Design for Emotional Durability

Cultivating lasting connections with Philips grooming products

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MSc Thesis - Design for Interaction
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Master Thesis
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I would like to end the acknowledgements with a personal dedication to my grandmother. With your permission, I will write it in Spanish so that she can read it.

Abuela, ¡quién te hubiera dicho que Philips volvería a tu vida tantos años después (aunque sea indirectamente)! Ya sé que solo es el trabajo de fin de máster, pero es una bonita coincidencia por lo que Philips siempre ha significado para ti. Por eso te dedico especialmente a ti este trabajo, al que tanto tiempo y cariño he dedicado.

Having said all that, I can only hope that you, the reader, enjoy and find this report as insightful as I have found it throughout the project.

JGC

Abstract

Recognising their environmental impact despite ongoing circular-economy practices, Philips seeks ways to extend the lifespan of their products to reduce such loss of value at the end life of their products. This project explores the concept of Emotional Durability as a user-centred approach to sustainable product design, specifically within the context of Philips Personal Care's grooming devices. Emotional Durability refers to the ability of a product to create a long-lasting bond with its owner, fostering a desire to keep and use it for longer.

Grooming devices provide an ideal testing ground for this concept of Emotional Durability due to their context of use. Their highly frequent and recurrent use, the intimate relationship to their owners' inner self, and their long lifespan make these devices particularly suitable to form a durable emotional connection with their users. The research aims to bridge this gap between long-lasting products and consumer behaviour through interaction and product experience design.

The project employs a participatory design approach, engaging users in the research, ideation, and evaluation stages to inform the development of design interventions aimed at fostering emotional connections between users and their grooming devices. The final intervention, All-about-One, employs engaging, personal, non-transferable, and functional interactions, found to be essential qualities for instilling Emotional Durability.

This thesis offers valuable insights and practical guidelines for the effective implementation of Emotional Durability in grooming devices, underpinned by a robust research-through-design approach.

The research findings hold potential for broader applications of Emotional Durability across other durable product categories, contributing to the growing relevance of Emotional Durability and providing actionable insights for design practitioners, researchers, and the consumer durables industry.

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Intro-duction

This chapter explores the growing challenge of e-waste within the circular economy. It examines how design approaches can extend products lifetime, but highlights the need to address users' behaviour as well. The graduation project is introduced at the end of the chapter.

1.1 Design in the Circular Economy

Take a second and think of your previous grooming device. Do you remember what you did with it? Can you recall which was the real reason why you replaced it? According to van Nes & Cramer (2005), there is a good chance it was **substituted even though it was still functioning correctly.**

Domestic electrical and electronic products, like Philips groomers and countless other appliances, have become essential parts of our lives. However, the speed at which we consume and replace them has also dramatically increased, almost doubling the amount of e-waste generated from 2010 to 2022 (Baldé et al., 2024). Moreover, according to the United Nations University, only 17.4% of the global e-waste generated in 2019 was documented to be collected and properly recycled. The remaining 82.6% pose a huge risk to the environment and represent a massive loss of valuable resources.

This linear consumption pattern, which is commonly described as TAKE-MAKE-DISPOSE, gets even more favoured by the concept of planned obsolescence, where products are intentionally designed to become outdated quickly (London, 1932). This general practice within the durable products industry drives premature replacements and waste. Thus, these unsustainable practices from industry and consumers must change if we really want to reduce instead of increasing the amount of e-waste we generate yearly.

Recognising this challenge and in light of new regulations, companies like Philips are taking responsibility for the environmental impact of their products. The initial focus on energy and material sourcing to mitigate the impact of the e-waste has made way for behavioural and social interventions that tackle directly the reduction of e-waste. Accordingly, the Circular Economy has gained importance within the design community over time, proposing different **approaches to diminish the environmental impact** of the products we use at disposal stages.

Within the Circular Economy framework, Philips is exploring ways to minimise e-waste at the technical cycle. These are categorised in the four circles shown in Figure 1. By addressing them, Philips aims to align its practices with the European Waste Electrical and Electronic Equipment Directive and the Individual Producer Responsibility. They actively collect their products at their different areas of business for recycling and refurbishing. In addition, they are exploring new circular services and partnering with different stakeholders like governmental organisations. For example, they have specific partners in almost every EU country for collecting and treating not only consumer products, but also small medical devices (Recycling, n.d.).

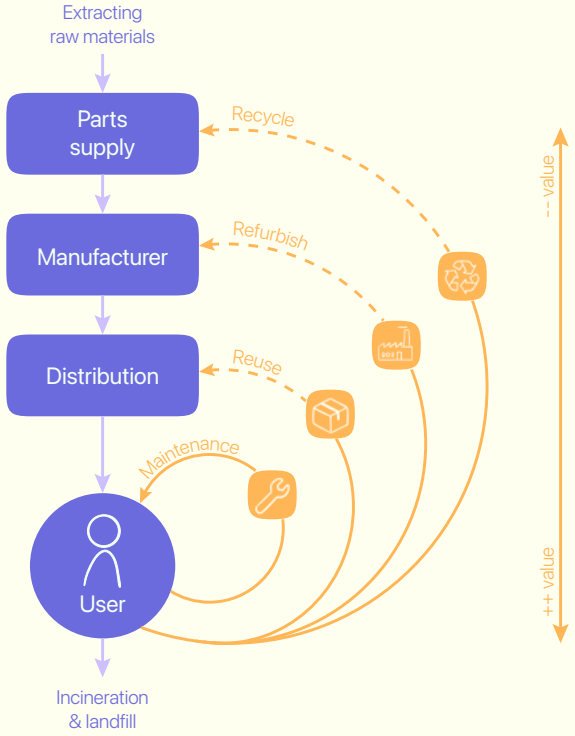


Figure 1. Technical cycle of solutions for the Circular Economy (adapted from circular practices diagram at Philips website)

However, as the Ellen MacArthur Foundation states, prioritising **inner circles** like maintaining and prolonging minimises the fewer changes in the product, maximising its value and achieving a **more effective circularity.**

Design practitioners have explored several approaches to strengthen these inner circles of the technical cycle, as shown in Figure 2. While some of these approaches have been implemented in Philips grooming products, such as adaptability and modularity of device heads and add-ons, it is debatable whether these were primarily driven by business motives rather than sustainable goals (e.g. to facilitate the treatment of the product at disposal).

This illustrates the increasing tension between sustainability and economic growth, which not only is implicit in the context of this project but also is gaining relevance and awareness on the policy and public spheres.

From a user perspective, these products are also designed for easy maintenance. For example, cleaning can be done quickly and conveniently as part of a personal care routine, relying on user behaviour.

The implementation of these strategies is likely to be further encouraged by the new European Right to Repair directive. This directive aims to make repairing electronic goods easier and more affordable for consumers. Therefore, it will undoubtedly lead to a greater and more effective emphasis on sustainable design principles like repair, durability, longevity, modularity, and upgradability in these devices.

Design strategies for product longevity	Publications	Definition
Design for Ease of Maintenance and Repair	Bakker et al. (2014); Desai & Mital (2006); van Nes & Cramer (2005)	Incorporating maintainability considerations into the design process to simplify and reduce the time and economic cost of future maintenance and repairs.
Design for Adaptability and Upgradability	Bakker et al. (2014); Kasarda et al. (2007); van Nes & Cramer (2005)	Creating a product that can be easily modified or enhanced with new features and components to meet evolving needs.
Design for Durability and Longevity	Ellen MacArthur Foundation (2013); Ljungberg (2007)	Focusing on building a product that can last a long time and withstand wear and tear.
Design for Modularity	Kusiak (2002)	Breaking down a product into smaller, interchangeable components for easier assembly, disassembly, and individual replacement.

Figure 2. Different design approaches to facilitate the prolonging loop of the Circular Economy (adapted from Haines-Gadd et al. (2018))

Figure 3. Shops offer a wide range of devices from different brands

1.2 Product longevity vs Consumption behaviours

Despite these ongoing efforts, none truly **challenge consumers to rethink their consumption behaviours**. This links to the critical claim of Chapman (2015):

"There is no point in designing durable products if users lack the desire to keep them".

Simply designing products for longer lives might not be enough. Repairable, adaptable, and durable products will face the hurdle of consumers' behaviour. Their success will ultimately depend on **consumer engagement** (Mugge, 2017). Therefore, in order to engage consumers in this loop of maintenance and prolonging, products should be designed not only to be easily repairable and long-lasting but also to have a **longer psychological lifetime** (Chapman, 2009).

This is where the concept of **Emotional Durability** emerges as a powerful tool for matching the physical and psychological lifespan of a product. It refers to a product's ability to create a lasting bond with a user, fostering a desire to keep and use it for longer. This is precisely the challenge addressed in this graduation project: applying Emotional Durability in the context of Philips' grooming product portfolio.

Philips, recognising the environmental pressures, is seeking ways to extend the lifespan of their products. Grooming devices provide an ideal testing ground for this concept of Emotional Durability. They are characterised by a high frequency of use with multiple and steady user-product interactions, which is the foundation for product attachment to flourish (Mugge et al. 2008). The intimate usage of these devices for shaping and conveying oneself image sets a fertile ground for an emotional connection with the device based on what they afford users to be.

Grooming devices typically have a lifespan of 5 to 10 years, depending on the product tier (based on product reviews). However, in the grooming market where many competing products are available (depicted in Figure 3), rapid technological advancements and evolving consumer preferences tend to drive premature replacements. Thus, the long lifespan of grooming devices positions them strongly to benefit from emotional design strategies to prevent such premature replacement.

1.2.1 Benefits and challenges of applying Emotional Durability

The benefits of implementing Emotional Durability in Product Design, as depicted in Figure 4, could be seen as a virtuous cycle:

1. It will lead Philips towards a **more positive environmental impact**. Its grooming products' longevity will be extended by aligning its physical durability with its psychological durability based on the emotional bonding between users and products (Chapman, 2009)[1].

2. This will result in a by-product **enhanced user grooming experience**, as products that resonate with users emotionally evoke positive emotions (Schultz et al., 1989), like greater satisfaction and enjoyment.

3. Emotional Durability strengthens **brand loyalty** (Mugge et al., 2005). When users develop strong emotional bonds with the products of certain brand, they are more likely to become loyal customers and advocate for the brand, starting again the loop at a higher level of the cycle.

