Why don't I just throw it in the bin? – evaluation and self-esteem

**John Garvey and
Antony Quinlan**

*School of Education,
Brunel University*

Abstract

Work in design and technology can provide a unique insight into quality through the process of evaluation. However, this is a two-edged sword in that evaluation can expose children's work to the perceived cold, hard light of public scrutiny. For many children at Key Stages 1 and 2, evaluation can be a daunting, high-risk enterprise due to a lack of self-esteem. Drawing upon case study evidence from work with children in schools, a number of strategies are proposed for children to develop a critical awareness of products and through this, a more confident approach to evaluating their designing and making. These include a graduation from evaluating familiar products made or produced by others, with a key emphasis on food, to evaluation of their own designing and making through the support of 'critical friends' within a group context. It is proposed that product evaluation should be a key feature of primary teaching, based upon regular, simple and brief whole class and group teaching sessions.

Introduction – the problem of self-esteem

Bloom et al's (1956) *Taxonomy of Educational Objectives* identifies evaluating as a key thinking skill. Indeed, the National Curriculum demands evaluation from children in the very early years of their formal education. The Programme of Study for Design and Technology at Key Stage 1 states that "pupils should be given the opportunity to develop their design and technology capability through evaluating their products as these are developed, identifying strengths and weaknesses."

This challenge should not be underestimated. Personal experience of working with adults on initial teacher education and in-service courses has highlighted the extent to which many people are likely to downgrade the results of their work in design and technology. This lack of confidence is even more striking when working with children. Witness the following observation from a teacher working with Year 4 children on a design and make assignment involving the use of textiles:

"Ashik's stencil (of a mosque) was fairly intricate with many thin cuts. He chose to use a pair of scissors to make the cuts. This proved quite challenging and the stencil tore easily. He quickly became despondent and threatened to throw the stencil away and make something easier. I encouraged him to persevere with the stencil as he had already spent so much time on it and it looked very effective. Ashik finally decided that it was worth pursuing and sellotaped the tears. It made me think of how easily children reject their work and silently put it in the bin – how many times had this happened unnoticed?"

Design and technology has enormous educational potential in that, through evaluation, it can give a unique insight into quality. Boud et al (1985) suggest that it is the process of reflection and evaluation that turns experience into learning and provides the capability to transfer the benefit of that experience to other situations. Whilst such a process is of enormous value, it can be a two-edged sword. The act of designing and making in the primary classroom is essentially a public one and as such it can expose children's efforts to what may be perceived to be the cold, hard light of public scrutiny and attendant possible ridicule from peers. One only has to bear in mind children's obsession with conforming to dress codes to see just how far they will go to prevent themselves being seen as different from their peers. Covington and Beery (1976) indicate that "an overwhelming proportion of students of all ages hold unrealistically high self-expectations." How frustrating it must be to be asked to labour at producing something with limited skills at one's disposal, the final fruits of which may bear little or no resemblance to the polished manufactured products available in almost any shop one may care to visit. To be then asked to state publicly how 'it might be improved' may prove for many to be adding insult to injury. This can be exacerbated by the challenge of working with peers who may be perceived to be more confident or competent in their designing and making.

In some cases this lack of confidence in designing, making and evaluating may be attributed to a lack of self-esteem. This problem may not be apparent in the very early years of formal education. Constable (1994) found that younger children in Key Stage 1 found it difficult to find fault with

their own work, rating it as 'very good' regardless of whether it fulfilled the intended purpose. It was at the age of six or seven that elements of self-criticism began to emerge. It is at this age that children are beginning to be more influenced by their peers. It is possible that a key time in which to intervene in terms of employing strategies for promoting confidence in evaluating is at around the age of six or seven so as to channel emerging self-criticism in a constructive manner.

A recent case study undertaken by a PGCE student highlights some of the issues pertaining to evaluating and self-esteem. It is an honest account of the challenge encountered by the student in enabling Year 3 children to evaluate process and product as part of their designing and making. The children had little previous experience of designing and making within the classroom.

