

## Design Opportunities

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The current shift from isolated craft rituals to design based problem solving situations, has meant the reappraisal and readjustment of personal values and attitudes to Craft Education. In times of change and doubt, educational objectives are, if not the sole point of reference, certainly the most important. "How do I set it up" is perhaps better prefaced by "Why do I want to set it up?" or "In what way do I hope the pupils will benefit from it?"

How then have our objectives changed, that we should now be considering 'Problem solving' as a suitable base for Handicraft, in preference to the traditional one of 'craft skills'? Is it perhaps that our basic concept of education has made a swing towards 'pupil centred education', from its previous conservative 'subject centred' position? Is it because we now value the individual ideas of children more highly than the restraints of the crafts? — or are we changing our approach because we think the 'design way' is a more effective way of teaching craft? Until we are clear as to what our aims are and why we believe in them, how can we answer with any conviction — the question — "In what way do I hope the pupils will benefit from it?"

Inevitably perhaps, the redefinition of our aims and beliefs are sometimes initially confused and often reflect a division of loyalties. It is only human that we should hold on to what we know, rather than risk the uncertainty of the 'open ended' situation. An example of this dilemma is in the way we react to and set up 'design based problem solving situations'. Much is spoken of and indeed is now being written about Design Education, and more often than not a reference is made to '**The Design Process**'. It is interesting to note that the usual presentation of the design process is one of a carefully planned series of operations, a linear sequence of action. Implicit in the 'process' is the hope that by following the process, children will be able to 'design' their own work — which can then be carried out in a craft context. While the objectives and even the context of the 'design process' seem credible — in practice the 'process' often becomes no more than another 'method' — a method which far from being a panacea for Craft Education, can be as prescriptive and sterile as the methods we are trying to avoid.

At "Goldsmiths" we would admit to supporting and even to influencing the development of a design process. Yet while we can claim that using a design process has given us a measure of success — we have come to realise that the design process has many weaknesses if taken and used as a 'method'. One weakness is, that unless the 'process' is continually related to the educational objectives, the innocent method becomes a system, then a set of rules and ultimately a law! Even to suggest that there is 'a right way' to design is more ludicrous than claiming an ultimate method of cutting a mortice and tenon.

Another weakness of 'the design process' lies in the rationale of 'method' itself. Namely that by the application of a **logical sequence of operations**, you can arrive at a sensible, positive and sensitive solution to your problem. The supposition here is based in the belief, that by the application and concentration of the **intellect**, any problem can be analysed, assessed and ideas formalised.

Our evidence suggests that while some students do respond to the formality of a design process, many find difficulties in relating their own personality to it, while others, perhaps more realistically, reject it.

These observations had led us to appreciate and value perhaps the most obvious fact, that ideas are born **out of people, not methods** and that individual people do have their own very legitimate 'ways of working'. These personal ways of working are more precious and provide a more fertile ground for the development of ideas than the growing doctrine of 'the Design Process'.

One of the current attractions of 'the design process' with its reliance for much of the time on the intellect — lies in the realisation of many craft teachers, that often their pupils are not thinking at all but simply carrying out craft exercises! The 'thinking' involved in the design process has offered a very definite way in which children could be actively involved in their own work. However, ideas seem to be as much a product of 'feeling' as 'thinking'. If we really are concerned about the development of the child/student's **own ideas**, then we must **respect** not intellect alone — but **value** also, the feelings and emotional responses of the individual in a creative situation.

With these thoughts in mind, we have chosen to illustrate a number of design projects from our own second year course at Goldsmiths'. In describing how the projects were set up and shaped, we also hope to pinpoint 'why' as well as assessing the progress of each project.

Few students who work in wood, metal and plastic can for long avoid the necessity to arrange their ideas, not only in terms of material but of space and form. This first project which we refer to as the 'Standard Section table' was set up as follows:—

1. to deepen an understanding of space — already initially explored within the context of the space frame in the first year,
2. to promote an understanding of the **relationship** between material, construction and form,
3. to introduce and explore the notion of 'knockdown' construction.

