OCR
Oxford Cambridge and RSA

A LEVEL

Delivery Guide

DESIGN AND TECHNOLOGY

H404, H405, H406
For first teaching in 2017

Topic Area 1:
Identifying requirements – Product Design

Version 1

TOPIC AREA 1: IDENTIFYING REQUIREMENTS – PRODUCT DESIGN

Contents

Introduction

A LEVEL
DESIGN AND TECHNOLOGY

A guide to approaching the teaching of the content related to Topic Area 1: Identifying requirements – Product Design

Delivery guides are designed to represent a body of knowledge about teaching a particular topic and contain:

- **Content:** A clear outline of the content covered by the delivery guide;
- **Thinking Conceptually:** Expert guidance on the key concepts involved, common difficulties learners may have, approaches to teaching that can help learners understand these concepts and how this topic links conceptually to other areas of the subject;
- **Thinking Contextually:** A range of suggested teaching activities using a variety of themes so that different activities can be selected which best suit particular classes, learning styles or teaching approaches.

If you have any feedback on this Delivery Guide or suggestions for other resources you would like OCR to develop, please email resources.feedback@ocr.org.uk

Link to qualification:

http://www.ocr.org.uk/qualifications/as-a-level-gce-design-and-technology-h004-h006-h404-h406-from-2017/

DISCLAIMER

This resource was designed using the most up to date information from the specification at the time it was published. Specifications are updated over time, which means there may be contradictions between the resource and the specification, therefore please use the information on the latest specification at all times. If you do notice a discrepancy please contact us on the following email address: resources.feedback@ocr.org.uk

Specification content (Sub Topic 1)

Sub Topic 1: Exploring Contexts

Exam content

1.1   What can be learnt by exploring contexts that design solutions are intended for?

    a.   Understand that all design practice is context dependent and that investigations are required to identify what makes a context distinct in relation to:

        i.   environment and surroundings

        ii.   user requirements

        iii. economic and market considerations product opportunities.

NEA content

    a.   Understand methods of investigating and analysing contexts in order to identify problems and opportunities that offer potential for an innovative design solution.

Thinking conceptually

General approaches:

Good practice for product design comes from learners basing their decision-making on both real-world contextual environments and the user. Understanding how environmental issues geographically and logistically effect the user's interaction with a given product is an area in which learners should be exposed to as early in the GCE as possible. Evidently environmental concerns can be as local as the conditions of a product used in a single place, such as a toaster or as wide as a product used in multiple places to undertake a number of functions, such as a mobile phone. Each presents different challenges, but learners who use astute analysis to determine what impacts these environments may have will likely be able to better solve/foresee problems that arise and evidence more creative thinking.

Once learners embed consideration of environmental contextual issues into their design solutions, they should then move on to identifying and understanding stakeholder requirements and how the environment of use often dictates how a product is used or how the core functions it must perform. Learners often look at environmental contextual issues at a very superficial level. For instance, a learners could look at a laptop computer and identify that the user interacts with the product via a screen using key strokes and by moving the mouse to navigate the product. From this, they could infer that a good quality screen, comfortable keyboard and easy to use mouse are likely to be the core requirements. However, a learner performing a higher level analysis will identify a far more wide reaching range of environmental contextual issues for all stakeholders. For example, that the product is likely to be used away from home, it will need a range of connectivity, be lightweight and they will also consider how the laptop can be carried, where it will sit in relation to the user, how it can be powered both at home and when out in use and how it can be stored. This will bring about a greater understanding of the core requirements, especially when all stakeholders, including the manufacturer, retailer etc. are taken into account.

The NEA coursework requires learners to plan and implement an iterative design scenario. The best results here will be from using real-life issues, scenarios and contexts to allow learners to effectively construct a viable project brief and then follow this through an iterative process which leads to a user focused final outcome which meets stakeholder requirements. Fundamentally, the learner engaging in this task should take an analytical and highly inquisitive approach; aiming to think laterally about a product and all facets of the user experience. Their in-depth understanding of the issues surrounding the product will help feasibility analysis which follows.

Common misconceptions or difficulties learners may have:

Learners sometimes do not understand or appreciate the full range of stakeholders who have a vested interest in a given product. They consider a specific person or target market (often the end user) and fail to consider stakeholders like manufacturers, retailers, governmental organisations, suppliers, creditors, etc.