Technological ecosystems are a good example of this brand loyalty effect. Some people, due to the positive emotional connection formed with their smartphone, end up buying other communication devices from the same brand to build a functional ecosystem.

However, EDD presents some **challenges**, like the **inherent variability** in individual preferences. Not all consumers are equally likely to form strong emotional bonds with their products (Orth et al., 2018). Moreover, users' self-concept and preferences evolve over time. Thus, the emotional connection established initially with a product may **weaken or transform** as the user themselves changes (Myers, 1985).

A further challenge, but also an opportunity for Philips, lies in the tension between **mass-produced products** and the unique nature of the sought product-owner relationship (Orth et al., 2018). Lastly, to the best of my knowledge, Emotional Durability remains at a more theoretical level, with little practical design case studies, posing a challenge in effectively translating this theoretical concept into product design due to the lack of clear practical guidance and real examples.

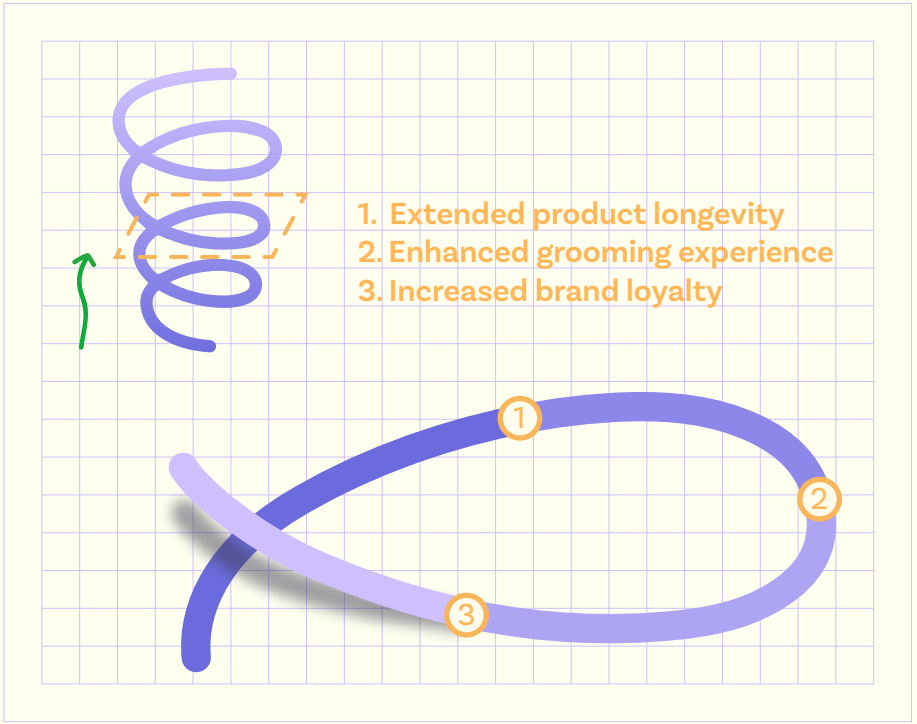


Figure 4. Cyclical benefits of applying Emotional Durability

[1]A mismatch caused by a product being more emotionally than physically durable would be equally harmful to the environment as it would not avoid product replacement. It would likely result in a non-operational product being stored, hindering other cycles of the Circular Economy.

1.3 Graduation assignment

This graduation project aims to bridge the gap between Philips grooming durable products and consumers' willingness to keep them through emotionally durable designs. The project brief signed at the beginning of the project can be found in Appendix A. The ultimate goal is to:

Design a product intervention to foster a durable emotional connection between grooming users and their devices in their self-care routine.

The project employs a **participatory design** methodology. This approach aims to involve the very people who are being served through design to leverage the principle that "users are the experts of their experience" (Sanders & Stappers, 2012, pp. 18–19). This is key to facilitate bringing together a frequent and intimate habit as grooming with their personal perspective and experience of product attachment. The different stages of the project, aligned with the Double Diamond design framework, are depicted in Figure 5.

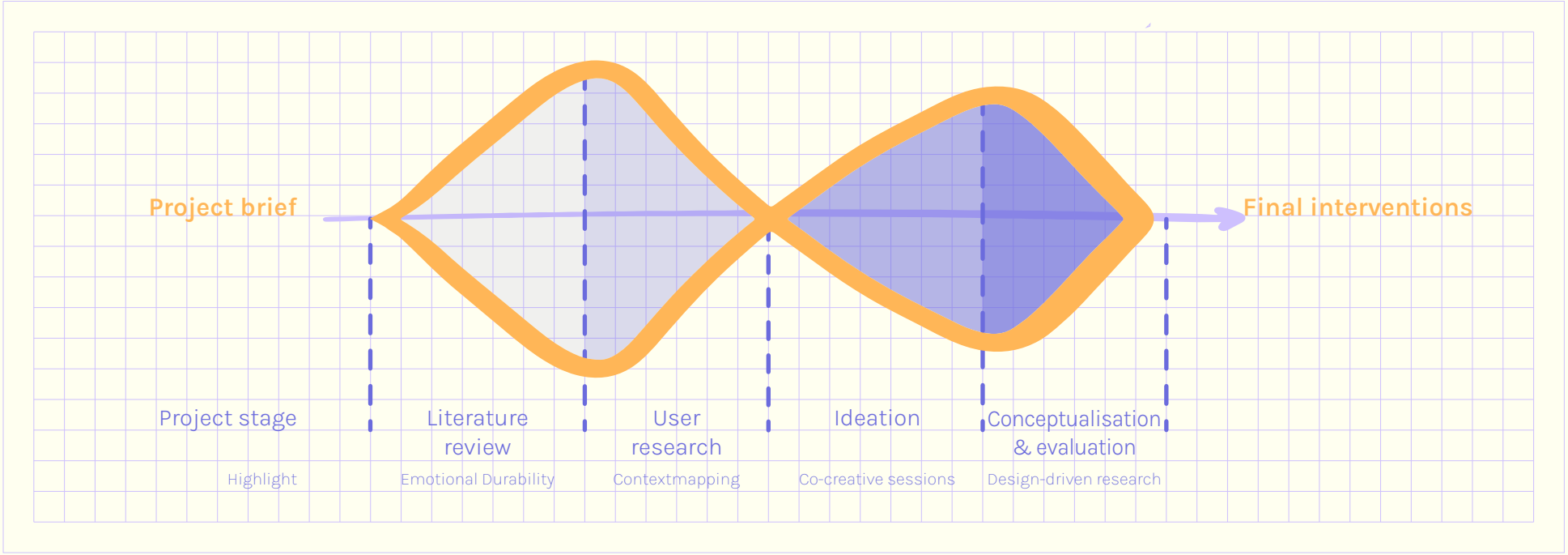


Figure 5. Overview of the project structure

02

Literature Review

This chapter examines the theory behind Emotional Durability and explores its applicability in the context of grooming and Philips. Ultimately, the key pathways to do it are presented at the end of the chapter addressing plausible strategies and the Philips grooming product portfolio.

2.1 Emotional Durability: Definition

Emotionally Durable Design (EDD) was first introduced by Chapman (2009). It refers to a sustainable, **user-centred design approach that aims to extend product lifespans by fostering and strengthening the emotional bond between people and their products** (Chapman, 2009; Haines-Gadd et al., 2018; Ji & Lin, 2022).

As Mugge (2017) explains, fostering these emotional connections leads to stronger product attachment, making people more likely to keep and cherish their items instead of replacing them. Therefore, EDD represents another **strategy for the inner circle of the circular economy**.

On this basis, one can infer that EDD is connected to psychology, consumer behaviour and design practice. The following sections will delve into these relations, specifically addressing:

1. **Beyond utility and aesthetics:** Exploring the symbolic value in long-lasting relationships with products.
2. **Consumption & the self**: How products reflect who we are.
3. **Design Strategies for Emotional Durability**: Examining frameworks and practical strategies to cultivate lasting emotional connections with products (like the one depicted in Figure 6).
4. **Three academic case studies**.

Figure 6. Gracefully ageing materials as strategy for EDD, by Emma Whitings

2.2 Beyond utility and aesthetics: Exploring the symbolic value in long-lasting relationships with products

2.2.1 Psychological product value dimensions

Haug (2019) expands the concept of Emotional Durability to psychological durability, aimed at extending product lifespans beyond technical obsolescence. Building upon Mimouni-Chaabane & Volle (2010) work, he connects psychological durability to the durability of the following products' value dimensions:

- **Psychological instrumental value**: perceived product's ability to achieve specific goals or functions.
- **Psychological hedonic value:** pleasure and enjoyment derived from using the product.
- **Psychological symbolic value:** product's ability to communicate identity, social status, or personal meaning.

As illustrated in Figure 7, these dimensions are **underpinned to each other** and among its constituents. This highlights the fact that the durability of a product cannot be strengthened only through one single dimension.

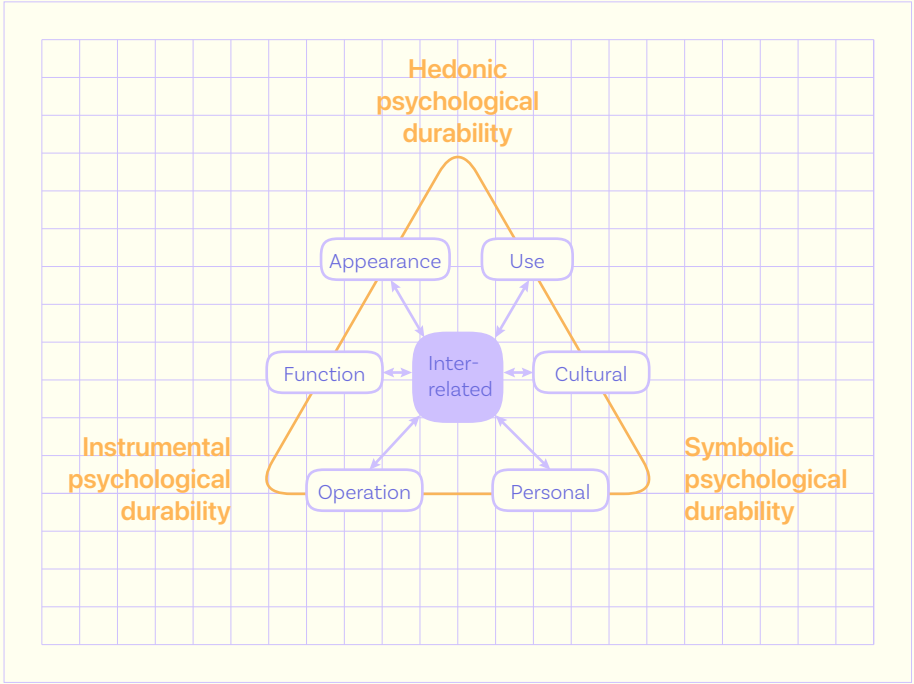


Figure 7. The three dimensions are interrelated (diagram adapted from Haug's (2019) publication)

2.2.2 Hierarchy of psychological value dimensions

Exploring the connection between these value dimensions and EDD, the fact that consumers tend to substitute their products even when they still function properly (van Nes & Cramer, 2005) suggests that the **psychological instrumental value is less powerful** than the other two in fostering Emotional Durability.

