

ADDA5022

CHANGEMAKERS: CREATIVITY AND VALUE CREATION

Session 2

Initial Brief

Develop an engaging and educational product for Techniquest's shop that effectively communicates a scientific principle to a chosen target market.

Key Requirements:

- Clearly explain a scientific concept in a way that is fun and engaging for the target audience.
- The product must align with Techniquest's values, focusing on creativity and user experience.
- Ensure the product is educational and easy to understand.

TECHNIQUEST

Foundation:

Techniquest was established in 1986 and is one of the UK's first hands-on science centres.

What is it?

A centre that aims to promote science, technology, engineering, and mathematics (STEM) education and inspire visitors of all ages through interactive exhibits.

Mission:

To embed science in Welsh culture through interactive engagement. To be the UK's leading science discovery centre by 2030.

Exhibits:

Technique features over 120 interactive exhibits covering various topics, including physics, biology, chemistry, and engineering.

Visitor info:

134,000 Per year Looking to increase to 200,000 by 2030

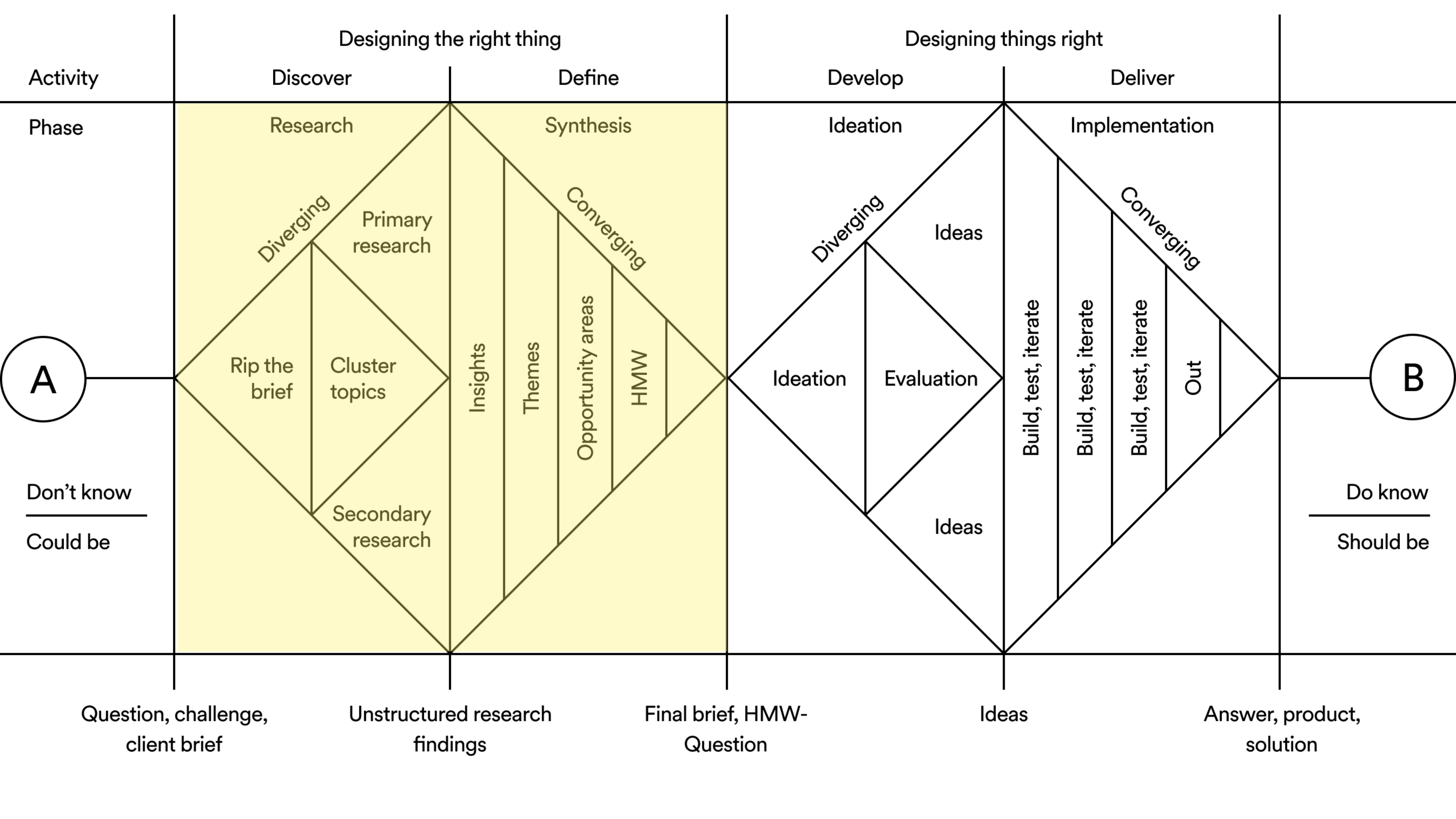
General Admission:

£11.81 for adults and £10 per child. £40 Family Ticket.