In the previous D&T specifications a client was required which brought challenges for learners in securing a client with the required knowledge and understanding. Learners often failed to understand the inherent benefits of the expertise brought by a client. While still highly beneficial, a range of appropriate stakeholders is likely to meet learner needs for feedback and professional guidance. Learners should be pro-active in contacting and securing a range of appropriate stakeholders rather than simply opting for friends and family who can provide little specialist knowledge and judgements.

In exploring contexts, learners may allow their own agenda or preconceived ideas to colour their responses. This can lead to them misinterpreting or adding bias to a given view point or information. In a real-world context, this could become a tangible problem which could heavily impact on the success of a given product. As such, learners should be guided towards an honest approach with an open mind-set and a willingness to adapt ideas to overcome the real problems facing the design proposal.

Learners often encounter problems in choosing a project or product area for the NEA. It would indeed be beneficial for the teacher to provide guidance here. This is likely to be formed by a range of exemplar projects and previously considered project outlines. In addition to this, the teacher is essential in helping pick projects which meet appropriate levels of rigor and will need to guide all levels of learners towards projects which will showcase their skill sets whilst meeting all NEA requirements within the given time frame.

Conceptual links to other areas of the specification – useful ways to approach this topic to set learners up for topics later in the course:

2.a. 2.b. 2.c. 2d. The contextual details and explorations will allow the learners to better undertake feasibility analysis. The more fully they understand the background and environmental contexts, the more likely they will be to analyse products in the broadest sense and identify the reasons for them being purposed in a given way.

3.a. Environmental contextual issues will have a wide reaching impact on the designing of products and will be present within the 'Implications of wider issues' section. A broad approach to the contextual environmental issues can help the introduction of a range of key content so learners are considering these impacts from an early stage of the course.

Thinking contextually

Learners can be encouraged to look at a wide range of projects and should start considering the context of products' uses, particularly in terms of its environment, early on. One example of this can be seen in the exemplar Potato Peeler induction project. Learners are asked to use a peeler and determine key needs of the user. They then interact with the product as an aging user (utilising surgical tape to bind fingers and fogged goggles to help simulate the experience). Role play of user needs can help learners' understanding of how others interact with the world around them and the unique challenges they may encounter. As such, they should be able to identify the core requirements for the product from a User Centred Design (UCD) perspective and determine a hierarchy of needs. This can be further rolled out with learners playing the role of other stakeholders. Learners are likely to gain most from this and engage in a more meaningful debate if they have access to resources such as pre-prepared flash cards, outlining questions and possible viewpoints or priorities.

Learners should become practiced in identifying and interacting with stakeholders. Learners could, within projects, complete a short exercise in identifying who the key stakeholders will be. This will need teacher-led input in early projects, but should become something learners can undertake independently later on, due to the often repeated groups with a vested interest. Once identified, teachers can play the role of a stakeholder to get learners used to asking questions. This will help them when interacting with various stakeholders, particularly in terms of planning questions and key interactions throughout the NEA project they undertake.

LCA (Lifecycle Analysis) can be a useful tool in introducing learners to the ideas behind wider contextual needs. This will introduce them to processes and groups involved in the design, manufacture, retail, use and disposal of the product. Each area that is highlighted could then be analysed as a bespoke aspect, looking for potential influence or impacts on feasibility studies to be carried out in preparation for understanding the viability of various products.

To learn to fully explore contexts, learners can be given a range of short tasks to identify the context of use of products or from the context of a problem. Teachers can find issues highlighted in the media, a given stakeholder, or identified by a learner and engage the learners in discussion as to the real issues at the heart of the problem. This will allow the introduction of the concept of bias, market pull, legislation and how these issues can be managed within a design problem context.

