From Source to Sale: developing an education pack

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Introduction

Intermediate Technology (IT), an international development agency with offices in Sri Lanka, Bangladesh, Nepal, Sudan, Kenya and Zimbabwe, works in partnership with communities to facilitate appropriate technology choices.

The staff of the education unit are keen to work with educators who wish to integrate the teaching of appropriate technology, global and development issues in their curriculum planning. One of its main strategies is the production of curriculum support materials. They are written by Intermediate Technology and trialled by practising teachers and advisors with support from IT.

Educators can use the materials to:

- challenge racist and ethnocentric stereotypes
- develop students' global awareness
- stimulate students' thinking and critical awareness
- introduce students to the resourcefulness and inventiveness that exists all over the world
- give students the sense of being participators in, not merely observers of, our world
- increase understanding of the wider issues related to technology.

An essential aspect is to encourage the drawing of parallels between the technological products and processes in the UK and elsewhere within a social, environmental and cultural context whilst at the same time appreciating differences and the reasons for them.

Aims of the 'Source to Sale' education pack

To address this IT decided to develop a new education pack, entitled 'From Source to Sale', to be published this year. The resource will have a Key Stage 2/3 technology focus, with cross-curricular potential, and will focus on products and applications, food technology and resistant materials. It will contain teacher guidance on planning, differentiation, progression and assessment, pupil activity sheets and case study examples.

The pack will aim to develop students' skills and capabilities to:

- handle tools and techniques in a wide range of materials
- develop evaluative skills
- draw comparisons between products and processes from familiar and unfamiliar contexts.

Setting the context

IT has worked for the past ten years with fisherfolk in Kerala, South India, facilitating the development of boat technologies. This has been an extremely valuable relationship where mutual learning has been key to the success of the partnership. The issues confronting fishing communities in Kerala and the UK are an excellent example of how similar factors affect people in the so-called Third World – or, as we prefer to call it, the Majority World (includes the 70% of the world population who live on the largest proportion of its land-mass) – and the Minority World (high consumption countries that have historically exploited this majority).

The effect of dwindling fish stocks on the livelihood of fishing communities has been a matter of debate and discussion for many years. IT has sought to inform and influence this debate by addressing issues of technology choices that must be made in the light of environmental change. We decided that we wanted to share both Majority and Minority World experiences through the education pack.

IT education staff are linked to primary and secondary advisory panels that comprise

Keralan fishing boat

practising teachers, advisors and teacher trainers. Several members agreed to participate in a range of trialling activities. Some of them are described below.

The information provided to teachers contained background contextual material on large and small scale fishing industries in Kerala, South India and the United Kingdom.

This gave rise to questions such as:

- Why are fisherpeople in dispute with each other, in the UK, Europe, Kerala and elsewhere?
- What are the effects of over-fishing on the environment?
- How does the choice of fishing gear technology affect people's livelihood
- How similar are fish processing methods in different parts of the world?
- Who has power and influence to determine how and where fish are caught and consumed, and by whom?