Case Study – 'Mr Mole's Lamp'
The design and make assignment had deliberately been set within a social 'helping' context with an emphasis on reflection and evaluation that research has indicated may be attractive to girls, but with a degree of 'technological tinkering,' characteristically appealing to boys (Kimbell et al 1996). The work was rooted in the context of 'Mr Mole's Lamp,' a story of a mole who could not see to read his comic. Children had been given some experience of working with electrical circuits. To complement this, a range of lighting appliances including torches and ordinary table lamps were investigated and disassembled to see how they worked. Children were then invited to find a solution in the form of a product that might help Mr Mole.

Initial designing
Class discussion led to a number of interesting ideas and a variety of proposed solutions ranging from conventional reading lamps to torches. A great number of children experienced problems in committing their ideas to paper – Karamjit and Julie were typical (see figures 1 and 2). Initially, this was perceived to be through a lack of skill in drawing, but their general art work was good by comparison. This, together with the size of drawing and discussions with the children, seemed to indicate that the problem was due to a lack of confidence
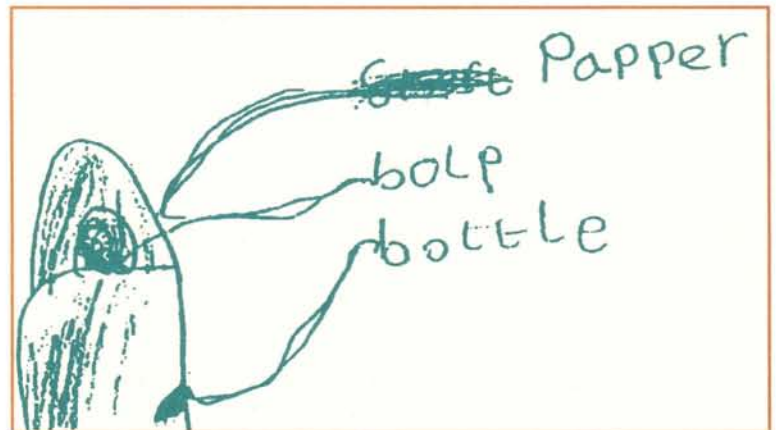
and avoidance, their ideas on paper being open to possible criticism.

Informal evaluation in making
Informal on-going evaluation occurred throughout the activity as the children enthusiastically set about making their lamps. However the end products did not bear much resemblance to their

Figure 1: Karamjit had difficulty expressing her ideas on paper. She was hesitant when questioned and required much confidence building. The size and positioning of her design on the paper seems to reflect a lack of confidence, as is the lack of commitment to detail.
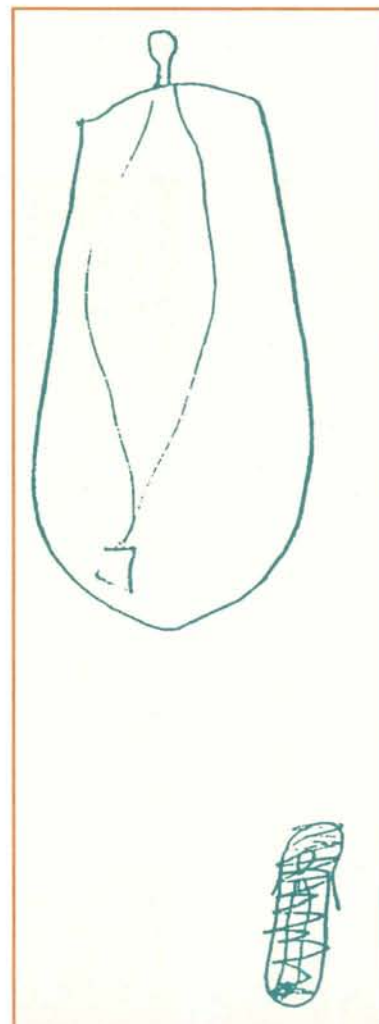
Figure 2: When questioned, Julie came up with a number of improvements on her original design. She was asked to highlight them on her original drawing. When I left her to work independently, she crossed out the original and started again. Through discussion with her, it appeared that she thought that it was 'wrong' and 'didn't like it' and was embarrassed by it.