Average Retail spend:

£1.20 per visitor

PROJECT FOUNDATIONS



1. Research Scientific Principles:

Identify three different scientific principles to explore (e.g., gravity, energy, ecosystems).

Gather information from reliable sources to understand the basics of each principle.

2. Research Existing Products

Look for existing educational kits, toys, or games that focus on a scientific principle.

Analyse their features, strengths, weaknesses, and how they convey the scientific concepts. Mood boards, competitor analysis, feature tables etc.

3. Define Target Audience

Determine who the educational kit, toy, or game is for (e.g., age group, interests).

Think about what would engage this audience and how they learn best. User personas, Day in the life etc.

4. Write Revised Design Brief

Based on your research, draft a clear and focused design brief that outlines the goals, target audience, and requirements for your educational kit, toy, or game.

Define what the product needs to achieve, the scientific principle it will explain, and how it will engage your audience.

SECONDARY RESEARCH

Research:

Before diving into design, it's important to thoroughly research the problem to ensure your solution is grounded in real needs and data. This research serves several key purposes:

Understanding the Problem: Research helps to define the issue clearly, ensuring that you focus on solving the right problem instead of assuming what users need.

Validating Assumptions: It allows you to test initial ideas and assumptions with real data, preventing wasted effort on solutions that don't address actual user pain points.

Informed Design: By studying market trends, competitors, and user behaviour, you can make well-informed design choices that resonate with your audience.

Staying on Track: Research narrows the scope of the design project, keeping it focused on solving the core issue without unnecessary distractions.

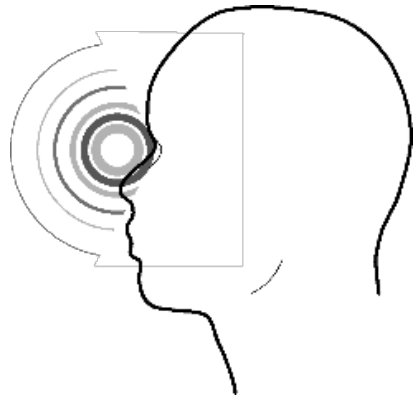
COMMON RESEARCH TECHNIQUES IN DESIGN:

1. Literature Review

Purpose: To gather information from web searches, academic papers, journals and books.

How it's used: Reviewing existing research helps understand previous findings, trends, or theories related to the design challenge.

Sources: Academic databases (Google Scholar,), research papers, books.



LIGHT & SLEEP

The effect of light is probably the most researched but a full understanding of the effects of light are commonly misunderstood.

Blue light has a direct effect on circadian rhythms and melatonin generation. In terms of treatment to improve sleep quality, exposure to intense blue light immediately after waking is the most significant.

Blue light should be avoided in the journey towards sleep.

Red light is not proven to have the opposite effect to blue light. Some studies suggest red light exposure before sleep may benefit some people but red light does not encourage melatonin generation or generally induce sleep.

As there are many lights and light control products on the market, inclusion in the proposed product is not essential. However, light effects could be used to engage and relax the sleeper.

Sources:

'Effects of blue- and red-enriched light on attention and sleep in typically developing adolescents'

Petra Studer, Judith M. Brucker, Cornelia Haag, Jessica Van Doren, Gunther H. Moll, Hartmut Heinrich, Oliver Kratz, Physiology & Behavior, Volume 199, 2019, Pages 11-19,

