

Collecting Evidence for Assessment of Design and Technology Capability

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The term 'assessment' has mixed meanings for the majority of teachers. The term has come to have many connotations including the perils of league tables and the difficulties experienced with SATs. In the swamp of tests and recording documents it is all too easy to lose sight of the real purpose of assessment which is to benefit the pupils in our care. For many years teachers in special education have become used to making detailed records of the often minute stages of a child's development and have therefore been a *little* less perturbed than many colleagues in mainstream education by the close attention to detail and the weight of record keeping required by the National Curriculum.

In common with most teachers, special school colleagues have welcomed the basic philosophy behind the introduction of design & technology in the curriculum but have found some difficulties in interpreting the statutory orders into classroom practice. As if this were not enough, many of us are being asked to assess that which we are only just understanding how to teach. In any question concerning assessment it is important to remember that we are trained professionals and as such our judgement is not only legitimate but essential. The teacher is the person who will spend the longest continual time in contact with the child as a learner and so her/his experience and insight is unique.

This conference was designed to meet the needs of teachers planning design & technology activities for children with learning difficulties. For the purposes of this paper I will be referring to children who could be defined as those who, while enjoying the National Curriculum entitlement, have significantly greater difficulties in learning from his/her peers. I have based my observations on my own involvement with different teachers and children in special school in Somerset who have allowed me to share some of their design and technology experiences.

■ Assessment activities for Design & Technology

In my work in Somerset I have been party to differing views on the relevance of the content of the statutory orders to all children. Are the experiences recommended of real importance to the child and her/his future life? It has been suggested that there are aspects of design & technology that are relevant to all children but can all activities be called design and technology if the child is not actively involved in all four Te Attainment Targets? There is, of course, no easy answer to these questions but I would hope that teachers would recognise the benefits of activities that relate to aspects of design and technology even if they feel their pupils cannot enter into the process more fully.

■ Why assess?

Assessment is the means by which pupils are given opportunities to demonstrate a range of achievements. It can be used to help pupils and teacher to:

- Understand the pupil's achievement & progress.
- Diagnose specific difficulties.
- Give feedback.
- Set targets for the future.
- Identify levels of attainment.
- Enable the teacher to reflect on her/his teaching.

It is worth remembering that most teachers make a variety of assessments every working day. We can all recall occasions when we have realised that a child has not fully understood an idea or skill and have given her/him attention to rectify the situation.

For assessment purposes a design and technology activity should be structured in a way that allows for opportunities to make specific assessments both during the process and at the end of the project.

Often teachers may involve a child in a D&T activity where very little of it is the work of the child but in which there may be aspects of designing and making being developed. As with many other interested groups the Somerset Design and Technology Team, with help from

colleagues in the Special Needs Team, have devised suggestions for looking at progress through Pre-Level 1. We have tried to break down the development towards the concepts and skills required for Level 1 attainment into stages in a Working Towards Level 1 Sheet.

■ What sort of evidence demonstrates progression?

In order to interpret what children understand from what they do it is necessary to gather evidence for assessment. This should provide a broad and balanced view of the knowledge acquired, skills demonstrated, concepts gained and attitudes developed by the child. Taking small samples of material is preferable to generating vast quantities of data. Sampling should be done little and often in order to maintain validity and come as near as possible to the truth about a child's competence. Schools will be working towards developing a policy defining what sort of evidence is acceptable and how it will be annotated and stored.

■ What will this evidence reveal?

A clearly defined focus identifying exactly what evidence of specific skill and understanding is very important to the success of any assessment activity. It is wise to keep the focus tight and consider how far it is possible to involve the children in this planning.

■ What can be described from this evidence?

In design and technology the material gathered can be used to provide evidence of how the child (with or without prompts):

Is able to make judgements and observations

Can the child:

- make choices from alternatives?
- show preferences?
- make consistent choices from a wider range?
- demonstrate how pleased she/he is with the work?

- make simple judgements about appropriateness, and use of resources?
- make judgements about her/his work, including what her/his design needs to do in order to 'work' (relate outcome to design intention) and how the work needs to look?
- make judgements about the work of others?
- make judgements based on economic and/or aesthetic awareness?

Has developed values/value systems

Can a child:

- demonstrate satisfaction with a decision or work?
- recognise that changes can occur?
- recognise the need for changes to be made?
- recognise that actions have consequences?
- show an awareness of the importance of needs and preferences of others?
- show an awareness of the importance and diversity of needs and preferences of others?
- display an understanding of the need to conserve resources?
- understand that not everything works as well as hoped?
- copes with apparent set backs?