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original·designs. There were three main reasons for this:

- the work may have been too challenging in terms of making;

- a lack of knowledge and capability, the designs being insufficient for construction purposes;

- a number of children were unable to relate designing and making and considered them as distinct and unrelated operations.

Both problems could potentially have been overcome through relevant focused tasks and experiences such as the opportunity to handle materials before coming up with their design proposals. This would have given children the opportunity to discover the limitations and possibilities of materials at their disposal. Designing is not simply drawing and needs to be practised within the context of the designing and making process.
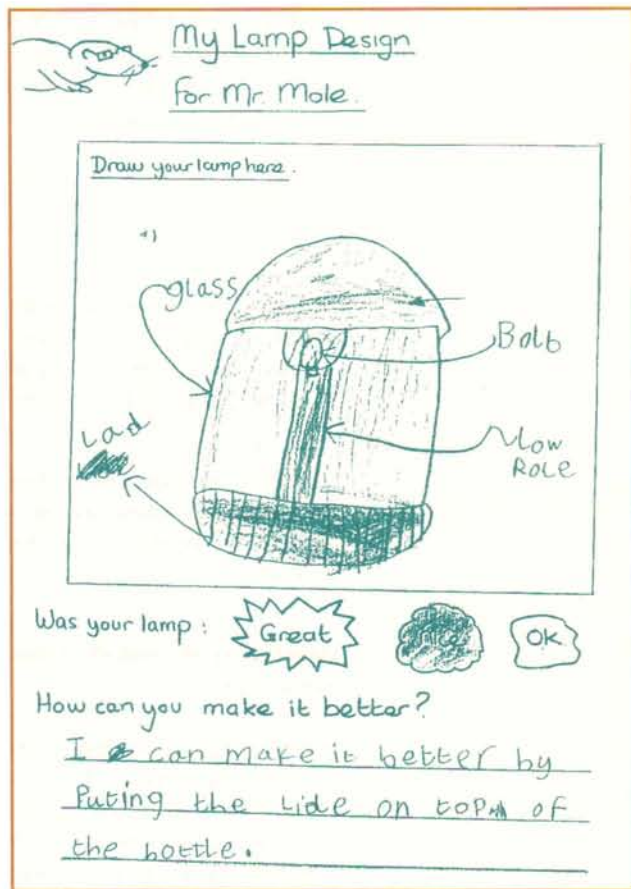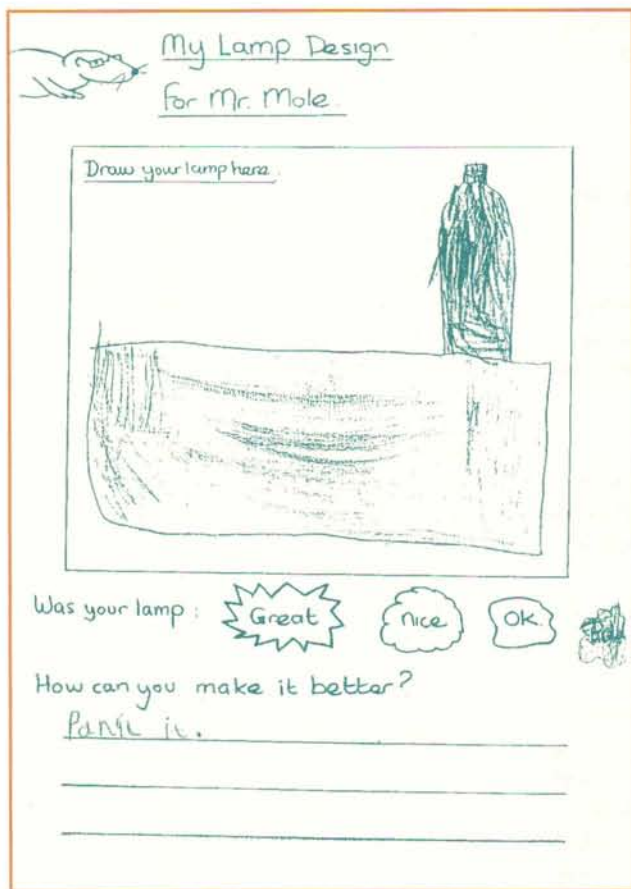
Figure 3
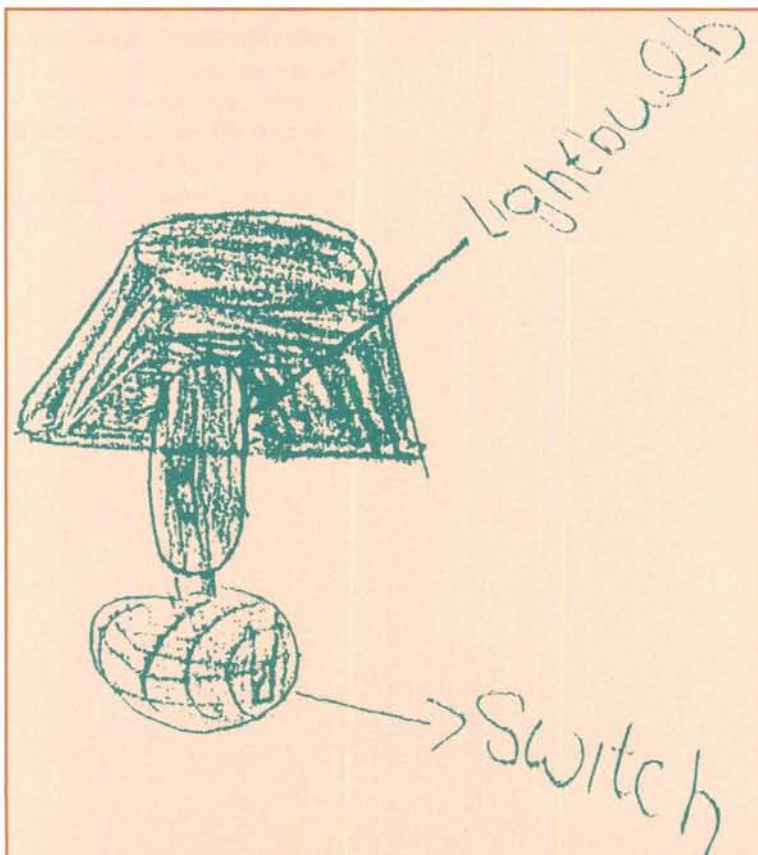
The children continually evaluated their work, made decisions and took appropriate action whilst constructing. However, some children became disenchanted by a perceived lack of success of their efforts. An extreme example of this lay in the complete abandonment of the project by some groups of children, although generally the process was more subtle, most often evident by a lack of motivation in engaging with the work.

