyed drawing. This question was included to ensure that a dislike of writing was not linked with poor fine motor skills, when drawing, children are still holding and controlling a pencil. Indeed in the Foundation Stage (age 3–5), children often use drawing alongside spoken language as a first form of communication, ‘they then begin to realise that there is a new aspect of language in written symbols. They experiment with marks on paper with the intent of communicating a message or emulating adult writing’. First Steps writing developmental continuum. (1997: 22)

The question, ‘Do you like designing and making things?’ got a very positive response from both boys and girls, 72.9% of boys and 86.2% of girls giving an ‘always’ response. This question was included in order to ascertain the children’s interest in and enjoyment of design and technology, but the extent of the positive response had not been anticipated and it was these responses combined that led to the project that followed. The questions regarding genre and form of writing were to inform the researcher of the most appropriate form of writing to enthuse both boys and girls. For boys, the most popular form of writing was story and for girls it was poetry (story as second choice). Boys’ most popular choice of genre was war, and girls’ was adventure. Elaine Millard in her study of Year 7 pupils found the most popular form of genre for boys to be adventure and girls to be horror (1999: 129). It was decided for this project that the children be given a free choice of genre but that the theme be fantasy since this fits in with the NLS requirements for Spring term.

The answers to the final question ‘Do you like writing?’ were probably the most telling, with 22% of boys yet only 2% of girls saying that they didn’t like writing at all and just 34% of girls and 25% of boys saying that they always enjoyed writing activities. The written answers to question 6, ‘Say why you don’t you think you are good at writing’ brought a variation of answers, some instantly self-explanatory. Examples (typed as written – all boys):

‘I dont lik it and am not neyt and I cant spell.’

‘I am good at sutting (some things). I dow (don’t) like roting (writing) a very lot.’

‘becase my thelms sheyso’ (friends say so)

‘because my Mum says that it’s a bit scruffy and I don’t get house points for it often’

‘because I sometimes get distracted, that’s why.’

‘bey cos of my techer.’

This is just a sample of answers but they are revealing in that they show that low ability, low self esteem due to few rewards for good work and inability to concentrate all play a part in forming attitudes to writing. They also show that peers’, parents’ and teachers’ criticisms are acknowledged and reflected upon, often negatively, by pupils.

The decision to interview some children was taken because of the need for more ‘detailed information’ (Denscombe, 1998: 11). The interviews were of a semi-structured nature and were undertaken before, during and after the project.

The full transcripts of the interviews are included in the appendix, but key points from the interviews were:

• A decision was made to make prompt cards for the first interview since children do have a tendency towards ‘yes/no/I don’t know’ answers. The children were asked to pick the cards most appropriate to their thoughts and there was always a choice of ‘other thoughts/feelings’ should none be applicable.

• On reflection, prompt cards would have been advantageous for the other two interviews as there was a tendency by the researcher to ‘suggest’ fuller answers when a ‘yes/no/I don’t know’ answer was given.

• In the first phase of interviews (Table 2), most responses to questions about writing are negative, however, responses to answers about design and technology and drawing are positive.

• Three out of the four boys say that the difficulties they have with written work prevent them from enjoying it (see Question 5)

• The boys’ perceptions of design and technology/art activities are much more positive; ‘It’s fun … doesn’t feel like working … doing new things … different things … don’t have to do it in a certain way.’ This suggests that changing the writing context and linking it with design and technology may also help to change the negative attitudes the boys have to writing.

The second phase interviews (Table 3) were carried out in the middle of the project, immediately after the main writing activity. The following key points can be noted:

