Developing a Functional and Aesthetic Snow Sports Hoodie for the Multi-Use Consumer

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AIM:

- Develop a prototype hoodie meeting both aesthetic and functional needs of the modern consumer.

OJECTIVES:

- Conduct qualitative and quantitative research with snow sports apparel consumers to establish wants and needs.
- Review waterproof/water resistant fabric options and assess feasibility and relevance to this project.
- Review current market offerings.
- Use CAD development software to develop an updated pattern to be sent to manufacturers.
- Collect data from prototype user trials.

Literature Review - DWR (Durable Water Repellent) Finishing

SOURCE	KEY POINTS
'Finishing of textiles with fluorocarbons' (Sayed and Dabhi, 2014).	• DWR coatings are produced using **fluorocarbons.** • Repellence rises with **fluorocarbon chain length - perfluorinated side chains of 8-10 carbons.** • Production of long chain fluorocarbons creates **PFAO as a by-product.** This causes **environmental concern** as it does not break down.
'Facing the rain after the phase out: Performance evaluation of alternative fluorinated and non-fluorinated durable water repellents for outdoor fabrics' (Schellenberger et al., 2018).	• **Shorter chain fluorocarbons** are **less repellent to oil and water -** still have potential to meet some consumer requirements. • **Non-fluorinated DWRs** are more **inconsistent** in terms of water repellence and durability, and showed **no repellence to oil.**
'Highly fluorinated chemicals in functional textiles can be replaced by re-evaluating liquid repellency and end-user requirements' (Schellenberger et al., 2019).	• Consumer study of outdoor wear consumers shows **full waterproofing and stain repellence to be a luxury rather than a need.** • Some **non-fluorinated DWRs** are **comparable in water-repellence to C6 and C4 fluorinated DWRs - biodegradable and non-toxic.** • **Non-fluorinated DWRs have no repellence to stains with low surface tensions**, such as oils, but have **some resistance to stains with high intermediate surface tension** such as orange juice or wine.

Quantitative and Qualitative Data Collection

- Consumer data was collected through an online survey to determine consumer wants and needs.
- Participants were found through Board Clothing contacts and MUSKI (The Manchester Independent Student Snow Sports Society).
- A sample population of 57 is used.

MAXDIFF ANALYSIS:
- Participants asked to rank a selection of options to indicate an order from best to worst (Daly, 2018).

RATING SYSTEM:
- Participants asked to rate a selection of options out of ten.

**QUALITATIVE RESEARCH:**
- Consumers asked to enter typed answers.

Results and Data Analysis - Quantitative Data

Please rank the importance of the following features of snow sports apparel for recreational use.

On a scale of 1-10, how important is the fashionability of snow sport apparel to you?

Please rank the following in order of importance when purchasing recreational snow sport apparel.

On a scale of 1-10, how much would the inclusion of the following features increase your likelihood to purchase a snow sports hoodie.

On a scale of 1-10, how much would the inclusion of the following features increase your likelihood to purchase a snow sport hoodie?

Results and Data Analysis - Qualitative Data

- **Hoodies** are the most common multi-use garment type.
- Reference to both **'casual' hoodies also being used on the slopes** for extra warmth, and **'technical' hoodies also being worn at home.**
- Burton hoodies, AfterJam hoodies and Bro hoodies.

- **Comfort** most common reason for not purchasing multi-use hoodies:
- 'Most snow sports clothings arent comfortable enough for relaxing at home'.
- 'I feel to be comfortable in the home different cut/materials are needed'.
- One participant mentioned **price:**
- 'Prices can be pushed up by adding tech features to something I'm going to sleep in'.

Do you ever purchase clothing for the intended use of both snow sports apparel and casual wear?
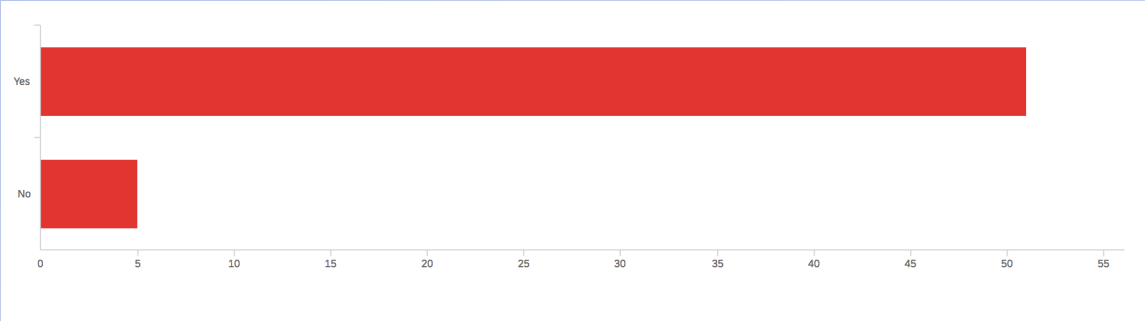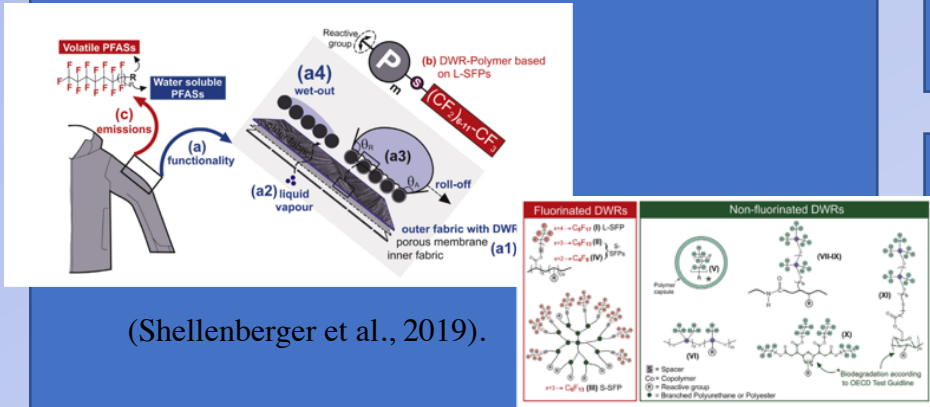