Learner Resources – Activities

Title	Organisation/ Company	Web link	Summary description	Additional description detail	Relevant chapter (i.e. Content, Thinking Conceptually, Thinking Contextually)	Mapping to specification level
Story of Electronics	Story of Stuff Project	https://www.youtube.com/watch?v=sW_7i6T_H78&t=193s	YouTube video showing the impacts of electronic products. This will help lifecycle analysis and help learners to think more broadly, beyond the obvious life of a product.	Links closely to Implications of wider issues.	Thinking Contextually	1.a-d 2.a 3 a-c
Stakeholder analysis	Forklar miglige	https://www.youtube.com/watch?v=sV8uMPhcsuw	The purpose of performing a stakeholder analysis is to provide the project manager and project team with an overview of the people who have interest in the project. The model provides an overview of how much stakeholders will be affected by the project and how much influence they have on the project.		Thinking Contextually	1.2a
Lifecycle Analyses (LCA)	Beiersdorf Channel	https://www.youtube.com/watch?v=6RNnzfUHwY8	Beiersdorf uses LCA to assess and reduce the environmental impact associated with all stages of a product's lifecycle. The model we use, considers inputs and impacts across raw materials, our own production processes, transportation, product use, recycling and disposal.		Content	1.1a, 2.3a, 3.1a
Lifecycle Assessment: GORE-TEX® Footwear	GORE-TEX® Products	https://www.youtube.com/watch?v=iD-m6qBij8Q	Gore uses the Lifecycle Assessment (LCA) as an ecological evaluation tool. LCA is the most sophisticated standard method of assessing the total environmental influences of a finished product from manufacturing raw materials to its final disposal ('from cradle to grave').		Content	1.1a, 2.3a, 3.1a

Learner Activity

Identifying and understanding stakeholder requirements

Introduction

In groups, select a product.

The activity

Learners will need a range of products to analyse first-hand.

Learners will build a stakeholder profile by asking focus group style questions (examples listed below) and record the responses regarding the specific product and/or scenario. You may include the following points:

1. Describe the types of person who fit the description of a typical user of the product.

2. What is the age range of potential customers?

3. Are potential customers likely to be male or female or does gender matter?

4. Where are they likely to use the product?

5. What are the most likely issues for stakeholders?

6. What are the general likes /dislikes of potential customers?

7. What does a typical customer want from the product?

8. What are the most common design requirements shared by your stakeholders?

9. Does the cost of your product influence a customer's decision to buy a particular brand?

10. What factors are your potential customers likely to consider before purchasing your product?

11. How will potential customers find out about the product being sold?

12. List all the ways in which contact can be made with your potential customers.

Extension activities/questions:

This can be repeated with a variety of fundamentally different products or by prescribing a stakeholder market group – for instance: an aging population, teenagers, users with motor-control issues, etc…

Specification content (Sub Topic 2)

Sub Topic 2: Exploring and analysing the needs, wants and interests of primary users and wider stakeholders

Exam content

1.2   What can be learnt by undertaking stakeholder analysis?

a.   Demonstrate an understanding of methods used for investigating stakeholder requirements, such as:

- user-centred design and stakeholder analysis
- SWOT analysis
- focus groups
- qualitative observations
- market research to identify gaps for new products or opportunities to update existing products.

b.   Demonstrate an understanding of how enterprise can help drive the development of new product ideas through routes to innovation such as:

- entrepreneurship
- commercial partnerships
- venture capitalists and crowd funding websites.

1.3   How can usability be considered when designing prototypes?

a.   Learners should be able to analyse and evaluate factors that may need consideration in relation to the user interaction of a design solution, including:

i.   the impact of a solution on a user's lifestyle

ii.   the ease of use and inclusivity of products

iii.   ergonomic considerations and anthropometric data to support ease of use

iv.   aesthetic considerations.

b.   Demonstrate an understanding of the ergonomic factors that may need considering when developing engineered products, including:

i.   anthropometric data to help define design parameters associated with the human body

ii.   user comfort, layout of controls, software user-interface.

NEA content

a.   **Understand the central importance of obtaining and taking account of the needs, wants, values and views of users and stakeholders throughout the iterative design processes.**

b.   **Be able to identify and state user and stakeholder requirements in a form that will direct, inform and offer the opportunity for reflection of their designing and making progress throughout the design process.**

Thinking conceptually

General approaches:

Feasibility analysis forms an intrinsic part of any product development. Teachers should aim to ensure that learners are involved in the feasibility process from the outset of the course. The ability for them to identify stakeholders, key requirements, threats and opportunities within any project they are about to embark upon will be extremely beneficial for their NEA project.

Learners will need to follow a process that allows them to analytically, understand the needs of the stakeholders for any given product. This will encompass a wide range of product contextual features, from environment through to user-interface and ergonomic interaction. Underpinning all analysis here is user experience and how this can be tailored to improve the product or create a better way of meeting needs. Learners should be able to determine not only beneficial changes, but also to identify where their actions or omissions create concerns or problems for stakeholders.