Furthermore, Mugge's (2017) **hierarchy in the experience of attachment** proposes three levels that can lead a product to become emotionally durable: general features, specific product variants, and product specimens. Breaking it down along with the three dimensions:

1. **People attached to general features** like functionalities or appearance find special meaning in how those features work or look. Value comes from the instrumental and hedonic dimensions. However, this attachment is often shallow because there are likely other products offering similar or better features and appearance. Thus, these products are **easily replaceable** as other products can deliver same or more psychological instrumental and hedonic value.

2. **Products with unique features** hold special meaning beyond its general function or appearance. They become symbols of the owner's taste, identity, or affiliations through design qualities or product properties. However, this **symbolic meaning can still be found in other variants** of the same product, making them potentially replaceable.

3. **Some products become irreplaceable** due to their deep personal significance. **This symbolic value is woven into the object itself**, inseparable from its physical features. Memories, experiences, and emotions create a unique story that makes it irreplaceable, even if another identical product exists.

My own experience of attachment

1. Attach to general features. Some time ago, I had a pair of wireless earphones (Figure 8) that I was really into. Back then, they were kind of a novelty, and I would say I was definitely attached to them to some extent. It felt cool to open the case and pop the buds in, enjoying the freedom of listening to music without a cable! But irreplaceable? Probably not as I eventually switched to other earphones and even went back to wired ones later.

Figure 8. My first earphones

2. Attach to unique features. Looking at my mouse right now as I write this (Figure 9), I think it is a good example of this middle level of attachment. There were two main reasons I bought it: quietness and a sleek design. I love how quiet it is – no more clicky sounds while surfing the internet. Plus, aesthetics are always subjective, but in my opinion, it really stands out from the typical mouse design.

The shape, the magnetic closure, the colour customisation – all these elements come together to create a product personality that resonates with me. And hey, it was on sale too! Still, any other mouse from the same model line could do the job just as well. I even sometimes wonder if I should have picked a different colour...

Figure 9. My mouse

3. Irreplaceable object. *Finally, I want to talk about my personal water bottle (Figure 10). On the surface, it is just a customised bottle with my initials engraved. But over time, it has become irreplaceable. It was as a gift, and then I started to take it everywhere – the office, the gym, even on trips abroad. Eventually, the first dents and scratches appeared. I have to admit, they bothered me for a while. All that protection for nothing!*

I guess that is also part of its charm. If someone offered me a brand new, scratch-free bottle with my initials tomorrow, I would not take it. My bottle tells a story – it captures the places I have been and the things I have done. Why replace it?

Figure 10. My water bottle

In conclusion, while Haug's framework provides a valuable foundation for understanding emotional product durability through these three value dimensions, Mugge's work on attachment hierarchy adds a crucial layer. If the instrumental and hedonic response are rather "feelings and experiences while seeing or using the product" (Norman, 2004, p. 38), the **symbolic value**, tied to personal and cultural meaning, emerges as a **powerful driver** of strong, lasting and unique emotional connections with the products we own, as illustrated in Figure 11.

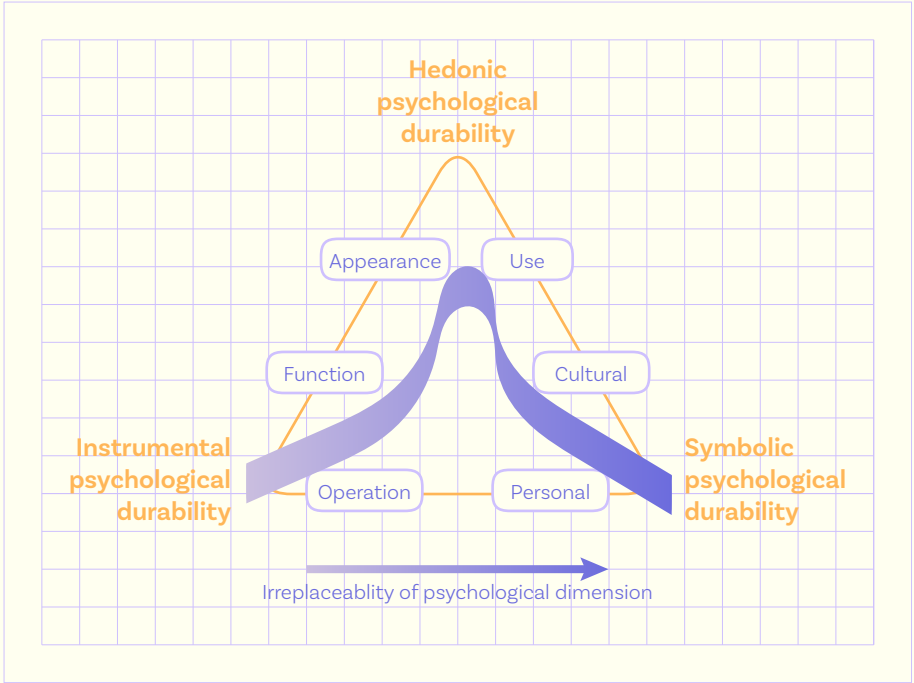


Figure 11. The three dimensions do not contribute equally to become a product emotionally durable

2.2.3 Philips grooming & the three dimensions

Philips, as a leading name in consumer electronics and appliances, stands out delivering **high instrumental and hedonic value** in its products. Philips emphasises both functional effectiveness and user enjoyment as key drivers of product psychological durability.

From an instrumental point of view, their grooming products are functional and reliable. They offer **several products for different purposes and ranges** of performance. From tools for specific grooming routines to All-in-One products. For instance, The Bodygroom Series 5000 is showerproof and features multi-length trimmers, adjustable shaving heads, and a skin-friendly design, allowing users to remove hair of any length comfortably and safely from various body areas.

Furthermore, Philips grooming portfolio acknowledges that user experience goes beyond functionality, focusing on **visual appeal and user interaction** to elicit an aesthetic pleasant response that contributes to the hedonic value of the product. For instance, the OneBlade 360 Connected offers a new feature to assist users with styling their beard through face recognition (see Figure 12). It emphasises their effort to enhance user engagement and satisfaction through **innovative interactive technology.**

However, it is important to acknowledge that a long-lasting and unique emotional connection goes beyond the instrumental and hedonic aspects. The symbolic value dimension plays a crucial role in fostering deeper emotional attachment to influence product psychological durability.

While Philips excels in functionality and user experience, their grooming products currently **lack a powerful symbolic dimension** that resonates strongly with users or enable them to embed a personal meaning. Due to a primary focus on functional aesthetics, Philips grooming products are marketed as “effective” and “beautiful” tools. This approach overlooks the potential of the third dimension. One reason for this might be that current grooming devices lack features that enable users to embed personal meaning or create a personalised experience that fosters a meaningful interaction or connection.

Building on this concept, the next section explores why this symbolic connection with the self matter in the relationship between individuals and their products.

Figure 12. Philips grooming products and some of their features (source: Philips product online site)

2.3 Consumption & the self:
How products reflect who we are

Besides their functionality and appearance, products play a powerful role in **shaping and reflecting people's sense of self** (Chapman, 2009; Orth et al., 2018). This section examines how our aspirations and evolving identities intertwine with the objects we choose to possess. By understanding this underlying relation, valuable insights for fostering Emotional Durability are unlocked for reviewing and use the design strategies presented further on.

Chapman (2016) argues that, even though there are products that individuals may choose from a utilitarian point of view, these do not simply **represent** what people own, but also **who they are and who they want to be**. Products become external representations of the internal selves: experiences, values, preferences, style... However, Chapman (2009) also argues that the satisfaction from these new possessions fulfilling individuals' aspirations tend to be fleeting; leading to a cycle of **"consumption as a process of self-definition"**, with destructive implications for the sustainability of consumerism.

Regarding the connection between the sense of self and Emotional Durability, previous research on the fields of psychology and consumer behaviour (Belk, 1988; Csikszentmihalyi & Rochberg-Halton, 1981) found a correlation between cherished objects and how people construct and develop their sense of the self. In fact, Govers & Mugge (2004) found that when people have **personality similarities** between themselves and a product, they are more likely to **develop an attachment** to it. This suggests that objects that resonate with our most inner self become more integrated into our identity narratives, fostering stronger emotional bonds with them.

2.3.1 Symbolism in high-end grooming products

High-end products refer to products typically positioned at the upper echelon of a market segment for their superior quality, advanced features, premium materials, and often with a higher price tag. Conversely, **low-end products** are typically characterised by being more affordable, having fewer features or capabilities and are often targeted towards budget-conscious consumers.

Since Philips grooming caters to a wide audience, their portfolio includes products across various price points. This section will explore why applying EDD principles might be more effective when focusing on Philips' high-end grooming products.

First, high-end products display a **higher instrumental and hedonic psychological value** than their low-end counterparts because of what they afford. While this value can be surpassed by other high-end products, it is generally more durable than the value proposition of low-end products.

Secondly, the acquisition of high-end products often carries a **great symbolic load**, filling the psychological symbolic dimension from the start. This symbolism transcends the product's qualities, stemming instead from **what the acquisition symbolises for oneself** (e.g., a luxurious bag bought with a first salary, or a superior quality shaver received as a gift). This contrasts with the fact that low-end products are usually bought from an instrumental point of view, lacking an initial meaning.

Therefore, one **hypothesis** is that high-end products have more potential to become irreplaceable because of the personal meaning and symbolic connection they entail from the beginning.

2.3.2 The self in the grooming context

Grooming products, beyond their instrumental and hedonic value, can hold significant symbolic meaning for users. This meaning stems from user choice, the physical shaping of one's appearance and the habit of usage. Firstly, the **choice of a specific product** reflects the user's aspirations. For instance, opting for a high-end electric shaver might symbolise professionalism.