To accommodate these objectives certain limitations were built into the 'brief for the project namely, that

- (a) the table was to be made in wood, of a standardized section — with the exception of the 'working surface' which could be of any chosen material. Overall size of table should not exceed 750 x 750 x 500.
- (b) the structure should be capable of being 'knocked down' for storage and/or carriage. In its assembled form the 'pack' should consist of the least number of separate parts and must not exceed in size, 750 x 750 x 75.
- (c) all constructional elements must relate to each other through 90° (this restraint was added to focus the students' attention on the potential of space in a way we thought most feasible and profitable). A time limit of six working days was also imposed on the project.



Space Frame

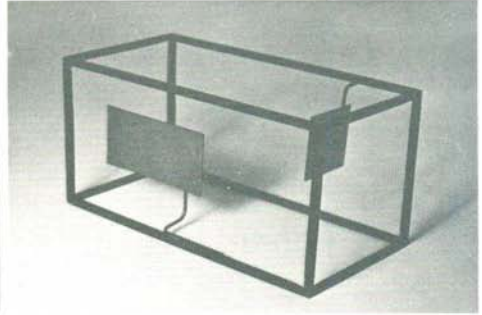


Fig. 12



Fig. 13

Table





In deliberately restricting the material and the way it could be used we had tried to direct the student's attention towards our stated objectives. One of the advantages of limiting the 'palette' was that students were made to search for possibilities, with a few elements which they could handle, rather than lose themselves in the total freedom of the completely open brief.

In terms of the conventional design process we chose to play down the initial analysis of function, size and material etc. This was not because we consider this element of designing invalid or unhelpful. We wished instead, to concentrate our energies in helping students to a self discipline, in which they could marshal and develop ideas with confidence. The level of originality shown in the finished tables held out our initial contention and we have been satisfied generally with the way the students have responded to the project.

It could be argued that the brief was too limiting and did not open up enough possibilities for the students to explore. Certainly a few students expressed this view initially, until they realised the extent and potential of the 'freedom' they did have. Occasionally we have had a student who has come up with an exciting idea, but one which does not necessarily conform to the brief. In these cases we have seen our responsibility, not to return the student to 'our brief' but to encourage 'his idea'. The dilemma of the teacher in these circumstances can only really be resolved, by referring not to his immediate limited objectives, but to his overall aims.

Another project started from a visit to the Triang factory at Merton. Here the students were introduced to production methods and sequences relevant to a commercial concern. A brief was established having had a useful discussion with the staff designer concerning children's attitudes to toys. It emerged thus—

- (a) to design and produce a pedal driven vehicle, suitable for children between 4 and 8 years of age,
- (b) the design should take into account the production facilities and methods available at the Merton factory,
- (c) the design could incorporate any of the standard units, (such as wheels, bearings etc.) that were currently being employed at the plant.

It was arranged that, at the assessment of the student's prototype, representatives of Triang should be there to give their opinion on commercial viability — both in terms of production and likely reception by the public. It was never the intention to base the assessment of the project on commercial viability, but it was considered that the discipline of relating a design to current production would be a challenging and rewarding exercise.

The 'Triang' visit was of course 'set up' to provide a project which would promote understanding and provide an opportunity to explore mechanical movements — their potential and their discipline. In the first year, the students had been given an initial introduction to the possibilities of mechanical form — through a simple problem of designing a visual toy, incorporating the conversion of rotary motion into a reciprocating action. This had proved an interesting departure from the normal 'material based projects' and seemed to suggest that it should be taken further. So the pedal vehicle project was





drawn up and programmed, hopefully to accommodate inventiveness and imagination, the two qualities we were most anxious to develop.

The brief for the pedal toy had been left more open to student interpretation than had the table. This in turn resulted in the student having to stipulate and define **his own terms** of reference. The recognition of functional and ergonomic requirements were now essential. Analysis of the child, his attitude to play, his potential as a source of energy etc. had to be researched. Many questions in fact, had to be identified and resolved, **before** the problem could be defined.

In terms of a design process, different questions were being asked, different possibilities were present and as such, different aspects of 'design thinking' were required.