• two boys chose to work alone, two chose to work in pairs but the key element was that they were
<table>
<thead>
<tr>
<th>Interview 1</th>
<th>Child 1</th>
<th>Child 2</th>
<th>Child 3</th>
<th>Child 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Question 1</strong>&lt;br&gt;You are going to write a story or poem tomorrow, how do you feel?</td>
<td>I feel worried. It worries me because if we do a lot of writing my hand hurts, I worry that the work (writing) might be too hard for me.</td>
<td>I feel I don't want to do it but – OK I'll do it.</td>
<td>I think it will be boring.</td>
<td>If I can take my time I can usually do better so it depends how long we have to do it in.</td>
</tr>
<tr>
<td><strong>Question 2</strong>&lt;br&gt;Before you start writing, what will you be thinking?</td>
<td>I can't be bothered. I don't think I will do well (sometimes).</td>
<td>I don't want to get started. I don't think I'll do well! I want to do well.</td>
<td>I think I can't wait to get sorted so that I will quickly finish. I think I hope I do it well so that I won't have to do it again. Really though I can't be bothered.</td>
<td>I want to do well. I practice my writing at home. I think I can do it well if I take my time.</td>
</tr>
<tr>
<td><strong>Question 3</strong>&lt;br&gt;When you are writing, what are your thoughts be?</td>
<td>Sometimes I don't know what to write. I don't know where to start. Sometimes I need help with ideas.</td>
<td>I don't know how to start. I need some help with ideas.</td>
<td>I need some help with ideas. I don't know what to write.</td>
<td>When I start I think I don't know what to write but when I get started I get good ideas.</td>
</tr>
<tr>
<td><strong>Question 4</strong>&lt;br&gt;(When writing is in presentation form)&lt;br&gt;Now that you have finished your writing, what are your thoughts?</td>
<td>I didn't enjoy doing that. I think my work could be a bit better. I usually feel pleased with my work and I'm proud of it.</td>
<td>I think my work could be better. I think I could make it more exciting. I didn't enjoy doing that. Why? Because I just don't like writing stories.</td>
<td>I didn't enjoy doing that. I have done my best.</td>
<td>I think my work could be better. Sometimes I think I can do better but if I'm doing good things I enjoy doing it.</td>
</tr>
<tr>
<td><strong>Question 5</strong>&lt;br&gt;What would make you more interested or enjoy it more?</td>
<td>If I was a better writer and I could spell most of the words.</td>
<td>If I did writing more regularly I would begin to enjoy it because I didn't used to like maths but I've done a lot at home and now I enjoy it.</td>
<td>I would enjoy writing more if we did easy writing.</td>
<td>I like writing stories and things but my handwriting is not always that good.</td>
</tr>
<tr>
<td><strong>Why do you like design and technology and art?</strong></td>
<td>Because it's fun. You don't have to do writing or working like maths, science and geography. It doesn't feel as much like working.</td>
<td>I like doing new things. Things that are different.</td>
<td>I like drawing and designing things. When you're writing you have to do it a certain way. When you draw/design you can draw what you want.</td>
<td>Yes I like it because you make things and draw things. Pictures don't take as long as stories.</td>
</tr>
</tbody>
</table>

Table 2: First phase pupil interviews.
given that choice. The two boys who chose to
work alone felt they would be hampered by a
partner, those who chose to work together found
the experience to be positive. ‘I said one idea, he
said one and we put them both in and made it
better.’
• all boys expressed ‘enjoyment of the activity,
though one did not enjoy ‘actually writing it
down’
• all boys most enjoyed the designing and making
aspects most but expressed increased enjoyment
of writing.

The third phase interviews (Table 5) were carried out
at the end of the project. Points to note from this
interview are:

• during the project, the children had some
difficulty working in groups (no group
dynamics) however, they worked well in pairs
(there were 34 pupils in a relatively small
classroom and group work was not often
undertaken due to classroom management issues)
• the children were split into gender groups to
evaluate pop-up books (lesson 1). Most girls
worked together, sharing books and discussing
them, many of the boys were observed fighting
over books, grabbing, not sharing and no real
discussion was observed.
• lower ability girls worked at a similar pace and
level of independence as higher ability boys