Secondly, **grooming products literally shape how we look** (as depicted in Figure 14), impacting how we perceive ourselves and how others perceive us. A specific haircut or beard style is symbolically linked to self-expression or belonging to a certain cultural group. Thus, despite grooming products acting in the background

of our bathrooms, users may develop an emotional connection with their device for what they afford them to be and show externally.

Lastly, due to the intimate and frequent usage of grooming products, they become **integrated into one's daily routines** as tools for self-expression. Therefore, the symbolic meaning also emerges from the recurrent interaction between the product and its owner. This continuous engagement has the potential to foster a deeper emotional connection. But, how can this emotional relationship be promoted and maintained over time to extend the lifetime of the grooming device despite the self-definition consumption cycle?

Figure 13 collects the main takeaways from this analysis for the project.

Takeaways from consumption & the self

- Products become external representations of our internal selves.
- Product attachment is more likely to form with products that exhibit personality similarities with their users.
- High-end products may have more potential to become irreplaceable.
- Grooming products literally shape how we look and impact how we perceive ourselves and how others perceive us.
- The symbolic meaning of grooming products emerges from the continuous engagement between the product and its owner in the process of self-definition.

Figure 13. Takeaways about symbolism in grooming

Figure 14. Grooming has a symbolic and physical connection with the self

2.4 Design strategies for Emotional Durability

A big stream of the available literature on this emotional connection is related to product attachment, either understanding how it works (Mugge, 2017; Schultz et al., 1989) or applying and measuring its underlying principles (Orth et al., 2018; Schifferstein & Zwartkruis-Pelgrim, 2008). Nonetheless, Chapman (2009) developed a framework providing starting points through which investigate how to bring together the theory of Emotional Durability and the design practice. This framework, however, lacks a clear guidance on how to explore each theme.

In this regard, a later design framework created by **Haines-Gadd et al. (2018)** was conceived to **provide designers with the tools to apply Emotional Durability principles** to the product design process. Therefore, this section will focus on Haines-Gadd et al. (2018) framework due to its practical guidance and comprehensive approach.

2.4.1 Emotional Durability Design Nine

Developed at University of Brighton in collaboration with Philips Lighting by Haines-Gadd et al. (2018), this EDD framework consists of **nine themes**: relationships, narratives, identity, imagination, conversations, consciousness, integrity, materiality, and evolvability (see Figure 15). They represent design factors to consider for **designing product-user interactions** in order to "influence consumer's behaviour to retain their products for longer" (Haines-Gadd et al., 2018, p. 12).

Additionally, each theme includes some strategies. It is worth noting that some strategies can be categorised under other themes as well. Figure 16 on the next page includes the goal and strategies of each theme. Based on the previous sections, the following paragraphs will try to shed light on which themes hold more potential for the later design phase within the grooming context.

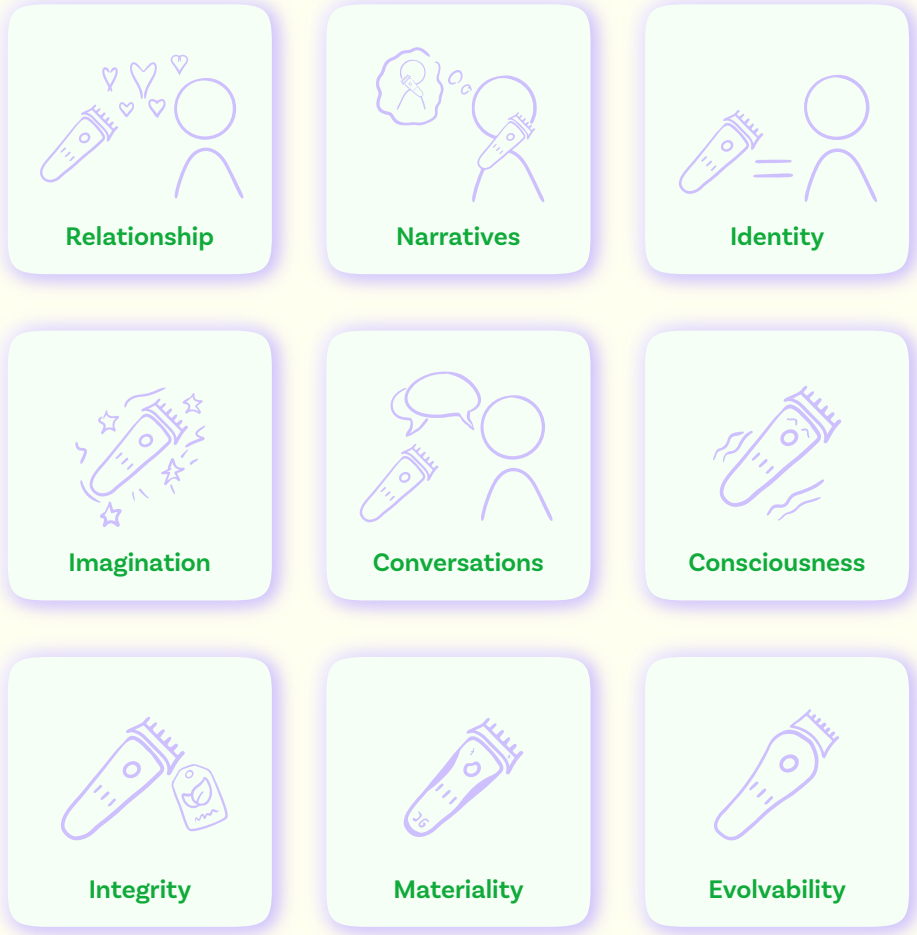


Figure 15. Nine themes of Haines-Gadd et al (2018) framework

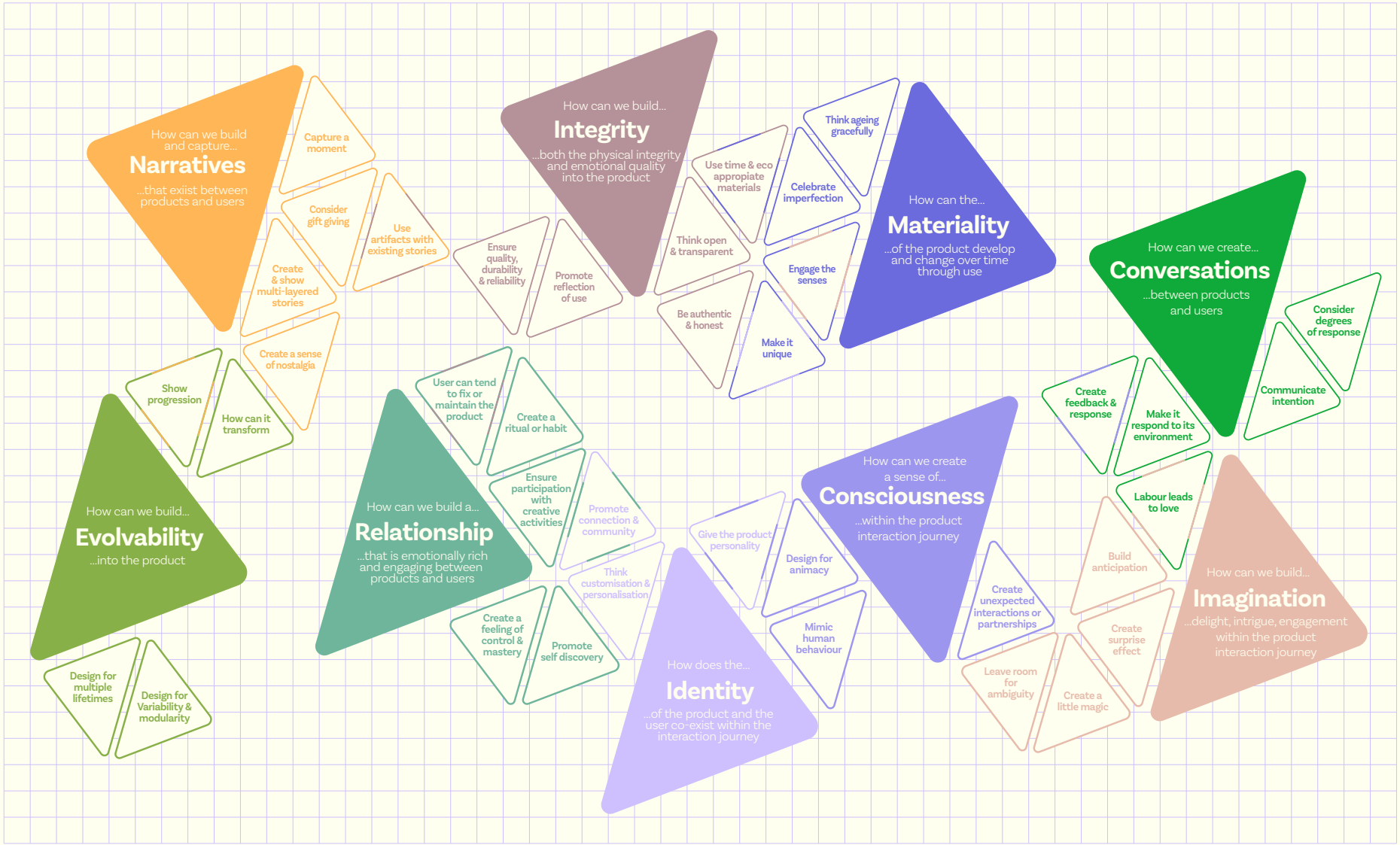


Figure 16. Themes and strategies of Haines-Gadd et al (2018) framework (adapted from Haines-Gadd et al (2018))

Promising Themes for EDD in Philips grooming products

The themes of **relationships, narratives, identity, conversations, materiality, and evolvability** (highlighted in Figure 17) emerge as key pathways for Emotional Durability Design in the grooming context. They have potential to increase and prolong the **symbolic and aesthetic value** that users derive from grooming products. This is facilitated by the frequent and intimate interaction users share with their grooming devices; and strengthened by integrating the product on its owner's representation of the self.

The strategies within these themes will help Philips deliver a **personalised[2] and unique grooming experience**. Building personal care routines and narratives around products and self-concept can strengthen and prolong the psychological value derived from these new interactions. These themes foster meaningful and enduring emotional connections between users and their Philips grooming products.

