Questions matter

A-level

Design and Technology: Product Design

7552/C NEA

Report on the Examination

7552
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Presentation and administration

Most students presented their work in a well organised and logical manner. In the most effective projects, students presented their work in sections under headings of the design criteria or colour coded their pages to highlight the criteria being covered. This is particularly useful for work covered under Sections A and E which can appear at various stages of the project.

Centres are reminded that the only acceptable formats for work submitted electronically are Microsoft PowerPoint and PDF files. When submitting electronic format folders some centres sent in files that were very large: if submitting as PDF files selecting a compressed format when saving helps. Centres need to ensure that pen drives containing electronic folders are clearly labelled and named.

Some students' folders exceeded the 45 pages recommended by AQA. This is more prevalent in electronic folders produced in PowerPoint that defaults to a font size and layout suitable for presentations. Students should change the default settings to reduce the font size and manage the layout of their pages more effectively.

During the moderation process students' work may be shared with senior moderators electronically. If work produced in Power Point is a file size that is too large it may be converted into a PDF file which will remove any video files from the presentation. Students should not embed video files in PowerPoint presentations but include them as clearly labelled separate files.

Most of the Candidate Record Forms submitted featured detailed annotations from teachers which helped to clarify the marking criteria. Regrettably, several centres did not complete the Candidate Record Forms which significantly impedes the moderation procedure. Centres are asked to ensure that there are clear photographs of the final prototype included in the work.

Students' work should be labelled in the following format: 7552C_Candidate number_Centre number

Section A: Identify and investigate design possibilities

Student responses to this section are improving and following the requirements of the specification more closely. Selecting a broad context and working with a real client helps students to fully understand the needs and challenges of their proposed work.

The quality of the research work carried out by students varies considerably with higher scoring students including a greater proportion of primary research work and analysing it effectively. The research should appear throughout the project in the sections where it is relevant. Fewer students are including generic materials and process research at the start of the project; this often bears little relevance to the materials and processes used in the production of the final prototype. Materials research is best located in the development section once the students have focussed their design ideas more fully.

Students are employing a broad range of primary research methods such as interviews with prospective customers, focus groups, observation of similar products being used by the client, disassembly of similar products (identifying useful features/components, materials and construction techniques), measuring of relevant components (circuit boards, bulbs/fittings, speakers, screws, rivets and any other standard components), site/shop visits, eg analysis of where a product might be used.

Effective use of secondary research can supplement the primary research findings. When looking at design movements only those designers and design movements that directly stem from discussions with the client should be featured. Mood boards should be annotated to explain their relevance to the development of the design and how the students have found the images useful. When using ergonomic and anthropometric data measuring the client and relating this to the existing data can be useful.

Students are now including a range of creative and imaginative conceptual ideas in their work. These can be produced using a variety of different techniques such as modelling and sketching. These first concepts should demonstrate the student's initial thinking on the ideas, and be as imaginative and creative as possible.

Section B: Producing a design brief and specification

The design brief should clearly state the requirements of the prototype that they are going to make and include a description of how the product will help resolve the issues discussed during client interviews. The brief should be challenging and relate to the context that they have chosen.

It was good to note that fewer students are using set formats for specification writing and are developing their own criteria. Students should use their research work to justify the criteria that they have chosen for their specification. Whenever possible students should use criteria that are measurable such as size, weight and anthropometric data in their criteria.

Many students included Gantt charts to demonstrate project and time management aspects of this section. These are most successful if they are updated throughout the project with explanations as to why certain targets were met or missed.

Section C: Development of design proposals

When this section was treated imaginatively and approached with an open mind about possible outcomes students scored well. Higher scoring students considered a variety of designs which were subsequently refined through sketching and modelled in suitable materials. Students who considered a range of materials and construction techniques that could be used to create the designs, resulting in a variation in form and shape, did well. Testing different materials and construction processes can be used to support the practical skills demonstrated in Section D.

Students with lower scores tended to be too linear in their approach to design and had predetermined ideas about what they wanted to build. Models were essentially undeveloped three-dimensional copies of their drawn product. When developing their final product, students must demonstrate that they took into account a variety of designs, materials, and procedures, and provide a comprehensive explanation for all the choices they make. The client should be actively involved in the development process from the beginning, providing input on early designs, modelling, and final design production.

Compared to previous years, it was encouraging to see that a higher percentage of students submitted a dimensioned working/orthographic drawing. Individual component drawings were often utilised to display finer details for complex products with numerous parts. It was great to see the widespread use of rendered final designs and exploded drawings. Most students now use CAD in some capacity, either throughout the design process or for the final presentation.

Students are also required to produce a detailed manufacturing plan. This should outline each step of the making process including information on the tools/equipment, materials and components, quality assurance, health and safety and time.

Section D: Development of design prototypes

As usual there was a vast range of challenging, high-quality prototypes manufactured. Although this section was accurately marked by most centres, several centres over rewarded practical outcomes that were constructed using simple manufacturing techniques, lacking the complexity and rigour required at this level.

If the final prototype is going to be manufactured solely using Computer Aided Manufacturing techniques, such as 3D printers and laser cutters, it is vital that the students have experimented with a range of hand and conventional machines during the modelling phase of the development. Many students have relied too heavily on CAM techniques which will limit their scores in this section.

During the construction of the prototype the student can use the opportunity to carry out further tests on the prototype during manufacture and gain further feedback from the client.

This section allows for the crediting of the practical abilities and procedures employed during the Section A and C to research which were the most appropriate for use in the project.

Section E: Analysis and evaluation

Evaluation should be an ongoing feature of the work, with formal evaluation involving the client occurring after the initial ideas, development, modelling, final design, and final prototype. Informal evaluation can occur at any point of the project and may involve the client, when necessary, in supporting design/prototype development. A number of students highlight the ongoing evaluation by adding it in a colour coded text box to emphasise it.

Most students are evaluating their final prototype against the specification reasonably successfully. They need to analyse how effectively their prototype meets the specification criteria and why.

Adding detailed photos of the prototype being tested and showing how it could be improved is very useful in this section. Proposing and sketching out how the product could be further modified supports higher level marks in this section.

Describing how the prototype could be commercially produced was often covered superficially. For example, stating that the prototype would be manufactured on a CNC machine, with a downloaded picture, is unlikely to score highly. Explaining why a manufacturing process has been chosen from a range of different commercial processes would be a more successful approach.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the Results Statistics page of the AQA Website.