

Design Rules...



OK?

John Lee and Rowan Todd continue their series with this useful group method to generate and develop ideas

Generating, developing and selecting ideas:

A key objective of the National Curriculum for design and technology is to help pupils to develop their ability 'to become autonomous and creative problem solvers, as individuals and members of a team'. One aspect of this ability is the capacity of pupils to think creatively and come up with innovative design ideas.

So where do these ideas come from? It may have been a 'eureka' moment in the case of Archimedes, but in reality flashes of inspiration or intuitive creativity usually play a lesser role. Invention more often involves a lot of hard work - in the words of Edison, it is '99% perspiration and 1% inspiration'.

Structured ideas generation, development and selection

Generating ideas is undoubtedly a high level cognitive activity and the prospect of being faced with a blank sheet of paper can be intimidating for pupils. So how can teachers offer support to pupils in this area? Statistics gathered from a survey of Millennium Product companies show that in the commercial world the process of creativity is, in many cases, supported by structured approaches to idea generation. In recent years, several such strategies have emerged from industrial and commercial sources. These include the 6-3-5 method, which was conceived in the 1960's to facilitate a co-operative, team based approach to creative thinking.

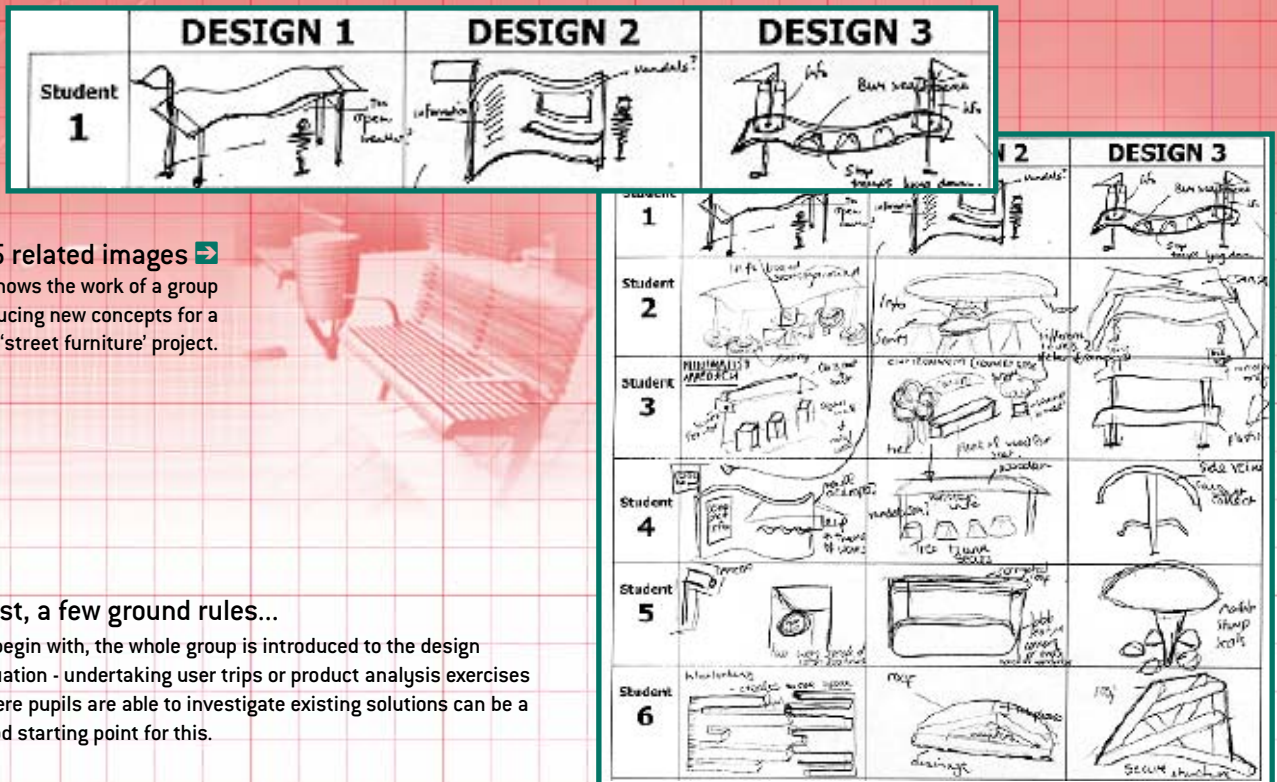
By adapting this strategy for use in schools, teachers are able to offer pupils a learning experience that can help them develop their 'designerly' thinking skills in a team situation that reflects professional practice in design - and, if our observations are anything to go by, one that both teachers and pupils have found to be enjoyable and surprisingly productive.

Using the 6-3-5 strategy

This exercise requires little in the way of specialist resources. A room with adequate seating and spacious tabletops is ideal. Each pupil needs a pro-forma (see example below) and something to sketch with.

The objective of the exercise is for pupils to work in teams and build sequentially on each others contributions to generate a broad, innovative range of ideas, which can be refined through further discussion.

	DESIGN 1	DESIGN 2	DESIGN 3
Student 1			
Student 2			
Student 3			
Student 4			
Student 5			
Student 6			



6-3-5 related images →

The example shows the work of a group of pupils producing new concepts for a 'street furniture' project.

First, a few ground rules...

To begin with, the whole group is introduced to the design situation - undertaking user trips or product analysis exercises where pupils are able to investigate existing solutions can be a good starting point for this.

Pupils are arranged into teams, usually groups of six, although it can be done in smaller groups if necessary. The activity is carried out over a number of rounds equal to the number of participants in each team. Each round usually lasts for five minutes, although the time could be shorter for younger pupils working on less complex problems. The use of a time constraint is important because it focuses pupil thinking on the breadth and diversity of ideas generated rather than presentation.

In common with other brainstorming activities, thinking 'outside the box', including a willingness to consider wacky or quirky ideas should be encouraged and all judgement deferred until the end of the exercise. Work should be carried out in silence (a useful by-product!) so that focus is maintained and design thinking is not inhibited by distractions.

At the end of each round, pupils pass their design sheets to their neighbour. Pupils are encouraged to spend a minute or so studying the ideas already on the sheet before the start of the next round. In each subsequent round, pupils add three more ideas to the sheet they have inherited. These may be completely new concepts or pupils may choose to adapt, combine or further develop any of the designs that are already on the sheet.

Six rounds are completed in this way. It is a good idea to give pupils a short break at the end of the third or fourth round, particularly if you sense that they are beginning to struggle. There should be no discussion of the problem or ideas at this point - make it an opportunity for them to take their mind off the problem for a short while...

At the end of the exercise the pupils will have their original sheet back in front of them - but by this stage it will look rather different. Their three initial ideas should have been transformed, multiplied and taken in a variety of new directions that incorporates the wider thinking of the group.

At this point, groups should be given time to discuss and evaluate the merits of the concepts they have produced. A representative from each group can be nominated to feedback outcomes to the whole class.

Over to you....

In this article we have looked at a strategy for supporting pupils in the task of concept generation and selection. We hope you find it useful and productive addition to your designing toolkit. If you need further clarification or would like to share your experiences in using the strategy, please feel free to contact us.

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