

An enterprising technology project as part of a German exchange

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■ Summary

The following is an account of a secondary school's successful curriculum project. It linked the modern languages and design technology departments as part of a German exchange visit programme. The project motivated the students, helped form friendships and gave rise to a host of opportunities for language development.

■ 1. Introduction

The modern language department has always wanted to extend the school's German exchange by including a whole school curriculum project rather than it being simply an activity affecting the languages department alone. It saw the benefits of such a project as:

- i. Language skills would be called upon when pupils were involved in something practical.
- ii. The school as a whole would be more involved in the exchange and in benefiting from the partner school.
- iii. Providing a better structure for the days in the exchange programme when the pupils were in school.
- iv. The fact that cross-curricular initiatives are desirable as part of the National Curriculum — especially one having an explicit economic and industrial context.
- v. It would raise the profile of participating departments in the school and of the school in the community.

St Bede's School is a BP Link School, so when the Head attended a briefing from BP about a project and some classroom resources aimed at enterprise through the technology curriculum [1] and came up with the idea of linking it with the forthcoming German exchange visit, the department was delighted.

The Head of technology was enthusiastic and together with the School's BP Link Officer and a BP Technology Fellow a project was worked out.

■ 2. The Project

Twenty six pupils, thirteen German and thirteen English, ranging from Year 8 to Year 11 with three teachers [modern languages, technology and the teacher of the German pupils] were to spend one school day plus one further lesson on the project.

A German and an English pupil would pair up to form a company. They would design and make a product, undertake some market research on it, complete a costing exercise and then write a business plan. This plan would be presented to a local business representative who would ask the youngsters questions about the plan.

The project was enhanced in two ways. Firstly, the students would visit a local factory to see goods being made and, secondly, each 'company' would make a product which could be used at the Exchange party which was to be held later in the week.

■ 3. Practical Challenges

There were two problems which had to be overcome:

- a. The actual making of a product (which we hoped would get the pupils involved) had to be achieved in a *very short space of time* and accomplishable by German pupils *who did not have lessons in design and technology*. Here, a little-known BP plastic material 'Plastazote foam' proved suitable. See Appendix 1.
- b. The language in any support material needed to be at a level German pupils could access. We decided to use a new software resource aimed at KS2 and KS3 for costing and market research [2]. We felt the language more appropriate than a KS3/KS4 version. We also prepared a special mini-business plan from a BP resource pack — see Appendix 2.

■ 4. How the project worked in practice

- a. **Half day visit to a factory**
The school was fortunate to be near the factory which produces Plastazote foam and we took the entire group there.
Alternative visits could include:
 - a. a visit to a factory which used Plastazote foam
 - b. a visit to any factory
- c. the students could be divided into groups and visit places where Plastazote foam is used. These include: swimming pools (buoyancy aids, floating islands, etc), toy shops, theatre scenery/props workshops, hospital workshops, (where it is used as a surgical collar and wrist-supports).



b. Designing and making a product

We showed the students the basic processes that could be carried out in the school workshops and the range of other materials which could be used with Plastazote foam. See Appendix 3.

We gave the pupils the context of artefacts for a party to stimulate and discipline their imaginations.

Another theme which could have been used was 'gifts and presents' because our exchange pupils, understandably, would have liked to take home presents. English students might have felt more left out of this theme.

The students sat down with their exchange partners and decided what they were going to make. This exercise obviously stimulated conversation!

The technician supervised the oven and the staff gave the students assistance as and when necessary. The students produced a wide selection of products, including: table place settings, masks, hats, bow-ties and jewellery. Many of the products made were of a good standard and showed great imagination. The students worked very hard in the short space of time they had, given that the German students had very little practical experience to draw on.

Communication seemed to be no problem; the German students' level of English was competent enough to be able to understand the gist of much of what was explained to them. Technical terms needed to be explained by their English counterparts or by the teachers, but through this they learnt some challenging vocabulary. Amongst some of the older students vocabulary explanation flowed both ways, so that the English students too were learning new German words. It became obvious how much easier it is to amass new vocabulary in a practical context, when the objects can be indicated and processes can be demonstrated!

c. Extension into Business Studies using BP Educational Resource Materials

Pupils completed their product in about an hour. They then went on the computers to make a simple costing for their product and to produce a market research questionnaire about their prototype [3].