There are numerous ways to approach feasibility studies. Engaging learners with a breadth of styles will encourage them to understand flaws and limitations, while also allowing them the opportunity to understand time implications for undertaking them. Below are a range of different approaches to feasibility that can be undertaken. It should be noted that while these can be used as bespoke approaches, that a fuller, more rounded response can be achieved by integrated a variety of approaches to cover all facets of the contextual issues.

Learners should be able to understand the pros and cons for each:

- **SWOT analysis**
- **UCD (User Centred Design)**
- **Task Analysis**
- **Comprehensive Feasibility study**

SWOT

SWOT analysis is well known and often used to undertake analysis of potential projects and is quick to implement. Covering Strengths, Weaknesses, Opportunities and Threats it can enable learners to rapidly understand where their proposed project sits within a market context and will allow stakeholder feedback to be assimilated and broken down into useable needs or issues to address. However, due to only four main foci, the system often fails to address all the issues at hand and is often leads to missed opportunities. Learners will often input generic statements or counter strengths and weaknesses directly leading to overarching outcomes which are bland or mediocre and lead to no distinct actions or conclusions.

UCD

User Centred Design should be at the heart of learners' design solutions and can be hugely beneficial to avoid designing in isolation or, for the learners' own priorities or skill sets, limit/determine responses. The UCD methodology involves learners comprehensively engaging with end users and using their regular on-going feedback to support iterations and generations of design refinements towards a highly polished final outcome. Issues surrounding UCD often come from learner perception that it is hard to identify, contact and interact with real-world users. Learners should be guided in this process and introduced to it early on, to fully understand its wide reaching benefits. See Approaches to teaching the content to help with embedding into teaching.

Task Analysis

A very common approach to Feasibility analysis. Task Analysis can be used as a very effective tool when used to identify and unpick key topics. Best results often come when they result in solid conclusions that address and breakdown areas supporting the identification of dependencies or possible approaches. Followed by analysing areas of weakness or gaps in learner knowledge to inform next steps and generate a path forward, can make it a very useful document. Issues to be aware of are that generic, unfocused Task Analysis often leads to meaningless documents. Additionally, without a framework or extensive practice, the wide breadth of possibilities can be hard for learners to access.

Comprehensive Feasibility study

Often a bespoke approach can cover more aspects and can ensure that the study is tailored to the product in question. This will likely take elements from approaches outlined above and is often best put in place using a framework which incorporates key criteria for success, ranking of issues, planning, the identification of gaps in knowledge and the relative strengths and weaknesses of the proposed concept. More comprehensive studies often take a lot longer to undertake and at times can leave aspects unanswered; the learner's ability to problem solve at this stage can determine the pace at which they make progress with the study as a starting point.

Common misconceptions or difficulties learners may have:

Learners can become fixated on certain outcomes or are impacted upon by prior learning and lack the ability to think more widely about concepts. This will sometimes mean that learners will make assumptions or allow preconceived concepts to dictate contextual findings and miss opportunities for creative outcomes or unexpected thinking. Learners should be guided to help them understand that an honest approach will prove beneficial in terms of meeting stakeholder requirements and needs.

Thinking conceptually

A Level learners will, on occasion, actively avoid engaging with aspects which they consider to involve a greater level of personal effort. The use of real-life stakeholders will be fundamentally beneficial to the process and should be championed to support the process of on-going UCD. Learner experience should be such that they see the clear value of stakeholder feedback to the design process and the positive impacts it has throughout the iterative process.

See the various problems outlined for each of the general approaches.

Without sufficient guidance or learners thoroughly considering the contextual implications, they may pursue a project based around a flawed viability model. The feasibility study of an idea is fundamental in terms of learners identifying problems and challenges with the product choice in the NEA. In some instances, it seems likely that they will identify that the product is a non-starter and, as such, will need to consider other avenues. It should be noted that ideas which don't meet requirements for the NEA, can still be evidenced within the exploration stages of the NEA and can add to 'Explore' marks.

Conceptual links to other areas of the specification – useful ways to approach this topic to set learners up for topics later in the course:

Conceptually, accurate and in-depth feasibility analysis allows learners to determine if their project ideas are realistic and viable. It should allow them to understand threats and aspects that need further consideration. If managed correctly, the feasibility sets up the whole project that follows and will allow the learner to plan and map out its structure and fundamental goals critical to the success of the project.

Repeated practice and an honest approach allows learners to benefit from findings through their projects.

