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Moderators' Report/ Principal Moderator Feedback

June 2011

GCE Design and Technology: Graphics Product (6GR01) Paper 01 Portfolio of Creative Skills.

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Principal Moderator's Report for 6GR01 Design Technology: Graphic Products 2011

The work seen this year from the vast majority of centres was again appropriate and met the assessment requirements of the unit.
Almost all centres submitted work in three discernible sections, which were usually physically divided in one portfolio into product investigation, product development and product manufacture. This physical division of the sections often aided the candidates in recognizing the important differences in the individual assessments for each section.

Marking by teacher assessors was often acceptable, with centres apparently getting used to the requirements of the course and the demands of the board. Most marks were supported by appropriate annotation and this helped moderators when writing E9 feedback to centres.
Again moderators did not report any great administration problems coming from centres, beyond some addition errors, incorrect transfer of some marks to OPTEMS from CABs and some CABs not signed by teachers and candidates. Although there was a significant minority of centres submitting work on CAB's that are incorrect, these were previously obtained from Edexcel's website (later withdrawn as they have numeric errors on the assessment scheme). Please make sure in submitting any previously downloaded and saved CAB's that they do indeed have the correct marks listed in them and that the marks correlate to the assessment criteria in the CAB.
Some centres failed to label folders and pages clearly. This made the moderation process much more difficult for the moderators. Centres should ensure that each page in the portfolio is clearly labelled with candidate name and number, and title each page so it can be clearly connected with the relevant section of the coursework.
Electronic submissions must be in either PDF or PowerPoint formats, or we cannot guarantee them being seen. Each A3 page should be viewable in one without the need to zoom in to view individual words.

The problems in meeting the requirements for the highest assessment criteria centred on candidates who had not met the level of demand required for an AS level submission. The best work came from centres that introduced elements of choice and diversity into their tasks encouraging individual work that fulfilled course requirements but allowed candidates to express their skills and talents. Many centres adopted a formulaic approach where all candidates investigated the same product, were given a very prescriptive design brief and all produced the same manufacturing task, or all 'investigating' the same product. Where candidates are asked to investigate exactly the same product they often "share" information, which sometimes shows enormous similarities in content between candidates and can in severe cases be referred to the compliance department at Edexcel on malpractice grounds.

Product Investigation

The requirements of the Product Investigation element of the course are now more familiar to centres, the vast majority coping well with this section, producing commendable work. Most of the problems in this section still tended to be associated with the comparison of products that were too complex, or too similar.

On the whole this section was completed well with centres often using a template system to enable students to construct their thinking. There seemed to be more centres this year where all students studied the same products. Whilst this is recognised an easily managed system the work can often turn out to be formulaic and very similar. The utilisation of a wider range of products in the class for this part of the submission often helps the centre to discover different products, manufacturing techniques, and processes; thus in turn, extending the knowledge base for commercial manufacturing processes and aiding understanding for the unit 2 examination. This section was generally well presented by schools, and the majority of centres followed a similar pattern of presentation. Although I believe there should be far more use of photographs and images to help enhance the student work. Some centres still fail to submit an image of the product under investigation!

In situations of where the candidates failed to perform well, many did not select an effective second product, which was different enough to allow an informative comparison / contrast. This was a particular issue in this year's submission, with moderators seeing a rise in the number of comments that did not offer any comparisons to the initial product. It is difficult to justify marks allocated for a justified comparison, if the candidate is simply stating 'there is no alternative'; hence this is a bad comparison to use.

The use of ICT helped candidates to organise and manage their work. Although the wholesale copying of information and then pasting onto sheets is not helpful and we need centres to discourage this from the outset as the structure of the vocabulary and language used often stands out from other work submitted by the same candidate.

The best work was seen where candidates had disassembled products in order to analyse the component parts in detail or at the very least had used or handled the products. Some candidates used only photographs of products to investigate, which severely limited their experience in this section.

Again it is interesting to note how many centres submitted products that were not traditionally associated with Graphic Products, more so with resistant materials. Whilst this in itself would not be penalised, evaluating a graphic product does lend itself so well to the teaching of the associated graphic theory knowledge required for the examination. To disassemble a product such as a packaging item, allows openings for the investigation of plastic moulding, printing, card cutting etc.

Criterion A - Performance analysis

Most candidates were successful at accessing the bulk of the marks in this section; it is noticeable that the very highest mark range was again less easily accessed. Too many candidates still do not give sufficient detail to earn the maximum marks; they failed to justify their choices. A few still dealt in generic terms and some gave the information about the function etc. and failed to apply it to the chosen items. A large number of candidates fail to consider the commercial manufacturing process when justify the shape of products, tending to stick rather generically to the aesthetic or ergonomic properties.

The most successful scenario for the majority of candidates was to set the evidence out as described in the assessment criteria; form, function etc. and then go on to detail each of the elements and attribute them to the products to be compared.

The choice of a similar product to compare and contrast was again central to reaching the higher marks and many candidates failed to consider this fully, selecting products that were too similar such as a glass perfume bottle, compared to another make of glass perfume bottle. Where candidates pursued these very similar products, opportunities to compare and contrast them were minimal.

