A-LEVEL
DESIGN AND TECHNOLOGY: PRODUCT DESIGN

7552/C: Non-exam assessment
Report on the Examination

7552
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General

In this first year of the NEA for this specification, moderators have seen some excellent work where students have chosen their own context and then explored it in some detail before identifying a design problem. The most successful projects have been where there was a client with a particular need related to the context. In such projects, the students were able to use the client all through the design process; in research, reviewing design ideas, evaluating models and in testing iterations of the prototype.

Presentation

Projects were generally well organised and in the most effective examples students presented their work in sections under headings of the design criteria. Many students used electronic folders and often they would include video to show prototypes being tested. The number of A3 sheets that students completed often exceeded the 45 recommended by AQA. This could be significantly reduced with more careful use of sheet space and removing superfluous, irrelevant material, particularly from the investigation.

In most cases, students provided very good evidence of modelling and making through clear photographs which greatly assisted moderation. Best practice was where students used clear/large photographs and notes to show the skills and complexity of manufacture in the manufacturing process. Unfortunately, these were sometimes too small to see clearly.

Where students were given the freedom to present their work in whatever format they wished, moderators saw some excellent practice. This included the use of overlays, pull-outs and drawings communicated with a range of media such as marker pen and CAD rendering. This year, students made excellent use of CAD software to produce photo realistic renderings, dimensioned and assembly drawings.

Candidate Record Forms were well annotated by assessors which was helpful to show how the work was assessed.

Section A: Identify and investigate design possibilities

Students at A-level chose their own context. In the most effective examples, they explored this context in some detail and identified several potential design problems. This would then lead to further research before they chose one to follow. However, the majority of students started their project with a design problem that was preconceived and they did not explore other possibilities relevant to the context.

Investigation was most effective when the student worked with a client and or potential users. Often this involved interviewing the client and identifying their needs. Other useful primary research included analyses of a specific location where the product might be used. This would include taking measurements and photographs. Students would also carry out a ‘problem analysis’ by observing the client using an existing product. In addition, students would often disassemble existing products to identify useful features or potential for improvement and carry out relevant research into anthropometrics. Some projects unfortunately had far too much secondary research sourced from the internet, which was often not relevant.

In this section, students also scored well where they presented a wide range of design ideas that were relevant to the context and problem. In the most effective examples, these were presented with analytical comment. In addition, there was an opportunity for students to generate evidence for section E by analysing their research and using the information to formulate the brief and specification.

Section B: Producing a design brief and specification

The most successful design briefs were the result of carrying out a thorough investigation of the context and design problem. Typically, they included a statement of the problem, what was to be designed and prototyped and some of the key criteria that needed to be considered in the development of the prototype. Unfortunately, many design briefs were not clearly linked to the research that students had carried out.

Where students had carried out thorough investigation, they were able to produce detailed design specifications. This included a range of measurable criteria that design ideas can be evaluated against and prototypes tested. The most effective specifications were fully explained with the criteria justified.

However in many cases, students did not write particularly detailed specifications. Often, important criteria such as size constraints were missing or the function of the product was vague.

Section C: Development of design proposals

In this section, students had an ideal opportunity to score marks for section E by analysing and evaluating their design ideas. Best practice was to carry out a design review by comparing design ideas against their specification and by using feedback from a client. This would lead to selecting a design to develop.

The most successful projects included development through sketching and modelling (often on the same sheet) together with CAD drawing. Some students sketched design modifications over CAD drawings and photos of models. Development drawing and modelling was enhanced with ongoing research and experimentation with materials and construction methods. Higher mark bands were accessed where students justified their selection of materials/construction methods. Again, there were further opportunities for students to use client feedback in making decisions about their developed design. Many students highlighted this feedback on their design sheets.

It is very pleasing to note that, at this level, students were producing several models using a range of materials and techniques. Modelling was used as an iterative design tool and not just a box ticking exercise.

Once students had developed their design, the most effective responses included at least one working drawing with dimensions. Some centres made excellent use of general arrangement drawings which detailed each part, specifying sizes, materials and finishes. Others produced a manufacturing specification and detailed manufacturing plans.

Section D: Development of design prototypes

The most successful projects made excellent use of photographs and notes to show the complexity of their prototype and the skills used. Where students had a client, they sometimes used them to test prototypes in the development process and then feedback was used in further iteration. Some students made scale models or first attempts, tested them and used their findings to make decisions on their making of the final prototype.
The use of test pieces to evaluate construction methods is inconsistent.

As 3D printing is becoming more accessible, it is used to really good effect in making component parts for prototypes as well as modelling. Students who solely relied upon using CAM for making their prototypes generally did not score as well as those who combined it with hand and manual machining processes. Where students used a range of materials and components, they were usually able to demonstrate a wider range of skills and add more complexity to their work.

Section E: Analysis and Evaluation

As already described, students have many opportunities to produce evidence of ongoing analysis and evaluation. Students who used a client or potential users in reviewing their design ideas, models and prototype iterations were able to readily access marks for section E. Where students compared their designs against the specification and evaluated test pieces in the development process, they were able to gain marks for ongoing analysis.

In summative evaluation, students usually completed a thorough comparison of their prototype against the specification. The most effective projects tested the prototypes in their intended environments and they were given a critical analysis by their client or potential users. Using feedback from testing, students would sketch and describe modifications for their prototype. Finally, commercial manufacture would be considered and most successful responses showed how the design would be modified for making in larger volumes. Some students misinterpreted this and just described equipment that could be used to manufacture the prototype, or simply made vague references to batch or mass production. Where students used electronic folders, many produced video to show the prototype being tested. They were also used to show accuracy of construction and quality of finish.

Mark Ranges and Award of Grades

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