Again it was significant that, as in the previous project, those students who used the brief simply as a **STIMULUS** rather than a **DIRECTION**, produced the most imaginative results.

If our aim had been to produce 'commercial' pedal toys many of the designs would have received no recognition, but as our stated aims had been to stimulate and encourage inventiveness and imagination, some of the same designs had distinction.

The third project illustrated, concerns a 'set brief' for an examination situation. The following brief was handed to the students some 10 days before the actual exam practical time.

"You are asked to design and make a suitable device for holding and dispensing a standard toilet roll or packet, for use within the illustrated bathroom.

The device should have concealed fixing arrangements for securing to the wall and special consideration should be given to the ease of renewal of the toilet paper. You are also reminded that the practical time allocated for making up your design is a maximum of **twelve hours**.

**Your design preparations should include:—**

- (a) A detailed statement of the problem — including aspects of specification and consideration of the environment.
- (b) An analysis of the problem — the collection of data, the suitability of the materials — available resources and techniques etc.
- (c) Various design solutions in sketch form.
- (d) Finalised solution and any necessary mock-ups, etc.
- (e) Full size working drawing on tracing paper."





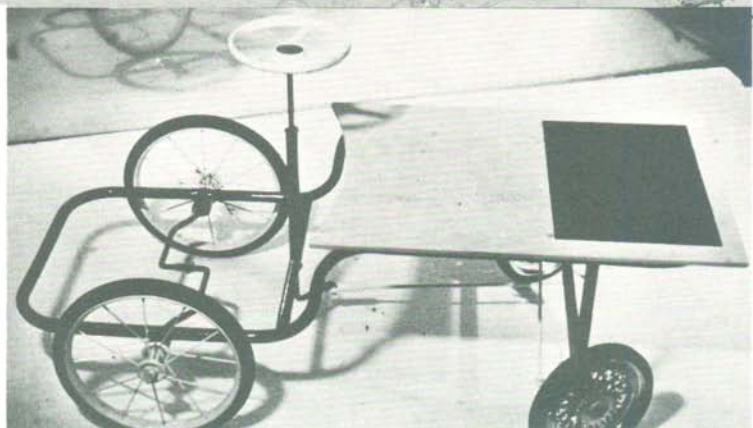
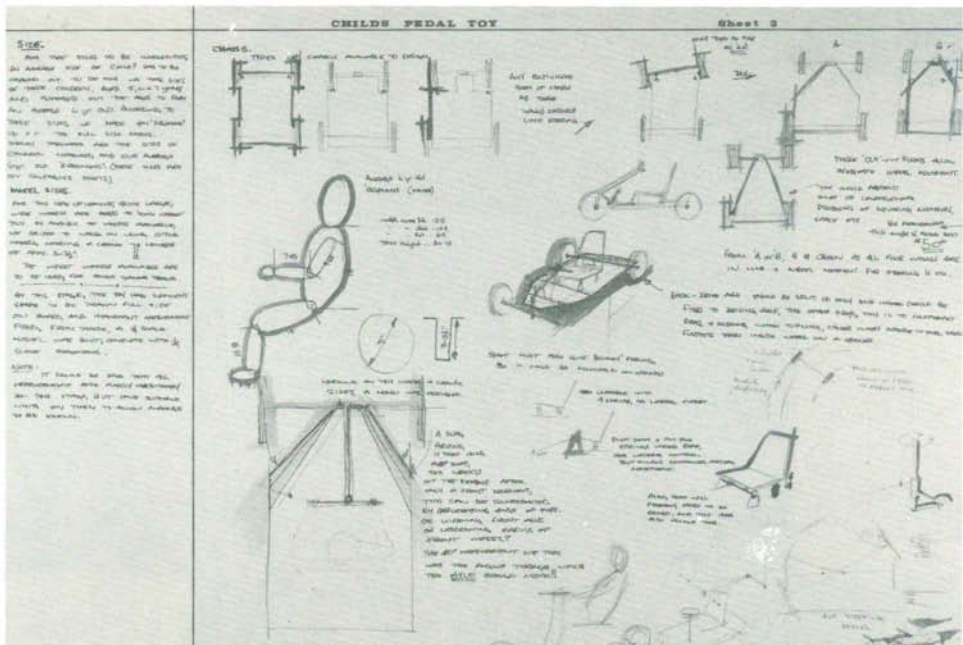