Most needed assistance but the students continued to work well together.

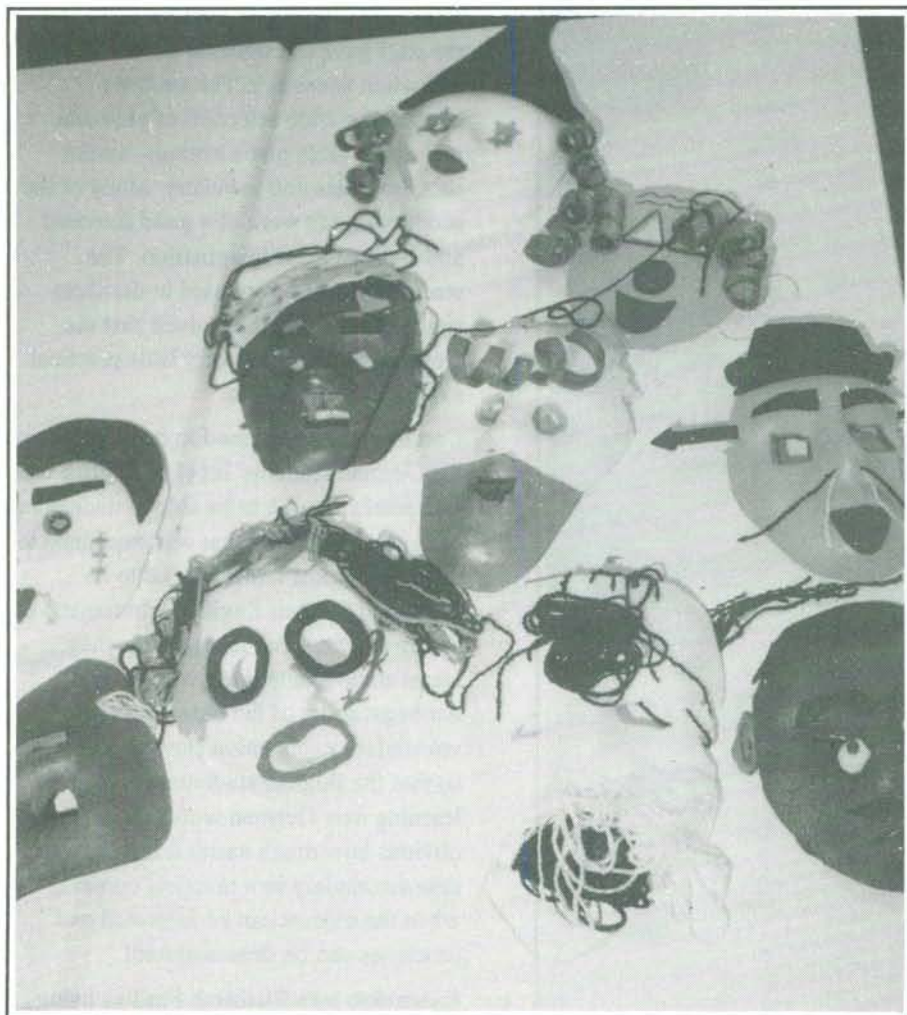
Oral communication then moved onto written communication as they formulated their Business Plans. Both German and English students enjoyed planning what they would say to the business manager.

d. The party

At the party held for students and parents involved in the exchange, the students arrived sporting Plastazote foam ear-rings or Plastazote foam masks. These were an obvious talking point for those attending.

e. The presentation to a business representative/'bank manager'

A number of students presented their product along with their business plans to a local industrialist acting as a



'consultant'. This feedback session was an interesting exercise and most worthwhile.

