Using the Design Hexagon – Textiles

1. Understanding the user

An important part of any product design activity is to develop an understanding of the needs and wants of those who will be using the product that is being designed. A product will only be successful if it meets these requirements.

An important lesson for your students is to realise that their personal preferences may not be relevant to the design activity. So your students must be clear about for whom they are designing and have the means to find out about their preferences.

The student reading describes the PIES approach to identifying people's needs, ways to observe people, how to ask questions, the use of books and magazine, image boards and the use of questionnaires.

The Resource Task SRT1 gives practice at using the PIES approach, devising questions and developing image boards. The Resource Task SRT2 provides experience of collecting and handling information through the use of questionnaires.

2. Briefs and specifications

Writing a design brief is an important part of a designing and making assignment. A designer's understanding of the brief grows as he or she develops design proposals in response. The intention of the brief is to provide a clear starting point for the dialogue that will take place between the designer and what is being designed.

The specification for the product being designed grows from the brief as it becomes clear exactly how the product should perform. The brief lists criteria against which emerging design proposals can be judged.

It is important that the specification is detailed enough to provide these criteria but not so detailed that it limits the designer's ability to respond creatively. It is unlikely that a student will 'get it right' at the first attempt to write a brief or specification and many students interpret the need for successive refinements as an unnecessary chore and perhaps an indication that they haven't understood what they are being asked to do.

One way to overcome these difficulties is to provide your students with the experience of writing and discussing both design briefs and specifications. The student reading defines the design brief and explains how briefs can be either open or closed giving examples of each. It provides a framework for writing specifications and gives examples.

The Resource Task SRT3 in is two parts. Part 1 gives practice at writing open and closed briefs in response to particular situations. Part 2 gives practice in developing specifications from given briefs.

3. Generating design ideas

Generating design ideas is often a major stumbling block for many students. A sheet of blank paper can be very intimidating so it is important to provide strategies that enable students to produce ideas lots of different ideas quickly and easily. Many of the ideas will not be feasible but that does not matter. From a large crop of first ideas a proportion will viable and lead to innovative, realistic practical solutions. However, without the large crop in the first place it is unlikely that these ideas will emerge.

It is also important to move students away from the 'first idea' only attitude. This often stems from a lack of confidence in that they are worried that they may not have any more ideas and also that if they do they will find it difficult to choose between them. A student with just one idea doesn't have to make any decisions about which to develop.

The Student reading describes four ways to generate design ideas. It explains two forms of brainstorming. 'What can I use for this?' in which ideas for solutions to a particular problem are generated and 'What can I use this for?' in which ideas for a particular application are generated. Attribute analysis is a powerful way of developing new designs for familiar products. This is described in detail. Examples of using both observational and investigative drawing to generate ideas are shown.

The Resource Task STR4 gives practice at both forms of brainstorming. The Resource Task SRT5 uses attribute analysis to generate ideas for toiletry carriers and enables students to consider the constraints of manufacturing methods on design proposals.

4. Developing design ideas

Once your students have generated ideas they need to develop the detail to refine them to the point where their feasibility is established, or alternatively, they realise that the design is flawed and they need to a fundamental rethink.

Many students find this modelling stage frustrating as they want to 'get on with the making' but time spent exploring the developing design through modelling is essential for two reasons. Not only does it clarify the detail they need to be sure that the design will work as required and is therefore worth making but it allows changes to be made so that time and materials aren't wasted in making a flawed design.

It is important that this modelling doesn't take too long resulting in loss of motivation. The use of easy-to-work materials helps here and also gives insight into potential making difficulties. If the design cannot be resolved in inexpensive fabric, paper or card it is unlikely to be able to be made in demanding materials.

The Student reading describes through the use of an illustrated example modelling appearance. It then discusses in some detail how to model product performance. Finally it describes how to model form and function of graphic products using computers.

The new Resource Task SRT5A gives students the opportunity to use modelling through sketching and simple 3D construction to develop ideas for themed party hats.

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5. Communicating design ideas

It is important for your students to understand that the method of communication they choose to use will depend on whom they are communicating to and what they are communicating about. Although a student may be both the designer and the manufacturer and in some cases the client it is important that to realise the need for careful recorded communication. Just because they think they know what they are doing doesn't mean they do! In most cases a designer will use sketches of the designs with variations and diagrammatic drawings to shoe the actual design lines and samples of fabric as the basis for a conversation with the client, manufacturer or potential user. It is important that you allow your students the opportunity to do likewise.

The Student reading considers the needs of three different groups to whom they might communicate – the client, the manufacturer and the user.

The Student reading describes six different ways of communicating design ideas: the toile, mood boards, theme boards, fashion drawing, patterns, plans, elevations and perspective views of interiors. The Student reading also describes the sort of information that is needed to support those who will use a product.

An important feature of these communications is that they appear crisp and have a certainty about them that inspires both admiration and trust. This will only be achieved through practice and the accompanying Resource Tasks provide enjoyable opportunities for this.

The Resource Task CRT1 gives practice at producing theme and mood boards. The Resource Task CRT2 gives practice at presenting data. The Resource Task CRT3 gives practice at fashion drawing. The Resource Task CRT4 gives practice at capturing the appearance of fabric on paper. The Resource Task CRT5 gives practice at exploring the design of interiors. The Resource Task CRT6 gives practice at producing patterns which carry information for making

6. Evaluating design ideas

Do leave enough time towards the end of a Capability Task for students to evaluate the quality of their work. It is important not to confuse quality of design with quality of manufacture. At Key Stage 4 there is little excuse for poor quality manufacture, as with care, effort and appropriate time, it is possible for students to implement their design ideas to a high standard.

The crux of the evaluation should concern quality of design. The Student reading describes in detail four different methods of product evaluation: *User trip, Winners and losers, Performance testing* and *Is it appropriate?*

User trip is the simplest method and can be carried out by both the student (acting as the user) and the actual user. Observation of the user trip is a powerful way of revealing inadequacies of design and manufacture. Performance testing requires the student to interrogate each element of the specification to find out if the product meets these requirements. Again this will reveal inadequacies of both design and manufacture. Winners and losers widen the scope of the brief so that students can explore impact beyond intended use. Is it appropriate? is the most demanding form of evaluation and requires the student to explore in detail the consequences of the manufacture and use of the product in terms of the effects on those who manufacture and use the product and the environmental impact of the product. The Resource Task SRT6 gives practice at all four types of evaluation.