Pupil perspectives on the physical learning environment: a study of how Year 3 pupils see learning spaces.

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Abstract

This paper examines the perceived importance of the learning environment, both in the classroom and in alternative settings, and how children believe their surroundings aid their learning. It reports the findings of a small-scale research project undertaken on teaching placement in a Year 3 (ages 7-8) classroom which used a multi-method approach to develop a picture of the views of the children. The children were able to give considered responses to the research questions, both in the questionnaire task and in the more in-depth tasks presented to the focus group. The findings provide evidence for the importance of the setting in which learning takes place and highlights the impact of spaces outside of the classroom, namely the use of outdoor space and off-site learning experiences.

Introduction

"The supreme and final arbiter of schools" is how the physical learning environment was described by Victorian headmaster of Uppingham School, Edward Thring (as cited in Seaborne, 1971). This is, perhaps, an extreme view, and one that ignores the effect of the teacher and pupils. However, it is undeniable that the design and contents of school buildings have a significant impact on the learning that takes place within them.

Much of the educational research into the effects of classroom environment on pupils has looked at the topic through the eyes of teachers, focusing on children's observable behaviours (Kershner, 2000). However, teachers and pupils may interpret the design and layout of the classroom in very different ways (Cooper, Hegarty, & Simco, 1996). It is therefore important to consult children directly, to find out about their perspectives on the spaces in which they spend so much of their childhoods, and which can profoundly influence their learning.

This study aims to investigate what is important to children in their learning spaces, and how children vary in the ways they use their environment to help their learning. The research was conducted with one Year 3 class, and sought to elicit the thoughts of the children about all of the classrooms they were taught in, as well as other learning spaces including the outside environment.

Literature Review

The importance of the physical learning environment

Gandhi taught that learning can take place under trees: a reminder that all that is required for the process of learning is a teacher and a pupil. But to ignore the role of the physical learning environment would be to ignore one of the most expensive and useful resources available to educators today. Indeed, Edwards, Gandini and Forman (1998) referred to the school building, landscape and spaces within as "the third teacher" (p.413). School buildings and the spaces within them can be used to great effect to facilitate learning (Beynon, 1997). This importance has long been recognised by researchers and educators. As early as 1874 Robson remarked that the happiness of teachers and children depended on how schoolhouses were

'constructed and furnished', highlighting the importance of the design of both the buildings and their contents. The architecture of school buildings depends largely on when they were constructed: the changes in style over time "reflected changes in educational policy" (Burke & Grosvenor, 2003, p.17). Le Corbusier (1923) described residential buildings as machines for living. In the same way, educational buildings can be seen as "machines for learning" (Beynon, 1997, p.19), their design revealing theories of learning at the time of their construction. Clegg and Billington (2002) note that classrooms are "not passive environments in which teaching and learning happen to take place" (p.196). Instead, they should be designed to promote and enhance learning and to work around the teacher. Seaborne (1971) quotes a primary school teacher as saying that in his experience, "the building made the teaching method" (p.1) but argues that this is not the full picture. Seaborne believes that teachers and children are influenced by their physical environment far more than they consciously realise. Whilst most teachers can adapt to unsuitable surroundings, this is a waste of their time and resources. This echoes the Plowden report (1967), which describes how the physical environment should "support teachers in their use of modern methods" (p.391). The report recognises the importance of suiting the environment to the teacher, recommending that "teachers should be more directly involved in the design of schools" (p.409). Other benefits of a good learning environment include a positive impact on the behaviour and attitude of the children, and gaining parental approval. One parent is quoted as saying that the excellent school buildings made it "worth a long walk to bring the children here" (p.391). This range of effects is still recognised today. The Cambridge Primary Review (Alexander, 2010) found that the quality of the physical learning environment can have a measurable effect on both teachers and pupils, following a study of published research on the topic.

Alternative Learning Spaces

There are significant bodies of research on learning environments outside of the conventional classroom setting. The Plowden Report (1967) suggests that small classrooms can be problematic for teachers. Educators must therefore look for alternative settings for learning.

The playground and school grounds have been described as 'forgotten space' in schools (Hart, 2002). Blatchford (1989) described case studies in which outdoor space was used

innovatively to promote learning. A conservation area in the grounds of a West London school was described not as a play area, but as "a place to encourage an understanding of (their) natural environment" (p.99). Another example showed how outside space can be used to compensate for a lack of facilities within the school buildings: part of the school grounds housed an outdoor theatre for performances. The playground itself can also be used for learning without the installation of any such major projects, through the use of educational game markings on its surface. Whilst Blatchford (1989) suggests that these markings are often "walked over unused and unnoticed" (p.82), this is not always the case. Wholf (1984) reported on a scheme called 'PAL (play and learn) time'. Markings designed to develop knowledge of a range of subject areas were made on the walls and grounds, and children were taught educational games using these. The aim of the project was to reinforce the concepts taught in the classroom in an enjoyable way. However, this is only one case study. Blatchford notes that over the past half-century, the typical primary classroom has been transformed from rows of desks with a few aids (such as the alphabet) on the walls into "well-managed and colourful resources for learning" (p.81). He argues that with the same attention and change, the typical playground could become as important for promoting learning as the classroom is.

The school site is only one possible location for learning. Educational researchers have looked at learning on visits to alternative settings. Griffin and Symington (1997) studied school groups visiting the Eden Project, an environmental site in Cornwall. They noted differences between the behaviour of children visiting in school and family groups. Children in school groups adopt "classroom-style, task oriented approaches" (p.764), whereas children visiting with their family display more "natural learning behaviour" (p.764). School groups focus on pre-designed tasks; family groups explore, led by curiosity. This suggests that it is not only the setting that affects how the physical environment is used for learning, but the context too. Peacock (2002) found that on an educational visit, worksheets encourage 'box-ticking and tunnel vision'. When consulted, teachers and children both believed that learning in the new setting would be more effective if the children were given unstructured time for exploration.

Pupil Perspectives on the Physical Learning Environment

Kershner (2000) notes that research into the classroom environment has historically focused on the perspectives of teachers, not children. However, recently it has been seen as more valuable to investigate children's views on education in general (Rudduck, Chaplain, & Wallace, 1996; Pollard, Thiessen, & Filer, 1997) and the classroom environment specifically (Rivlin & Weinstein, 1995). Kershner and Pointon (2000) investigated pupil perspectives of aspects of learning spaces, and argued that involving pupils in organising their learning spaces could be linked to curriculum areas such as design technology and environmental studies. The Mosaic Approach (Clark & Moss, 2001) has been used to elicit children's views on educational spaces. The use of this multi-method approach shares power with the children, as research is conducted with them, rather than on them (Clark, 2010). Many techniques have been developed for consulting young children on this topic. Schratz and Steiner-Löffler (1998) asked young children, who were unable to fully articulate responses, to take photographs showing the important areas of their classrooms.

