

4.4.4.1 Section A: Identifying & investigating design possibilities (10 marks)

By analysing the contextual challenge students will identify design possibilities, **investigate client needs and wants** and factors including economic and social challenges. Students should also use the work of others (past and/or present) to help them form ideas. Research should be concise and relate to their contextual challenge. Students are also advised to use a range of research techniques (primary/secondary) in order to draw accurate conclusions. Students should be encouraged to investigate throughout their project to help inform decisions.

Mark band	Description
9 – 10	<p>Design possibilities identified and thoroughly explored, directly linked to a contextual challenge demonstrating excellent understanding of the problems/opportunities.</p> <p>A user/client has been clearly identified and is entirely relevant in all aspects to the contextual challenge and student has undertaken a comprehensive investigation of their needs and wants, with a clear explanation and justification of all aspects of these.</p> <p>Comprehensive investigation into the work of others that clearly informs ideas.</p> <p>Excellent design focus and full understanding of the impact on society including; economic and social effects.</p> <p>Extensive evidence that investigation of design possibilities has taken place throughout the project with excellent justification and understanding of possibilities identified.</p>

Student guide - Investigating the work of others – Secondary Existing Product Analysis

Introduction- Have you:

- Fully explained and justified why you are completing product analysis as part of your research.

Secondary Existing Product Analysis:

- Included at least 4-6 different products that are interesting and varied.
- Included at least one image and explained why you have selected each product and how it links to your chosen context.
- Analysed in detail the product discussing all areas of ACCESSFMM and also included additional relevant analysis (e.g. ergonomics, maintenance and life span)
- Discussed in detail your likes, dislikes and any successes or failures of the product.
- Have you written in detailed and justified sentences throughout using subject specific vocabulary *e.g. The product uses HDPE which can be easily mass produced, low in cost and has good performance in outdoor conditions.*

Possible extra ideas for inclusion:

- Collect client feedback and opinions about your chosen products *e.g. my client likes to aesthetics / theme of the night light, the shapes reflect the simplistic and geometric style of her home. She thinks the pop of blue against the metallic colours helps to bring interest.*
- Add an evaluation. This should explain your key learning from this task and how it will influence your project *e.g. By looking at products for outdoor living I realise that is a gap in the market for products aimed at those with learning and physical difficulties, the products which I have analysed would only partially be suitable for this demographics and I found it hard to locate products for this group in society. I also learned that outdoor products with an aesthetic quality can charge a significantly higher price as people desire products which looks luxurious and are willing to pay a premium for this.*

Summary- Have you:

- Summary of key findings from this page, how you could use this in your own design work, and what do you need to do next.

Key vocabulary:

- **Product analysis** – Examine a product in detail to try and study how well it does its intended job.
- **Product evaluation** Evaluating the suitability and safety of the product for use by consumers.

Student guide - Investigating the work of others– Primary Product Analysis

Introduction- Have you:

- Fully explained and justified why you are completing product analysis as part of your research.

Primary Existing Product Analysis – you should:

- Select a product which is currently on the market to address the problem you have identified or links to it in some way. Add a sentence to your introduction explaining what the product is and why you have selected it.
- Take photos of you interacting with the product for its intended function and add notes and annotations to explain your interactions and any strengths and weaknesses next to the relevant images on your page.
- Analyse in detail the product discussing all areas of ACCESSFMM and also included additional relevant analysis (e.g. ergonomics, maintenance and life span)
- Discuss in detail your likes, dislikes and any successes or failures of the product.
- Ensure you write detailed and justified sentences throughout using subject specific vocabulary e.g. *The product uses HDPE which can be easily mass produced, low in cost and has good performance in outdoor conditions.*

* Complete these tasks before starting the page.

Possible extra ideas for inclusion:

- Collect client feedback and opinions about your chosen products (*see secondary analysis slide for an example*).
- Add an evaluation. This should explain your key learning from this task and how it will influence your project (*see secondary analysis slide for an example*).
- Sketch some possible improvements to the product you analysed. Small rough sketches would be sufficient with a short explanation.

Summary- Have you:

- Summary of key findings from this page, how you could use this in your own design work, and what do you need to do next.

Why do designers complete existing product analysis?