Fig. 18



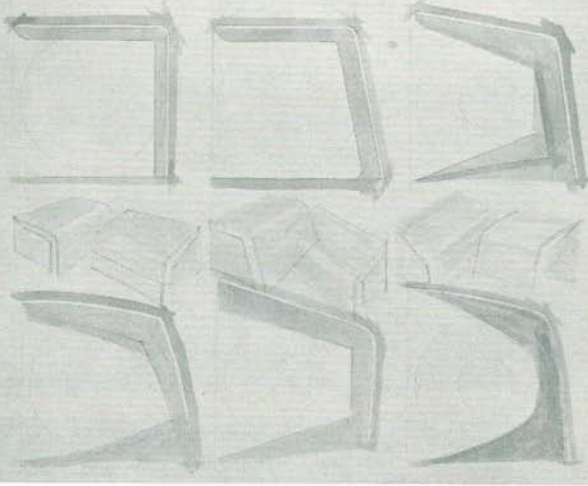
# Sketches continued

By working through a couple of initial ideas suggested by the foregoing sketches I have been able to make a number of conclusions I have been able to derive the idea of having the roll stick out from the wall.

It is prone to presume that it would take without being much more bulky (it does not trouble) a. My requirement of not being able to use the roll, necessitates a hole going over the roll, in order to mount the boxes there must be a slot in the bottom which catches the hole.

It also wanted it to be of a rectangular shape which looks less obtrusive in this set up.

In to solve the problems implied in the set up would require more than 12 hour fabrication I suggest. The other idea looked at some much more versatile and less a slightly that when the environment. The drawbacks are that it may well be messy. This would matter if I had 12 hours. It will turn into an advantage. A person putting weight on it (and me must be prepared for that) will get it out and return. Being down to the wall it is less inviting. It has the advantages of being tall, obtrusive (to mount), hygienic, simple and looking shall be suitable shape.



## Final Conclusions and further modification

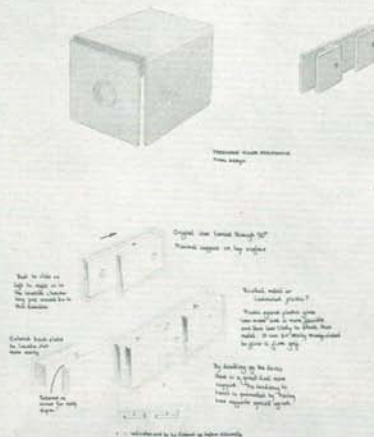
The basic design can be made in plastic. The prototype can be in the oval available as it is the right thickness and weight as desired. The shape may be better in a new oval material but this need not concern the prototype. However, the locked view of the roll through the oval chest may well be pleasant with right.

Coming to the decision in handling really clip corner. I will think to a really short rectangular shape. Having been most aware of the thickness of the roll in experiments I feel that clipping would look out of place.

From experiments it would seem that the simple technique will hold the roll. It only remains to look it fully with a prototype.

Having made considering again all the roll will be inserted upwards from below. If the roll is not secured it will tend to be pushed off on removal. Sliding on from the side needs consideration.

On looking one head to destruction I found the plastic box would be more than adequately sound.