There is a bulk of research based on asking children to describe/design their ideal school. This rose to prominence in 1969 when Blishen wrote 'The School I'd Like', having asked secondary school pupils this question. Many of the responses were echoed more than 30 years later when the Guardian newspaper re-ran the project in 2001. The competition asked primary and secondary school pupils in the UK to imagine their ideal school. Birkett (2002) summarised the responses in 'The Children's Manifesto', revealing that,

> "The School We'd Like is:
> A beautiful school
> A comfortable school
> A safe school
> A listening school
> A flexible school
> A relevant school
> A respectful school
> A school without walls
> A school for everybody."

The majority of entries to the Guardian's competition included references to outside space (Burke & Grosvenor, 2003). Primary school children asked for more equipment rather than

empty space. The findings were similar to those of 1969, when Blishen found that children were "begging that they be allowed to *get out* of the dead air of the classroom" (p.55) and wanted instead to learn outside, or in open-air classrooms. The large number of responses to these projects revealed the number of children who felt strongly about their learning environment, and valued the opportunity to express their opinions. Most children responded sensibly, although some offered fantastic suggestions, such as PlayStations, chocolate and teleporters (Burke & Grosvenor, 2003). Clark (2010) termed this problem the 'Disney Effect' but describes how it can be overcome by asking how children would alter the existing environment, rather than asking 'what would you like?'

Kershner and Pointon (2000) found through pupil consultation that children know a lot about how classrooms work. Multiple methods were used, including interviews, questionnaires, making a photo book and mapping the classroom into zones of 'comfort', 'distraction' and 'interest'. The children all responded thoughtfully: no child ticked boxes in a pattern when completing the questionnaire. The methodology of this research was suitable for small-scale research by teachers. The differences found between children in different classes means that the results cannot be generalised. Instead, the work was an in-depth case study, revealing the perspectives of individual children.

These pieces of research give insight into children's perspectives, but the results were not used directly to design learning spaces. However, Blatchford (1989) describes a project in which children were involved in the design of playground markings. The children drew their ideas and discussed rules for possible educational games, before presenting these to an LEA adviser, who worked with them to create full-sized versions on the playground. The children were quick to use the markings and adapt the games to suit them. Blatchford believed that the "degree of involvement (in design) is likely to be proportional to the later interest children show" (p.83).

The literature on learning environment suggests that this should be an important topic in the minds of educators, and it has been shown that children have strong opinions on the issue. This research aims to investigate pupil perspectives on their use of their environment to aid learning.

Methodology

This research was conducted in a Cambridgeshire Junior School which had three Year 3 classes. In this school, the children were set for certain lessons, so were taught in one, two or three classrooms. The participants selected were the 27 children from one class, who were encouraged to consider all the classrooms they were taught in when taking part in the research.

In designing this research, a multi-method approach was adopted. This acknowledges the different languages of the child (Edwards, Gandini, & Forman, 1998) by using different methods of collecting data. This increases the "internal validity" of the results (Evans, 2009, p.120), as findings from multiple perspectives can be compared. Robson (2002) terms this use of different methods of data collection to ensure valid results 'data triangulation'.

Fraser (1991) notes that while most research into classroom environment has been quantitative, using only questionnaires, it is also advantageous to adopt a more qualitative approach to give a deeper insight into children's perspectives. This study combines quantitative and qualitative methods in a design influenced by Clark and Moss' (2001) Mosaic Approach. This views children as experts in their own lives (Langsted, 1994) who become co-researchers through an active role in data collection, and then pieces together the data into a 'mosaic'.

Questionnaire

I designed a structured questionnaire (Appendix I) which asked the children to indicate the extent to which they agreed with a series of statements using a scale (Likert, 1932). This allowed for quantitative analysis of results and gave a systematic means of understanding each child's view of their environment (Kershner & Pointon, 2000). The statements were varied to discourage the children from responding in a set pattern (Denscombe, 2007). Several open-ended questions were included to allow children to expand on the topic if they wished. I ensured the questionnaire was accessible by discussing the ratings scale with the children beforehand, and discussing the statements with the class teacher. A child with a statement of SEN was supported in reading and scribing during the questionnaire.

I selected at random two boys and two girls who had responded to the open-ended questions. This group was asked to participate further in the research, to provide the multiple sources of data needed for the Mosaic Approach.

Photographs and Tour

Two methods described by Clark and Moss (2001) use photographs and tours to involve children in active collection of data. I had planned to use both, but made the decision to combine the tasks due to time constraints placed on the research. The children were each asked to carefully select and photograph the two places or features of the school that they believed helped their learning the most. I was careful to phrase the task in this way, as Clark (2001) points out that phrasing can alter the outcome, for example 'favourite place' is different to 'important place'. I accompanied the children as they did this, and encouraged them to explain their choices. In this way, the task became a 'walking interview' (Langsted, 1994). Clark (2010) notes that this can be less threatening than a formal interview and so may reveal a deeper insight into the children's perspectives. The photograph task was selected to give the children another way to express themselves, as 'listening' to children should not be confined to their words (Clark and Moss, 2001).

Group Interview

I carried out a semi-structured group interview using a series of open-ended questions as a guide (Appendix II). This approach allowed me to ensure that I asked the questions I had planned but was flexible enough to let the children expand on their answers and lead the discussion when they wished to. I tried to reduce the 'power differential' between myself and the children by conducting the interview in their usual classroom (Cohen, Manion & Morrison, 2007). Drever (2003) notes that interviewing children in their classroom allows them to make reference to objects or spaces without having to describe them. I printed their photographs to be used as prompts for the discussion (Kershner, 2000), which allowed me to clarify their reasons for selecting these objects/spaces. I chose to carry out group rather than individual interviews so the children would be less inhibited and could discuss the topic amongst themselves, allowing me to observe and note their opinions.

Ethical Considerations

When carrying out research, the effect on the participants must be considered. It cannot be assumed that the research will not have an impact on their future (Cohen et al., 2007). The researcher must therefore design their work so as to maintain the dignity of all participants. An ethics checklist (Appendix III) was consulted to address ethical considerations. When planning this study I considered the possible implications on the children and staff involved. Only the school's cameras were used and the children were not permitted to take any photographs with people in them, to protect the privacy of everyone at the school. All names of children, staff and the school have been changed to ensure anonymity.