Conversely, the themes of **imagination, consciousness, and integrity** may present limitations in achieving an emotionally durable design in the grooming context. The emotional connection generated by means of the first two themes (imagination and consciousness) is a consequence of sparking interest and engagement due to the novelty and surprise of the interaction. However, as Ludden et al. (2006) proved, this approach has a rebound effect. As the **novelty and surprise effect fades**, a **weakening of the connection** and interest is highly likely to occur.

Grooming routines are often established, consistent, and highly frequent. Thus, the ephemeral nature of surprises and expressions in grooming devices may lead to a short-lived emotionally durable product as this "magic" effect would vanish quickly. In addition, unexpected or **uncontrollable situations** while grooming could potentially pose a safety risk for users and hinder the overall grooming experience.

Lastly, for both a grooming device and Philips, the strategies within the theme of **integrity** are rather **baseline expectations**. Users generally expect a grooming device to function reliably for a long period and to be made out of appropriate materials. Additionally, this theme's primary focus on functionality and ethics may not fully cultivate the same emotional load compared to the other themes. Therefore, while interesting for setting an initial emotional connection, the other six themes offer a more unique opportunity to build a deeper emotional bond with users.

Nonetheless, while certain themes may exhibit varying degrees of effectiveness, it should be acknowledged the **synergy between different strategies** across themes; rather than considering strategies in isolation.

[2]Personalisation involves imbuing an object with personal meaning through individual use and modifications, while customisation offers pre-defined choices for tailoring a product to your needs (Norman, 2004, pp. 218-224).

Figure 17. Six themes highlighted because of their potential to trigger Emotional Durability within the grooming context

2.5 Three Case studies

This section dives into three case studies showcasing practical academic implementations of EDD in various contexts. Each case study will be briefly described, analysed in relation to the previous framework, and followed by the takeaways relevant to this project.

2.5.1 Designing built-in ovens

Berg & Engström (2021) explored and applied EDD strategies to extend the lifespan of built-in ovens for Electrolux (see Figure 18). Their research involved user studies and design sprints to explore user needs and develop oven concepts that fostered user engagement, confidence, and adaptability. These qualities align with the EDD themes of **narratives, conversations, and evolvability**, respectively.

This research suggests that built-in ovens designed with **clear instructions, engaging learning curves and interactive features that encourage user mastery** can foster emotional attachment and extend the product lifespan. These insights hold promise for Philips' grooming products due to their advanced functionalities and potential for integration with new connective technologies.

By empowering users to become masters of their grooming routines and devices through interactive user interfaces, Philips can transform the learning process into a meaningful experience – a form of **"quality time"** with the device that users would not want to forego due to the invested time and acquired skills. In essence, making **technology integration more interactive or slightly challenging** can cultivate this emotional connection as *labour leads to love*.

The study also highlights the importance of considering cultural and lifestyle influences when employing EDD. As a global company, Philips must satisfy diverse markets with varying needs and perspectives on grooming devices. Interventions that resonate in the European market might not be that effective in North America, for example.

2.5.2 The sneaky kettle

The Sneaky Kettle (Figure 19) is a playful kettle with rotating movements designed to create an emotional connection with users through its seemingly **"alive" personality.** Van Krieken et al. (2012) proposed five key qualities for emotionally durable products: involvement, animacy, adaptation to self-identity, memory evocation, and reward. It clearly aligns with the themes of **imagination and consciousness** from the EDD framework, given the product's sneaky and unexpected behaviour.

Users' initial feedback suggested that they were receptive to some level of expressive behaviour in products for forming a kind of lasting connection. However, the "sneaky" behaviour might become annoying, highlighting the importance of balancing emotional connection with practical usefulness. This must be especially considered in the grooming context due to the physical and time consequences of an uncontrolled or unexpected situation arising.

This example reinforces the argument that imagination and consciousness themes should be treated carefully. If employed, they should **serve a functional purpose,** not simply for the sake of the interaction or symbolism. After all, grooming devices are *tools for self-expression*.

Figure 18. Built-in oven prototype (Berg & Engström, 2021)

Figure 19. The sneaky kettle (van Krieken et al., 2012)

2.5.3 Emotionally durable ceramics

This case study explores the design of emotionally durable ceramics through a teacup collection: Click, Slide and Duo (see Figure 21). Lacey (2009) drew inspiration from hand-crafted objects to translate **unique elements into mass-produced ceramics**. The goal was to encourage user engagement and personal connection through unexpected interactions. These teacups can be linked to the themes of **imagination** (Click and Slide) and **identity** (Duo) within the previous EDD framework.

The tea collection offers valuable insights into Philips' grooming context. Firstly, similar to the Duo cups with their variable handle placements, Philips can explore **function customisation** rather than only aesthetic customisation. Secondly, the Click teacup demonstrates that engaging interactions with a touch of surprise can enhance the user experience without compromising functionality.

However, the Emotional Durability of the Slide cup is questionable. The feature triggering the user's emotional connection (the cup sliding over the plate) is not essential for the core function of the act of drinking tea as in the others. For an emotionally durable design, I believe that **the element that sparks the emotional connection should be well-integrated into the product**, becoming part of the routine itself.

While customisation is a step towards aligning a product with user identity, personalisation can be even more powerful. In the case of the Click cup, why limit handle positions to 45 and 90 degrees? Could users choose any angle? While true personalisation might be difficult for mass-produced grooming devices, there might be an alternative approach. Instead of designing a personalised product, Philips could design a product that facilitates users' personalisation: **design FOR a personalised experience**.

2.5.4 Learnings for the project

This review of EDD in action highlights the following key takeaways for Philips' grooming products in the current project in Figure 20:

EDD case studies takeaways

- Balance emotional connection & functionality.
- Empower engagement through user mastery.
- Functional integration of symbolism is key.
- Consider cultural nuances.
- Design for personalisation.

Figure 20. Key takeaways for the project from the cases studies

Figure 21. Duo (left), Click (right) & Slide (centre) (Lacey, 2009)

2.6 Conclusions

This Literature Review explored the concept of Emotional Durability Design, its underlying mechanisms, a design framework and three case studies.

By understanding the emotional connection between users and products, we can design grooming products that are not only functional but also that foster lasting connections, reducing waste and their environmental impact.

Symbolism is key

Beyond functionality and aesthetics, **symbolism** plays a crucial role in fostering a **deep emotional connection between users and products**. Nonetheless, for the symbolic value to be prominent and enduring in domestic electrical and electronic products, their instrumental and aesthetic dimensions should stand out firstly. As Norman (2004) explains, they are the gateway baseline through which Emotional Durability can emerge.

The symbolism embedded into a product will be the ultimate reason that **will prevent users to replace a product** for another with a superior utility and/or aesthetics[3]. Philips products excel in these; but they lack a strong third dimension to achieve emotionally lasting products.

Since there is the challenge that each individual places a different meaning or symbolism in a product, **grooming products** should be designed as a **pre-set** so that consumers can **fill them with their unique meaning or experience**, so that it is impossible to separate their meaning from their groomer.

[3]Emotional Durability also presents the dilemma of determining if the sustainable choice is to keep or replace, depending on whether the product in use has a greater environmental impact compared to newer products. However, from a disposal perspective, choosing not to replace the product would theoretically result in not generating additional waste and would prevent the environmental consequences of producing a new device.

Users' self-concept must not be ignored

The concept of the self is another critical factor in Emotional Durability. **Products become integrated into our self-narratives**, reflecting who we are and who we aspire to be. Grooming products are particularly intertwined with this concept.

The choice of a specific device, the way it shapes our appearance (see Figure 22), and the very act of using it on a regular basis all contribute to how we perceive ourselves and how we want to be perceived by others. EDD strategies that tap into this connection between product and self can create a more meaningful and lasting emotional bond.

Figure 22. Grooming devices shape literally the representation of the self (source: Philips beard trimmers category website)

2.6.1 Potential design pathways for Emotional Durability in the grooming context

Themes from Haines-Gadd et al. framework

Among the various themes within Haines-Gadd et al.'s framework, the following hold more potential for fostering Emotional Durability for facilitating users to align their devices with themselves and embed their own symbolism: **Relationships, Narratives, Identity, Conversations, Materiality** and **Evolvability.**

Philips grooming portfolio

This subsection identifies potential application areas for Emotional Durability within Philips grooming product portfolio. Figure 23 provides an overview of the diverse grooming product categories offered by Philips. It highlights those with higher potential according to the explanation below. A short description of what each is intended for is also written.

This review suggests that within Philips' grooming portfolio, **face grooming products** present the most promising opportunity for applying EDD principles. This focus is supported by two key factors:

1. **Higher Frequency of Use:** As evidenced by Mugge et al. (2008), frequent interaction strengthens emotional attachment. Compared to other Philips grooming products, electric face grooming tools are used more often, daily or multiple times a week. This regular interaction fosters a richer user experience, potentially leading to a stronger emotional bond with the product.

2. **Self-Presentation and Identity:** Electric face grooming products play a unique role in literally shaping how we present ourselves to the world. Unlike body groomers, which are often used in private areas, face groomers directly impact the visual aspects of our identity that others see every day.

Figure 23. Philips face grooming product categories highlighted

Furthermore, this is supported by an extra pragmatic consideration: **privacy**. Focusing on face grooming avoids potential privacy concerns that might arise during user research with products designed for more intimate grooming areas.

In addition, according to the hypothesis previously posed, **high-end products** within the grooming context may hold even more potential for effectively applying EDD principles.

Figure 24 summarises the main takeaways from this chapter.

In conclusion, integrating EDD into the design process presents a strategic opportunity for Philips to not only create superior grooming products but also foster meaningful relationships with their customers. In other words, to differentiate itself in the market and contribute to a more responsible and sustainable future.

