Bricks and Mortarboard – an Education and Business Partnership Project

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Abstract

Peterbrook is a large two-form entry primary school with a 40 place nursery, on the Solihull/Birmingham border. This paper outlines a joint initiative which involved Peterbrook Primary School with a company working in the locality (Lend Lease) together with Solihull Education and Business Partnership. The project was supported by the Engineering Employers Federations' Technology Tree programme, which aims to bring together local engineering companies and schools in partnership, which bring all round benefits.

The importance of design and technology as a subject in our National Curriculum is widely acknowledged. It enables the child to learn about how materials have been used to make products that people need or want, and to realise that designers have to consider how new products could affect the people who use or make them and the effects they may have on the environment.

> 'Technology and industry are closely related. New technologies generate new industries, and by that makes changes in the labour market.'

Today's pupils are tomorrow's workforce. James Dyson said:

> 'The teaching of quality design and technology in our schools is a vital requirement for the country's future in the 21st century.'

By introducing the children to the workplace we can make the subject even more relevant and encourage engineering from an early age.

> 'The importance of starting early with confronting children to technology has been stated at previous PATT (Pupils' Attitudes Towards Technolgy) conferences as well as at other technology education conferences worldwide.'

However, business partnerships are not simply investments for the future of engineering, they also bring real and immediate benefits to both schools and companies.

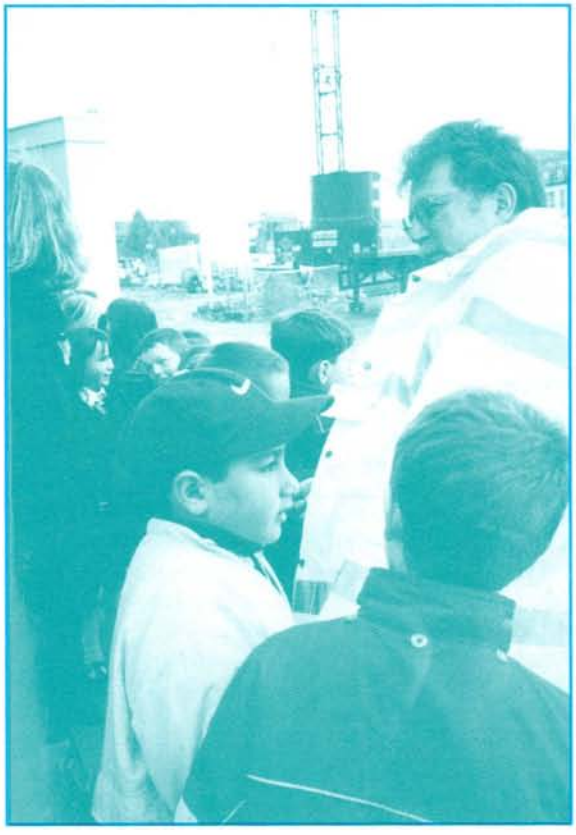
Stage 1: Sowing seeds and forming roots

In this stage the partners, school and company are identified. Lend Lease is an international development company whose European activities have primarily been involved in the development and management of regional shopping centres in the UK, Spain and Portugal. It is currently undertaking a £200 million prestigious retail and leisure unit in Solihull, which includes a John Lewis department store, 80 other retail and leisure units and a 9-screen cinema. The project is scheduled to be finished in 2001.

Lend Lease offer a number of initiatives within the community, including employment, community and education, as part of its policy of integration within the town. As part of his role as community relations manger, John Carwardine was working closely with Solihull Education and Business Partnership, to produce an education resource pack about the Touchwood Centre in Solihull.

The resource pack was compiled by local teachers on placement. As Design and Technology Co-ordinator at Peterbrook Primary School, I was one of those invited to take part in the project. The panel of teachers decided to model the units of work on the Literacy and Numeracy documents and the Qualifications and Curriculum Authority (QCA) guidelines for science and design and technology as teachers would be familiar with the layout. We wanted it to be user friendly and not left on shelves to gather dust, so all the work was designed to fit into existing schemes and not be an additional activity which would be difficult to fit into an already overcrowded curriculum. The units of work are supported by pupil sheets, bibliography of suitable books available in the local library and a comprehensive pack of photographs ensuring that the ideas and activities can be carried out without a visit to the site should this not be practical. The graphic designers for Lend Lease have produced a high quality pack, a copy of which has been sent to every school in Solihull.

The pack



John Carwardine explaining the wheel washer.