Before embarking on my research I discussed my proposal with the class teacher. I shared my research aims and the contents of my questionnaire and semi-structured interview and discussed how I would minimise disruption of teaching. This was done by removing children from rehearsals for a performance at times when they were not actively involved. During parts of the research, I worked with a group of four children. I chose to conduct the interview in the classroom with the door open, so other staff could see in. Research of this kind requires the permission of the guardians of the participants (BERA, 2004). I was able to confirm that the school's policy covered the methods detailed in my research design: it was therefore not necessary to receive consent forms from guardians.

As well as guardian consent, children should be able to consent or refuse to participate in any study (Lewis & Lindsay, 2000). I explained the purpose of each task to the children and, following BERA guidelines (2004), made it clear that they did not have to participate and could ask questions or withdraw from the research at any point. Throughout, I tried to minimise possible concerns, for example by reassuring children that there were no right or wrong answers to the questionnaire, and by establishing ground rules for mutually respectful behaviour during the group interview.

Presentation of Findings

Clark and Moss (2001) describe the Mosaic Approach as a two stage process. Firstly, children and adults together gather documentation. Then the information is pulled together

"for dialogue, reflection and interpretation" (p.11). I will present and analyse the results of the different methods of data collection and draw these findings together. A study of this type, even with such a small number of participants, results in a large amount of data, so it is important to identify the main findings. I will present both quantitative and qualitative analysis, as this will give the clearest picture of pupil perspectives on this issue (Fraser, 1991).

Questionnaire

The questionnaire provided a good starting point for gaining a quick overview of the children's opinions (Fraser, 1991). The participants appeared to complete the questionnaire thoughtfully: no child simply ticked the same column throughout, for example. However, it must be recognised that the questions and rating scale may not have been fully understood by the children. The reliability of the results may be affected by the motivations, reading accuracy and interpretations of the children (Kershner & Pointon, 2000).

Rating Scale

The results of the rating scale section are given as number and percentage of responses (Appendix IV). The statements are presented in decreasing order of agreement: the first statement had the greatest total number of 'strongly agree' and 'agree' responses. This gives an indication of the strength of opinion of the class and shows similarities and differences between the children (Kershner & Pointon, 2000). The 'strongly agree' to 'strongly disagree' scale (Likert, 1932) is an ordinal scale: the categories are in a ranked order (Denscombe, 2007). Coding such scales is a long-established analytical technique which gives a quantitative measure of the respondents' feelings (Bell, 2005). The results were coded by assigning numerical values from '1' for 'strongly disagree' to '5' for 'strongly agree'. To present the results visually, an 'agreement factor' for each statement was calculated by summing these numerical values for all the responses and dividing by the number of participants in the group. Thus an agreement factor greater than '3' denotes overall agreement, whereas a factor less than '3' shows that the group disagreed with the statement overall. The results are presented below, for the whole class and for each gender.
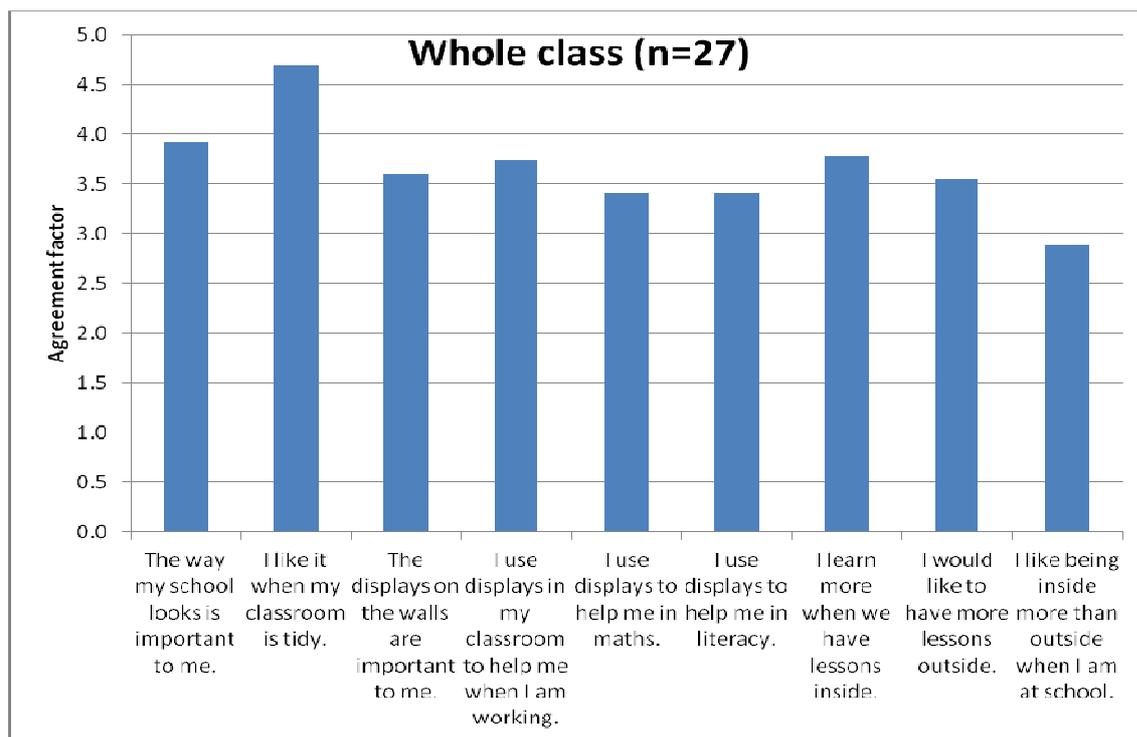
Figure 1: The level of agreement with questionnaire statements (class).
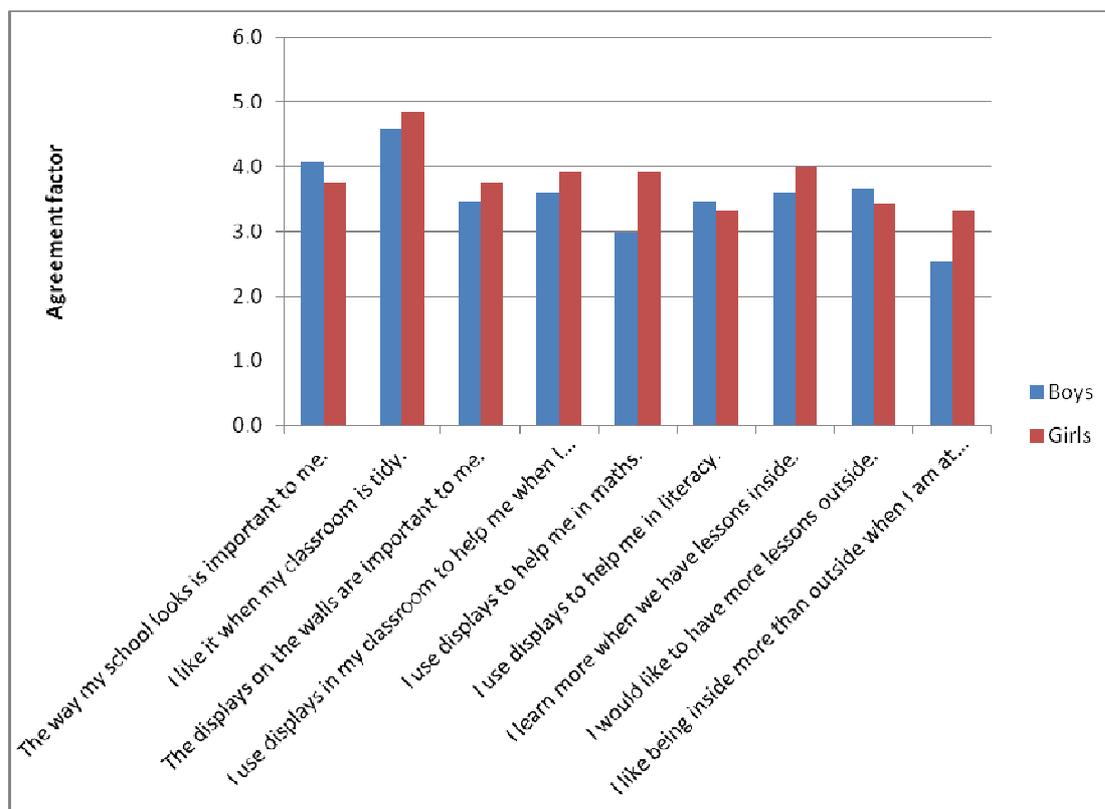
Figure 2: The level of agreement with questionnaire statements (boys and girls).