## PROCEDURE

- i. Assess sheet
- ii. Cut out developed shape
- iii. Match end with pencil line / scratch line
  - a. handle
  - b. dimple
  - c. slots
- iv. Cut slots
- v. Push from dimples
- vi. Bend ends as they need to be very accurate
- vii. Bend top then front over
- viii. File up and finish appropriate piece for clip
- ix. Glue up with clip
- x. Drill and finish roll clip

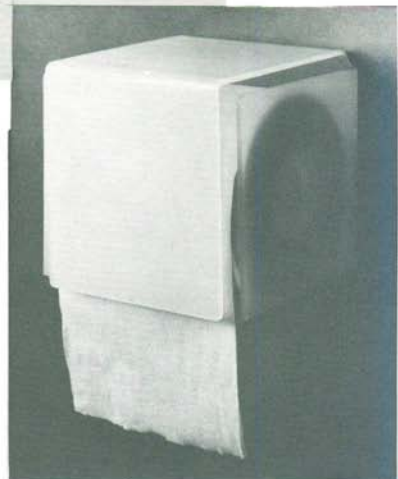
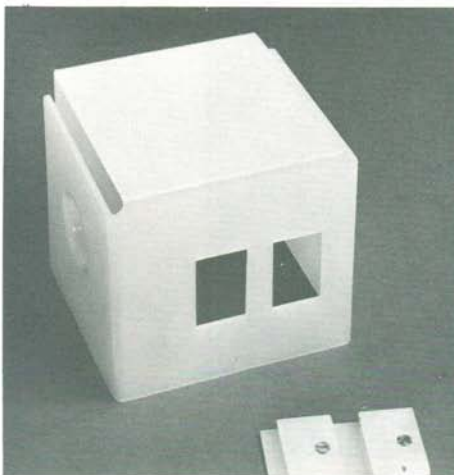


Fig. 20





Fig. 21



Fig. 22

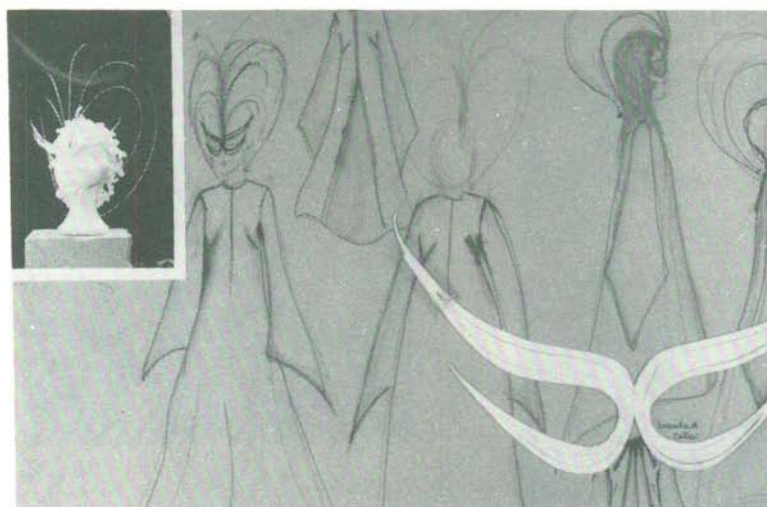


Fig. 23

In the request for specific detailing, such as concealing the fixing, particular aspects of design thinking were being prompted. Likewise as a deliberate intention, no direction as to material was given or methods of production proposed. It can be seen both from the insistence in the brief for a folder of preparatory work (a) to (e), and in the illustrated example of one student's work, that a definite approach or design process was being urged.

In the work that was finally submitted, it was clear that although a certain 'pattern of thinking' was evident and necessary to the problem → ideas had sprung **more** from seeing and feeling relationships, **than** submitting thinking to a set formula. The example shown is a clear example of a student's search to find a new relationship between **Form**, **Materials** and **Means** of production.

A design process had been necessary only in so far that it provided a structure upon which the student could build. In the final confrontation, however, the 'process' will not give him the idea — this he must find for himself.

The last project here, results from an 'empty brief', that is, there was no problem, only a **focus** and a **stimulus**. The focus we used in this instance was 'the face'

The first two days were spent drawing each other, examining the structure of the skull and the differences in individual features. We talked at length of the importance of the face; its power of expression and progression, its survival, protection and ornament. Though certain areas such as protection, ornament and opportunity to alter identity were suggested for exploration, no briefs were given or problems stipulated. Confused at first by this degree of freedom and absence of direction, many students were uneasy. In most of these cases their own drawings provided an anchor and starting point for development. By looking afresh, suggestions came, additions were made and new possibilities seen.