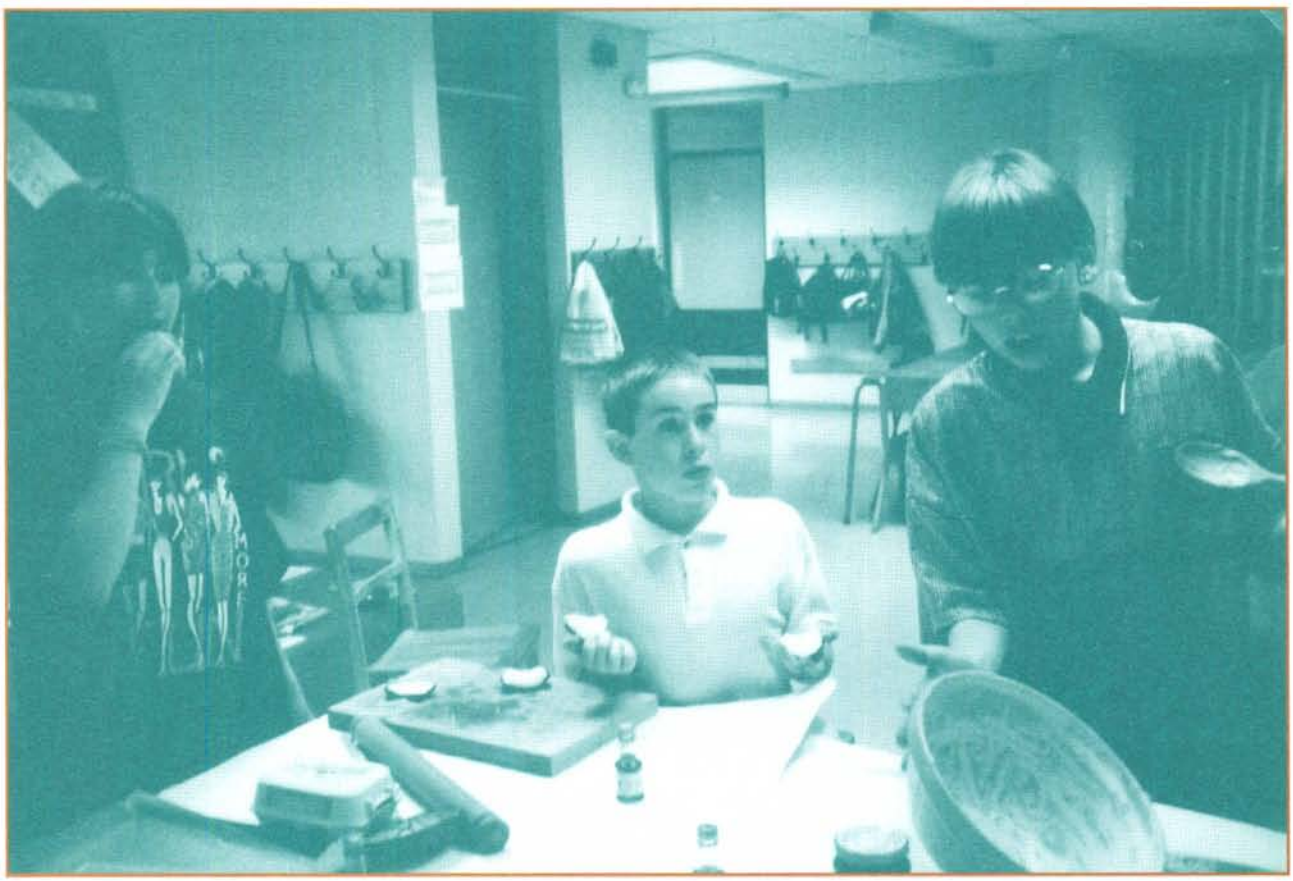
Trialling of activities

Several activities were trialled in the summer term of 1996. Further resistant material trials are taking place around the topic of boat technology development.

Activity 1 – products and applications

In the summer term, half of Dave Espin's Year 6 class at St Andrew's Middle School, Rugby undertook several trialling exercises. On this occasion, their task was to evaluate a range of coconut products, by-products and artefacts.

The students had little or no knowledge of Kerala so IT provided an introductory session on the region's geographical, cultural, environmental, social and technological background. There were a number of coconut products such as a green unhusked coconut, a mature husked coconut – both of which were broken open, examined and eaten – coir, copra, coconut shell spoons, coir rope and a coir basket. This exercise encouraged enquiry and interest and set the background for further focused practical tasks.



Year 6 students at St Andrew's Middle School make coconut biscuits ...

In terms of progression, students began the development of their analytical and evaluative skills by asking questions about their products and artefacts in a fairly uncritical and uncomplicated way at Key Stage 2 e.g.:

- Why do people grow coconut trees? Why not apple trees?
- Where do coconuts come from?
- What does coconut milk taste like? How is it different to coconut water? How does it compare with soya and cows milk?
- How does adding coconut change the taste of food?
- What can the different parts of the tree be used for?
- How many products that we use, eat or drink regularly, contain processed parts of the coconut tree?