The strongest agreement was seen for the general statements 'I like it when my classroom is tidy' and 'The way my school looks is important to me'. No child disagreed with the first statement, and only one disagreed with the second. This reinforces findings (Blishen, 1969; Burke & Grosvenor, 2003) that the physical learning environment is important to children. The only statement with an agreement factor smaller than 3 (overall disagreement) was 'I like being inside more than outside when I am at school'. However, this disagreement should be presented with hesitancy as there was a spread of responses to this statement, with 37 per cent strongly agreeing and 41 per cent strongly disagreeing. Overall, the children agreed that they would like to have more lessons outside (as found by *The School I'd Like* projects, 1969 and 2003) although they also agreed that they learn more when inside. There was also disagreement between the children in response to the statements about the use of displays. Although they generally agreed that they used displays to help them learn, there were a significant number who disagreed or were unsure. More children agreed when the statement was about displays generally than when it was subject-specific. Some differences between the perspectives of boys and girls in the class can be seen. The results suggest that girls use displays to help their learning in maths more than boys do. Gender may also explain the spread of responses to indoor/outdoor preference: within this class, girls preferred to be inside at school, whilst boys preferred to be outside.

Open questions

The children were presented with two questions: what helps them to learn most in their classroom, and what would they put on the wall to help them learn. In The Guardian's *The School I'd Like* project, some 'silly' responses were given (Burke & Grosvenor, 2003). In this study, all participants responded sensibly to these questions. The responses and the frequency with which they appeared are presented below.

Feature	Frequency of response
Smart Board	11
Literacy working-wall	9
Equipment on tables	2
Maths working-wall	2
Other (laptops, other displays)	3

Table 1: Responses to 'Which part of your classroom helps you to learn the most?'

Feature	Frequency of response
Literacy display/spellings	5
Nothing/everything I need is there	4
Examples of children's work	2
Examples of test questions	2
Science working-wall	2
Maths display	2
Other (compass directions, recorder notes, examples of learning objectives)	3
No answer	7

Table 2: Responses to 'What would you put on the walls to help you (and other children) to learn?'

Table 1 highlights the importance of the SmartBoard. This response was given by 41 per cent of the class, even though it was unmentioned in the questionnaire. The children see this feature as central to learning in their classroom. In this setting, it was a heavily-used tool, with Smart notebook documents being prepared for every lesson. The literacy working-wall was also a popular response, mentioned far more than the maths working-wall. This is inconsistent with the results of the rating scale, which suggested that the children used these roughly equally. The result is however consistent with the class teacher's comment that she used the literacy working-wall far more.

The second question gave the children the chance to be a classroom 'designer' and table 2 shows that the results were less dominated by a few responses. The most common theme was literacy/spelling resources. This is of interest given that the responses to the first question suggested that the literacy working-wall was already one of the most useful learning tools in the classroom. 26 per cent of the children gave the response that the classroom already had

everything they needed. This was coded separately from 'No response to question' so was a considered answer. Certainly, the classroom walls appeared busy and well-resourced.

Photography task

Sophie, Rachel, Mark and Edward were selected for the photography task and subsequent interview to form a group, including both genders, who had all responded to the open questions on the questionnaire. A summary of their questionnaire responses is given in Appendix V. The questionnaire was completed one week before the photography task. Each child took two photographs of the places/tools that helped them to learn the most. All four children discussed their choices before taking any photographs. Clark and Moss (2001) suggest creating a grid to show whether the same responses occur in different tasks. Bringing together data in this way strengthens the internal validity of the results (Evans, 2009). The photography task posed a similar question to the questionnaire (Which part of your classroom helps you to learn the most?) – but gave the children a different medium in which to answer. The children's photographs are included in Appendix VI and the results are summarised below, showing their responses to this question, in both written form (questionnaire response) and in the subject of their photographs in this task.

	Questionnaire	**Photograph 1**	**Photograph 2**
Sophie	SmartBoard	SmartBoard	Smiley faces
Rachel	Maths working-wall	Literacy working-wall	Topic working-wall
Mark	Computer	Hopscotch (on playground)	Maths working-wall
Edward	Maths working-wall	Maths working-wall	Snake marking (on playground)

Table 3: The results of the questionnaire and photography tasks.