5. Conclusions

I believe that an exercise such as this demonstrates how we, as teachers, can explore new curriculum ideas. The project brought together a group of students in a practical way that was clearly a curriculum enriching experience. This type of exercise worked well with a small group of students. It fits our NC work as it brings together an industrial link, designing and making, and the business perspective.

Nigel Stalley, Head of Technology

During the project day they were made to work together for the first time, and this certainly helped in forming friendships. I would like to see a similar project happening again during our exchange programme, possibly extending it to the art, business studies and English departments. The possibilities are endless and could be as far-reaching as incorporating some element of work experience. Obviously, the English

students did not benefit from the language perspective so much this time, but we hope that our partner school is planning a similar venture and that our students will have the chance to be immersed in a day of German with a practical, cross-curricular slant when we go to Germany in a few weeks time. The concept links in very well with our National Curriculum work, which states that students should experience activities of a creative and practical nature and within the setting of the field of work, all within the target language.

Kathy Nourse, Head of Modern languages

If a project such as this had more time then language and other skills could be further developed through students planning a marketing campaign, perhaps including advertisements (written, radio and video) and packaging elements. A 'guarantee' might be written in more than one language, or a set of instructions. It would be interesting to produce an environmental impact report.

After the exchange was over, a company might still continue through the use of faxed messages.

Joe Kellaway, BP Partnerships for Technology project.

■ Notes

1. BP has funded Partnerships for Technology, a UK-wide project to help the development of the technology curriculum, economic and industrial understanding and education-business partnerships.
2. KS2/KS3 software was taken from a BP/SCSST pack 'Technology and Plastics.' The other software is in a BP Educational Service publication 'Enterprising Technology'. Both packs can be purchased from BP Educational Service, PO Box 30, Blacknest Road, Alton, Hants GU34 4PX, Tel. (0420) 22638. See Appendix 4.
3. In the short space of time available for the project the students did not get an opportunity to actually undertake market research but the potential oracy skills development of such an exercise are obviously enormous.

■ Appendix 1

Plastazote foam

Plastazote foam is a versatile material which can be quickly and simply formed using standard equipment found in a technology suite.

3-D items can be made from a flat sheet by heating the foam to 140C for 70 seconds and then shaping. The material is still completely safe to handle.

It can be cut with scissors and joined easily, eg. with a glue gun or masking tape or sewn.

Wool can be sewn onto it, eyelets put in it and sequins glued to it.

It is a colourful material (there are 6 colours in the school starter pack) which has a pleasant, warm feel.

Possible items for a party using Plastazote foam: badges, small trays, food containers,

place mats, masks, head-dresses, bow-ties, fun hats, jewellery, drinks holders, games.

A Guide to Designing and Making with Plastazote foam is available from Joe Kellaway, BP Partnerships for Technology, Blackburn Compact Office, Unit 20 Eanam Wharf Business Development Centre, Blackburn BB1 5BL, priced £2 (includes p&p).

A starter pack of 30 A4 sized sheets of Plastazote foam (each pack contains 6 colours) is available from BP Educational Services, PO Box 30, Alton, Hants, GU34 4PX, Tel (0420) 22638, priced £5

Obviously the design, make and enterprise exercise could be completed using other materials (Corriflute and Styrofoam come to mind as quick materials). The more teaching time available the wider choice of materials which could be used.

■ Appendix 2

Company name:

The Mini Business Plan!

(This has been compiled especially for Inset purposes from sections of the BP Educational Service publication "Enterprising Technology")

Presented to:

Presented by: (Names of company members)

Date:

Your Personnel

Members of the company

Name
 Address
 Date of Birth Age
 Special Skills
 Job and responsibilities

Name
 Address
 Date of Birth Age
 Special Skills
 Job and responsibilities

Name
 Address
 Date of Birth Age
 Special Skills
 Job and responsibilities

Your Product

1. Name of product _____

2. What it does/What it's for: _____

3. Yes/No

.1 Can the product stand up to the conditions in which it will be used?

.2 Could you have used a better material to make your product?

.3 Is it strong enough to stand up to: impacts; being dropped?

.4 If your product is concerned with food or drink:

a) Will it affect the taste?

b) Pick up other flavours?

