Mode 3 Work in Metal

Making the examination fit the teaching

M. G. Davies

Pool Hayes Comprehensive School, Willenhall.

Today much in education is forward-looking and enterprising. At first glance it would appear that our present examination system is not suited to examine this progressive outlook in education. Yet built into the structure of the system one is allowed to devise and develop one's own courses and to examine these courses within this structure. Here at Pool Hayes all creative subjects are examined by C.S.E. Mode 3.

We thought that this suited our needs best; it has allowed us to create courses specially suited to meet our particular situation. Our Creative Arts and Design course comprises ten subjects:—Painting and Drawing, Light Crafts (Pottery or Printmaking), Electronics, Woodwork, Metalwork, Engineering Drawing and Design, Home Economics, Needlecrafts, Music and Drama. All pupils staying on for a fifth year at school choose two of these subject and study a course leading to a Mode 3. C.S.E. examination. A choice of certain subjects could result in a double pass, e.g. Metalwork with Engineering Drawing and Design.

G.C.E. "O" level is not taken in any of these subjects. To do so would be to defeat the object of the course. Parallel courses in G.C.E. and C.S.E. Mode 3 would not be practical because the content of each syllabus would be so diverse that it would create the very situation we are trying to avoid. Since the pupils in such a course will be of mixed ability it makes a C.S.E. examination even more appropriate. Universities and employers now accept a C.S.E. Grade 1 pass as a G.C.E. pass equivalent so we do not feel that any pupil is at any educational disadvantage by taking only C.S.E. in any of these subjects.

The C.S.E. Boards have three modes of examining, as follows:—

Mode 1. An external examination, based on the Examining Board's syllabus and with examination question papers set, marked and assessed by the Board.

Mode 2. An external examination, based on a school's syllabus, but with the examination papers set and marked by an external examiner appointed by the Board.

Mode 3. An internal examination, based on a school's special syllabus, with examination papers set and marked by the school and assessed by the Board.

To give readers further insight into the educational merit or otherwise the Mode 3 examination for which I am responsible I will explain in detail the Mode 3 Metalwork structure.

The examination is divided into three parts, as follows:—

Part I	Craft Knowledge and Design	—	30%
Part II	Special Task (Practical Work)	—	40%
Part III	Course Work (4th and 5th year assessment)	—	30%

Part I. Craft Knowledge and Design

This paper is marked out of 100% and then scaled to the final 30%. This two-and-a-half-hour paper comprises three parts covering different areas of work.

Section A. Design—carries 40% of the marks. Candidates are required to answer one of two design questions. One question is concerned with the designing of a simple mechanism, e.g. one which involves fittings and moving parts. The second question is more concerned with creative expression, when candidates are expected to design a piece of decorative metalwork. Since designing through the use of freehand sketches and working notes forms an integral part of our course we regard this section as very important, hence the high percentage of marks awarded for this design question.

Section B.—is concerned with metalwork questions of a more general nature. This section, with 20% of the marks, contains a number of questions which require brief written answers and it is hoped that candidates will make wide use of freehand sketches to help illustrate answers.

Section C.—the final section, contains a large number of questions concerned with the various branches of metalwork, e.g. forgework, benchwork. In addition, questions are asked on other aspects of our course which will have been emphasised, e.g. applied science and technology, testing of metals, use and testing of materials other than metal, and questions based on special projects which may have been covered prior to the examination. Candidates are required to answer any two of these questions, each with 20% of the marks (40% for the whole of this section). Sufficient range of questions covering the course are used so that candidates can answer a question on a particular topic which may have interested them during their course work.

Part II. Special Task

It is here that our Mode 3 course and examination differs widely from existing examinations. It is not our intention to examine pupils' practical ability with a set piece of work to be completed during a set time. In addition to practical ability other important educational principles must be taken into consideration, e.g. creating and designing for oneself, and experimenting with materials other than metal, although metal will form the basis of practical work.

During the three years that we have now been using this examination, with the special tasks, it has developed into something which we think is educationally sound.