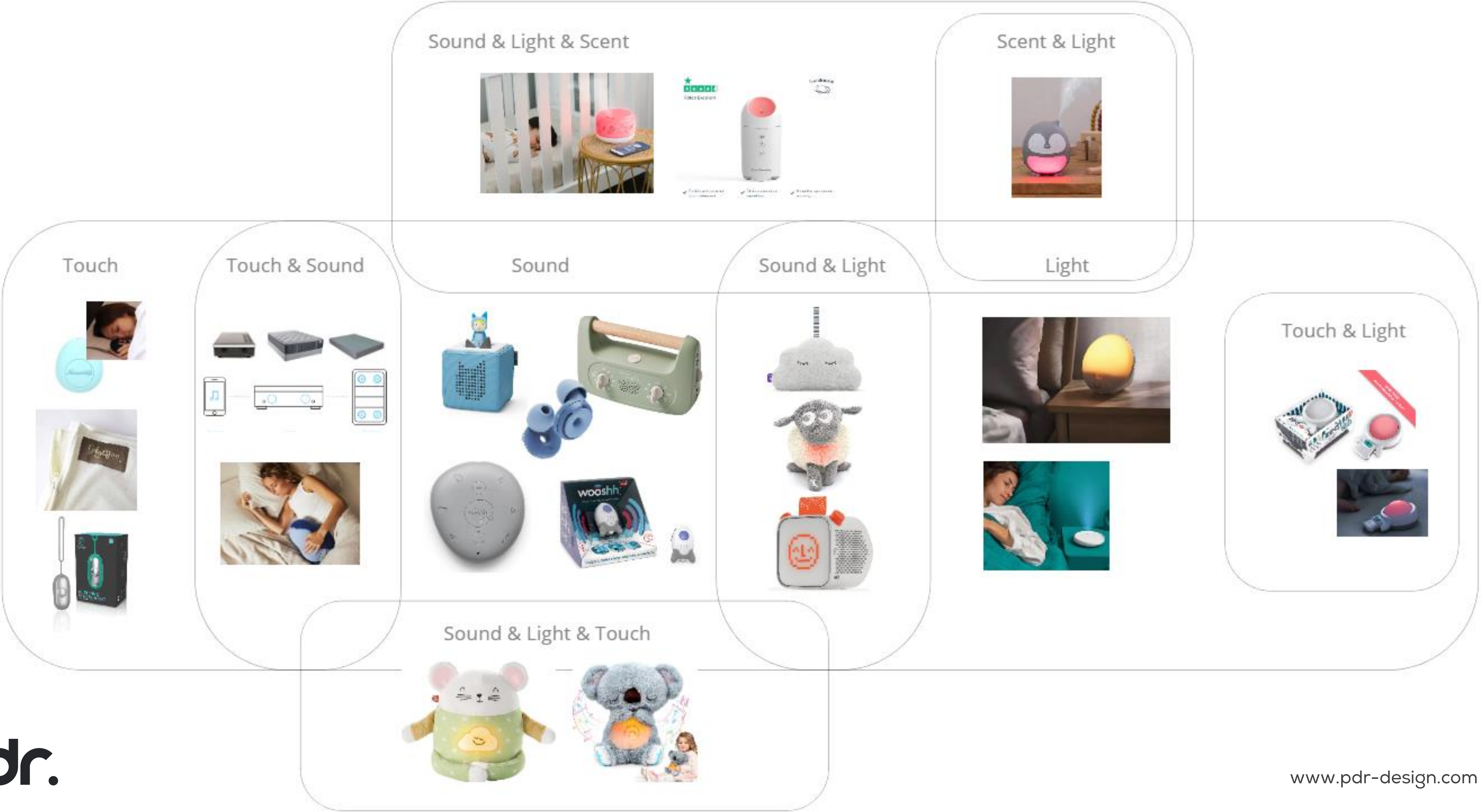
2. Competitive Analysis

Purpose: To study competitors' products, services, or strategies to identify market gaps, strengths, and weaknesses.

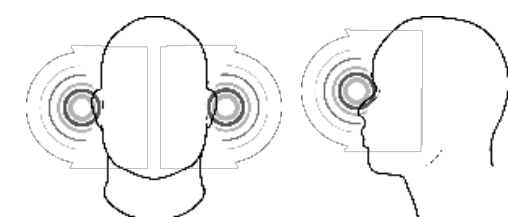
How it's used: Designers analyze competitors' designs, features, pricing, and customer feedback to understand what is working and where opportunities exist for innovation.

Sources: Competitor websites, product reviews, industry reports, or marketing materials.

COMPETITOR LANDSCAPE



EWAN DELUXE



Very popular sleep aid for babies and small children. Developed over seven years and includes sensors to monitor if the baby awakes. 5 sound modes (including vacuum cleaner) and red glow light.

“Expertly designed using the science of sleep to help little ones who struggle to settle at night, mimics the comfort of the womb with soft red melatonin inducing glow and selection of ‘pink and white noise’ soothing sounds.”

FEATURES

- Soft cuddly toy, machine washable
- smartCRY sensor, 4 hours
- 5 soothing sounds, volume control
- 20 minute cycle with automatic shut off
- Red light glow

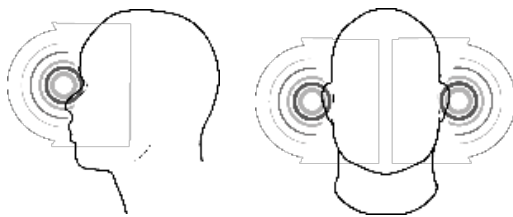
MARKET

- Newborns
- £39.99





YOTO PLAYER



Essentially, a child-friendly audio player with night light. Sounds can be accessed through device specific memory cards. Encouraging child interaction to encourage motor skills, independence and routines around sleep.