Thinking contextually

Learners can be introduced to feasibility early on in the course. Using an induction project which requires learners to identify, engage with (or simulate engagement), and undertake feasibility analysis which then leads to a design brief, is a good way to embed best practice. As outlined above, feasibility analysis can be undertaken in various different ways which can be introduced gradually; ramping up in terms of rigor and depth.

Undertaking standalone feasibility studies into a broad range of products is a fairly quick way to up-skill learners. This could be set as homework and run through the range of feasibility study options laid out in the '**General approaches section'**. Learners can then compare these approaches and determine where they have strengths and weaknesses to better understand the range of responses and the options they give for proceeding into a meaningful design brief and product iteration process.

Learners should be encouraged to plan the feasibility of projects from a wide range of positions to help their understanding of stakeholder requirements. This can easily be achieved by tasking learners to plan/consider the viability of a product, while taking into account commercial considerations as well as the intended user. They could consider how viable a product is from the viewpoint of an entrepreneur or from a crowdfunding website and consider pitfalls and issues. To cover ground more quickly, learners could be grouped and given roles to understand. Short presentations and a review would help all learners have a wider perspective from the conception of a product.

Setting a UCD task, where the product in question is used by the learner demographic, is ideal to give learners the opportunity for realistic and considered responses to a product. These tactile interactions can help learners' understanding and considering ergonomic, inclusive, aesthetic issues from a user point of view. Recording the responses from this type of task will allow learners to reflect on the feedback. Responses could come from a variety of learners and their experience of a given product. Learners can then use their 'stakeholder' feedback to plan and implement a design brief. When this is used to undertake an iterative design process, the learners can then review the successes and consider if they are meeting UCD needs. Further through the process, the tactile interaction can take place again and the iterations can be reviewed and a new set of goals and modifications can be set while still meeting the core requirements set out in the original brief.

Learner Resources – Activities

Title	Organisation/ Company	Web link	Summary description	Additional description detail	Relevant chapter (i.e. Content, Thinking Conceptually, Thinking Contextually)	Mapping to specification level
EXAMPLE **Pandemic and Plague inc.**	Pandemic	http://pandemic3.com/	These resources are video games built on simulations of epidemic disease spread. They both allow learners to create pathogens and see how specific mutations affect the spread of the disease.	Pandemic allows game play at two levels (Relaxed and Realistic) and gives the learners the choice of a range of pathogens with which they can try and cause a pandemic across the world in a short time frame. The instructional guide allows the participation of learners with less experience in computer gaming to try and infect the world with their pathogen.	Thinking Contextually	3.2.3 (a)
Ergonomics and Design	MisterRolls	https://www.youtube.com/watch?v=LAKImdMHpdE&list=PL7M35dpw3U3B1Qc9hZ6OyPyOSnCjR4Q9h&index=1	Video that explains the need to consider ergonomics when designing for comfortable human use.		Content	1.2a, 1.3a, 1.3b, 6.a, 6.b

Learner Activity

Ergonomic requirements identification

Introduction

In groups, select a member to be the 'User'. Use the product and discuss what requirements there are for the ergonomics. Others will ask open questions to aid the process.

Now simulate the use of the product through interaction/simulation to generate discussion as to the relevant ergonomic requirements.

The activity

Learners will require access to Carabineers, rope, thick gloves and fogged goggles or safety specs.

The product should be analysed by learners and discuss what sizes it should be if used for climbing.

Then one learner will then put on the gloves and specs and simulate the use of a climbing scenario. Using the rope and carabineer in white out conditions. Other learners will discuss problems in use and what changes could be made to improve the ergonomics of the product for this specific use.

Learners should compare the results and discuss how the results differ and if two separate products are needed or whether one can be adapted to meet all needs.

Extension activities/questions:

User groups can be changed and adapted to consider differing users. For instance, aging users can be simulated by using fogged protective specs and surgical tape to tape fingers together. This will open up differing questions and design opportunities.

Specification content (Sub Topic 3)

Sub Topic 3: Writing a design brief

NEA content

b.   Be able to develop and prioritise specific issues identified for attention in order to produce a design brief and determine the next steps for design development.