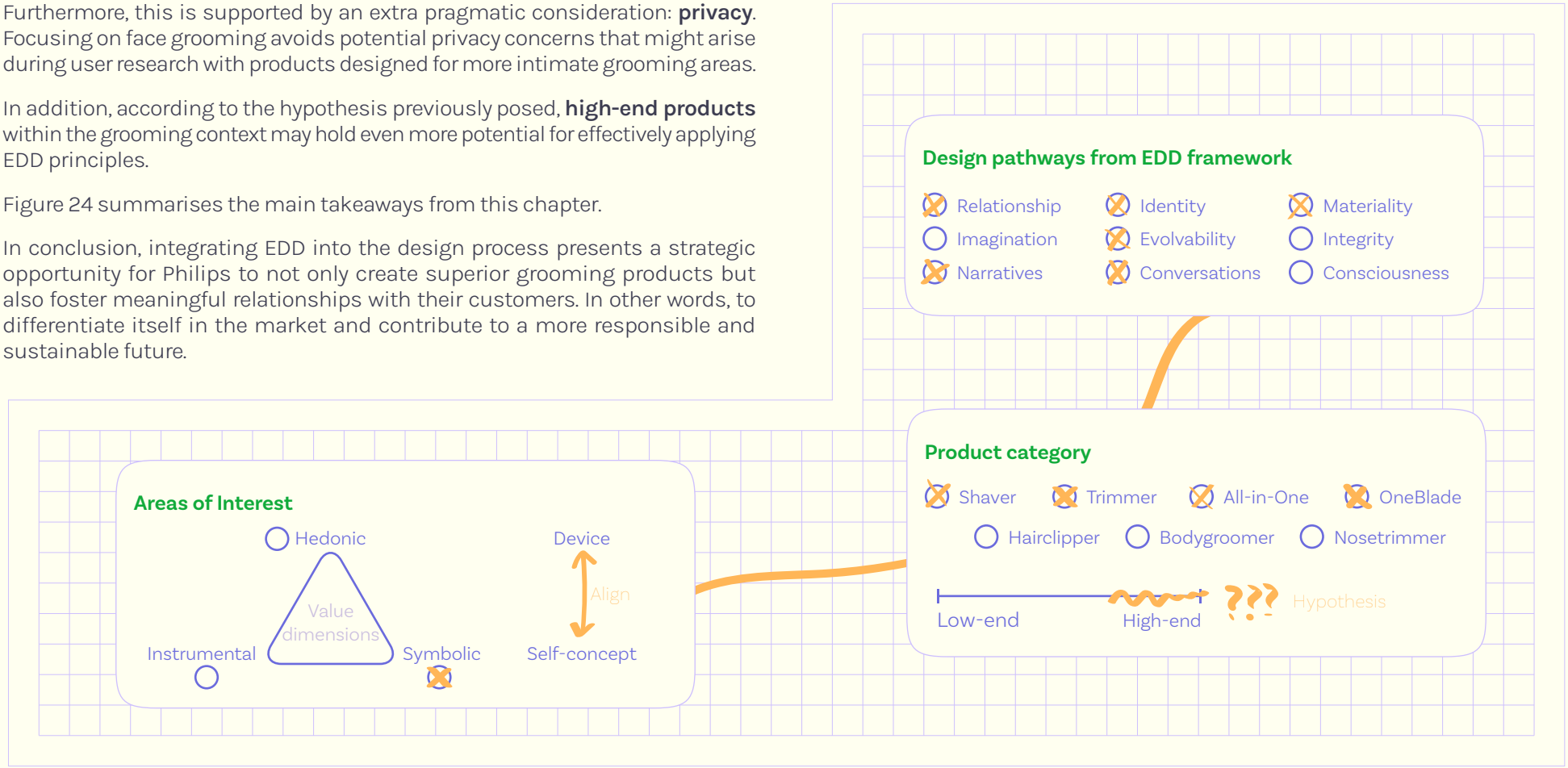


Figure 24. Literature Review takeaways

03

User Research

This section utilises generative contextmapping sessions to explore how the insights from the Literature Review can be applied to foster Emotional Durability in men's electric face grooming devices. By focusing on user habits and their wants for symbolic connections, the research aims to identify key strategies for future product design.

3.1 Scope & Research questions

The previous Literature Review has established a strong theoretical foundation for applying Emotional Durability Design principles to Philips' grooming products. However, bridging theory to practice requires further exploration within the specific context of grooming to validate the conclusions, understand the context of use and to study the applicability of such principles and strategies.

Figure 25 includes the research questions led by the main following one:

How can Emotional Durability Design strategies be applied to Philips grooming products to foster stronger emotional connections with users?

Research Question	Points of attention
1. What does the grooming experience look like?	Grooming routine - Personal care habits
2. What kind of relationship do users form with their grooming devices?	Attachment - Specific behaviours towards their device
3. Which themes from Haines-Gadd framework resonate most strongly with users and their grooming devices?	User-product symbolism - Experience of attachment
4. Are high-end products more suitable to trigger emotional connections with their owners?	Product qualities for irreplaceability

Figure 25. Research questions for the user research phase

3.2 Target product + user

Electric face grooming products

As discussed in the Literature Review chapter (see page 28), this research stage focuses on electric face grooming products like shavers, trimmers, OneBlades, and All-in-One devices (see Figure 26). This choice is based on two key reasons:

1. **Higher frequency of use leads to stronger emotional connection.**
2. **Self-identity:** Electric face grooming products play a unique role in shaping one's self-concept.

At this stage, no distinction between high-end and low-end product consumers is made. The goal is to understand how grooming users perceive their (potential) relationship with their devices. Additionally, we aim to observe whether high-end grooming products are more likely to become emotionally durable, or if this durability is independent of this product distinction.

Figure 26. Targeted products for the user research

Adult males with regular electric grooming

The target for this user research is the adult male who follows a consistent weekly personal care routine (see Figure 27). This segment comprises men who consistently use electric face grooming devices more than once a week.

Figure 27. Target group representation

3.3 Generative approach

Given the central role that users and their products play in Emotional Durability, this user research follows a generative approach to answer the research questions. This choice is motivated by several factors.

Firstly, Emotional Durability is an abstract concept that can transcend conscious awareness. Other research methods may miss out on **latent insights** and underlying feelings and associations that **participants may not readily articulate,** which is one of the key advantages of these generative methods.

Secondly, a generative approach fosters a **richer understanding of the grooming experience** by facilitating them to express themselves by means of diverse materials. The intimate nature of grooming routines can make some aspects difficult to capture through other methods, as participants might not realise the significance of certain details or feel comfortable sharing them readily.

Finally, a generative approach allows for a more **exploratory conversation**, where researchers can facilitate the surfacing of deeper and more comprehensive knowledge. To facilitate this in-depth exploration, the method of contextmapping is employed as explained in detail below.

3.3.1 Contextmapping

Contextmapping is a generative research method that utilises group sessions and “make” activities, such as collages and mockups. This approach empowers participants to articulate their experiences, thoughts, and opinions about their personal grooming routines and the emotional connection they have with their electronic grooming devices.

The method’s strength lies in its ability to **externalise participants’ thoughts and ideas before directly questioning them**. By creating collages and mockups, participants make their somewhat abstract or tacit concepts **tangible**, making it easier for them to articulate their experiences verbally later.

Figure 28 provides an overview of the contextmapping session setup, in which twelve male participants took part, consisting of 2 non-students and 10 students, including 3 of them on internships. Five of them had a background different from Industrial Design. It is important to note that while the study acknowledges potential limitations in representing the male target group due to recruiting barriers, it is expected that there will not be a significant deviation in terms of steps or habits from the greater audience, considering the inherent individual differences across the male gender.

Furthermore, users of non-high-end products may offer a broader perspective on this quality matter. High-end users may be fixated on specific standards, whereas users of entry-level products may be more open to discussing more diverse product qualities for products becoming irreplaceable. A theoretical framework is presented in Appendix B for a deeper understanding of the chosen technique.

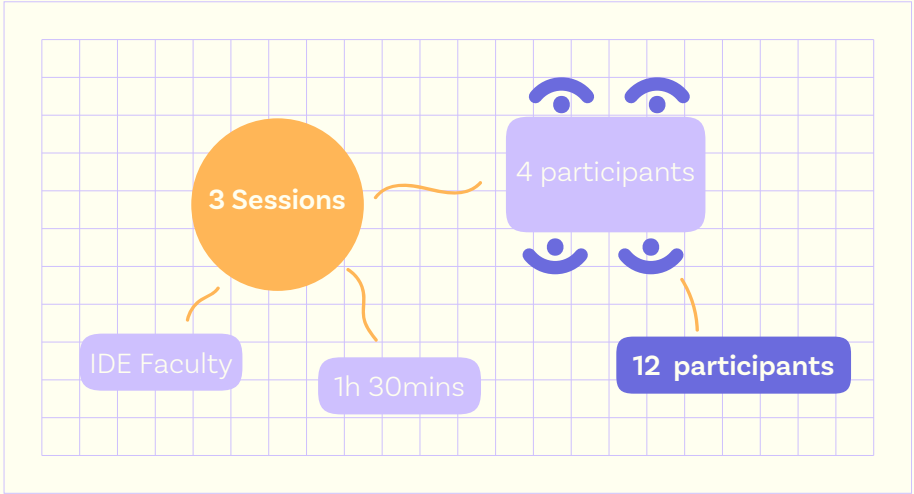


Figure 28. Contextmapping sessions setup

Session planning

Participants start with a sensitiser booklet prior to the session to bring the appropriate mindset to the session.

The session is structured around two main make-activities. After mapping their grooming experience and the underlying emotions in the first activity; participants form a future vision of an irreplaceable grooming device in the second one. Special emphasis is placed on the emotional connection, even if they do not experience such attachment to their current grooming device.

The first activity utilises more general imagery and words related to the grooming context for the collage. This allows participants to freely represent their experiences. In contrast, the second activity's trigger set is specifically designed to indirectly highlight themes from the Haines-Gadd framework et al. (2018) that might resonate with their grooming experience. This set intentionally mixes pictures and words that relate to each strategy within the framework, prompting participants to unintentionally narrate how these themes contribute to irreplaceability.

Given the ambiguity in the categorisation of the strategies within every theme and the similarities among strategies, the focus is not on which specific pictures or words they choose, but rather how they use them and the narrative they build with these elements.

Find below the general structure of the session in Figure 29, and in-detail planning in Appendix C.

Activity	Description	Duration	Aim
0. Sensitiser	Booklet with 5-minute daily tasks	3 days	Gather information about their grooming routine at the time these tasks set participants into the mood for the session and the topics of grooming and product attachment. It can be seen in Appendix D.
1.a Grooming routine	Collage making following a timeline	35 mins	Immerse participants into their routines. Understand participants' current grooming routines and environments. Identify emotional connections associated with aspects of their grooming routine.
1.b Grooming experience	Experience layer over tracing paper		They are first asked to map the steps in their grooming experience to later complete it with how they feel throughout their routine. Find the trigger set in Appendix E
2. Envisioning irreplaceable groomer	Collage making with desired product qualities	25 mins	Encourage participants to think beyond the functional aspects of a groomer and focus on the emotional connection. Explore with the trigger set (see Appendix E) what qualities foster an irreplaceable relationship with a grooming tool. During the exercise, participants are prompted to define the essential product and material qualities that would make their product irreplaceable, willing to use it over the next 15 years.