Its experimental nature has proved rewarding to both candidates and staff alike. Pupils have gained much from an approach which enables them to create and design for themselves, this being achieved through the use of freehand sketches, working notes and mock-ups, leading finally to a full working drawing with cutting lists of materials used. The design is then made by the pupils in an unhurried way during the spring term. This generous time allocation enables them to experiment and produce a finished article, made, we hope, to the best of their ability. It is during the making of the special task that one of our distinctive features arises. Many pupils find that modifications will have to be made to their working drawings, as they discover the nature of the materials used and the choice of construction adopted. This usually leads to a further and final working drawing based on the modifications found necessary. Thus candidates create a truly original piece of work.

The candidates' choice of special task is not an entirely free one. Our experience as teachers, as well as examiners leads us to give them a guide. This year I specified five special tasks, the candidates having to choose one. In choosing my five topics, I had to bear in mind certain aims which my syllabus and course of work had emphasised, (a) to cover the various and traditional branches of metalwork, (b) the solving of simple mechanical problems, (c) creative and decorative metalwork, (d) the use of materials other than metal, and (e) applied science and technology projects.

By covering this range I hoped to provide sufficient stimulus to the candidates' imagination.

The special tasks were as follows:—

1. The number of a house is to be secured to a piece of polished hardwood. Design a suitable shape for the hardwood and mount it on a decorative wrought-iron framework. The hardwood number plate and frame can be of a hanging type, or can be fixed directly to the wall or door.

2. Design and make a wooden pattern for a contemporary door handle which will be later cast in aluminium. Provision must be made for the lock spindle (unless the door is of the push and pull type) which will pass through the door to connect with the opposite door handle.

3. Design a sugar bowl with a lid, to be made out of a non-ferrous metal or metals. Materials other than metal may be used. Provision must be made in the lid for the spoon handle which will protrude.

4. Design a small portable vice which can be secured to the corner of a table or bench, and which will be suitable for holding small articles to be worked. An example of its use would be in jewellery making.

5. Design and make a small turbine which can be driven by water, steam or air. Part of the working mechanism should be visible so that the turbine can be observed when working. The completed model would then make a useful visual aid for physics.

It is interesting to note that, of the 18 candidates, 6 attempted task 1, 4 attempted task 3, 3 each attempted tasks 4 and 5. Task 2 was not chosen. This may have been too difficult, or more likely candidates felt that they were too inexperienced in woodwork to attempt the pattern making. The majority of the less able candidates chose Question 1 perhaps because they thought this was the simplest to design, involving the least amount of work. They soon discovered how hard it was to arrange the wrought iron scrolls and decorations in a satisfying way. At this early stage none wanted to change his choice of topic, and in fact all went on to complete the task. Question 5 proved the most popular with the more intelligent candidates. The inventive nature of the question appealed to them.

All special tasks were completed on time with the exception of that of one boy, an able candidate, who thought that all could be done during the last few weeks. Despite continual prodding this boy put his effort in far too late. A further two candidates had difficulty in designing and with the execution of their design. Although they put in considerable effort, they lacked practical skill and intelligence. However, both candidates passed with a grade 4.

The question one might ask here is:—can pupils at this level really design and make things for themselves? The answer is yes, for the majority make good special tasks of which they were proud. Indeed, two 'D' stream boys managed to gain a grade 1 pass. Our entire technical studies course—woodwork, metalwork and technical drawing—emphasises the design approach through freehand drawing, not only in the last two years of the examination syllabus, but from when pupils first enter the workshops. As designers themselves, staff offer only limited advice during the designing and making of the special task. It would be wrong for them to allow a candidate to embark upon a term's examination practical work, knowing from their experience that the design he has chosen is just not feasible. The following written advice is offered to candidates along with their special task questions, to provide a foundation on which to build their ideas:—

> To design something which is both functional and pleasant in appearance is not an easy task. The following is a guide to help you achieve your final working drawing of the special task of your choice.

Drawing Sheet 1.

Having made a choice of special task, sketch in freehand three different designs of your model—keep in mind function and appearance.

Drawing Sheet 2.

Choose the best of your three designs (previous sheet) and make an enlarged and improved freehand drawing. At this stage of your design you will need working notes

and enlarged freehand drawings of parts, fittings, etc., (exploded views if necessary). This sheet should also show evidence of research, e.g. possible use of materials other than metal. Overall sizes should also be decided upon. A small mock-up of your model might also help at this stage.

Drawing Sheet 3.