- | | |
|--|--|
| • To see the competition | • To identify the demographic / customer |
| • To see what is successful | • To see how products function |
| • To find a gap in the market | • To be inspired |
| • To see what do not work | • To understand safety |
| • To understand materials and manufacturing techniques | • To understand dimensions |
| • To give a price range | |

Investigating the work of others- Primary and Secondary Existing Product Analysis Examples

Secondary existing product analysis

Top 10 Toddler Toys

No.1
K's Kids "I Am the Boss"

Ages 12 months and up, \$84
This big plush dinosaur, available fall 2007, has a surprise inside! Kids can lay him down, unzip his back, and he'll pop back up and they'll have fun reaching in the "boss" to pull out the balls. It's an imaginative way to combine a child's love of hide-and-reveal toys with their love of cute plush toy.

No.4
Alex My Card Kit

Ages 2 and up, £7
Here's a way to send super-cool cards. 2-year-olds can make cards with the kit, and older kids can make cards in fun ways. Like a cake, plus a sticker on or draw with original masterpiece. This one kit, which makes it and it's sized for little ones, easy for your kid.

No.7
Fisher-Price Internet Launch Pad

Ages 3 and up, £
There were many products at Toy Fair designed to make the computer a safe place for a child to play, but this one out of the summer 2007, seemed to be the most simple. There's no software to download or install, and it works with pre-existing Websites. You plug the launch pad into your computer with a USB cord and it puts a lock on the computer keys so your little ones can't destroy any of your files. Insert one of the characters into the launch pad and it takes your child straight to a kid-friendly website. (For instance, if they insert Elmo, they go to the seameared.com game section.) Kids can still use the computer mouse and arrow keys on the launch pad, so they can play website games. If a kid pulls the character back out, the screen freezes until a new character is put in, to return to normal computer use the parent enters a password.

No.2
WJ Fantasy Do-Re-Mi-Blocks

Ages 2 and up, about £16
These nesting blocks also become a cool musical instrument, and will be available summer 2007. On the top of each block is a xylophone piece, so kids can set the blocks up in different patterns to play music, or just stack and nest the blocks. The beautiful illustrations on the side are a bonus.

No.5
Mattel Magic Castle Vanity

Ages 4 and up, £73
It's about time someone made this toy! Kids love to pretend to be a princess and a prince, but this is actually a brilliant combination of two of her favourite things: a doll house and a vanity! Pull down the vanity mirror to reveal a Barbie size bedroom. Each compartment of the vanity has hidden living space for dolls; also hidden throughout is jewellery for the little girl, like rings perched on top of the castle spires. It plays music and has beautiful details like stained-glass windows. Mostly it's an awesome way to combine doll play with role play in one show-stopper toy that is available fall.

No.8
Barkey the Vacuum from Little Tikes

18 months and up, £
It's about time someone made this toy! Kids love to pretend to be a vacuum, but Barkey actually has a little roller on the bottom so as your toddler pushes him around, he truly cleans the floor! Now that's a product a mother can love, and you don't have to wait long because it is out this fall.

No.9
Parents' Block Party

Ages 6 and up, £
You know how kids just love those big, foam blocks? Here's a way to create a baby block party in your own room. A block party set has little foam squares for stacking and sitting on a ramp for climbing and sliding down and other imaginative pieces. And then they fit all back together in a bag for easy storage. It's a great "rainy-day" activity.

No.10
Little Kids Bubble Whistle

Ages 3 and up, £
For kids there's nothing more fun than blowing bubbles. But not being able to blow bubbles other than having your bubble liquid spill everywhere. This solves both problems. Load the whistle, which is available in stores now, with bubble liquid and it can't spill out. Then blowing the whistle easily produces a stream of bubbles that even 2-year-olds can do. And yes, it also makes some noise.

Product Analysis – Access FM

Francesca Memory Foam Adjustable Pod Bed (L)

Aesthetic
Simplicistic, elegant colours that don't stand out in a bedroom. Not noticeably for disabilities.

Cost
This bed is priced at £1029.00. there are cheaper ones available but don't have the quality or memory foam.

Consumer
It can be used by a wide range of physical disabilities to aid in back problems and pain.

Environment
The bed is made from wood, plastic and foam. It is only partly biodegradable and only has a 5-year warranty so wouldn't be great for the environment.

Aesthetic
The mini (less powerful speaker) is regularly £35 while the Home is regularly £100. The mini is very cost efficient for the amount that it can do.

Cost
To do more advanced things that can speak and

Duo cup and Mug holder (K)

Aesthetic
Simple black colours with a smooth highlight gives the product a professional look. Without standing out to much.

Cost
The handle is about £7 which is quite reasonable as it looks good quality.

Consumer
It can be used by a range of physical disabilities to aid grip and dexterity problems.