<table>
<thead>
<tr>
<th>Interview 2</th>
<th>Child 1</th>
<th>Child 2</th>
<th>Child 3</th>
<th>Child 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 1</td>
<td>You planned your story yesterday, did you enjoy planning your story?</td>
<td>A bit and a bit not. I enjoyed discussing it and sorting out what we were going to write about but not actually writing it down.</td>
<td>Yes I enjoyed it because I could choose what to write about.</td>
<td>Yes – I enjoyed planning the story. It was my ideas and I could imagine the pictures.</td>
</tr>
<tr>
<td>Question 2</td>
<td>Did you work together or alone?</td>
<td>I worked with Sam.</td>
<td>Alone.</td>
<td>I worked on my own so that there were no distractions.</td>
</tr>
<tr>
<td></td>
<td>Why did you prefer this.</td>
<td>We got more ideas – I said one idea, he said one and we put them both in and made it better.</td>
<td>It could be annoying, you can have your own ideas and no one else tells you what to do.</td>
<td>Sometimes they talk to you. It depends if they work or are silly. The silly ones always talk and not about the things you are doing.</td>
</tr>
</tbody>
</table>

Table 3. Second phase pupil interviews
Table 4: Third phase pupil interviews.

<table>
<thead>
<tr>
<th>Interview 3</th>
<th>Child 1</th>
<th>Child 2</th>
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<tbody>
<tr>
<td>Question 1</td>
<td>Did you enjoy making your pop-up book?</td>
<td>I really enjoyed it.</td>
<td>It was really exciting.</td>
<td>Yes, I really did.</td>
</tr>
<tr>
<td>Question 2</td>
<td>Which activities did you enjoy the most?</td>
<td>I liked all of it.</td>
<td>I most enjoyed making the mechanisms, but I quite liked writing the story.</td>
<td>I liked drawing the pictures, making the mechanisms and working on the computer.</td>
</tr>
<tr>
<td>Question 3</td>
<td>Were there any activities that you didn’t enjoy or found too difficult?</td>
<td>Typing on the computer was hard, it hurts your arm sometimes.</td>
<td>I enjoyed all of it.</td>
<td>No, I liked it all.</td>
</tr>
<tr>
<td>Question 4</td>
<td>Would you like to do that sort of thing more often (i.e. write something and design and make something at the same time?) Why?</td>
<td>Yes, because you know you’ll do pictures and you think about them and you can colour them in.</td>
<td>Yes, because I would enjoy it (writing) more because I would be thinking about making a moving thing whilst I was writing about it.</td>
<td>Yes, I think it would be more enjoyable because I really liked making the book.</td>
</tr>
</tbody>
</table>

- during the writing of the story, the boys showed the same level of enthusiasm as the girls. They were keen to read the ‘story so far’ to the teacher and responded well to praise.
- when making the prototype levers, the boys were more ambitious than the girls, many added extra fixed pivots, which looked impressive but didn’t actually perform any function.
- most girls followed instructions almost to the letter, many boys tended to find their own way of achieving the same or similar result but required support at almost every level.
- teacher modelling proved to be a key aspect of increased enthusiasm from the pupils. They were interested in the teachers’ evaluation of her attempt at both the writing and design and technology activities, they were thrilled with the teacher’s finished product and it gave them a good ‘model’ to work to. Noble (1999: 4) cited ‘teachers portraying themselves as learners’ as a recommended strategy for raising boys’ achievement.
- the teacher/researcher found some aspects of the project very difficult to manage. Even though children worked at different paces there still came a time when the whole class were assembling their book and the management of this activity with 34 children was, at times, difficult and chaotic. As much informed adult help as possible is required for this part of the project! It was anticipated that the pupils, when interviewed would make negative comments about this but, surprisingly, they did not. Kyriakou stated ‘effective teaching could sometimes be described as ‘organised chaos’. However, he went on to say that ‘sufficient order and control must be retained for effective learning to occur.’ (1991: 63)
- although they had made prototype mechanisms, most of the pupils were not familiar enough with these to incorporate them into their book without support, again with a 34:1 pupil: teacher ratio this took longer than anticipated.
- on reflection, written instructions, placed on each table (they were usually on the board) may also have helped pupils to be more independent.
- the children, particularly a group of eight boys, became quite noisy and disruptive if they were waiting for support or guidance.
- when questioned in order to revise instructions prior to working independently, on nine out of ten occasions, girls answered the questions.
The impact of BPRS in encouraging reflective practice
From a teacher’s point of view, there can be no doubt that BPRS has enabled, informed and encouraged reflective practice. The knowledge gained from this research has been threefold: This particular teacher/researcher now has a good working knowledge of small-scale research projects. She has gained a deeper knowledge and understanding of gender differences and of ways of ensuring equal learning opportunities regardless of ability or gender. She has increased her knowledge, understanding confidence and ability to teach design and technology and writing and has been able to teach in a different key stage.