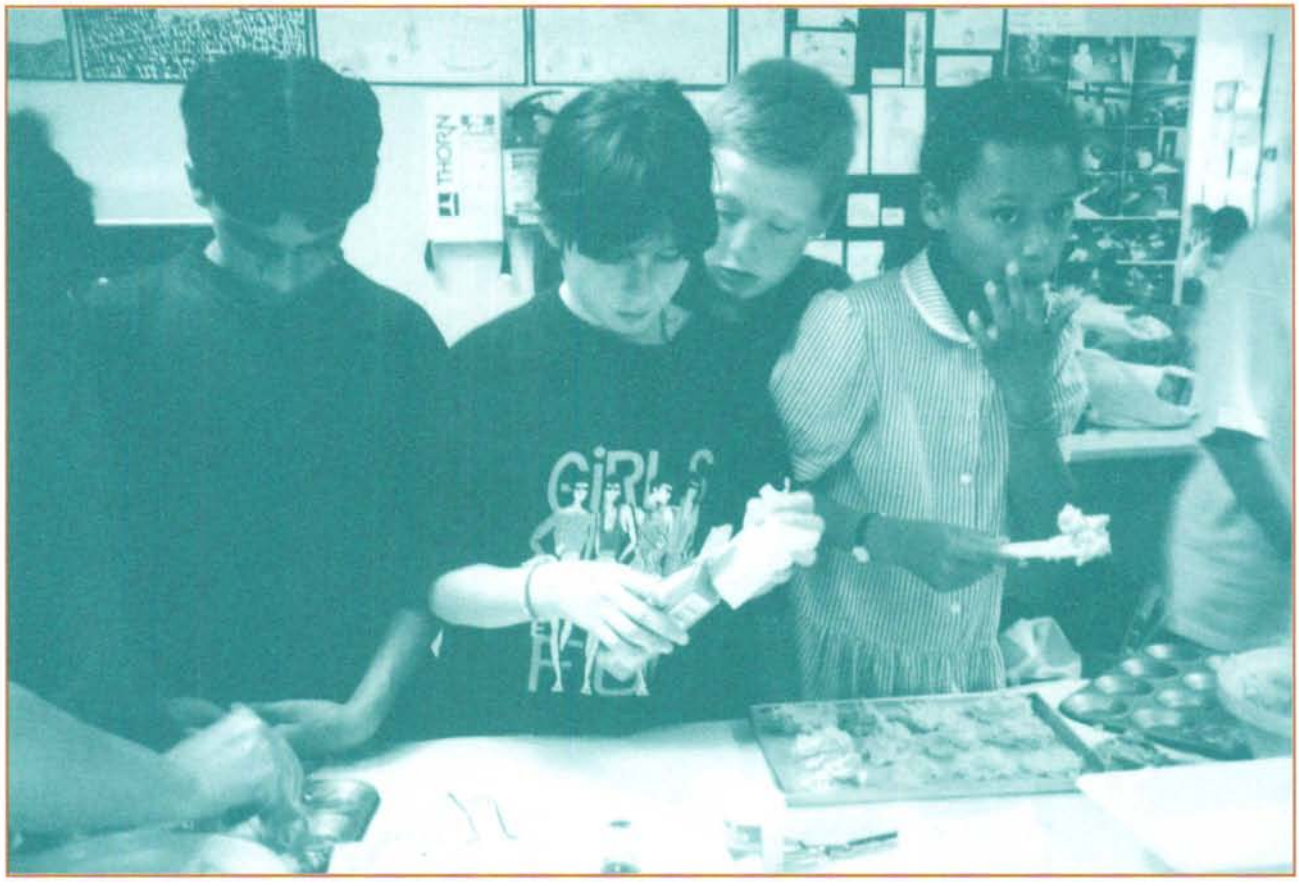
These could, at Key Stage 3, be developed into:

- How are coconuts products traded internationally?
- Why are coconut by-products used in such a variety of products, e.g. shampoo, chocolate bars, confectionery?
- How are the coconut and by-products processed? What are the social and environmental costs in relation to the process?
- What are the conditions and skills people need to grow and process coconuts?
- What are the nutritional values of coconut, soya and cows milk?
- What proportions of coconut products are needed to influence the taste of a manufactured food product? How is it decided?

Quotes from students

"I didn't know the coconut tree is so useful, right from top to bottom."