Evaluating as a final stage in the activity
This proved to be more problematic than any other aspect of the process. When asked to indicate an improvement that might be made, the children were very reluctant, many considering the project already complete. Improvement drawings were completely divorced from any outcomes (see figure 3). A number of children showed signs of stress in attempting to evaluate their work. They were automatically making judgements and because of low self-esteem, these judgements would often be negative. At one point one child was on the verge of throwing her work in the bin because she 'didn't like it anymore.'

In order to support children in their evaluating, an alternative strategy was adopted, using a simple worksheet. The rationale for this was based on breaking down the process of evaluation into manageable steps, with a view to enabling children to:

- draw the outcome as it actually came out, thus making a connection between the physical, the mental imagery and the drawn modelling. Weakness in this aspect of capability had been apparent in earlier design work. This strategy could then be developed in future design work and for formulating improvements in future evaluations;

- channel judgements into a positive statement. Some published materials have provision for enabling children to categorise judgements, all categories being positively worded – this was incorporated into the worksheet;

- look for one improvement. As the original designs barely resembled the

Figures 4 and 5

outcomes, it proved impossible to get the children to superimpose their improvements over the original designs – any drawing would be from scratch. In the previous attempt at evaluation, drawing improvements from scratch gave the children the opportunity to completely ignore the outcome. The children were therefore required to express their ideas in words – only then were they allowed to incorporate their ideas into their drawings.