She has been able to work closely with more experienced colleagues, sharing ideas and supporting each other and can now fully appreciate the value of school-based research to the pupils, the teacher, the school and educationalists in general. Cullingford, editor of Children and Primary Science said ‘The real disappointment with educational research, is that it is very rarely read or used … the study of children and the understanding that comes from self-knowledge are too important to be left to obscurity.’ (1991: viii)

In the past, research has been carried out in faculties of education, ending up in journals edited by those faculties to be read only by those attending the faculties. BPRS gives teachers access to those journals and professionals. It allows them to communicate, to share ideas, to engage in self-directed professional development. As teachers, we reflect daily, even hourly on all aspects of our work, ‘Reflection and evaluation is inherent in the job.’ (Kiriakou, 1991: 124), but undertaking research means that we reflect more deeply, seeking the views of experts, considering the views of pupils, colleagues, changing the preconceptions we may have had. At the end of the research, although we are often left with more questions than answers, we can say with some confidence ‘I think this is/is not so because I have been there, seen it, experienced it for myself’.

Conclusions
In conclusion, this research has shown that on this occasion, it was possible to change boys’ attitudes to writing by changing the writing context. However, it is important to acknowledge that this was small-scale research and that a larger extended research activity is desirable that may involve the use of a control group in order to further compound the theories arising from this project. Of course, the context was not the only factor affecting the results of the research and other factors such as changes in teaching and learning strategies (i.e. paired writing, teacher modelling and other strategies thought to be appropriate to boys’ learning needs (appendices available from DATA web site), may also have affected the results.
Certainly motivation in this case was not a problem. The idea of writing for a purpose and indeed designing for a purpose seem to hold the key to the effectiveness of the project. The question as to whether either subject was compromised during the project is a difficult one to answer. More time could have been spent on refining and editing the stories but because the teacher/researcher was working outside her own classroom, this had to be done during the time allocated for the research project. Time constraints meant introductions to sessions were precise and succinct, however, some pupils may have benefited from more detailed instruction/explanation during the introduction. Certainly the assembling of the book (inserting mechanisms on correct pages etc.) was very challenging for the pupils and required further detailed instructions in many cases. The finished products were, however, of a high standard considering the age and abilities of the children and learning objectives were met in both subjects in most cases.

Some key questions have arisen from this research, such as the extent to which we should challenge the limited definition of literacy and the limiting way in which we measure pupils’ achievements in literacy. Oracy, for example, is an essential tool of learning in every subject, discussions, opinions, speculations and explanations as well as imaginative talk, are essential elements of the articulate classroom (Goodwin, 2001), yet there are no systems in place for measuring oracy in Key Stage 1 or Key Stage 2 SAT’s tests.

This leads us to question whether we should be ‘testing’ pupils at all so early in their cognitive development, or, should there be systems in place which enable us recognise the multi-literate pupil? The statement at the start of this paper by HMI regarding boys response to the literacy hour reminds us that research in this area must continue in order to ensure that all pupils gain equal opportunities and equal access to a curriculum. Kress reminds us that the fundamental aim of all serious education remains constant: ‘to provide those skills, knowledge, aptitudes and dispositions which would allow the young who are experiencing the curriculum to lead productive lives in the societies of their adult periods.’ (2000: 134)

Questions for my school
Are there other ways in which we could combine writing activities with design and technology activities in order to:

a) increase enjoyment of writing (thus improving standards in writing)

b) enable children to practise design and technology skills more regularly so that pupils can be more confident and independent when
making decisions and taking action.
- Are all staff aware of gender differences in learning needs and do they incorporate strategies in their teaching to overcome these?
- Are we aware of the importance of teacher modelling of all tasks so that we are acutely aware of the possible challenging nature of tasks and more able to address the difficulties children may have? (This makes us more confident teachers and more able to suggest tried and tested ways of overcoming problems.)
- Can we raise the profile of foundation subjects in school by ensuring that achievement in non-core subjects is celebrated and valued to the same extent as core subjects?
- Are there other areas in need of development in school that may benefit from a research project?

