

# TVEI Initiatives : The Bedfordshire Project

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## INTRODUCTION:

As a practising designer, teacher, and now as a lecturer in Design & Technology, I have worked both in schools and in Higher Education. During my time in several schools, and whilst managing one-term in-service courses for CDT teachers, and now while working with undergraduate and postgraduate student teachers, I am still all too often dismayed to see the shadow of a timetable-led curriculum cast a cloud of confusion and fragmentation over the learning process.

Equally, I find it difficult to accept, although I can understand the reasons behind, arguments which so often advocate the compartmentalisation and labelling of bodies of knowledge without due consideration for the sense which such divisions and labels make to those who are on the receiving end of our beliefs.

My commitment to counteracting this "curriculum eggbox" approach has led me to become involved in the last two of a series of TVEI project weeks for Bedfordshire Schools, based in the Department of Design & Technology at Loughborough University of Technology. These projects were under continuous development over a three year period, and offer a most exciting and effective set of strategies for innovative and situation-led cross-curricular problem-solving.

Four of these exercises were held at Loughborough, each one building on and refining the experiences and lessons of its predecessors. Each project used a practical and realistic task as the 'hook' on which to hang problem-solving experiences.

Each project was in one sense a simulation of a commercial design and make situation. However the range of experiences in these projects makes this description rather too simplistic.

Each has also been a demonstration of an alternative type of learning experience to that normally available in schools. This is best described as a saturation experience,

based on various group task management exercises.

The students were involved in five days of intensive and continuous work, without bells, lesson changes, or interruptions — unless they themselves chose to create them so that they could enjoy the facilities available to them on campus. Thus some elements of individual and Group Responsibility and Personal Choice were addressed here also.

The project provided in a one-week continuous simulation a range of real world-of-work experiences and problems, which were chosen to appeal as equally as possible to both sexes. Some areas of the experience were slightly simplified to clarify the processes and decisions involved. For example, a visiting speaker from the City of Leicester Business Advice Centre was very thorough in his presentation, and since the input he gave was quite complex, certain aspects of setting up a small business had to be simplified or omitted in the practical exercise itself.

The project allowed the participants to experience most of the major consequential effects which various

organisational, design, and production problems, and their consequent success or failure, were likely to produce.

## 1 . PROJECT DETAILS:

During the week 6th-10th July 1987, forty-nine 6th form students from four Bedfordshire schools and a college of Further Education were resident at Loughborough.

Their Task was to:-

**DESIGN  
COST  
FINANCE  
DYE, COLOUR or PRINT  
MANUFACTURE  
MODEL**

**DISPLAY and MARKET**  
a range of **INEXPENSIVE,  
DISPOSABLE BEACHWEAR**  
for teenagers, based on a spun-bonded polypropylene material known as **Dipryl**.

The students began each day's work with a briefing which covered the previous day's problem and the goals to be met for the day. Working in groups, they then began the difficult task of working together on a very

*Morning briefing*







Group discussion

new type of experience with very tight deadlines.

2 **THE KEY FACTORS** in the experience were:

- a) **GROUP WORK** — but in predetermined 'Engineered' groups of 4 of both sexes from different schools. This required the new groups to 'gel' quickly. It also encouraged a synergistic approach to group working skills.
- b) **CO-OPERATION** *within* the Group.
- c) **DELEGATION AND DEVOLUTION** of tasks *within* the Group.

- d) **COMPETITION BETWEEN** Groups for the finite resources of the simulated marketplace.

- e) **PERSONAL AND GROUP RESPONSIBILITY** — two techniques were used. Firstly, working time was flexible, so that available sporting and social opportunities had to be balanced against deadlines. Secondly, only a *single* individual from each group was allowed at the various inputs and demonstrations. This required responsible intra-group delegation and planning, and developed students reporting

abilities and their application of skills.

- f) **COMMUNICATION SKILLS** were exercised at many levels.