The results of this strategy were interesting:

• all drawings related to outcomes;

• judgements varied, with three children, including two with special educational needs for learning or behavioural difficulties (both boys) judging their work as 'great' – this mirrored a generally positive approach to design and technology as a whole by the three individuals concerned, which was not always evident in other subjects. Interestingly, Lee and Natalie, two of the

most able children in the class (in other subjects) invented a new category for their work – that of 'bad' (in the pejorative 'non slang' sense);

• improvements varied from simple improvements to the physical appearance – 'paint it' (figure 4), to functional improvements – 'putting the lid on top of the bottle to stop light going up where it was not useful' (figure 5). The requirement for the improvements to be written first (with teacher support given through questioning and transcribing, where required) proved to be valuable in developing thinking.

The case study highlights the following key issues:

• the process of evaluation needs to be broken down into manageable steps. Wood et al's (1976) concept of scaffolding is useful within this context whereby the teacher intervenes in such way as to help a child understand concepts which in the long term can be

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internalised by the child. It is important to view scaffolding as a construct involving intellectual, social and emotional processes;

- children need to develop a vocabulary relevant to this type of work;

- analytical, critical and creative thinking needs to be developed over the long term through the planning of appropriate strategies to support children.

In order to address some of these issues, the following strategies are recommended to encourage competence and confidence in evaluating.

Developing self-esteem through evaluating

One reason for children lacking self-esteem in their designing and making is that, from a very early age, they are bombarded through the media with images of products which are presented as 'state of the art' in terms of their potential for providing pleasure for the user. To enable children to begin to gain a critical insight into these claims, one can start by looking at the world which children inhabit and give them regular practice of verbally articulating their views about products that they know about – for example, by asking about preferences for toys. In the early years one might invite children to say why they play with certain toys, moving from the more generalised and descriptive ('it's nice') to the more focused and functional ('I can build lots of different things with it.') Children can be given the opportunity to make choices about their work, initially perhaps about such simple, small things as the colour they wish to paint their models. Work with models made from reclaimed materials might be preceded by verbal evaluations of toy vehicles, supported by teacher questioning – 'What colour are fire engines painted and why?' 'Why are police cars painted with bright stripes?' 'What is similar about the way in which tipper trucks and doors work (hinge mechanisms)?' The play corner can be discussed with regard to what would be needed to turn it into a hospital or what babies might need to keep them happy. Such discussion can form a valuable stimulus for designing and making.

Through such discussion and action, children can begin to understand that their opinions and decisions are valued. Evaluating involves the formulating and expressing of ideas and opinions. People, and particularly adults, showing an interest in and valuing of children's opinions will have a beneficial effect on self-esteem. Such work can also develop knowledge and understanding about the needs of others and how products can be designed and made to fulfil those needs.

Divorcing evaluation from self-criticism

In order to develop confidence in children's ability to be constructively critical, there is a need to separate evaluation and criticism of products from criticism of self. An excellent starting point can be the tasting and testing of food. Such work can be particularly revealing in that children are used to making choices about food and have strong views on how they want it to taste.

One way of evaluating the apples might be through tasting charts where each apple is rated according to specific criteria – (see figure 6). It is important that children gain experience of setting their own criteria for evaluation and that these criteria are valued. Ollerenshaw and Ritchie (1993) found that children tend to evaluate their work according to their perceptions of what the teacher wanted, such as neatness or correct spelling. One implication of this is that teachers should make their own expectations about what they value explicit through the use of specific praise and demonstration, for example, in stressing that as consumers and users of products, children's own criteria are important.

Knowledge and critical awareness of food products can be developed by other activities such as attempting to distinguish between one cola drink and another through blind-tasting and evaluating snacks such as crisps according to a variety of criteria (e.g. crunchiness, health, saltiness). Such activities and associated discussion can develop critical awareness about how expectations may not always match reality, develop vocabulary for describing and evaluating food and promote independence and confidence in the setting of appropriate criteria. It is important at this early stage that

a limited number of products and small range of criteria are considered so as to focus children's thinking on key issues.