Environment
The holder is made from plastic and rubber. These materials are not very good for the environment. They look high quality and strong, however

Google Home smart speaker

Environment
The speakers are not great for the environment, but they are high quality and very durable. They get regular updates, so they won't be replaced with the 'next model' soon.

Size
The Home is 143x94x96 while the mini is 100x70x70

Material
The holder is Plastic and Rubber. They are hard and won't break easily.

Safety
The mugs have no sharp points. The only safety concern would be a glass or mug falling out of the holder and smashing on the ground.

Size
The holder is 81g and holds cups/mugs that are 70-90mm in diameter.

Function
Some reviews say the Holder doesn't do a very good job of holding lower diameter mugs but works well for larger mugs. The function is good when it works as it allows a solid surface area for hands.

Material
The holder is Plastic and Rubber. They are hard and won't break easily.

Primary existing product analysis

Existing Products: Boot Buddy.

The brush has little holes in the base so when you squeeze water will come out when you are brushing.

How it functions?
To use the boot buddy you unscrew the scraper on the end and fill it with water. At the brush end there is a mechanism which allows water to flow through the brush when unlocked and when locked it can't. You can see this in the picture. While brushing like normal you squeeze the body to allow water to pass. As you can tell this is a fairly simple process and can be worked out without a manual. Some of the mechanisms are quite tough to screw and unscrew which is a problem as there are lots of elderly that play golf and so they may struggle.

Here you can see a video of me using the boot buddy on some muddy golf spikes.

What worked well:

- The type of brush- bristles where tough and small to clean small areas and large areas
- The water coming through the brush helped the ease of cleaning the shoe

Problems found:

- The scraper wasn't effective especially when trying to get grass and mud out the spikes
- It was quite tough to squeeze water out the brush- type of plastic? Is this a problem for elderly users

All the water was used after cleaning one shoe- this is an issue where there is no water supply especially for cleaning both shoes and trolleys

Boot Buddy was created by Aminder Singh Dhillon, aged 15, in order to clean his football boots. However the product suggests that cleans all types of footwear- including golf shoes. This is a perfect product to analyse for my project and test out to see what works well and what doesn't.

Primary product analysis

This product is the 'Access FM' shoe that has been designed to help get dogs into the car and to keep them in there so giving them something to focus on. It was designed as they realised that many dogs do not like getting a bath and that many other people around a lot or they try to get out so they wanted to design something to ease their anxiety and to keep them focused.

The material used for this product is plastic, which has appropriate properties for this product. It has low thermal conductivity (can be altered with chemical products), it has low density (it is strong compared with the dog and can be used as a safe but the owner will have to make sure the dog is not too hot or cold when using the product).

The product will have a high level of durability for most people, getting the dog to get into the car will not need to be replaced often. The rubber will be able to withstand the environment.

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The product has a small impact on the environment as it is made from plastic. The dog will not be able to eat it (it is not a food item) and it is not a hazard to the dog (it is not a food item).

The product is designed to be used by people who have a dog that is anxious about getting into the car.

Existing Products: Boot Buddy.

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All the water was used after cleaning one shoe- this is an issue where there is no water supply especially for cleaning both shoes and trolleys

Parent guide – Existing Product Analysis (Primary and Secondary)

Introduction to this page

This page is where students begin to complete research which can help them to find a direction in their project. Students should complete both secondary existing product analysis and primary product analysis (*see second slide*) to achieve the highest marks in this section.

Secondary existing product analysis is where students explore a product **found online or in a book/catalogue etc.** and primary analysis is where students explore a product **in person** to try and identify its strengths, weaknesses and where they can draw inspiration. Students should consider a range of issues across ACCESSFMM, ergonomics, maintenance and life span not just their likes and dislikes.

The page should be very full with information and it is important this includes analysis and evaluation, not just factual information. When completing a primary analysis, students should take advantage of the extra considerations they are able to make from interacting with the product in person e.g. able to consider comfort and the weight in more detail. A good design later in the project will show that it has been inspired by these earlier research pages.

How can you support your child at home?

Look over your child's page, does it include the following information:

- 4-6 **different** products analysed in detail for their secondary product analysis (*this is essential as at this point, they do not know what they are designing. If the context is Souvenirs they could analyse a recipe book, an item of clothing, an ornament etc.*) and an additional product for primary product analysis.
- Detailed written annotation that considers at least all of ACCESSFMM for each product (it could also discuss ergonomics, maintenance and life span).
- Key vocabulary throughout e.g. students do not write that products are made from plastic but polypropylene.
- Have they discussed aspects of the product(s) that inspire them or could be useful for their client.