Gradually students decided on **their own** course of examination, some going for a functional requirement, such as a welding mark. Others saw possibilities in ornament and facial jewellery. Another group used a piece of music to provide a context for drama.

The illustrations are mainly from this last group and are shown, not because their work was of superb design or craftsmanship, but because of the vitality and personal strength of their ideas. The face project was successful in fact not so much for the artifacts it produced, but for the liberating effect it had on many students. More than one student discovered talents and strengths he had long ignored or thought unattainable.

In the last project the presence of a formal design process was obscure and for most students irrelevant. Yet the work was by far the most imaginative and vivid of the four projects discussed. It would, however, be wrong and irresponsible to suggest that these same students had received no benefit from a 'design process':— they had, but it had been integrated and dissolved into 'their way of working'.

The reason for putting down these comments has not been to devalue the merit of the design process, but to expose the freedom students must have, in order to relate to it. The formality of 'a design process' can provide a useful structure to get the student 'thinking' about the problem. We need now to add to this yet another dimension, that of enabling a student to acquire the confidence to 'feel' and to have faith in **his** ideas.

If craft education can accommodate the need for a real balance between 'thinking' and 'feeling', and if it will accept the necessity for students to find their own way, or to have 'room to move', as well as to have direction — then, we believe, a new maturity will be reached.

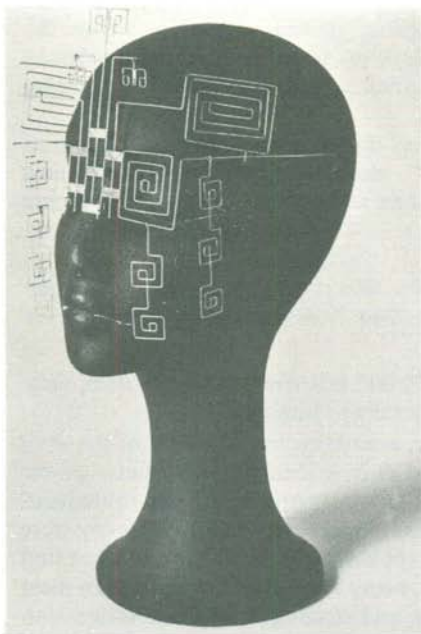
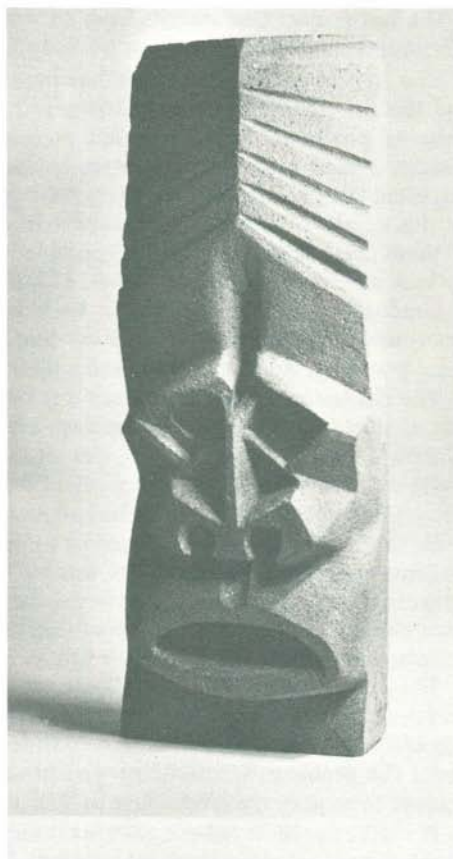


Fig. 24



Fig. 25



'Other Developments'



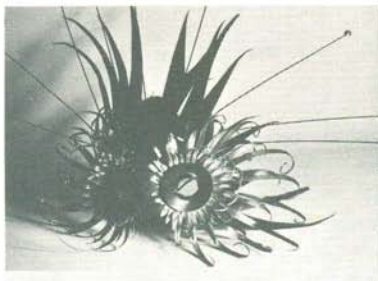


Fig. 26



Fig. 27



Fig. 28