"I never thought where coconut comes from, who grows it or anything. It's just there in the shops."



... and taste them

Quotes from teachers

"I feel confident enough to run these activities on my own in future."

"The students found the project exciting and different; they certainly learned a lot. I learned a lot myself."

Activity 2 – food technology

Prior to the product evaluation exercise, the same group at St Andrew's Middle School were asked to make their own biscuits. This activity took place over a double lesson. There wasn't much time and the students were told that they needed to work quickly, methodically and in four groups.

They were provided with a standard biscuit recipe and the ingredients in it: flour, eggs, milk, a food colouring selection and sugar. Grated and desiccated coconut, as well as fresh coconut were provided.

The excitement and enthusiasm was electric. They couldn't wait to start! They combined the ingredients with varying degrees of accuracy using appropriate measuring utensils. The breaking of eggs was an instant focused practical task! The food colouring created a great deal of interest. Some groups experimented with mixing several colours together. Others were much more conservative. They discovered the difference in taste between desiccated and grated coconut and chose which product to use accordingly. Some disliked it altogether. There was much surreptitious tasting of the raw mixture.

The biscuits were baked. While this was in hand, the washing up duties were allocated. Another opportunity for a focused practical task! Mutterings and grumblings of a very familiar kind were heard.

The biscuits were removed and cooled. Everyone's patience was tested sorely. Finally, it was time to taste. One of each sample was kept aside to evaluate later in a supplementary activity. The rest was consumed incredibly quickly.

The children said it was a successful afternoon. They evaluated their biscuits and

Ready Steady Cook lesson with foods from Kerala (Etone School, Nuneaton)

on the whole felt that they were good to eat, though there was some doubt about the colour.

The supplementary activity was to compare their own products with a range of commercially produced confectionery products containing coconut. This activity was a huge success, not least because the children enjoyed eating the coconut cup cakes, a variety of biscuits, the sponge etc. Dave Espin also took the opportunity to evaluate the packaging of the products.

Quotes from students

"Mixing food colourings was interesting just to see what happened."

"If we sold these in the shop, I don't think people would buy them because they look weird compared to the shop ones."