Thinking conceptually

General approaches:

A design brief will form a vital part of the contextual exploration of the project. It should be in place to highlight core intent and what constitutes the overriding requirements to make the product a success in terms of stakeholder requirements. It should primarily centre on goals for the project and include enough detail so that there is structure for the project to follow. The brief should focus on the intended objectives of the project and in doing so learners should consider aspects that will likely cover the following content:

- **The design problem – objectives, goals and key priorities**
- **The user requirements – what they want the product to do/be**
- **Competition, market trends, advances in technology and existing product threats**
- **Understanding of the Target Market**

An intrinsic part of making a design brief that ensures that learners can approach problems from different directions is to lay out questions in the right context. Learners should be taught that questions can play an active role within the project brief. Learners should be introduced to setting statements in briefs which ask, 'What' can be addressed rather than 'How'. This will avoid pre-planned outcomes dominating a learner's response and thus reduce the chances of them narrowing the range of approaches to the problem that could exist.

Project management can form a discrete part of the brief and may include time and cost considerations which will support short term goals and target-setting in terms of the outcome. However, these should not form a fundamental part of the key criteria for the brief, as again, this can reduce creative methodologies.

Creating a design brief which is open and allows for creative responses is vital if it is to allow scope for innovation. The way learners' structure written language within the brief is crucial, in terms of the final outcomes and opportunities which open up the potential for an imaginative iterative design process. For example, a brief stating 'A new design is needed to allow elderly users with arthritis to use a potato peeler. To meet this need the product will be easy to hold and large enough to grip in one hand.' Whilst contextual, this is highly likely to lead to a bland and unimaginative design solution, which follows a very linear route and precludes a lot of iterative design opportunities. However, restructuring the brief and using more open ended statements can lead to a greater breadth of design options. A better statement within the brief would be 'To allow elderly users to peel vegetables a product is needed that will avoid or reduce discomfort from arthritis or similar issues impeding motor skills.'

While the brief should not be prescriptive and confine the learner to a linear approach, it is important that the statements within it are not lacking in clarity. Learners should identify key requirements of the product, as this will give them guidance and focus as to what the most important research topics are and allow them a framework within which they ensure they make timely, meaningful progress.

Common misconceptions or difficulties learners may have:

Design briefs can often become unwieldy and unfocused. This can be due to learners trying to cover too much ground within the brief and causing the clarity to be lost within rambling prose. It can also be unfocused or lack clarity if sufficient work has not been carried out in the contextual analysis of the problems/product during the feasibility stage.

Learners often struggle to determine key considerations and prioritise them in relation to the various vying needs of the stakeholder requirements. This is an area which will need to be practiced and can be covered during the feasibility stage. See 'Exploring and analysing the needs, wants and interests of primary users and wider stakeholders'.

Learners should be dissuaded from narrowing their goals or approach due to local limitations. While it may occur that budgets, machinery, tooling, materials or similar issues within a centre may limit possible options later in the process; these should be avoided when writing the design brief. The brief should consider the context carefully and not preclude potential design options due to learners' perceived limitations. Learners should approach the brief from a real-world perspective, where limiting factors would likely be overcome in a professional setting.

Learners should base the brief on stakeholders' needs and requirements and it is clear that to generate these contextual issues, learners should work closely with the parties involved. This can lead to over-consideration of a particular set of stakeholder needs, at expense of other stakeholders or creativity. Stakeholders may have strong opinions based on expert understanding as to approaches or a specific solution to the product identified. While learners should take this guidance into consideration, it should not form a barrier to potentially more creative solutions or to disregard other stakeholder needs.

Planning of the NEA project may be done through the feasibility analysis process, looking at various projects and the planned product being conceived through an organic approach to problems solving. Some learners, however, will have a pre-planned project in mind. This can lead to an overly focused approach to the project or even specific final results. Limiting statements as part of the design brief should be avoided to ensure possible creative approaches are not reduced. An example of this would be, 'To meet these compact living needs the product should be a cupboard or set of drawers'. Whilst contextual, and a viable solution to the possible problem, it may result in a less creative approach and miss opportunities for innovation and new solutions.

Thinking conceptually

Conceptual links to other areas of the specification – useful ways to approach this topic to set learners up for topics later in the course:

1.b The brief is a pivotal aspect for starting the NEA or indeed any mini project. Fundamentally the brief should signpost key user requirements identified during the contextual review for the product or problem being addressed by the learners. These needs should be prioritised based on the contextual feasibility analysis of the project. A solid brief will allow learners to quickly identify primary and secondary research needs and support the direction of approach for the whole project.