The Technology Tree project evolved from my involvement with the resource pack and would support the design and technology section of the pack. Peterbrook is a large two-form entry primary school with a 40 place nursery, on the Solihull/Birmingham border. The school has a unit for hearing-impaired children, one of whom was involved in the project. I have been at the school for three years and as co-ordinator for design and technology, have aimed to raise the profile of the subject throughout the school.

Stage 2: Building the trunk

A teacher placement day for myself at the Lend Lease offices was arranged in order that John Carwardine, Lin Walker (Solihull EBP Co-ordinator) and myself could plan the project. On a previous placement day working on the resource pack, we had been taken on a guided tour of the construction site and I had been much impressed by the sight of the enormous tower cranes and had felt they would have a real 'wow' factor for a seven-year-old. However, if I was to undertake a project with my Year 2 class, it would have to be relevant to what we were doing and not a 'bolt-on' activity given the constraints of time in an already overburdened curriculum and with standard assessment tasks (SATS) looming I needed a project that would involve cross-curricular links. DATA stated:

> 'The problem is that most models for a cross-curricular approach in the primary school do not exploit fully the potential that this unique subject has.'

I came up with a plan for the children to write a 'big book' that would support the children's design and technology throughout Key Stage 1, and by doing so, improve their literacy skills as well as their technical vocabulary. The aims were:

- writing for a purpose and for a specific audience i.e. themselves and their younger colleagues as well as future cohorts of children
- to support the scheme of work recommended by the QCA and provide a valuable and permanent resource for literacy and design and technology for our school and other schools in the authority
- to read a variety of non-fiction texts for research purposes
- to improve speaking and listening skills through the discussion of ideas at editorial meetings, evaluating work and selecting items for the book
- to explore commercial product ranges, e.g. a range of big books and the brochures produced by Lend Lease
- to encourage thinking skills, problem solving and working with others
- to demonstrate the advantages of information and communications technology (ICT) by working with a graphic designer who will demonstrate how their work can be scanned and organised into a book. The children were to choose a suitable font and to design, model and finish a final draft.
- improving own learning and performance, implicit in the project, in other words, good practice.

A date was arranged for the children to visit the construction site, Lin Walker arranged for a visit to school by Sue Lawrance from the Library Service, to talk about 'big books' and the making of books, and for John to visit the class after their trip to Lend Lease.

Stage 3: Forming branches and leaves

The children were taken by coach (funded by Technology Tree) to the Lend Lease offices. The class comprised 28 children (one of whom was hearing-impaired, so was accompanied by a member of staff from the unit who signed). A radio mike was also supplied for John to use when he spoke to the children. The class were told what the construction site would be and shown the

Close-up of the Touchwood site.

architects' designs and mock-ups in the form of scale models. They were taken to a viewing platform (full access to the site was not allowed for obvious health and safety reasons) where they could observe the construction workers, vehicles and cranes. John explained to the children what was happening and kitted them all out in the safety jackets, boots and hats. The children were invited to consider reasons for the safety clothing and encouraged to ask questions about the site. They saw reinforced concrete in the making, pile drivers at work, the wheel washer and road sweepers used to keep the town clean and they were given an enormous number of interesting facts about the site, for example, it is the second largest hole in the West Midlands.

Following our visit, Sue Lawrance from the Library Service visited the class. Sue brought along a number of big books, which she loaned us for our product analysis. She explained to the children the key features of a non-fiction text, drew their attention to the end papers, bibliographical material, contents glossary and index. Sue suggested to the children that they should hold regular editorial meetings to establish contents, illustrations, layout, font, etc. Her visit gave us all food for thought!