The children were not reminded of their questionnaire responses before the task. Two of the children (Sophie and Edward) took a photograph of the same space they had recorded as the most important on their questionnaires. This consistency increases the certainty about their opinions. For example, Edward took a photograph of the maths wall, named it as the most important part of the classroom for his learning on the questionnaire and strongly agreed with the statement 'I use displays to help me in maths'. He was unsure about 'I use displays to

help me in literacy' and did not take a photograph of the literacy wall. The children's photographs were discussed during the interview which followed immediately.

Semi-structured interview

In the Mosaic Approach (Clark, 2010), analysis involves the bringing together of findings. In this study, the use of photographs as prompts for discussion naturally brought together the photography task and interview. In this analysis I will also relate these results to the questionnaire data, to give as full a view as possible of the children's perspectives, by drawing on data collected by different methods. The interview followed the general form of the prompt sheet (Appendix II). The interview is not transcribed as such an exercise produces a huge amount of data. There were only four children in the group interview, and I was able to record their ideas by note-making alone. These ideas will be grouped thematically and combined with data from the other tasks.

In the photography task, the most popular choices were displays/working-walls and the outside environment. These themes emerged strongly during the interview. Working-walls were also a common response to the open questions on the questionnaire. These two areas have featured prominently in pupil consultation research (Blishen, 1969; Kershner & Pointon, 2000; Burke & Grosvenor, 2003). After looking at the children's general views of the classroom environment, I will consider each of these themes in turn.

General view of the learning environment

The four children described their classroom in a very positive way, consistently using words such as "good", "bright" and "tidy". This is consistent with the class' response to the questionnaire, which indicated that the appearance and tidiness of the learning environment was important to them. They all agreed that the classroom was very full. But as Rachel said, "It is full. But it's full of stuff that helps you learn." They took pride in their classroom, often getting up to point out features, and were eager to talk about their favourite parts: particularly colourful displays as well as "friends" and their "lovely teacher". They were unwilling to choose their least favourite part of the classroom. The only response to this question was Edward's hesitant suggestion that the teacher's desk was messy. Ideas for changes to the classroom included making use of the traffic-light 'noise-o-meter' system. This was

consistent with the teacher's comment that she often forgot to use this. Mark and Sophie were also keen to redesign the baskets of resources on the tables: Sophie suggested having one basket for each set of books; Mark wanted one basket for each child.

The children all showed an awareness of learning environments outside the classroom, suggesting other classrooms, school trips and outdoor space. Mark described how he learned at home, playing maths games on the computer, whilst Rachel pointed out that, "We learn when we eat lunch. We learn manners".

Displays

The subject of displays came up many times during the interview. The children all agreed that they helped them to learn, which is consistent with the questionnaire responses. The children requested more displays when asked what they would change about their classroom. Rachel and Mark both gave answers consistent with their responses to the questionnaire: Rachel would add a science wall whilst Mark wanted more maths displays. The children suggested lots of ideas for new displays, including PE, DT and art walls and were able to describe why these would be helpful. They were particularly concerned with how they could help the two English as an Additional Language learners in their class: "It would help Katja and Nadia to learn" was repeated many times. They did however say that displays should be useful: Mark pointed out one board that their teacher could "upgrade" because it only had photographs and "nothing to help us learn". This showed how children and teachers may interpret displays differently (Cooper et al., 1996). In the photography task, four out of eight photographs showed working-walls. Rachel took two photographs of working-walls, and described how she found them useful for spellings and "for when I'm writing". Mark and Edward each took a photograph of a maths wall, which they found useful for "fractions" and "in tests". This was consistent with their questionnaires, which both mentioned maths displays. Sophie took a photograph of a display showing the faces used by the children to self-assess their work. She used this to remind her to think about "how good my work is" and said that "the happy face reminds people to be happy when they're working!"

Outside space

Throughout the interview the children talked about the outside space in their school and about school trips. Burke and Grosvenor (2003) found that the majority of primary school children consulted about their ideal school mentioned outside space. This is consistent with the questionnaire results: the children agreed that they would like to have more lessons outside. This area is where the biggest difference between boys and girls was seen. On the questionnaire, the boys indicated that they preferred to be outside when at school, whereas the girls preferred to be inside. This is supported by the photography task: only Mark and Edward chose to take a photograph outside. They described how they used these markings to play maths games. Edward likes to close his eyes and "jump and then double the number I land on". This contradicts Blatchford's (1989) finding that playground markings are underused.

The children also recognised that school is not the only site for classrooms (Griffin & Symington, 1997). They agreed that school trips were useful and enjoyable and revealed an understanding of the reasons behind them: Mark explained that sometimes the teacher does not know about a topic, so "you go and ask the experts".

In conclusion, several key themes have emerged during this research. The children consulted showed that they have strong views about their learning environment, and are particularly concerned with what is displayed on the walls and with the outside space. They enjoy learning outside and in alternative settings, but also take pride in the appearance and resources of their classroom. The results from different methods of data collection are mainly consistent (thus increasing their reliability) and in line with findings from the literature considered. The study has shown that children are capable of critically analysing their learning environment and, if offered the opportunity, can suggest and justify ideas about how to improve it.

Analysis of Research Methodology

The multi-method design of this research made it possible to combine quantitative and qualitative analyses, as recommended by Fraser (1991). Its use of different media, based on the Mosaic Approach, meant that the children were not limited to spoken/written responses (Clark & Moss, 2001) by increasing the number of ways the children could express their ideas (Kershner, 2000). The use of multiple perspectives gives the results greater "internal validity" (Evans, 2009, p.120). The order in which the research tasks were carried out was successful. The questionnaire allowed me to ensure that the children selected for the next tasks had ideas about the research topic. Carrying out the photography next gave me useful visual prompts to use in the interview. On reflection, the range of methods of data collection in the research design was ambitious given the time constraints: I found it necessary to combine the photography and tour tasks. It is also important to note that the research was carried out with a very small sample of children. This study gives an interesting insight into the thoughts of these children, but the results cannot be generalised due the small sample size. Researcher bias must also be acknowledged. I tried to be objective at all times, but it is possible that my own views may have influenced the phrasing of questions or interpretations of responses. Cohen et al. (2007) termed this 'expectancy effects'.