By now the design (construction and appearance) of your special task should be established on paper (previous sheet) and firmly fixed in your mind. Using technical drawing instruments, make a full working drawing of your model. Your drawing should include elevations which are dimensioned, scale and enlarged drawings, and sectioned views where necessary. At this stage you will also have to think carefully about finished sizes and proportion. You should also include a numbered parts and cutting list neatly tabulated.

Such a planned design approach aids the candidates and enables us to mark in a more objective way.

Finally Part III of the examination—Course Work. This is based on assessment of course work made during the 4th and 5th years. In keeping with the general aims of the course much of the work will be of an experimental nature (in addition to traditional metalwork), e.g. group work, project work, and work based on an applied science and technology approach. Consequently candidates may be able to gain marks on their experimental failures as well as their successes.

How then does one establish a Mode 3 examination? At all stages the examination is assessed and moderated by the examination board. The intention to have a Mode 3 type examination must be made known to the board 2 years in advance. The aims of a course and the syllabus must be approved at this stage. The examination papers are sent to the board some six months before the date of the examination (this applies only to the written paper; the choice and timing of the special task is left in our case to our discretion). When the examination is completed the marked scripts and lists of final marks for all sections, with recommended grades, are sent to the board's chief examiner for moderation. Finally he attends school some weeks later and assesses a sample of the candidates' work, (both special task and course work). This sample represents a spread throughout the grade range. The moderator can alter recommended grades if he feels that an assessment has not been correct—he is not expected to vary orders of merit. I must point out here that this arrangement for external assessment and moderation does differ slightly between examination boards.

What are some of the advantages and disadvantages of a C.S.E. Mode 3 examination? The greatest problem is devising a course and syllabus which is acceptable to the examination board. They need convincing that one has a course for which they do not already provide in their Mode 1 syllabus. (Many of the Mode 1 syllabuses have changed considerably since their conception). In our case at Pool Hayes it may well be that some of our Mode 3 examinations in certain creative arts and design subjects are no longer necessary, since Mode 1 syllabus has moved more in line with our original examination requirements. If the improved Mode 1 syllabus is satisfactory

and leaves ample scope for the teacher and pupils to pursue their ideas, then there is no point in having an examination just for the sake of being different. It may well be that a Mode 2 examination will satisfy any disagreement he might have with Mode 1, leaving the experienced examiners of the board to set and mark an examination based on your syllabus.

Another disadvantage is the amount of work involved in maintaining a Mode 3 examination. However, as time goes on and one gains in experience the task does get easier. One of the most difficult tasks is devising questions which are appropriate and provide sufficient choice from your syllabus. The formulation of such questions is also an awkward task since one must give the least able equal opportunity to answer the question. However, moderators can help here, and offer constructive advice.

People sometimes ask, whether or not one is biased towards individuals when the examination is set and marked by oneself. This certainly could happen, even if subconsciously, but this is one of the things for which the moderators are on the lookout. Since our Mode 3 was something new to both the examination board and ourselves, we found that we were 'on show'. Consequently we were meticulous in our assessment, anxious to prove that our type of examination was equal to, if not better than, other modes. Perhaps at first we were too severe, awarding grade 2 passes when in fact, had pupils take a Mode 1 examination, they would probably gained a grade 1 pass. It is only now with experience and confidence that we feel we have a fair assessment of our pupils' examination success.

A further problem arises when teaching staff involved in a Mode 3 course of work leave the school for other appointments. To a certain extent the continuity of such a course does depend on a stable situation. However, in such cases, which will inevitably occur, the greatest obstacle will be overcome if the replacement member of staff is sympathetic towards the aims of the Mode 3 work. As time progresses such a member of staff will be able to influence the future of the Mode 3 course with his own ideas and teaching approach. This is possible of course since one is examining one's own work. Such an influx of new ideas is a great advantage because it helps to keep the Mode 3 course forward-looking.

Finally, there is an overwhelming advantage which outweighs all the disadvantages and hard work. It is the enthusiasm which pupils and staff have shown towards such an examination. Pupils, especially the least-able, have found the creative work in our courses rewarding. They have been provided with a situation which enables them to give of their best without the pressures and tensions of an entirely external examination. Creative work cannot seldom be completed in a satisfying way if a rigid time limit is put upon it successful completion.