Criterion B – Materials and components

Although completed better than last year, there are still too many centres covering multiple materials in very generic terms rather than focusing on two different materials at the required depth. Many candidates missed out on the top marks by not directly relating the information to the product and too few used good technical terms for the materials properties, we still see materials such as ‘metal’ or ‘plastic’. A significant problem this year was the lack of engaging in evaluating the materials advantages and disadvantages, a specific requirement of the mark scheme. Alternative materials were usually suggested, however their justification again failed to focus on the specific material properties to do the job required of the product.

Sustainability was addressed by most candidates but often at a generalised or superficial level. Candidates sometimes failed to apply their analysis directly to their chosen product. When describing the environmental impact of using particular materials, the majority of responses were generic and superficial, usually mentioning energy use, depletion of resources and problems of disposal. A better focus would have been to consider extraction and processing of raw materials, processes when producing specific materials and disposal of specific products after their useful lifespan.

Criterion C – Manufacture

It was again, rarely a problem for a candidate to identify a manufacturing process, but it was increasingly uncommon to see that process fully justified in terms of the need for the process in the products manufacture. There were a large number of entries that settled on a description of the manufacturing processes, indeed often copying wholesale from text or internet sources rather than justifying why the choice had been made. We also saw an increase in the failure to offer advantages and disadvantages against the chosen processes in this section.

The majority of candidates dealt with the impact on the environment, although many again slipped into talking about the material rather than the process.

Criterion D – Quality

This part of the submission seemed to have improved on last year. Overall the centres were still tended to be lenient in this section. A good deal of candidates were merely writing about Quality Assurance (QA) and not applying it to their products. Many centres understand the need for candidates to understand why quality is important; however, candidates still need to relate quality issues directly to their project to ensure that this section is meaningful. Many candidates submitted overall QA systems; they very often offered specific standards that could be applied to their products. There appears to be a good understanding of how quality control (QC) would be implemented. The real improvements came when they directly related their comment to the product rather than talking in general terms, and explained how a control check would take place, not just when it would take place.

Product design

This section was considered the most disappointing part of the portfolio by the moderators this year. The work was often too formulaic and restricting, with candidates submitting work of a simplistic nature. Whilst work was seen at the highest end of the mark scheme, there was a lot of mediocre designing offered this year. The vast majority of centres setting topics that stayed within the safety zone of what they have been comfortable with in the past, or indeed adopting a resistant material approach to their designing.

A significant number of candidates had submitted work set from a group perspective, which in itself is not a problem. However some centres specified a formulaic approach to presentation which often stifled creativity. We saw fewer projects offering a 3d and 2d element (this is not required) and a fall in the number of multiple submissions in this area.

Criterion E - Design and development

The work submitted in this section was often simplistic and lacking in depth for this level. Body styling exercises were common and these failed to deal with the technical detail and sub-system design work required for mark at the highest level. The best all-round work came from candidates who added informed, succinct and useful annotation to designs, which demonstrated their understanding of materials and processes likely to be used in manufacture, and who presented summative evaluative statements focused on the set design criteria.

Development of a final design proposal varied from varied high quality explorations to an explanation of what manufacturing will take place for a given product. Good levels of credit were achieved by candidates where they understood that development meant ‘change’, and that they should illustrate this by bringing together the best or most appropriate features of their design ideas into a coherent and refined final design proposal that met all of the design criteria.

For successful development there should be evidence of the final design proposal having moved on from an original idea through the results of graphical exploration and evaluation. It is not acceptable to simply take an initial idea and make superficial or cosmetic changes to it and then present

it as a final developed proposal. Candidates should include as much detailed information on all aspects of their developed design as possible, as this is an opportunity to show knowledge and understanding of their design and make activities.
The use of modelling was almost always evident, but increasingly not as a developmental tool. Too often it was offered at the end of the process to 'prove' the final design would work. We ask the centres encourage candidates to use the models made to improve designs and move the design forward. Similarly where CAD was used often the final design was not significantly different from, or improved on, the early attempts. The best use of the CAD was to show clear changes and make realistic presentations of how the changes will work in the final product, then assess them and choose the way forward to the final design. A viable working drawing in orthographic was then invariably supported with an isometric derived from the orthographic.
The evaluation of this section was better completed than in previous years submissions, the work was often formally evaluated at the end, the designs were often evaluated as they progressed and centres often developed a formula approach to ensure this was completed. Evaluative comment can then accompany the development of the section and the specification be used to objectively evaluate at the end.

Criterion F - Communicate

Many candidates achieved good marks in this assessment section. Credit in this section can be gained from communication evidence throughout the design portfolio. However, the level of communication was very varied. Candidates, in some cases, had been coached to use a variety of media to good effect. The use of CAD was often of high quality and the vast majority of candidates demonstrated expert skills in using CAD programs they were familiar with. There was again too little evidence of candidates producing drawings and enough information for a skilled third party to manufacture a designed product. A disappointing feature of this section was again the widespread lack of basic drawing ability. It was obvious that some centres had spent time on developing skills in drawing and this was reflected in the work presented by their candidates, but in many other instances, drawing and sketching was weak and lacking in precision. The disappointing feature this year was the lack of quality annotation in this section. Candidates were consistently failing to demonstrate a real understanding of the design issues, or the detail that drives the real solution, to the kind of problems being tackled. Where candidates had offered design work for products of a commercial or industrial design nature they tended to largely overlook the needs of manufacturing processes or the assembly of products.