8.a The primary goals/needs laid out in the brief will provide clarity of planned goals and requirements and can be used as an on-going focus to ensure that the product iterations stay on track and meet the original stakeholder requirements identified at the beginning of the project.

Thinking contextually

At A Level, learners will progress significantly from GCSE and will invariably become more independent learners. With this in mind, it seems likely that the best approach is to move quickly away from pre-prescribed briefs to ones which are determined by learners. Over the course, learners should be asked to create 'design briefs' regularly. Best practice is likely to centre around the generation of briefs related to real-life problems and products. Within the exemplar SOW, there are a series of mini projects – all of which could include design briefs.

Two possible approaches for introducing contextual design brief teaching can be focused around User Feedback or via Product Analysis.

User Feedback: learners can learn a great deal from feasibility studies and interaction with stakeholders. As covered previously in this guide, contextual use will see a rise in the identification of key factors needed to improve the product or address issues of use. Learners can role play being a stakeholder or as the designer asking questions as to needs and concerns. This will rapidly move learners to a point where they are readily able to determine problems and issues independently and working directly with stakeholders. Teachers should then aim to guide them in prioritising and identifying the most pressing considerations to form the basis of the brief. This can be done through ranking activities or as part of the initial feasibility analysis.

Product Analysis and identification of manufacturer goals and considerations. Learners can undertake retrospective analysis of products determining why features and design requirements have been approached in certain ways.

Teachers may prepare specific outlines or exemplar to ensure that learners cover pertinent aspects in a concise and accurate manner. Exemplars of what makes a poor or an excellent brief will help learners further in determining levels of detail and approach – these can be derived from previous learners or industry led briefs (though these can sometime be highly intricate and maybe less accessible for all learners). Ensuring that learners are able to identify what makes a strong useable brief and what constitutes the inverse will promote better thought out and carefully considered brief outcomes.

Design briefs should aim to allow learners to work creatively and be open enough to allow for a range of different approaches and ultimately final design concepts meeting the original user requirements. In addition, generic comments which lack context or very specific outcomes should be avoided as they are not suited to the iterative design process.

These could include outlining:

- **surface finish**
- **materials**
- **final colour for the product**
- **a specific RRP**
- **specific components or user interface**

Design briefs should culminate in an outlined set of goals to move the design forward. This is likely to incorporate a range of requirements but should be centred around a selected group of core requirements.

Learner Resources – Activities

Title	Organisation/ Company	Web link	Summary description	Additional description detail	Relevant chapter (i.e. Content, Thinking Conceptually, Thinking Contextually)	Mapping to specification level
Writing a Design Brief		https://www.youtube.com/channel/UCVYwsZAvnI8snvJ6aufbvCg	Watch videos of problems encountered by people and use the issues outlined to create a design brief covering the fundamental issues.	Fixperts site gives details as to what Fixperts are and ways to implement these aspects into curriculum. Fixperts can be searched on YouTube. This will give a wide range of video diaries of problems and possible solutions.	Thinking Contextually	NEA 1.b
Understanding Design Briefs		http://therealmagic.com/podcast-episode/episode-6-good-bad-design-briefs/	Listen to Podcast covering design briefs in detail. Skip to (05:30) and listen to relevant aspects from playlist.	Note key aspects and determine ways to improve your design briefs to make them unique and more user-focused. Learners to consider how they stick to the original Stakeholder requirements written into their briefs.	Content	NEA 1.b
Innovation and design briefs	Product Tank	https://www.youtube.com/watch?v=CnKeVs-_9zs	Product Tank talks through how to innovate and how simply changing the structure of the brief can impact on how innovative you can be.		Content	NEA 1.b

Learner Activity

Creating a User focused design brief – Induction Project – Potato Peeler (See SOW exemplar)

Introduction

You are going to write a design brief for the potato peeler based around the user experience you have considered during the contextual analysis.

The activity

Discuss in groups the core needs and requirements for a new iteration of the product.

Who forms the Target Market?

What are the main indicators of the demographic?

What are the similarities of the users in term of needs/requirements?

What will your intended price point be?

What are the problems identified during the use of the product?

Which are the most important of these problems to address?

Write a design brief outlining the factors above. Aim to include specific focus on the user of the product and justify why the key aspects identified are the correct focus of your brief.

Extension activities/questions:

Creation of key targets and goals over a given timeframe.

What will the next stages of the process be?

What do the learners need to know in order to proceed?

Are there any dependencies that must be considered?

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