GARMENT TYPE	NUMBER OF MENTIONS
Hoodie	35
Jacket	11
Coat	1
Gloves	1
Sweater	2
Underwear	2
Thermals/Leggings	5
T-shirt/Top	2
Hat/Beanie	5

Visual Abstract - Initial Ideas
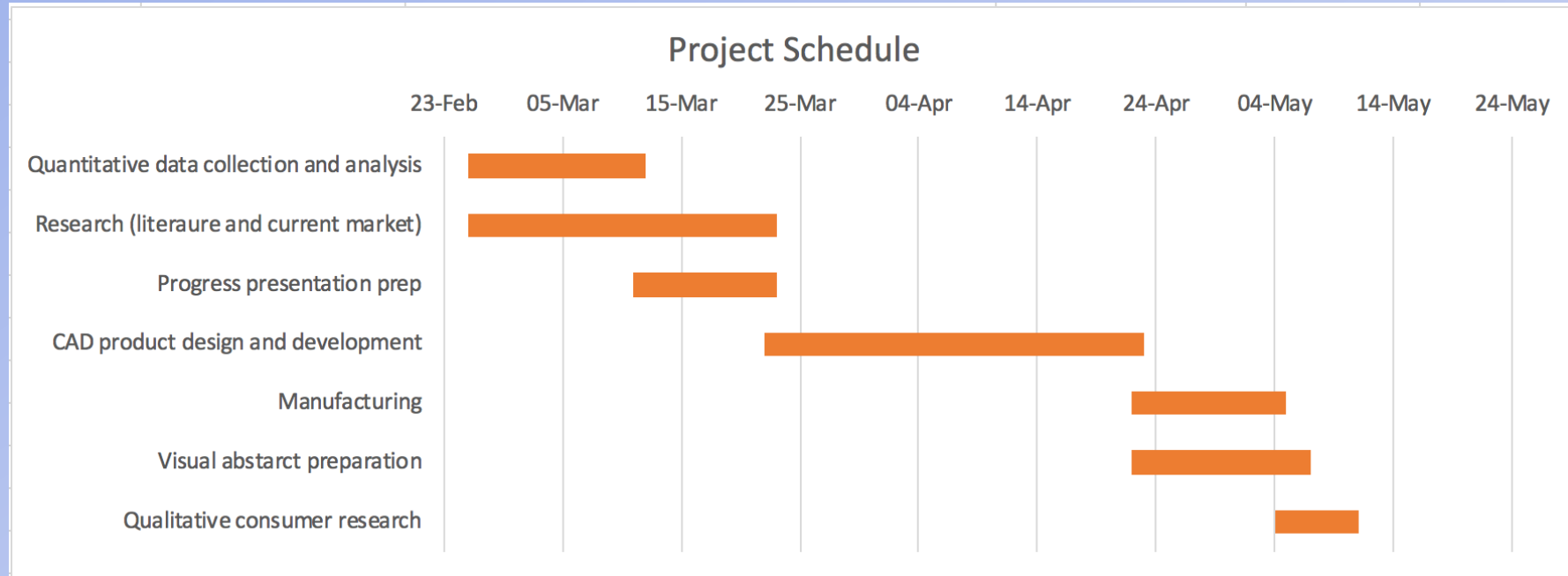
VISUALISATIONS OF CONSUMER DATA.

IMAGE OF PATTERN PRODUCED ON LECTRA.

VISUAL EXPLANATION OF NON-FLUORINATED DWR COATINGS eg.

(Shellenberger et al., 2019).

POTENTIALLY IMAGES OF PROTOTYPE.

Next Steps

COMPLETED:
- Data collection and analysis.
- Evaluation of current market offerings.

IN PROGRESS:
- Literature review.

NEXT STEPS:
- Finalise materials and design.
- Begin modifying pattern using LECTRA.

REFERENCES:

- Daly, T. (2018). 'An introduction to MaxDiff analysis and design', Qualtrics, 10 August. Available at: https://www.qualtrics.com/blog/an-introduction-to-maxdiff/ (Accessed: 1 March 2021).

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