Product manufacture

Making was the most productive element for most candidates in eliciting marks and overall, some very good standards were presented, although a few centres allowed candidates to submit work that was barely of KS4 quality. Yet again even more centres submitted only a single product outcome, hence failing to demonstrate the range of processes and manufacturing techniques looked for. The most successful centres offered two product outcomes, often from different graphical pathways, i.e. architecture and packaging. Some had found demanding projects that allowed for a very wide range of skills in the single outcome, such as a board game. Centres are increasingly finding new technologies to assist with the manufacturing process and we see an increase in the use of CAM outputs every year. This must be balanced with other modelling skills and the candidates must produce a range of skills, not just repeat the same ones.

Criterion G – Production plan

This section was usually completed to a good standard. Detailed production plans of the manufactured product appeared in most folders, with clear evidence of tools/processes chosen. A significant number of centres do not offer a sequence of key deadlines. This is often most usefully delivered visa a Gantt chart, with broad deadlines offered for key components. A diary was often given as supporting evidence; although this did not support the assessment in this section it was useful as a guide for criterion H.
Detailed times were occasionally missing from the plans, often blocks of days, or lessons, were cited but considered too vague. We must see the candidates, in this section, using their understanding of materials and processes and not producing a record of manufacture; it must be planned in advance.

Criterion H - Making

Without doubt, this assessment section elicited the highest percentage of marks for most candidates from those available in any section. Many centres opted to set only one manufacturing task, which is acceptable. However, a significant number of these tasks used only a single material, which does not match the criteria for the higher levels of response despite being generously rewarded by centres. The assessment criterion states that a ‘range’ of appropriate materials must be selected and that candidates should work with a ‘variety’ of materials, processes and techniques. In order to fulfill these requirements, the use of at least two materials and processes must be evidenced. It is important to note that candidates for Graphic Products do not need to submit a 3 and 2d element for this submission, but where they did it no doubt supported the understanding of the theoretical elements involved in other parts of this course and can enhance the range of skills seen in this section.
The majority of centres embraced the ethos of this section and set manufacturing tasks that allowed candidates to experience a range of materials, processes and techniques, planned to develop skills that candidates could call upon when designing and making their A2 project, and some high quality outcomes were seen. Most centres

set two tasks and a few set three, which seemed to prove difficult to complete successfully in the time allowed.
Naturally there were occasions when the level of demand was wanting and candidates were thus unable to access the full range of marks. Where very tight single tasks were set and all candidates in a cohort were given the same detailed working drawing, cutting list and materials, the outcomes were often difficult to differentiate between unless high quality photographs showing individual skill levels were provided. In much of the work presented, there were opportunities for candidates to make manufacturing decisions, such as choice of materials from those available in a centre, choice of joining techniques, use of certain processes, finishes etc, which would have given candidates more ownership of their work and helped in differentiation.
The Level of accuracy and precision needs to be in-built to the project selected. Using a laser for cutting and printing did mean that some of the projects were unable to show a full range of skills and techniques. The work produced was unquestionably of a good quality, but this is not within the spirit of the course or the exam or demonstrating arrange of skills and processes. It is vital that centres control the range of skills utilised in the manufacturing section, in order that candidates demonstrate a range of manufacturing processes. A simplistic guide is 50/50.
Where candidates were given no choice of materials, for example when a task involved aluminium casting, they should still have an understanding of why that material was appropriate to the product under construction, i.e. good strength to weight ratio, printability, fluidity for moulding, good light conductivity, etc. This information should be offered as justification. Where it was carried out successfully, justification of selection was evidenced through annotation of photographs of making or in the plan for production. Where photographic evidence was shown of the making it made it much easier to credit a range of making skills, techniques and materials. Safety awareness was invariably demonstrated through statements within the schedule of making.

Criterion I – Testing

The submissions for this area were erratic in their quality; many candidates are still completing subjective evaluations and leaving the testing as a minor aspect. Centres need to be aware that a good range of tests should to be carried out and these clearly explained, justified and put into context. With many centres it was obvious that this section was a very last minute activity with third party testing being very superficially applied. To enable the evaluation and testing to take place with some value attached, it is worth the candidate putting together at the outset, a specification for the projects undertaken. Candidates then should apply tests to the specification points and use this data to inform their evaluation of the product manufactured. The majority of candidates failed to earn full marks as they carried out an evaluation solely from a personal stand-point. Where third parties were involved, often with a questionnaire, results were fuller and more interesting in that they usually carried a broader spectrum of comment.
The use of photographic evidence was invaluable at this stage and often conveyed the outcomes or experiences of testing at a glance. It was also a significant source of evidence of the use of 3rd party testing, where this had not been evident elsewhere in the portfolio.

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