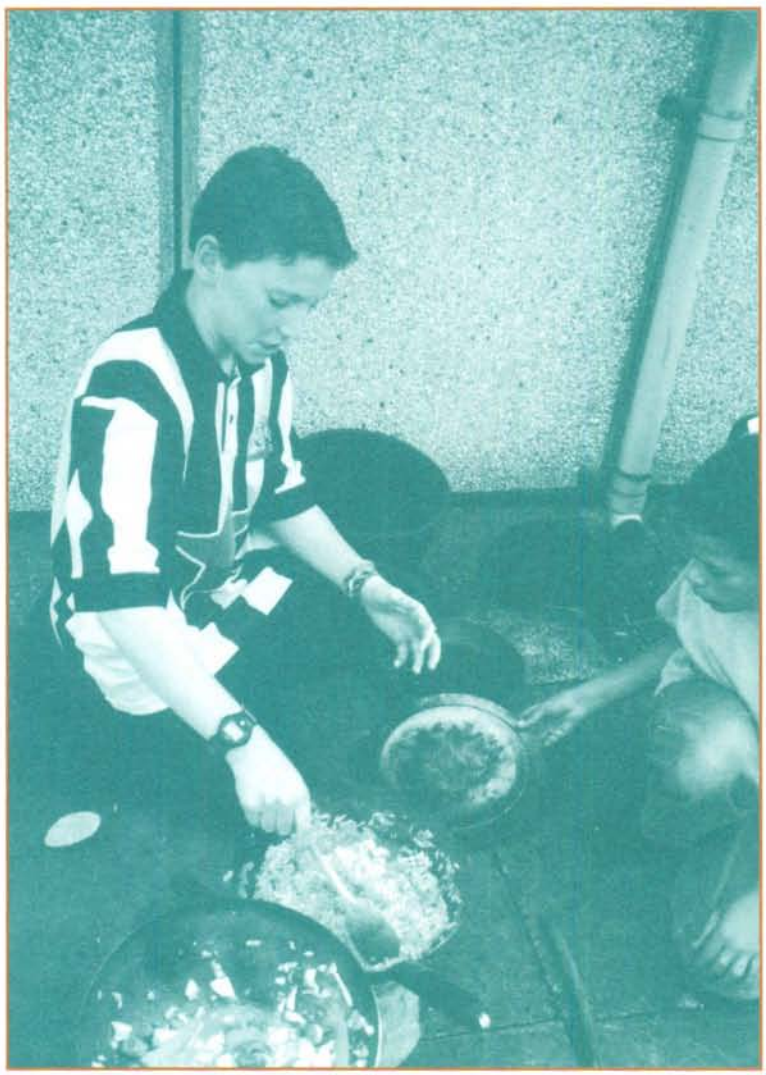
Quote from the teacher

"I felt I should have given more time to a few focused practical tasks e.g. how to use food colourings!"

Activity 3 – cooking a Kerala dish

At Etone School, Nuneaton, Liz Smith coordinated the trialling of activities. The Year 9 mixed ability class were clearly keen to be part of the process of designing a new resource, where their views would be incorporated into the final product. The six-week project was introduced with the students creating image boards of life in Kerala. The students made good use of CD-ROM and other such resources to gain an insight (other than from IT) and information, hard to come by apart from the glossy travel brochures – a messages issue in itself! Subsequent evaluations with the students indicated that we need to include more detailed context information, particularly about children's lives.

The students' assignment was to design and make a food product that would appeal to a UK market and which promoted Kerala food. Many of the students were not familiar with the range of different food products from Kerala. Liz introduced a number of focused activities to increase the students knowledge and confidence in using herbs and spices, coconut products etc.



Making a snack food based on Keralan products

The next stage involved cooking a traditional Kerala dish. This was followed by a small group task assignment that required creating a recipe using the knowledge and skills acquired earlier. The popular format followed was that of a Ready Steady Cook exercise.

The combination of skills gained in these focused activities and the opportunity for students to evaluate a range of frozen products marketing food from different cultures was a good basis for their design and make task. Based on various criteria, the students prepared a range of products that in their estimation would be marketable in the UK.

Quote from student

"I've never eaten Indian foods before, because I thought it was all too hot."

Activity 4 – Snack foods

In a separate but related activity, half of the Year 6 at St Andrew's Middle School considered the diversity of snack foods available in the their own locality and elsewhere in Britain. They considered the pros and cons of snack production as a means of livelihood, for both men and women in the traditional fishing sector. The group was asked to 'compare a popular local snack food with that of a similar version in Kerala', called a 'dosa'. In the introductory session to the activity, snack foods discussed were jacket potatoes, crisps, doughnuts, fish and chips, pancakes etc. as well as Kerala snack foods.

A health and safety discussion occurred before the students lit the fuel efficient stoves using wood or charcoal where appropriate. They parboiled half a pound of potatoes on the conventional cooker to save time. They peeled, scraped, chopped and pounded ginger, garlic, onions and tomatoes. They dry roasted cumin and coriander seed, which they crushed with a rolling pin. They evaluated the texture and flavour of the former with ready ground powders. There were several opportunities to demonstrate the use of tools, equipment, the combination of spices, the appropriate fire lighting techniques and materials.

In three separate groups and over three separate stoves, they proceeded to cook their spicy mixture. They added oil to hot pans, seasoned it with mustard seed and then added onion to be fried to a golden brown. They added the ginger and garlic. To begin with, some were vehemently against the use of garlic or ginger even though in several cases they had never experienced either. There was much discussion about what they perceived as the pros and cons of both ingredients.

Fresh coriander, mint and curry leaves were available. They smelled, tasted and crushed the leaves in a sensory evaluation exercise. They then added whatever combination of spices they chose using turmeric, paprika, coriander and cumin powders. There was an underlying fear that the food would be too 'hot'. Consequently, everyone elected to give the paprika a miss.

They were introduced to the powdered resin asafoetida. This has a pungent smell when uncooked but adds a distinctive flavour to Indian cookery and is well known for its digestive properties. Some chose not to use it. One group added desiccated coconut to their mixture at this point. They added the cut up parboiled potatoes to the spice mixture and cooked the potato, adding salt and pepper as they chose. All the way through the process of assembly, the preparation and cooking of ingredients there was much discussion, evaluation, reflection, disagreement and finally consensus, grudging though it might have been on occasion.