Questions for further research

- How can we incorporate smaller design and technology projects into other curriculum subjects, particularly linking them with writing activities?
- Is there a limit to which subjects can be taught in a cross-curricular manner without compromising either subject?
- Does this level of enthusiasm for design and technology continue into secondary education? If so, what barriers exist that can be challenged to enhance the delivery of literacy within secondary design and technology.

References

Raison, G. and Rivalland, J. (1997) Education Dept. of Western Australia First Steps Writing Developmental Continuum, Port Melbourne, Victoria: Rigby Heinemann

Notes

1 (P scales are PIVATS Performance Indicators for Value Added Target Setting, the average child is expected to reach P7/8 by the end of the foundation stage – age 5).

2 It is important to note that these observations are relevant only to this group of children and generalisations cannot be made about how other cohorts would behave in the same circumstances.

3 SATs tests are Standard Assessment tests undertaken by children in English, maths and science at the end of Key Stages 1, 2 and 3.

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Abstract
This paper describes a paradigm for critical observation (or watching skills) in design and technology. This kind of study benefits from an understanding of linguistic theories and interpretation of text – beyond structuralism and semiotics – that moves towards a consideration of the ‘other’ or ‘difference’ in textual analysis. It is this that is explored as a paradigm for developing critical thinking about buildings and the spaces between them in design and technology.

‘The reader or critic shifts from the role of consumer to that of producer … The work cannot be sprung shut, rendered determinate, by an appeal to the author, for the ‘death of the author’ is a slogan that modern criticism is now confidently able to proclaim.’

(Eagleton: 138)

Augé’s concept of supermodernity (Augé, 1995), exposes the effect of information overload on our perceptions of space. ‘Solitary contractuality’ confines the user to what the designer wants them to do in a particular space – the designer is at the flight deck controlling uniform connections in a ‘non-place’. Moving away from solitary contractuality into socially organic observation of the built environment is the main theme of this paper – observing how users are productive making place.

Keywords
architecture, semiotics, design vocabulary, space, narrative

Identifying new spatial zones/thinking big
The task specifications that characterise the breadth of study for design and technology at secondary level, include product analysis – usually the study of handheld, small-scale objects that are taken out of use for classroom analysis. Placing objects in unfamiliar surroundings can indeed focus lateral thinking into imaging alternative functions of existing products, a key purpose of this type of task.

A product analysis of the fish slice may direct semantic analysis to the operational aspects of the object – its ‘blade’, handle, weight, material, ‘look’ – to generate ideas for new scraping products (Figure 1). But what if a new kind of scraper wasn’t the best solution? How do we enable students to think bigger?

‘Of course, much of the time, designers are simply employing a well understood design vocabulary for the solution of conventional problems. They are, we might say, merely working within the parameters of an accepted paradigm. But design tends also to be thought of as a quintessentially creative activity; and it is at this point that we want to consider how language-games we play qua design, can as it were, acquire the kind of ‘new joint’ making it possible to grasp a new vision, cast old problems in a new light, glimpse new solutions, or even see new problems.’

(Liddament: 11)

The 1990 National Curriculum for design and technology included the study of large-scale environments – ‘Environments: surroundings made, or developed by people.’ (Dept of Education et al, A3)

If this area of study was still identified in the national curriculum, I suspect that product analysis activities would focus on the style, look, structure or intended purpose of made environments. As such, the operational function of the building would be uppermost in developing a critical analysis of the large-scale object – what makes a kitchen a kitchen and a shop, a shop – as opposed to what relationships the user actually constructs with their built environment. The purpose of this paper is not to argue for the inclusion of the built environment into