Organises

Can a child:

- her/his own work?
- recognise the contribution she/he has made?
- put into sequence her/his contribution to the work?
- show how he/she completed the work?
- show interest and commitment to the task?
- show the work environment was organised?

- organise her/his way of working as an individual or a group member?
- organise the work environment to suit the task?

Handles materials and equipment

Can the child:

- recognise some of the things around her/him?
- demonstrate that she/he knows the names of some of things around her/him?
- recognise that different things have different purposes?
- demonstrate the purposes of simple tools and equipment?
- indicate what she/he would like to be used for specific purpose?
- demonstrate a sensitivity to the properties of materials including the similarities and differences between materials?
- make judgements about the appropriate use of materials and equipment?
- demonstrate that she/he understands the possible risk involved with using materials and equipment?
- demonstrate that she/he understands the health and safety issues appropriate to the use of materials and equipment/

Communicates

Can the child:

- make positive responses to questions and requests?
- contribute to instructions?
- follow detailed instructions?
- show a preference for a solution to a problem?
- suggest a possible solution to a problem?
- develop ideas through modelling?
- use methods to seek out information and apply it?
- report on her/his work and the work of others?

WORKING TOWARDS LEVEL ONE STATEMENTS OF ATTAINMENT & PROGRAMMES OF STUDY - by threads

W level 1

W 1

W 2

W 3

LEVEL 1

AT 1 IDENTIFYING NEEDS AND OPPORTUNITIES	INVESTIGATING	<p>a. recognise change in familiar surroundings.</p> <p>● <i>I know that something has changed.</i></p> <p>a. understanding a suggestion.</p> <p>● <i>I understand what you are telling me..</i></p> <p>a. responding to the ideas of others.</p> <p>● <i>I can understand your idea.</i></p> <p>a. recognising that there are different materials.</p> <p>● <i>I can tell that these have differences.</i></p> <p>a. random choice.</p> <p>● <i>I know that I have a choice.</i></p> <p>a. influence the making.</p> <p>● <i>I can show what I want done.</i></p> <p>a. identifying own work/ contribution.</p> <p>b. showing a preference.</p> <p>● <i>I know my work or suggestion.</i></p> <p>● <i>I can show when I like/don't like something.</i></p> <p>a. showing a preference in other peoples work.</p> <p>● <i>I can show when I want something that has been made by someone else.</i></p>	<p>a. responding to aspects of familiar surroundings.</p> <p>● <i>I know the names of some of the things around me.</i></p> <p>a. responding to suggestion.</p> <p>● <i>I know what you want me to do.</i></p> <p>a. generating ideas with some prompting.</p> <p>● <i>we thought this up together.</i></p> <p>a. understand the appropriate use of materials.</p> <p>● <i>I know why we should use these.</i></p> <p>a. positive choice.</p> <p>● <i>I can show which one I want.</i></p> <p>a. make with considerable help.</p> <p>● <i>I can help to make it.</i></p> <p>a. identifying equipment and materials used.</p> <p>b. responding to a preference.</p> <p>● <i>I know what I used to make this.</i></p> <p>● <i>I can make a choice from alternatives.</i></p> <p>a. responding to preferences in others' work.</p> <p>● <i>I can show you what I like best in other people's work.</i></p>	<p>a. demonstrate to others what has been noticed in familiar surroundings.</p> <p>● <i>I can show you what some of the things around me do.</i></p> <p>a. identifying the most appropriate suggestion.</p> <p>● <i>I know which idea is best for me..</i></p> <p>a. generating ideas with limited prompting.</p> <p>● <i>I thought most of this up myself.</i></p> <p>a. select from a limited range of materials.</p> <p>● <i>I know what would work best.</i></p> <p>a. independent choice.</p> <p>● <i>I can choose for myself.</i></p> <p>a. make with some help.</p> <p>● <i>I can nearly do it on my own.</i></p> <p>a. identifying parts of the process.</p> <p>b. evaluating through demonstrating.</p> <p>● <i>I can put into a sequence parts of the way I worked.</i></p> <p>● <i>I can make decisions about my work.</i></p> <p>a. evaluating through demonstrating preferences.</p> <p>● <i>I can show what I like and dislike about other people's work.</i></p>	<p>a. describe to others what they have noticed in familiar surroundings or visualised about imaginary situations.</p> <p>b. suggest what might be done.</p> <p>a. express their ideas about what they might do to meet an identified need or opportunity.</p> <p>■ <i>use imagination and their own experiences to generate and explore ideas.</i></p> <p>■ <i>represent and develop ideas by drawings, models, talking, writing, working with materials.</i></p> <p>■ <i>recognise that materials can be linked in various ways to make or allow movement.</i></p> <p>a. use a variety of materials and equipment to make simple things.</p> <p>■ <i>explore and use a variety of materials to design and make things.</i></p> <p>■ <i>join materials and components in simple ways.</i></p> <p>■ <i>use materials and equipment safely.</i></p> <p>■ <i>make simple objects for a purpose.</i></p> <p>a. describe to others what they have done and how well they have done it.</p> <p>■ <i>test simple objects they have made.</i></p> <p>■ <i>talk about what they have done during their designing and making.</i></p> <p>b. describe to others what they like and dislike about familiar artefacts, systems or environments.</p> <p>■ <i>evaluate familiar things by observing and describing them, saying what they like or dislike about them and why people have or need them.</i></p>
	IDENTIFYING				
AT 2 GENERATING A DESIGN	DEVELOPING & RECORDING IDEAS				
	APPLYING KNOWLEDGE & INFORMATION				
AT 3 PLANNING AND MAKING	PLANNING				
	MAKING				
AT 4 EVALUATING	EVALUATING THEIR OWN WORK				
	EVALUATING OTHER PEOPLES WORK				