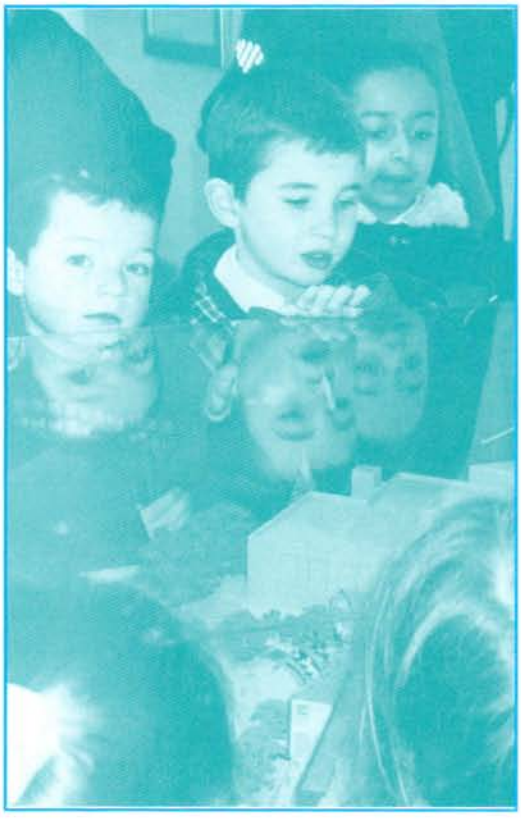
The editorial meetings provoked much discussion, whereupon the children decided on a title and the contents, and as editor, I suggested that the book should support the QCA units on homes, playgrounds, vehicles and moving up. It would also support the QCA style unit developed for the Touchwood resources pack. The children all made designs for the end papers and they then took a vote to select two for the book. They chose chapter headings and a motif for the page numbers and decided to ask John if he could bring in photographs, which they could use alongside their own drawings, paintings and computer graphics. John visited the class and took part

Dressed for work.

CURRICULUM

Choosing pictures for the big book.

Looking at the mock-ups.



in one of the editorial meetings. By this time the class had divided into groups to write different chapters so each group then had to choose suitable photographs from the huge selection John provided. This necessitated a good deal of co-operation from all of the children to work as a team. John answered further questions and provided more information about the site to enable the children to improve their written work and acted as a consultant on the technical language for the glossary. They showed him their pictures and notes taken at editorial meetings to date. He also talked about the graphic designers who would put their work together and showed them a selection of fonts that they could choose.

Following John's visit, the final draft was made, work was selected from each child in a cut and paste exercise, so that at the end each child could recognise something that they had contributed. The book was given to a graphic designer with copious instructions from the children as to how they wanted it to look.

Stage 4: Encouraging growth ... and new seeds

When the finished product was returned to the children they could not believe their eyes! Their work was transformed and looked so professional, they were fascinated by how their work had been enlarged, made smaller and super-imposed and they were immensely proud of their achievements. The work was duly displayed for the school and parents on parents' evening and parents have borrowed the book to show other family members. One parent working for a development company in Nottingham showed colleagues what could be done. Ofsted too were impressed!

> 'The co-ordinators find opportunities to develop their subjects outside the classroom, for example as part of the design and technology curriculum, there are links with local industry which enhance what the pupils do in school.'
> Ofsted

All of my objectives had been met. The children had been introduced to a workplace environment and had enhanced their learning in a real life situation. We had fostered links between education and engineering and had enriched the children's knowledge and skills in technology, communication, problem solving and teamwork. We also have a valuable resource for the school. Above all it was fun! The children have all made a contribution and all feel that they have ownership of the project I was particularly impressed by the way in which they worked collaboratively and respected each other's

views in editorial meetings. They have also become aware of the needs of others, for example in explaining technical language which others, younger than themselves, may not understand. From a personal point of view, it was a valuable opportunity to work with others away from the classroom, to develop a project that has not been prescribed and to see behind the schemes of a development in my own locality.

From a company perspective the Technology Tree has brought members of the development and construction teams in contact with local children and has given many of them a first contact with the local community. It built relationships with the entire community through the children and their parents as well as with the school. In the years to come when the area transforms from a construction site to smart shopping malls, those children will always feel part of Touchwood and no doubt when they take their own children shopping will be heard to say 'when I was seven…'

Following the completion of the project, I attended the annual Technology Tree Conference with my business partner John Carwardine. We did a PowerPoint presentation about the project to this year's delegates, shared with them the successes and pit-falls and hopefully encouraged the planting of new seeds for future projects. A case study is to be made available on the Internet.

The children's thoughts:

'I liked the building site and talking about it.'

'I found it interesting finding out about the new shops.'

'The book is brilliant!'

'I didn't know we could make a book with all our work, just like that!'

'We're famous!'

'It came out better than expected.'

'It makes me feel grown up.'

'It was funny when Ross dressed up for the front cover.'

Their advice to others:

'Make a rough draft first.'

'Try to find an expert to help you.'

'Don't rush it, it is worth taking your time.'

References

Dyson, J. (1998) *Bringing Learning – Design and Technology in Primary Schools* DfEE

DATA (1996) *Primary Coordinator's File* p.13

Ofsted (2000) *Peterbrook Primary School Inspection Report* 21-22 November