Early discussions became lively, and often quite heated, as ideas and opinions began to develop, and the various groups rapidly became more and more involved in the tasks ahead of them.

- (i) Even for complex inputs such as that from the Business Advice Centre in Leicester, attendance was limited to only one person from each group, who then had to brief his or her colleagues thoroughly and correctly.
- (ii) Loans had to be 'Negotiated' with a real Bank Manager at Lloyds Bank in Loughborough, using real appointments — including penalties for lateness, etc, as decided by the bank manager himself.
- (iii) One individual from each Company took on the role of model to display their creations in a properly presented and orchestrated Fashion Show, where they were assessed by real Trade Buyers from Corah's in Leicester. An expert in dance was available to help choreograph and structure this aspect of the week.

The fashion show produced some positive and surprising reactions amongst the students as the competitive nature of the situation began to strike home. The team began to really work at their presentation, choreography, design of accessories, and all the other minor areas which suddenly became important as they searched for an 'edge' over their competitors. As one of the students observed:-

"As the work progressed the tension and enthusiasm got so that the adrenalin was there to finish on the deadline and get everything to as high standard as possible."

- (iv) One member of each group was required to be the sales manager for their company in the end of week marketplace simulation, whilst the other members of each group became individual 'buyers', who were each given an equal amount of theoretical buying power and invited to place orders

Bank loan







Manufacture underway

Fashion show



where they felt their investment would best be repaid in sales.

- g) **ASSESSMENT:: five different measures were used.**
- (i) **Verbal Feedback** was supplied by two Professional Buyers from Corah's who came to the evening fashion show, and also from the dance teacher who helped the students to choreograph the show itself. One of the buyers made the comment:-  
 "Several of these garments could go straight onto our racks — the ideas are young and very 'now'. The designs, the ideas, and the presentation looked very professional."
- (ii) **Written feedback** about each applicant for a loan from the Bank Manager provided another valuable source of information about the way in which the students carried out their research and financial planning.
- (iii) **Marketplace Success** was assessed through simulated sales figures, as the students themselves acted as buyers in the final marketplace simulation, placing orders so as to establish a 'commercial performance factor'. Needless to say, 'buying' their own product was not allowed!
- (iv) **An objective summary of all the various logistical factors involved** was provided by a specially-commissioned computer program, written and under further development in the department, which provides a sophisticated forecasting capability which will correlate several significant factors, including ...

**Raw Material Costs**  
**Energy and Patents Costs**  
**Rent and Rates**  
**Employees Wages**

... all of which were dependent on the number of materials involved, the complexity of the design, and the various manufacturing processes involved.

An element of data security was introduced with a password access system for each 'Company', and three micros running this software were used as estimating and probability-testing tools for the first half of the week. By Thursday lunchtime, only one





Market place

**PROJECT KEYWORDS & STRUCTURE:**

A COMMERCIAL 'DESIGN AND MAKE' SIMULATION  
 :  
 SATURATION EXPERIENCE  
 :  
 GROUP TASK-MANAGEMENT EXERCISE  
 :  
 WORLD-OF-WORK EXPERIENCES & PROBLEMS  
 :  
 VIABLE & COST-EFFECTIVE PRACTICAL SOLUTIONS

**KEY FACTORS WERE:-**

GROUP WORK  
 (FAST INTEGRATION) (SYNERGISTIC APPROACH)

CO-OPERATION

TASK DELEGATION / DEVOLUTION

INTER-GROUP - COMPETITION

RESPONSIBILITY  
 (PERSONAL/INDIVIDUAL) (GROUP) (INTER-GROUP)

COMMUNICATION SKILLS  
 (PERSONAL/INDIVIDUAL) (GROUP) (INTER-GROUP)

**ASSESSMENT**

(five different measures)

VERBAL (BUYERS)	:	WRITTEN (BANK MANAGER)
STUDENTS (AS BUYERS)	:	COMPUTER SIMULATION
and ACTUAL SALES FIGURES	:	and PREDICTED SALES FIGURES

NOMINAL GROUP TECHNIQUE  
 students as analysts

Master Program was kept in operation, with a deadline for each group to enter its 'official predictions' about product success.