Read over their work and discuss what they have written, could you help them to add more analysis and evaluation to their work? Could you discuss ideas of how aspects of the products they have analysed could be suitable for their client?

Could you encourage them to add in the extra ideas for inclusion (in green) to help them gain more marks.

ACCESSFMM stands for **A**esthetics, **C**ost, **C**ustomer, **E**nvironment, **S**ize, **S**afety, **F**unction, **M**aterials, **M**anufacture.

Student guide - Investigating the work of others– Task Analysis

Key vocabulary:

Task analysis – A way of recording, observing and analysing how your client or yourself currently use a product or complete a task this is where the problem has been identified from e.g. how do they work at their desk, how do they feed their dog, how do they light a room at night.

Introduction- Have you:

- Fully explained and justified why you are completing task analysis as part of your research.

Task Analysis – you should:

- Use your client interview and the problems identified as a starting point. Choose a product you can observe your client with or complete yourself.
- Take photos of you/ your client interacting with the product and record all the positives and any faults you can see (try to photograph these). Keep notes as you do this (try to consider both positives and negatives).
- Explain in detail what you observed during each part of the interaction, try to consider both positives and negatives, and ensure you record any issues you could address in your own design work.
- Have you written in detailed and justified sentences throughout using subject specific vocabulary.

* Complete these tasks before starting the page.

Possible extra ideas for inclusion:

- Sketch some possible improvements to the product you analysed. Small rough sketches would be sufficient with a short explanation.

Add an initial written design brief

You could briefly consider the following:

- *Who are you designing a product for and/or who would use the product?*
- *What functions might your product have or what problems or challenges could you product address?*
- *When will you product be used?*
- *Where will your product be used and stored?*
- *Why will you client need your product, how will it be useful?*
- *How much will your product cost (price range)? How will your product fit your client and how will it be used?*

Summary- Have you:

- Summary of key findings from this page, how you could use this in your own design work, and what do you need to do next.

Investigating the work of others – Task Analysis Examples

Task analysis

In this slide I am going to perform a task analysis of my brother playing video games while sitting on a dining chair.

1
First, go downstairs and pick one of the dining chairs
Risk: fall down the stairs, back pain if the chair was heavy, breaking the chair

2
Take the chair upstairs to his room
No armrests, therefore his arms will get tired after a short time, he could avoid that if the chair had armrests

3
Put the chair opposite the TV, turn the PlayStation on and put his headset on

4
After 30 minutes he went downstairs to get a glass of water from the kitchen
Risk: glass breaking which can cut people, water spill on the floor which can make people slip

5
Put the glass of water on the floor, picked up the controller and started playing
Risk: glass breaking

6
Finished playing, put his controller and the headset on the TV table

7
Take the chair downstairs to the kitchen after he finished
Risk: fall down the stairs, back pain if the chair was heavy, breaking the chair

For stage 1 and 2 he could save time by keeping the chair in his room
For stage 3 he could save time and equipment by having a pre-filled water bottle. That saves time because he does not have to take the glass down stairs after he finishes and he will not need to anyway
For stage 5 and 6 he could save time if he had a can holder. In addition to that this will eliminate the risk of the glass breaking

By completing the task analysis I have found out that some of these stages are unnecessary, such as stage 1 and 2. He could be saving a lot of time if he had some specific features on the chair - such as the headset holder and the can holder - therefore, I need to consider them when I am designing my product.

Task analysis

In this task analysis I will be identifying how a client interacts with a product, their opinions and preferences towards such products and how this will help me to create a product which is easy, fun and useful to interact with.

Why the MMY Thai pads?

In my demographic questionnaire I was able to identify pads as a favourite in training equipment with 2 main types of pads including focus pads mainly for boxing and a kick shield mainly for kicks, however the Thai pads offered more variety in required training and the stability for roundhouse and deep kicks. The pads are also the most effective for elbows and knees. The factors make it, in my opinion, the best product for my client to interact with as I believe using a client's favourite product will identify why this is seen as one of the preferred products and how I can implement this in to my product. It was also lucky that the pads were none of the products which could be used outside in the park containing with Covid restrictions (making the usability of this product a rather great advantage to the task at hand).