- communicate her/his design ideas?
- develop ideas through conversation?

■ What data gathering methods will be most appropriate?

Having decided on the focus define what data gathering methods will best serve this purpose and how will the data be used. A small amount of significant supportive evidence is desirable.

Evidence of learning can be revealed in many forms, both direct and contextual. Direct evidence is often retainable and may be placed in a portfolio. Some of it is ephemeral producing no physical evidence but often the most insight. This sort of evidence may be captured using video, audio tape or photographs.

Direct evidence may include:

Written/mark making

rough notes, drafts, reports, poems, computer printout, braille, touch screen, air operated switches, copying, check lists

Graphic

diagrams, drawing, storyboard, charts, photographs, selecting pictures from magazines, rearranging and sequencing photographs

3D

models, sculptures, construction

Oral

discussion, presentation, spontaneous, planned, signing, lip reading

Physical

tracking, manipulative skills, spatial awareness, operating switches, reading, touching, discarding, co-active movement through to reactive movement

Contextual evidence is the product of review and reflection. It may contain more ephemeral evidence revealed in pupils' body language, perceptions, values and attitudes.

This evidence may include:

- teachers' observation notes,
- lesson logs,
- pupil 'Think Books'/Diaries,
- pupil review sheets.

■ Data collection techniques

Good assessment draws on a wide range of evidence gained from observation, listening, asking questions, setting tasks and selecting examples of children's work.

■ Observation

This has long been recognised as the most productive method for gathering assessment evidence. Observation requires that the teacher plans into the activity short periods of time when she/he can work with the child.

Occasionally the teacher might wish to extend her/his understanding through more elaborate means such as triangulation. This involves three people, the observer, the child and the questioner. An example might be where a familiar adult other than the teacher works with the child asking appropriate questions and eliciting responses. The teacher observes the child's reactions and notes them on a simple observation sheet. The advantages of this sort of activity are that the teacher can give all her/his attention to the assessment and can be more objective.

Obviously this is time consuming and should be used to clarify a particular point. If there is no available time in the teachers busy schedule then audio or video tape can be used. The advantages are that tape machines monitor all situations and can be left running. This would provide plenty of material which can be reviewed many times but there is the possibility of producing too much material. Questions may also be raised regarding the possible intrusive nature of using tape and the costs involved.

■ Photographic evidence

It is possible to take photographs of work in progress. This provides opportunities for children to sequence their own work or comment on the way they worked. It also provides opportunities to ask other people who know the child to comment. However photographs tend to show what the child has done and rarely how the child did it. Many teachers comment on the need to annotate photographs to the extent that the relevance of the photograph is lost. One also needs to question the role of the photographer as an editor and the necessity of being in the right place at the right time.

The curriculum should not be assessment led, but by planning in opportunities for assessment on a small scale it is possible to build a gradual picture of what the child understands. It will also help us to reflect on the effectiveness of our own teaching and set targets for the future. Most of all, teachers need to be realistic in their expectations of what can be achieved in assessing capability in an area of the curriculum where progression and attainment are still being defined.