After the marketplace simulation on Friday morning, actual sales results were compared with company predictions, and some very interesting lessons were learned by the students involved. Many companies' estimates were out by a factor of plus or minus ten or even more, on 'actual sales'.

One company were 98% accurate in their predictions. On the other hand, the actual quantity of orders placed for the goods of two other companies was so much higher than their production targets that they could not possibly have met the quantities involved, and would therefore have lost valuable business and of course company credibility in the marketplace.

One outstanding individual garment design was not as successful as a less startling but more cohesive range of garments with the professional buyers. Notably, the Professional Buyers' opinions and those of the 'amateur buyers' and their teachers were noticeably different, no doubt largely due to the different background knowledge and expectations involved.

- (v) **Nominal Group Technique analysis** was applied to the students in small but different groups at the end of the exercise. Briefly, NGT is a method of acquiring data about the shared views of groups of people on specific topics, and the main benefits of the technique are as follows:
- Individuals are allowed to develop their ideas by sharing in the combined knowledge of the group, in a form of 'brainstorming'.
  - The influences of group dynamics on individuals are minimised, so that 'leader characters' are less likely to inhibit individual responses.
  - Individuals are helped to respond in their own words rather than being forced to use particular words or categories favoured by a majority in the group.
  - The group as a whole negotiate and hierarch the final ordering of

factors and not the group leader, who acts as a scribe.

(A more detailed description of NGT will be forthcoming at a later date.)

### 3. SUMMARY:

The project was, like each of its predecessors, designed to take pupils out of the normal classroom and timetable situation to provide:-

**GROUP INTERACTION EXPERIENCES**  
in a **COMMERCIAL 'DESIGN AND MAKE' SIMULATION**  
giving **SATURATION EXPERIENCE**  
on a **GROUP TASK-MANAGEMENT EXERCISE**  
learning about various  
**WORLD-OF-WORK EXPERIENCES AND PROBLEMS.**

The general consensus of student opinion about the week's work was epitomised by the following comment:-

*"It showed that if you really want to do something and you are determined and put your mind to it, you can achieve it."*

### 4. FINAL COMMENT:

It should be stressed that this series of four Projects are still at a development stage, and should still be considered primarily as a research exercise.

It is intended however that the Briefs used during this pilot period, together with the various notes and support papers, and the Computer Software itself, will be made available commercially when the development period is complete, so that strategies such as these saturation experiences can be implemented more readily into the Curriculum across subject boundaries.

This Project represents a serious and ongoing attempt to develop a potentially Content-free strategy for a cross-curricular problem-solving learning methodology, which addresses the broader issues of the curriculum, and the curricular needs, of the population as a whole.

As a learning tool and developmental strategy, it is not limited to one ability range, age group, sex, religious persuasion, or educational structure, and should prove to be as effective in

management training with adults as it is with young people in a school-based situation, at whatever level the participants are capable of responding to the problem or problems offered for solution.

One major factor is the requirement for group interaction and corporate decision-making, and the pooling of knowledge and skills. Equally, Time-management is a critical factor, and the effective use of time and available resources is a major element in the structure of the project.

The overall effectiveness of the project would of course be greatly diluted by attempting to fit it into a normal school timetable, since both the continuity and the intensity of the experience would be adversely affected. However, the essential notions about the ways in which cross-curricular issues are raised and problems are made accessible for solution remain clearly visible as the core of the Project.

## A GIFTED SON?

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Awarded on the basis of an examination and interview, February 1990, the scholarships will be in the following areas: ACADEMIC SUBJECTS, CDT, MUSIC, ART, DRAMA and GAMES.

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Address: \_\_\_\_\_

Postcode: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

Boy's Name: \_\_\_\_\_

Scholarship Interest: \_\_\_\_\_

Age in September 1990: \_\_\_\_\_ DTT1/90