Figure 29. Main activities of the contextmapping sessions

3.4 Data analysis plan: DIKW method

The thematic analysis or Data-Information-Knowledge-Wisdom (DIKW) method is used to answer the research questions posed at the beginning of this chapter. In order to analyse the results gathered during the sessions, the recordings were transcribed and every piece of work created during the session was scanned.

To turn the data into information, an Excel table was filled by coding quotes, notes, observations and materials.

Coding refers to categorise data with descriptive codes that represents concepts or ideas present in the data. Then, these were clustered and organised by themes so as to gather the final insights with which the research questions can be answered. This is illustrated below in Figure 30:

*Due to a schedule misunderstanding with UR08, the second session took place with three participants. A one-to-one session was conducted with UR08.

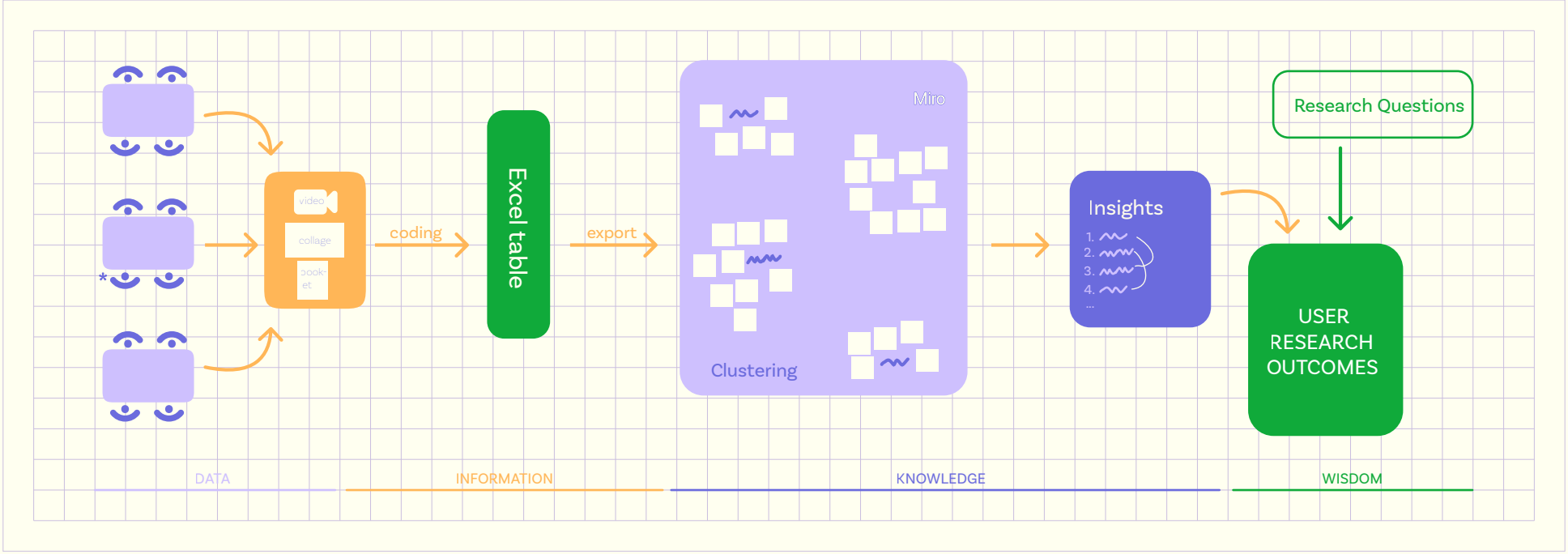


Figure 30. Data analysis plan

3.5 Results

This section provides an overview of the data gathered during the sessions. This data, and the consequent presentation of the results, can be split into current practices (first activity) and envisioning irreplaceable groomers (second activity):

3.5.1 Current practices

Every participant presented his own device and routine, whose categorisation can be found in Figures 31 and 32. Only one of the two that shave their beard keeps a clean shave look every day, as the other follows a weekly routine. Two of the four with a close trim have an adjusting routine in between every close trimming. The other six groom their beards between once and twice per week, with some exceptional cases every two weeks.

Moreover, only three of the twelve have a shaver, compared to the other nine, who own different types of grooming devices, like beard trimmers, OneBlade or All-in-One devices. Additionally, of those three participants with shavers, one also specified owning a OneBlade, affirming that his choice would depend on the season, using the latter currently. Unexpectedly, the majority of the devices of the participants (11/13) are from Philips. Thus, **Philips grooming devices were the main products discussed in the sessions**.

Each participant depicted his own grooming routine and experience in a collage, as shown in Figures 33 and 34 on next page with some examples. In terms of grooming experience, the diagram in Figure 35 summarises with some quotes the different stages participants go through during their grooming routine: what motivates them to groom, what influences them to decide to do it and their personal experience.

Participant	Grooming frequency
UR01	Every 2 days
UR02	Every 3-4 days
UR03	1 / week
UR04	1 / week
UR05	1 / week
UR06	Daily use

Participant	Grooming frequency
UR07	Every 4-5 days
UR08	1 / week
UR09	Every 2-3 days
UR10	Every 3-4 days
UR11	1 / week
UR12	Every 2-3 days

Figure 31. Participants basic grooming information

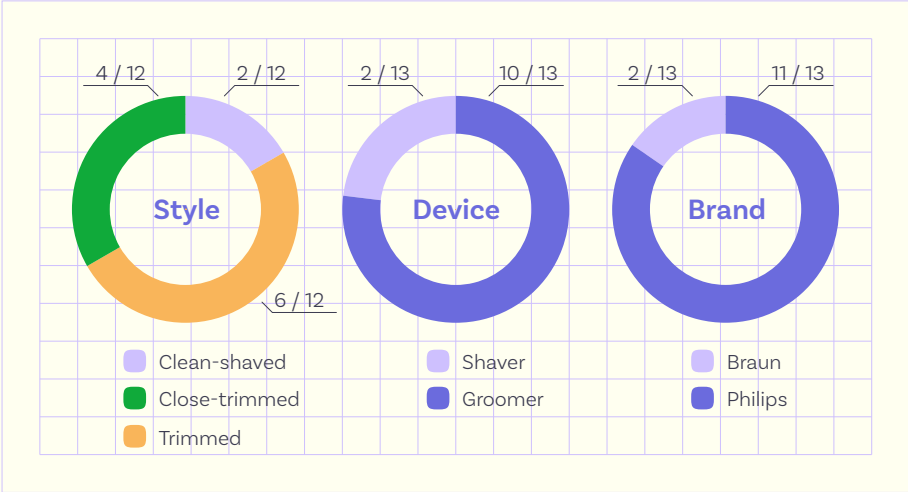
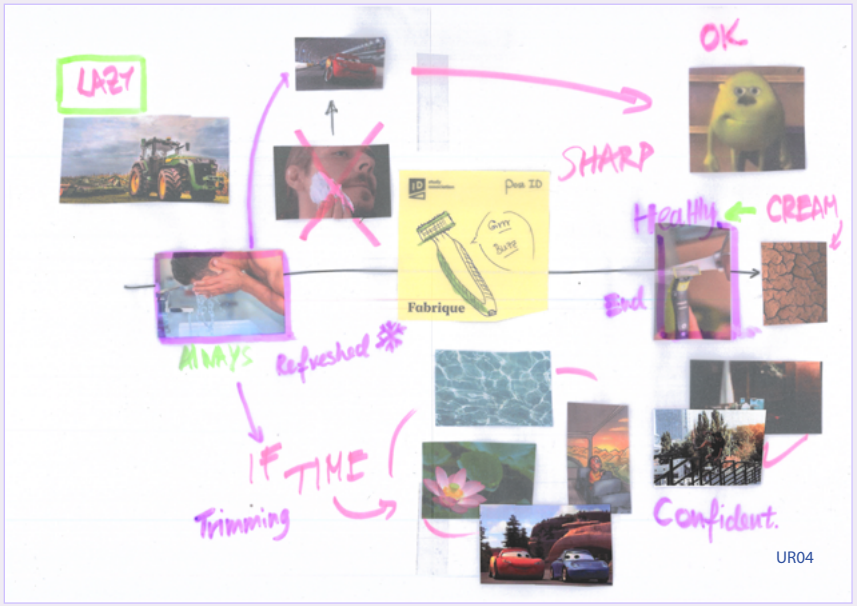
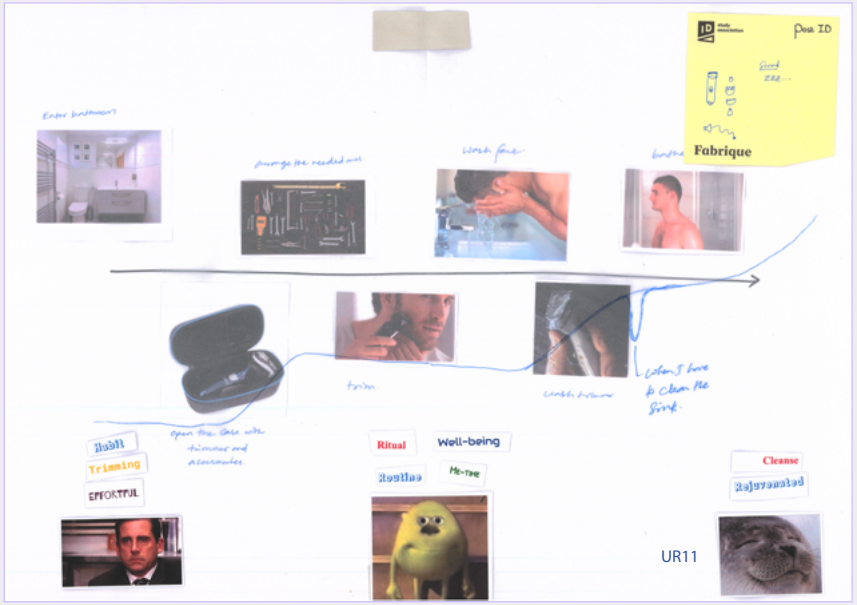