Analysis:

For my analysis I will be using my client to help evaluate the pros and cons of the Thai pads and what should be utilised in potential MMA products. My client's input into this analysis is essential for me to further understand the workings of the sport and their products in a way which a simple questionnaire could not. Here is the analysis:

Again it is clear to see that simple aesthetics and dark colours have been used in this product, my client has stated that colour schemes and aesthetics do not matter as long as the product functions well, which is the most likely reason as to why a lot of these MMA products are aesthetically simple, being decoration and bright colour schemes. This product cost £22.50 which was within my client's £100 limit. However this product requires a partner to use them and require bringing to places outside to use them. When most partner training happens in the gym where pads are provided it seems a waste to purchase them for your own use (especially as a single child, like my client where no siblings will have them). The main goal which this Thai pads would be personal MMA following taekwondo and martial arts gym owners, not your average martial artist. The environment is something my client definitely does not consider when purchasing a product as he expects more well known companies at least do something to consider the environment, leading me to believe that should definitely consider the environment but it should not be the main selling point of the product as it seems like does not interest most martial artists. Safety has been considered and you will not be injured by the product itself but only through improper use or technique, this is due to the fact the product is all padding. The only minor potential injuries are friction burns from the Velcro straps which is by no means debilitating injury, my client is happy with the safety standards of this product.

For this next section of analysis I asked my client to bullet point why he thought the product was effective:

- you move, duck, roll and pivot into and away from shots just like sparring/fighting
- you can train basically any technique in a safe area onto the Thai pads
- not too complicated

Successes:

- safe to use
- implements movement well
- within £100

Failures:

- requires 2 people
- needs reasonably large space to use outside of the gym and needs to be transported there

Moving forward:

I have now gathered enough information over this research into products to start to narrow it down into possible briefs and specification needs for an MMA product. I will complete this next stage in order to help me design the best possible products for the brief and specification. The main points I have gathered from my research are:

- the importance of training movement in the sport
- the importance of effects storage for a home use product and how this can also help the environment
- the importance of preventing injury as best possible
- the focus on striking within the sport
- the focus on cheaper prices (£100 limit)
- focus on simple aesthetics in MMA products (whether this should be followed or not?)

These key points I have learned from my research, along with a few others can pick out will be what sets down the brief for my brief and specification in the pages to follow.

Here demonstrate the Thai pads in use

Task Analysis – My granddad eating dinner

On this slide I will be analysing the task of my grandad eating without my product and analysing how the task could be made easier.

1
The first step involved in this task is to get a place mat out of the drawer.

2
The next step is to put the place mat onto the kitchen table.

3
Next, the cutlery drawer needs to be opened and get his specially designed knife and fork.

4
His cutlery then needs to be placed on the table on top of the place mat.

5
The glass then needs to be obtained from the glass cupboard.

6
That same glass then needs to be placed on top of the place mat along with the cutlery.

7
From either the same draw as the place mat or just on the table, the napkin needs to be unfolded.

8
The same napkin needs to be tucked under the place mat. This will rest on his lap to catch any food he may drop.

His apron then needs to be got off the table end or the Arga and unfolded.
The apron then needs to be put on him and tied at the front so he can easily get it off.
Finally, he needs to sit down and be pushed in. He can then happily enjoy his meal.

Parent guide – Task Analysis

Introduction to this page

This page is where students continue to complete research which can help them to find a direction in their project by completing a task analysis. A task analysis is a way of recording, observing and analysing how their client or they currently complete a task to identify any potential problems e.g. how do they work at their desk, how do they feed their dog, how do they light a room at night. Completing this task will help students to identify any products that promote effective completion of the task and any issues that occur, either because of errors with the existing products or due to no product existing to resolve the identified issue.

The page should be a combination of images and written explanation of what they can see. It is important they have analysed and evaluated this information, not just written what they see.

A good design later in the project will show that it has been inspired by these earlier research pages.



How can you support your child at home?

Look over your child's page, does it include the following information:

- Photos of all of stages of testing the function of the product.
- Detailed written annotation that considers the positive and negative observations at each stage – have they missed any interactions you can see?
- Key vocabulary throughout e.g. student do not write that products are made from plastic but polypropylene.
- Have they discussed aspects of the product(s) that inspire them or could be useful for their client, and considered how these could be used in their own designs.

Read over their work and discuss what they have written, could you help them to add more analysis and evaluation to their work rather than just descriptions of what is happening? Could you discuss ideas of how aspects of the products they have analysed could be developed to be more suitable for their client?

Could you encourage them to add in the extra ideas for inclusion (in green) to help them gain more marks.