The questionnaire was a rapid method for gaining a brief overview of the class' opinions (Kershner & Pointon, 2000) and allowed every child to participate in the study. The photography task was useful for both its outcome (the photographs themselves and their use as prompts in the interview) and for conducting a walking interview (Langsted, 1994) which may have allowed the children to be less inhibited in their responses. Limiting the children to two photographs each meant that they considered the task carefully: every child chose to discuss their choices with the group before even picking up the camera. The group interviews gave a more in-depth view of the children's opinions, and the semi-structured format gave the children control over the direction of the conversations (Robson, 2002). The atmosphere was relaxed and the children were willing to offer opinions: the familiar classroom setting and the fact that they knew me well (I had at this point been with their class for several weeks) permitted a more natural style of interaction (Cohen et al., 2007). However I found that two children tended to dominate the conversation, a problem recognised by Drever (2003). To overcome this I needed to intervene, which may in itself have altered the expression of ideas.

On reflection, the research design was effective and data was collected using a range of methods. The time constraints meant that the number of methods and the sample size was limited. Kershner and Pointon (2000) compared responses from different classes when conducting similar research and found some contradictory results. This research was carried out with one class only: it is therefore not possible to generalise the results even to other children in the school. Instead, the results are an interesting small-scale study of these children. If time permitted, I would have repeated the photography task and group interviews with more children, including those from other classes. If I was able to extend this research, I would use more methods suggested by Clark and Moss (2005) to give a more detailed 'mosaic' of results. Kershner and Pointon (2000) also investigated the views of teachers and contrasted these with the children's perspectives. This would be an interesting direction to take this research and would be consistent with the Mosaic Approach on which the study is based: Clark and Moss (2001) suggest gathering input from both children and adults to obtain the fullest picture.

Implications for Future Professional Development

Carrying out this study has both given me experience in designing research and has highlighted the importance of investigating pupil perspectives. I have a deeper understanding of the reasons behind the design of research methodology and the techniques used to ensure the validity of data collected. Adopting the Mosaic Approach demonstrated the benefits of using a multi-method design. It is an approach that is adaptable, child-centred and designed to be "embedded into everyday practice" (Clark & Moss, 2001, p.5).

Before embarking upon this study, I was not convinced that researching pupils' perspectives was a good use of a classroom teacher's time. However, I now hope to continue to use these methods to consult pupils in my own classroom: although the daily schedule of a classroom is always busy, I have seen that it is possible to fit in pupil consultation. The positive effects on children (many of the participants of this study thanked me for asking about their opinions) and the interesting results that can be obtained have convinced me that it is worth finding time to carry out such research. Not only will I be able to use the results of my research to optimise the children's school experiences, but the process of consultation itself will hopefully convince the children that their opinions are valued. The benefits I observed when

using participatory methods such as the photography task demonstrated the importance of "facilitating the process of knowledge production, rather than gathering" (Veale, 2005, p.254). When designing research in the future I will carefully consider how I can use different methods to avoid limiting children to written or oral responses. This is especially vital for helping very young children to become active participants in research (Clark, 2010).

The results of this research will influence how I organise my future classroom, and how I view learning spaces. The varied responses of the children to the question 'what helps you to learn?' highlighted the range of spaces and facilities that must be considered. I will think carefully about what I put on displays and working-walls. I was particularly struck by one response to a question about which displays the children would change. Sophie selected a certain board, telling me that whilst it was very attractive, there was nothing on it that could help her to learn: this showed an awareness of her own interaction with her environment. When I decide upon displays in the future I will remember to consider whether they will aid children's learning or whether I am simply filling the space. I will also consider the less obvious learning spaces: I will not dismiss the outside environment and will plan to use a variety of learning spaces in my teaching. It is important to recognise that whilst some children prefer to learn in the classroom, others enjoy experiencing other environments. In my future practice I plan to arrange trips and lessons in different environments when possible, to give children this variety.

This work has shown me the value of asking children open-ended questions such as 'what would you change in your classroom?' As an example, the children revealed that the class' 'noise-o-meter' system was never used, despite its prominent position on the wall, and that they would find it useful. This was easy to implement, as the system was already in place. In my future teaching I will give children the opportunity to express such opinions, as I have seen that small changes (requiring little effort on the teacher's behalf) can make a big difference to children. Examples such as this showed me that children and adults may have different perspectives on learning spaces. In my future practice, I will remember that my class may see things differently to me, so it is important to consult them: it is they who will be using the spaces and facilities to learn, not me.

It would be neglectful to ignore the impact of the environment on learning. Beynon (1997) notes that teachers, resources, textbooks and the physical facilities are all "means to expand and accelerate learning" (p.18). Ultimately, it is the learners themselves who can tell us how much these means are helping them and we must continue to consult them to find better ways to use learning spaces.

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Appendices

Appendix I - Questionnaire

I would like to find out which parts of the school are most important to you. There are no right or wrong answers; I just want to know what you think. Thank you for helping me!

Your name: ....

Please read the sentences and then put a tick in the box to show what you think.

	I strongly agree	I think I agree	I'm not sure	I think I disagree	I totally disagree
The way my school looks is important to me.					
I like it when my classroom is tidy.					
The displays on the walls are important to me.					
I use displays in my classroom to help me when I am working.					
I use displays to help me in maths.					
I use displays to help me in literacy.					
I learn more when we have lessons inside.					
I would like to have more lessons outside.					
I like being inside more than outside when I am at school.					

Which part of your classroom helps you to learn the most?

....

Why?

....

....

....

....

What would you put on the walls to help you (and other children) to learn?

....

....

....

Why?

....

....

....

....

Appendix II - Semi-structured Interview Proforma

Introduction: I'd like to find out what you think about your classroom, and which parts of the classroom you use to help you learn. There aren't any right or wrong answers, and you don't need to agree with each other. I just want to know what you think.

What is your classroom like?

Prompt: How would you describe it to someone who hadn't seen it before? Displays, layout, size.

What do you like most about your classroom? Least?

What do you use to help you learn?

Prompt: How about in different subjects? Displays, materials on tables.

Are there places outside your classroom where you like to learn?

Prompt: Outdoors, hall, school trips.

Can you tell me about your photographs?

Prompt: Why is that place the most important?

If you could add things to your classroom to help you learn better, what would you do?

Is there anything else you'd like to say about this?

Appendix III – Ethics checklist from the Faculty of Education

University of Cambridge - Faculty of Education

Early Years and Primary PGCE

Ethics checklist for research during PGCE placements

This checklist is intended for use ONLY by Faculty of Education students undertaking initial teacher education ('trainees') for classroom-based research carried during their formal professional placements as temporary members of school staff. The context of this research is that it will be undertaken with pupils in classes for which a qualified teacher has legal responsibility who acts as 'gatekeeper' and where the trainee's intended enquiry has been discussed with and approved by the responsible teacher(s) for the class(es) concerned.

Trainee name: _____

School/setting: _____

Questions to be answered by the trainee -please *clearly ring* the appropriate response.