.5 Is the product comfortable to use?

.6 Does it look good?

.7 Is it accurate enough for the purpose it was designed for?

.8 Is it safe?

.9 Is it the right size?

.10 Is it easily cleaned?

.11 Add any other questions which you feel are important:

4. What tools/equipment are necessary to make the product?

5. How could we improve the quality of the product?

6. Did you have to rush any stage to meet the deadline of the project?
What did you sacrifice to do this?

Customers

1. The kinds of people (their age, interests, where they live, their income, etc) we are expecting to buy our product are:

2. The two best selling points are:

3. The two worst selling points are:

4. When in the year would demand be strong?

Business Possibilities

1. How much would people be prepared to pay for the product?

2. Can it be made for less than this?

3. Will you sell enough to give your company a living?

Appendix 3

Equipment suggestions

1. Essential

1 reliable oven (thermostat working)

or if not reliable, an oven thermometer

Oven glove

Tongs

Pairs scissors

2. Useful

Cutting boards

Craft scalpels or CDT knives or Stanley knives

Electrical insulation tape (different colours)

Glue guns (low temperature are OK)

Masking tape

String

Elastic

Plastic kiddies alphabet

Sequins

Wall tiles

Thin wire

Plastic yoghurt pots (thin edged)

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Appendix 3 (cont)

Sewing kit

☐

Bits of cloth

☐

Ribbon

☐

Wool

☐

Metal pastry cutters

☐

Biscuit fun-shape cutters

☐

Permanent markers

☐

3. If you're really well resourced:

Hegna reciprocating saw

☐

Vacuum former

☐

Drafting templates

☐

Sequin paint glue

☐

Double sided tape (eg. carpet laying tape)

☐

Eyelets

☐

Hole punch (adjustable) or leather belt punch

☐

Fly press

☐

Cork cutters/sharpened metal tubes

☐

And, as for all Science and Technology work a matter of Health and Safety:

First aid kit

☐

Fire extinguisher [What type]
(For foam, any commonly used extinguisher is suitable)

☐

Appendix 4

APPENDIX 4

Extracts from BP Educational Service's Technology and Plastics:
A Topic Approach publication on the costing and market research
software programmes. See Page 2 for details of how to purchase
them.

The Importance of Costing

COSTING

If a product is to be successful, it must sell at a price which people find attractive. It is vital that the manufacturer can establish the actual cost of making the product. This includes the 'obvious' costs (like raw material costs) and also overhead costs (like the rent and rates for the premises). Pupils should be aware of the less obvious costs which must be included when calculating the final selling price of a product.

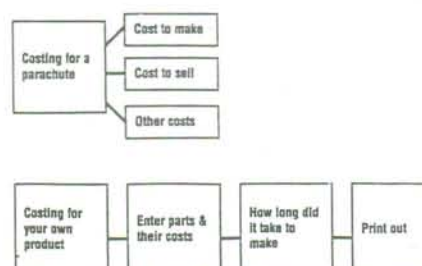
Purpose of the Software

The software asks pupils to consider three different types of cost:

- the cost of the various parts which make up the product;
- the cost of the time it took to make;
- the additional costs that a real business would have to consider (the overheads).

Pupils are guided through these costs for one specific product (a parachute) and can then repeat part of the process for their own product. Their own costing can be printed out for them to keep.

Basic flowchart for Costing Software



The Importance of Market Research

MARKET RESEARCH

Market research has an important role to play in product development. It can help find out what people want, what else is available on the market, the most suitable selling price and where and how the product should be sold. Pupils can easily undertake some market research themselves.

Purpose of the Software

MARKET RESEARCH

From the pupil's point of view, this computer program serves three main functions:

- it enables them to produce neat, master copies of their questionnaires which they can keep and their teacher can reproduce in quantity;
- it offers them a small selection of questions which they can choose to include in their own questionnaire if they wish;
- it simplifies the analysis of the completed questionnaires, producing a simple graphic display of the results.

Basic flowchart for Market Research Software