These activities can be carried out on a whole class basis or through children working in groups. Such brief, small-scale evaluation activities should occur on a regular basis, so that such critical awareness of products can become an integral part of the fabric of school experience. With regular experience, children can begin to internalise some of the intellectual processes that lie behind evaluating. The time spent on such activities can be justified by reference to the fact that evaluating is a key skill that is of value across the curriculum.

From such starting points one can move on to evaluating other products that children have in-depth knowledge about. They can be encouraged to think about key characteristics of products. Favourite toys might be revisited: 'What's good about them?'; 'What works?', 'What doesn't work?'; 'How does it work?'; 'Does it stand up to testing?'; 'Has it lasted?'; 'Could it be improved?'

Developing and extending critical awareness about products

To develop and extend such insights about products, older children can be invited to discuss the distinction between needs and wants (Ritchie 1995) through the evaluation of everyday products such as trainers and designer tee shirts. A recent observation of school experience was distinguished by a (very confident) student teacher walking into a Year 6 class wearing a bright yellow baseball cap with the words 'Mothercare' printed prominently on the front. He invited the children to comment on how 'cool' he looked, generating a valuable discussion on fashion and the high cost of desirable items of clothing. The hidden issue of self-esteem was apparent in the comments made by children – it was evident that some children had a high level of insight into how they were being manipulated into wearing certain brand name items but 'couldn't afford' not to wear them. This can lead on to consideration of wider issues such as, 'Who wins and who loses in the manufacture of certain products?' This can enable children
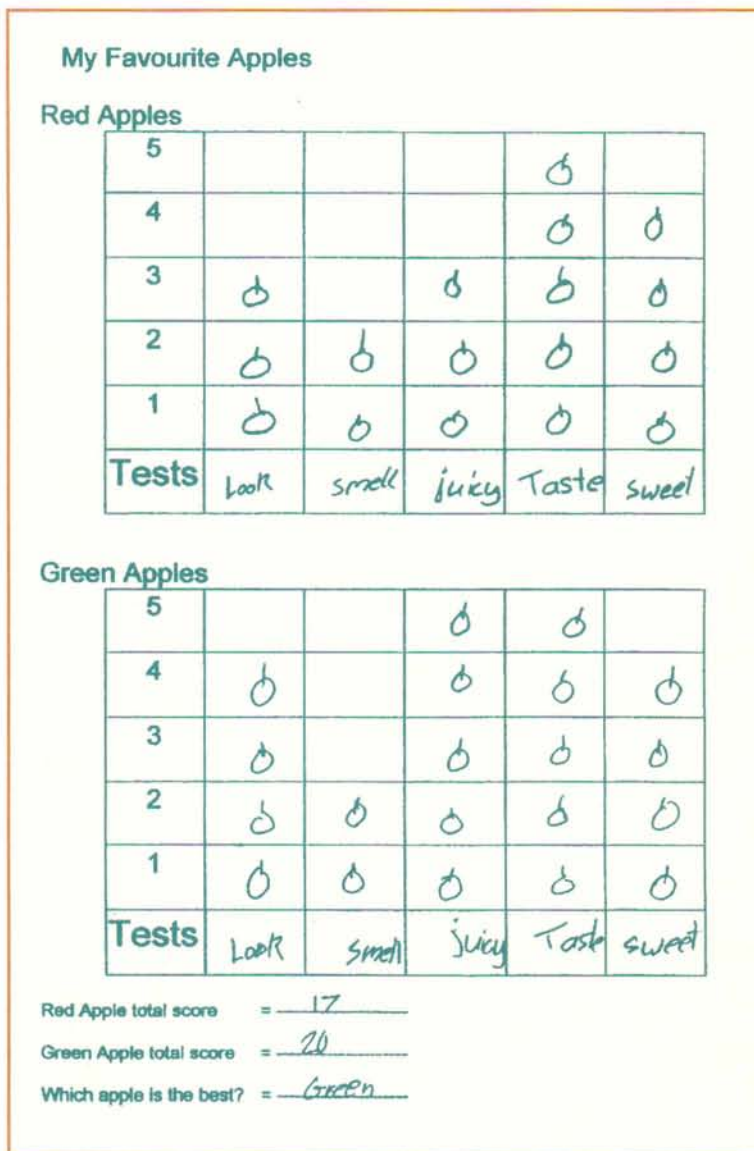
to develop critical awareness about the use of everyday products, including consideration of issues such as industrial, economic and environmental understanding.