"Inspires independence and imagination in children aged 3-12 with safe content selected and created specifically for them, without cameras, microphones, or ads."

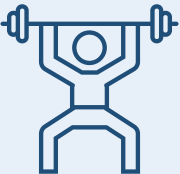
FEATURES

- Room thermometer
- 24hrs of play per charge
- Acoustically-engineered stereo sound
- Endless audio
- Ok-to-wake night light and click
- Bluetooth

MARKET

- Ages 3-12+
- £89.99

COMPETITOR MATRIX

						
	YOTO	GLOW SLEEP EASY	EWAN	ROCKIT KID	SOUND-TO-SLEEP	SOMNOX
 STRENGTHS	Simple operation Approved content Continuous audio	Combines several elements.	Includes sensors	Works on any mattress 1 or 12 hour programme	Combines sound and vibration Clinically proven	Monitors heartbeat and breathing and responds. Combines sound and movement
 WEAKNESSES	Limited content Range limited Small child aesthetic	Can be perceived as loud. Expensive	Goes through batteries quickly. Durability questionable	Reliability Durability Noisy in higher settings	Electromagnetic output may affect some.	Reliability issues. Not as 'snuggly' as it appears.
 PRICING	£89.99	£119.99	£39.99	£29.95	\$1099+	\$599
 EVIDENCE	anecdotal	Referenced papers don't relate to features and are misinterpreted.	Development references scientific papers	anecdotal	Clinically trialled	Development references scientific papers
 SUCCESS	340k Yoto minis sold up to 2023	2 million+	2 million+	Not known	Not known	4,500 units up to 2018

3. Market Research Reports

Purpose: To understand broader market trends, consumer behaviours, and economic conditions.

How it's used: Designers use market reports to identify emerging trends, potential user segments, and market opportunities.

Sources: Market research firms (e.g., Gartner, Nielsen), industry reports, and government data.

4. Social Media and Forums.

Purpose: To gather insights about user preferences, pain points, and discussions.

How it's used: By analysing conversations on platforms like Reddit or X/Twitter, designers can uncover real-time user feedback, trends, and problems users are facing with existing products or services.

Sources: Social media platforms, online forums, and community discussion boards.

FEATURE INSIGHTS

From reviews of the sleep machines, the following insights are apparent;

- Audio; users want
 - Easy selection, with multiple audio options.
 - Adjustable volume with suitable range, both low and high.
 - Good sound quality.
 - Long play time.
- Light: users want
 - Gentle, soft soothing lighting - red / pink / white.
 - Clear & visible control buttons.
- Daily use, users want
 - Portability,
 - Long Battery Life
 - Simple charging (e.g. USB)
 - Durability



5. Government and Public Data

Purpose: To access demographic, economic, and social data relevant to the design challenge.

How its used: Public data can help designers understand trends in population, behaviour, and regional challenges that may impact their design process.

Sources: Government websites (e.g., census data, economic reports), public health studies, and NGO reports.

TIME TO WRITE A REVISED BRIEF

Initial Brief

Develop an engaging and educational product for Techniquest's shop that effectively communicates a scientific principle to a chosen target market.

Why revise the brief?

Revising briefs after research is crucial because it:

Insights: Updates the design direction based on newly discovered user needs and market conditions.

Refines Goals: Clarifies project objectives, making the design process more focused

Why revise the brief?

Prevents Scope Creep: Keeps the project focused and efficient by defining specific

Sets Clear Expectations: Ensures everyone understands what the design should achieve

Revised Brief

Design an interactive self assembly kit to educate KS2 children aged between 7-11 about hydro electricity generation in Wales. Item will be part of a new range of Techquest educational toys to be sold online and to visitors of the gift shop at a price point between £10-20.

IDEATION: TOP 5 METHOD

TOP 5

Ideation can be challenging, but the Top Five method simplifies things by asking, "What are the top five ideas or themes that stand out right now?"

TOP 5

This helps you identify key ideas, uncover themes, and spot new opportunities. Using this method throughout the design process can spark useful discussions and inspire fresh thinking, whether you're refining ideas or moving toward prototyping.

TOP 5

Write the first 5 ideas that pop into your head when given a theme. Today's Theme – Science.

TOP 5

In turn shout out your scientific principles and create a mind map on the board. Group duplicate or similar themes.

TOP 5

Try using this method throughout the Ideation phase and you'll see how it can spark discussions or new thinking about your chosen topic.