It was time to cook the pancakes. The dough had been prepared earlier. The stoves were lit and ready. All students had a chance to cook both types of pancake. By a process of elimination and based on practical evaluation, the camping gas stove proved the most popular as did the cast iron pan.

Finally there was a tasting and testing session. The students ate the potato with the British pancake and then with the Kerala dosa. The spicy potato mixtures were evaluated. There was still some resistance to the flavour of garlic by one or two. Some thought that the food could have been spicier. One student found it too 'hot'. One group added coconut to their mixture and said it provided an interesting and different flavour.

On the whole, the students felt that they had been rewarded for all their efforts with a tasty, interesting dish. It was agreed that the pancake and the potato mixture were an excellent combination, that they complemented each other and provided a nutritious and healthy alternative to hamburgers, doughnuts and potato crisps. Their preference was for the Kerala masala dosa because of the varied and interesting flavours that could be recognised. The student that found the potato mixture 'hot' preferred the British pancake.

Quotes from students

"The lesson was fun. Why can't we have more like it, miss?"

"I've never tried Indian food before. I like it very much and want to try it again."

"My stove kept going out because I put too much of the wrong fuel on it."

Quotes from teacher

"The quality of the meal prepared was excellent."

"Students learned the value of team work through discussion, disagreement, consensus, task allocation, taking account of others opinions and so on."

Conclusion

The activities trialled were:

- a valuable addition to the development of the design and technology curriculum in the schools concerned in terms of skills, knowledge and understanding
- an opportunity to actively engage teachers and students in resource development
- an opportunity to consult groups of users and to take their preferences into account
- a positive experience of different cultures.

The recipes are given below for those who might wish to try them.

Pancake Batter

4 oz plain flour
pinch of salt
1 egg
1/2 pint of milk and water mixed

Sieve flour and salt into bowl. Make a well in the centre and add egg and about 1/3rd of liquid. With a wooden spoon mix to a smooth batter. Add another 1/3rd liquid and beat for 2 minutes. Stir in the remaining liquid. Before using stir well.

Slowly heat a tablespoon of oil in a non-stick pan. When oil is hot, pour off into a saucepan. Turn down heat to medium and pour in sufficient batter to just cover the bottom of the pan. Allow pancake to brown, easing round the edges with a palette knife. Shake pancake well down, away from the handle. Toss on to the other side and cook. Place potato stuffing to one edge of the pancake and roll it up. Serve garnished with coriander and coconut chutney.

South Indian Masala Dosas

Dosas, plain or stuffed, may be served at breakfast, brunch, lunch or as a snack. They can also be served with an assortment of vegetables and relishes.

The number of dosas made will depend on the size of the frying pan used.

8 oz long grain rice
4 oz urad (or moong) dhal
1/4 cup semolina
1/4 teaspoon yeast
salt to taste

Wash rice and dhal thoroughly. Soak separately overnight. Drain and liquidise separately. Add salt, semolina and year. Add sufficient water to form a creamy pancake-like batter. Stand for an hour or longer in a warm place to ferment. Heat the frying pan and put in a little oil to grease the pan. When hot, pour enough batter to cover the bottom of the pan. Cook both sides of the pancake, adding sufficient oil to cook and brown dosa. Wrap in tinfoil to keep warm. Make the rest of the dosas in the same way. Spread coconut chutney on the dosa and place potato mixture on the pancake, roll up and enjoy. The dosas can be reheated later in a warm oven if necessary. If desired, a quantity of dosa mixture can be made and refrigerated for 2 to 3 days. It will need 15 minutes at room temperature before cooking.

To make a spicy dosa, to the above ingredients add any of the following to taste: freshly ground green chillies, red chilli powder, seasoned split black mustard, black pepper.

On the other hand, you could buy a ready made masala dosa mix! These are available from most Indian grocery shops.

For further information about education resources, please contact the Education Office, Myson House, Railway Terrace, Rugby CV21 3HT