Such evaluation of products made by others can, of course, be an excellent platform for the designing, making and evaluation of products by children themselves. The case study above suggests strategies that are of value in these contexts and the reader's attention is drawn to the work of Constable (1994) and Johnsey (1995) for a further range of strategies. To complement these, one should not overlook the value of group work and communication in developing capability in evaluation.

My Favourite Apples

Red Apples

5				♂	
4				♂	♂
3	♂		♂	♂	♂
2	♂	♂	♂	♂	♂
1	♂	♂	♂	♂	♂
Tests	Look	small	juicy	Taste	sweet

Green Apples

5				♂	♂
4	♂		♂	♂	♂
3	♂		♂	♂	♂
2	♂	♂	♂	♂	♂
1	♂	♂	♂	♂	♂
Tests	Look	Smell	juicy	Taste	sweet

Red Apple total score = 17
Green Apple total score = 20
Which apple is the best? = Green

Figure 6

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Group work

Children's self-esteem is, in part, intricately bound up in their relationship with their peers. Kimbell et al (1991) indicate the critical role that group work has to play in the development of capability; "the pupils' response to each other's criticism was a major force in shaping the success or failure of artefact in their own eyes" (section 9)

However, successful group work does not occur spontaneously. It is necessary to structure groups and tasks in such a manner as to foster constructive criticism. Initially, children should be placed in pairs with a 'critical friend' working on a highly structured focused task – this can enable them to focus on evaluating in a fairly safe context where the task demand is not too high. Pairs might then be teamed up to make groups of four, again working on highly structured tasks – this can focus children's efforts into establishing group cohesion without the distraction of an over-demanding activity. As group cohesion develops, tasks presented can become more open-ended and challenging, enabling frank and open evaluation of process and

product to take place in contexts where children will feel relatively unthreatened. One has be aware, however, of the possibility of the group becoming become 'too cosy' and develop and monitor interaction through appropriate questioning and explanation.

Communication – making thinking visible

The value of group work lies in its potential for developing communication – a key element of evaluating is communicating one's thoughts to others. The act of communicating can help to clarify thinking. Communicating in as visual a manner as possible will help to clarify children's understanding of concepts.

One such strategy in the development of on-going evaluation is for initial ideas to be boldly sketched in one colour of felt tip (removing the temptation to 'rub out' ideas) with subsequent modifications signified by the use of a felt tip of a different colour. By this means one can trace the development of design ideas as they interact with the 'reality' of making. It is important to make

Figure 7

one's expectation clear through stressing that design proposals are working diagrams rather than finished products. Children should be encouraged to keep all aspects of their work in progress, including prototypes – the use of a process diary can be a valuable means of recording and evaluating ideas as they develop (Djora and Bratt 1994). Such work can form valuable evidence of achievement and capability.

Close observational drawing of products with an emphasis on identifying functional characteristics of an object can help to crystallise understanding and provide a stimulus for ideas. The evaluation of a belt bag by a Year 3 child (figure 7) shows an understanding of the needs of the user in terms of strong, soft materials and the size of pockets. The zip is used as a stimulus for the child's own ideas about designing and making his own bag.

It is important that these strategies are set within a range of contexts in order to give children who learn in any number of ways the opportunity to work from and develop strengths within designing and making. In working from strengths one can begin to develop self-esteem through the evaluation process, thus developing confidence and competence in a key area of design and technology.

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