1) Do you understand why educational enquiry must be scrutinized from an ethical standpoint before any research commences?	yes /no
2) Have you read and do you understand the current guideline on educational research ethics issued by the **British Educational Research Association?** **(available at http://www.bera.ac.uk/files/guidelines/ethica1.pdf)**	yes/no
3) Can you confirm that *to the best of your belief* the research you plan to carry out will NOT be to the educational detriment to any pupils involved, and that there is no reason to expect it to cause any harm to any participant –including damaging any pupil's confidence, motivation, interest or self belief in school?	yes/no
4) Can you confirm that you will have sought any necessary permissions - for example to record lessons, or to work with pupils outside of timetabled lessons- in line with the school's policies and procedures? This might include seeking permission from parents, with guidance from school staff.	yes/no
5) Can you confirm that you have discussed your research plan with your mentor and other staff responsible for any specific class(es), and that they have approved your plan?	yes/no

6) Can you confirm that any substantial change to your research design subsequent to completing this form, will be discussed for approval with your mentor (and other school staff if necessary) and shared by email with your partnership tutor? | yes/no

Trainee signature and date*:_____

Partnership Tutor name: _____

□   I have checked that the trainee has responded 'yes' to all questions above.

□   I have discussed issues arising from the trainee not responding 'yes' to one or more of the questions above, and am convinced that this project is ethical (as explained in notes overleaf)

Partnership Tutor signature and date:

Note that you should append a copy of the final version of this to your work, submitting it with your research proposal form and permission letters in a separate plastic wallet attached to the assignment.

Appendix IV – Responses to rating scale section of questionnaire

Questionnaire Statement	**Frequency,** *Percentage*				
	I strongly agree	**I think I agree**	**I'm not sure**	**I think I disagree**	**I totally disagree**
I like it when my classroom is tidy.	22	2	3	0	0
	81	*7*	*11*	*0*	*0*
The way my school looks is important to me.	9	9	8	0	1
	33	*33*	*30*	*0*	*4*
I use displays in my classroom to help me when I am working.	9	7	7	3	1
	33	*26*	*26*	*11*	*4*
I learn more when we have lessons inside.	13	3	7	0	4
	48	*11*	*26*	*0*	*15*
The displays on the walls are important to me.	10	5	7	1	4
	37	*19*	*26*	*4*	*15*
I use displays to help me in maths.	11	4	3	3	6
	41	*15*	*11*	*11*	*22*
I would like to have more lessons outside.	12	3	5	2	5
	44	*11*	*19*	*7*	*19*
I use displays to help me in literacy.	12	2	3	5	5
	44	*7*	*11*	*19*	*19*
I like being inside more than outside when I am at school.	10	0	5	1	11
	37	*0*	*19*	*4*	*41*

Note: Total number of respondants = 27
Percentage below frequency, rounded.

Appendix V – Group's questionnaire responses

Rating scale section:

	Sophie	**Rachel**	**Mark**	**Edward**
The way my school looks is important to me.	I'm not sure	I strongly agree	I think I agree	I'm not sure
I like it when my classroom is tidy.	I strongly agree	I strongly agree	I strongly agree	I strongly agree
The displays on the walls are important to me.	I think I agree	I strongly agree	I strongly agree	I strongly agree
I use displays in my classroom to help me when I am working.	I strongly agree	I think I agree	I think I agree	I think I agree
I use displays to help me in maths.	I think I agree	I strongly agree	I think I disagree	I strongly agree
I use displays to help me in literacy.	I strongly agree	I strongly agree	I strongly agree	I'm not sure
I learn more when we have lessons inside.	I strongly agree	I strongly agree	I strongly disagree	I strongly agree
I would like to have more lessons outside.	I think I agree	I think I agree	I strongly agree	I'm not sure
I like being inside more than outside when I am at school.	I'm not sure	I strongly agree	I strongly disagree	I strongly agree

Open questions:

	Sophie	**Rachel**	**Mark**	**Edward**
Which part of your classroom helps you to learn the most?	SmartBoard.	The Maths wall	The computer.	The big number line.
Why?	Because my teacher sometimes writes things to add to your work (step by step).	Because the maths wall always helps me during maths.	Because I can find out lots of facts in not much time.	Because it helps me add if I get stuck.
What would you put on the walls to help you (and other children) to learn?	Adjectives, adverbs, verbs.	A science wall.	Times tables.	Words.
Why?	So when we do our work we remember to use adjectives, adverbs and verbs.	Because it would help me with science.	Because I would like to learn the harder ones.	Because we might not be able to spell the words.

Appendix VI - Children's Photographs (Sophie's photographs)
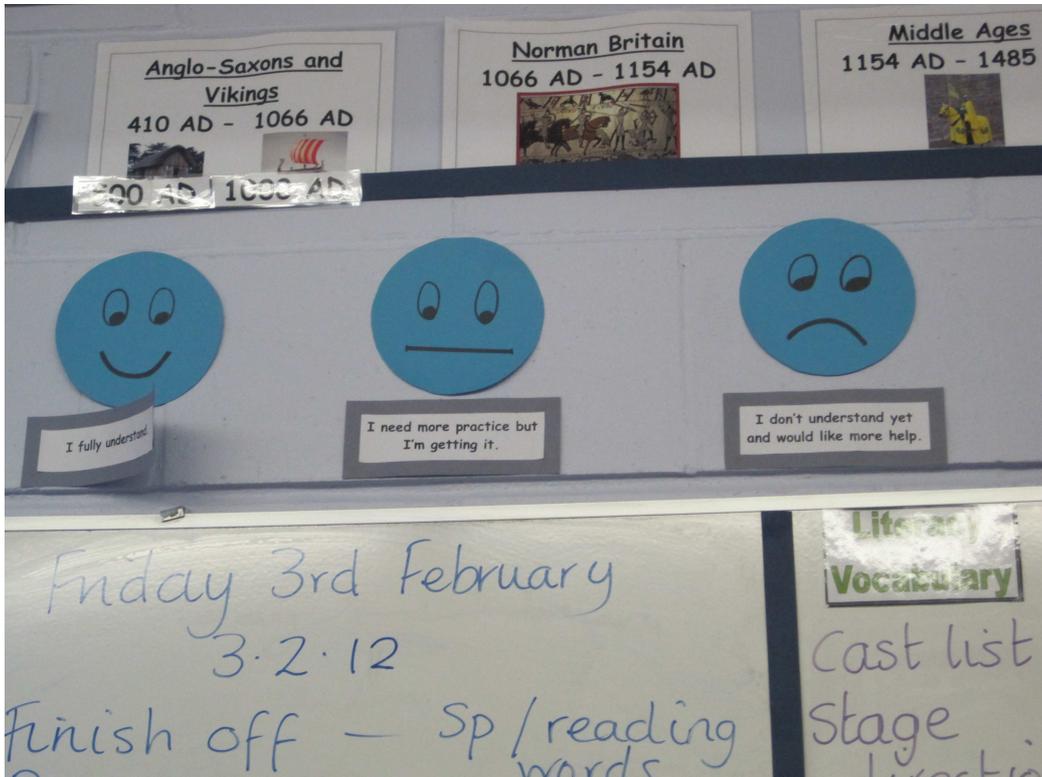
Appendix VI - Children's Photographs (Rachel's photographs)
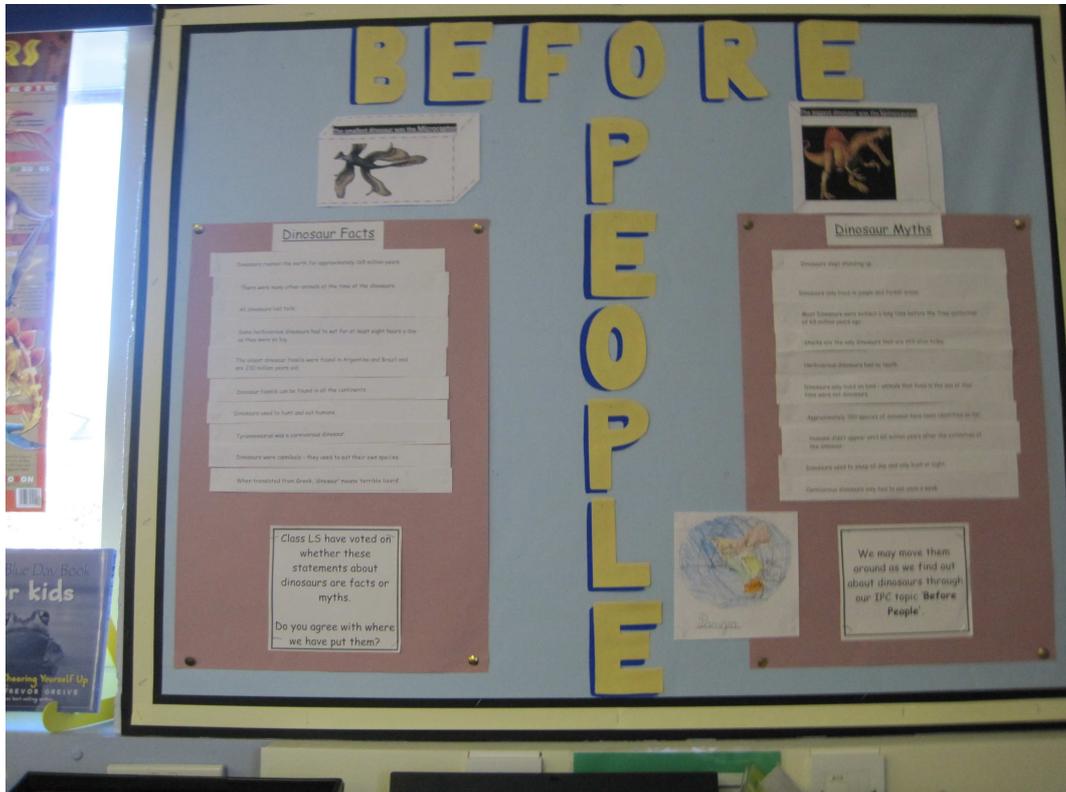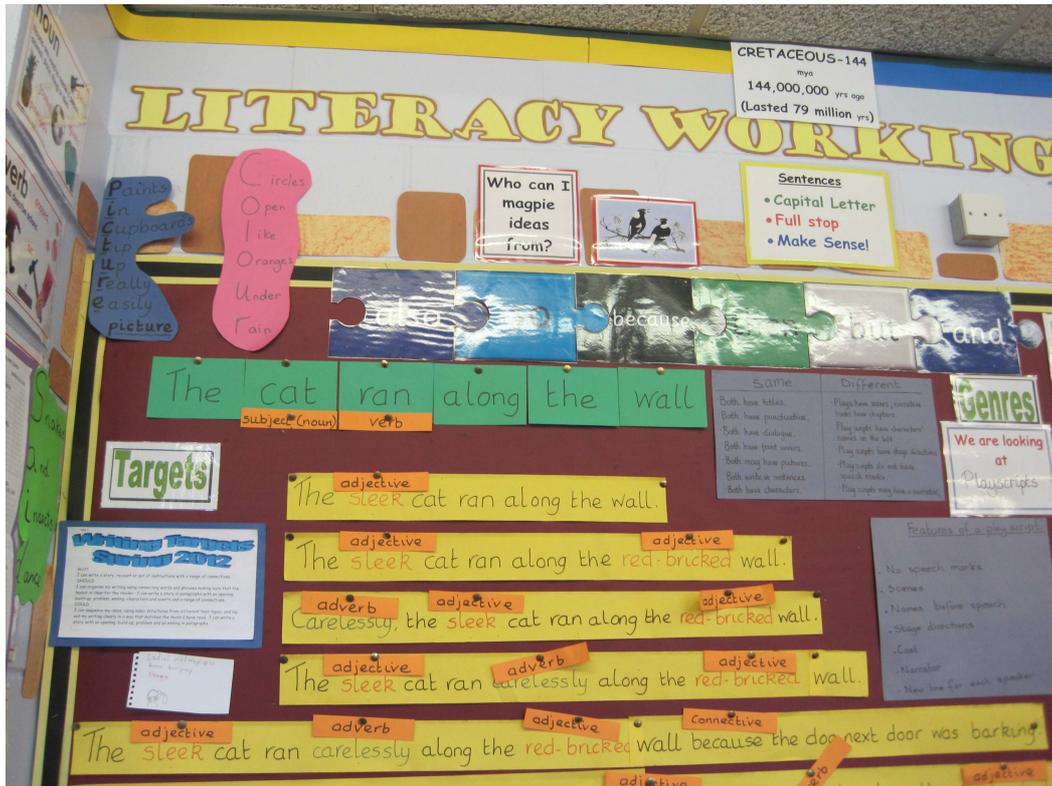
Appendix VI - Children's Photographs (Mark's photographs)

Appendix VI - Children's Photographs (Edward's photographs)