Figure 32. Grooming routines data summary





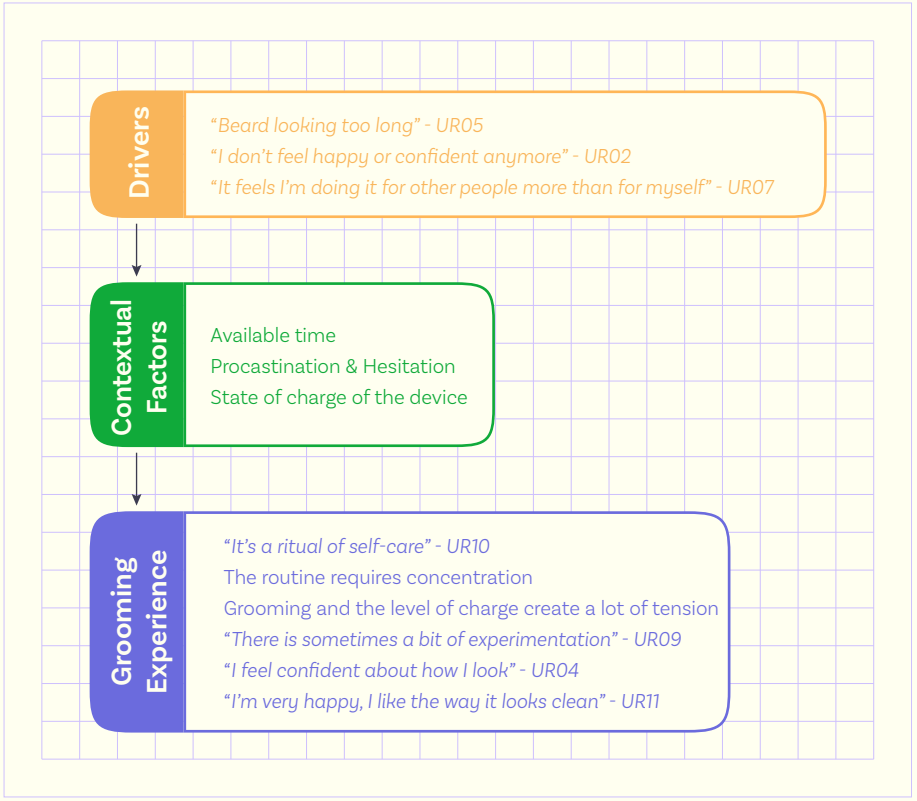


Figure 33. Collage by UR04 in the first activity

Figure 34. Collage by UR011 in the first activity

Figure 35. Different experience stages of their grooming routines

Figure 36 below captures which steps each participant usually takes. It is interesting to see the steps prior to the grooming routine that some participants take because even though they are not essential, they are key for them to **turn their routine into a ritual**. These steps help them to set the mood for the “me-time”.

Worth mentioning as well how many of them usually **forget to charge the device**, causing some stress and annoyance during the routine. In fact, none of them said "charging the device" as a step of their routine. Only two of them affirmed checking the state of charge before starting.

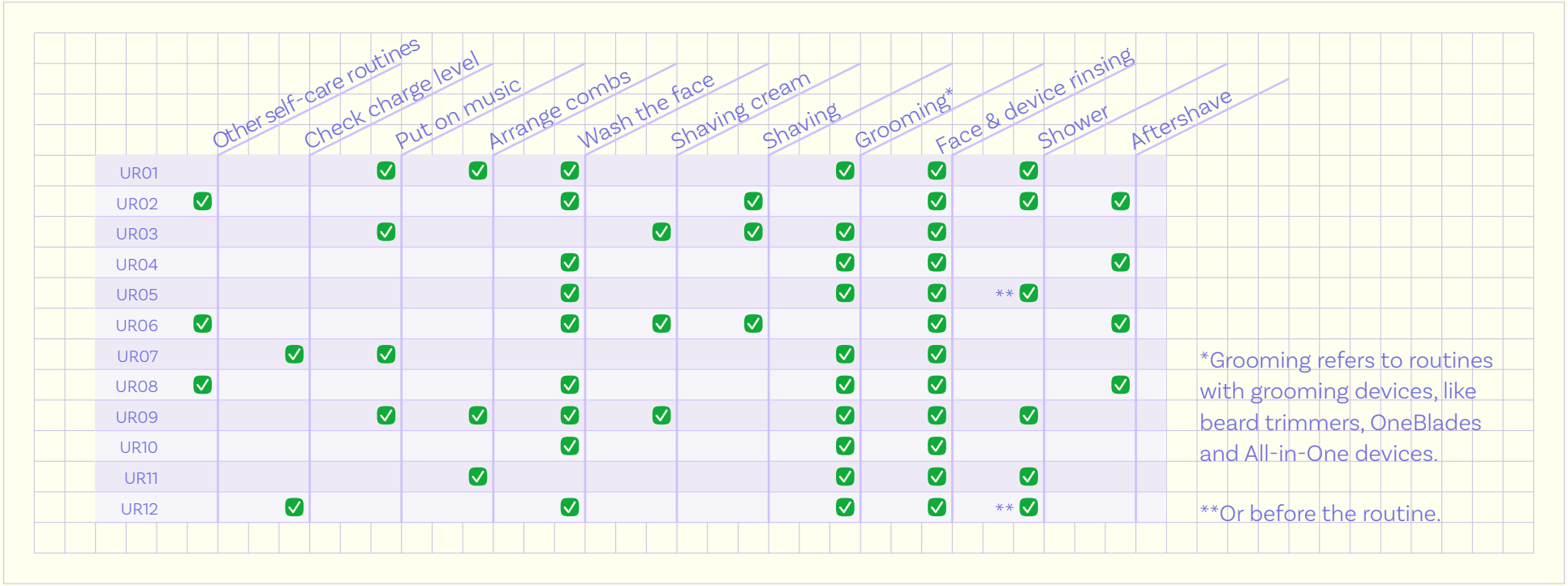


Figure 36. Steps in the routine of each participant

3.5.2 Envisioning irreplaceable groomers

During the second activity, participants were asked to make a collage depicting how they envision a groomer that would be irreplaceable for them. Thematic analysis of the transcripts of the sessions revealed, as Figure 37 shows, that the main themes touched on during the sessions were Materiality, Identity, Evolvability, Narratives and Integrity.

At least once, all the participants emphasised the importance of the material qualities of the product in becoming irreplaceable, using words such as "iconic design", "metal", "elegant", "with character", "timeless". This makes sense, as one of the tasks of the activity was to imagine the physical appearance of the irreplaceable groomer. Similarly, two thirds of the participants expressed more than once the need for the device to be linked to their own identity as individuals in order to imagine their grooming device as irreplaceable.

The theme of evolvability was another important point of discussion, as all but one of the participants mentioned product features that would allow the product to change over time according to their needs. Words such as "modular", "adaptable", "repairable", "versatility" were used. Two thirds of the participants emphasised several times the need to build a history with them in order to become irreplaceable. Half of the participants included in their collages elements related to the theme of integrity, although, as discussed later, these were more instrumental rather than emotional requirements for the device to become irreplaceable, like “should be durable” or “good materials that function and remains safe over time”.

Comments related to the theme of conversations were very limited to one participant (UR02). Interestingly, those associated with the theme of relationship contrast with the utilitarian relationship that participants described having with their grooming equipment, which is discussed in the next section.

Furthermore, the thematic analysis revealed the interconnection among themes, which was previously discussed in the Literature Review. As Figure 37 shows, many of the codes from the transcripts of the second activity were assigned to more than one theme, finding the following interesting pairings:

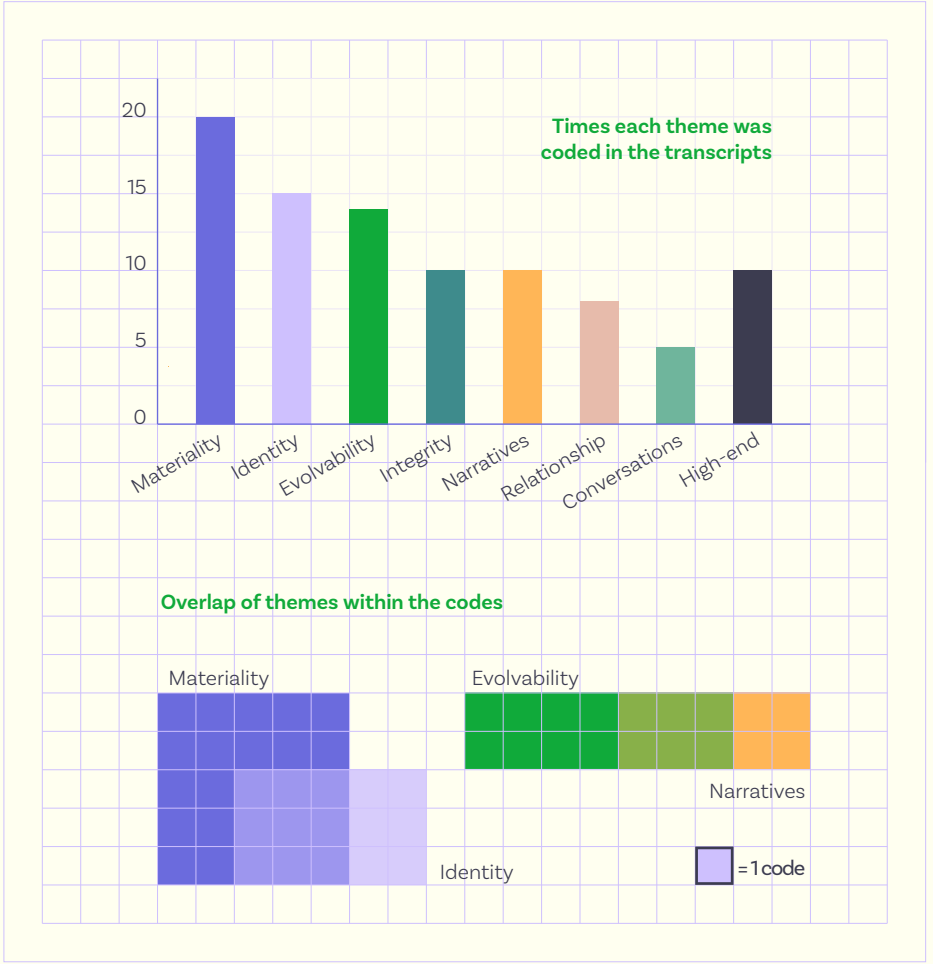
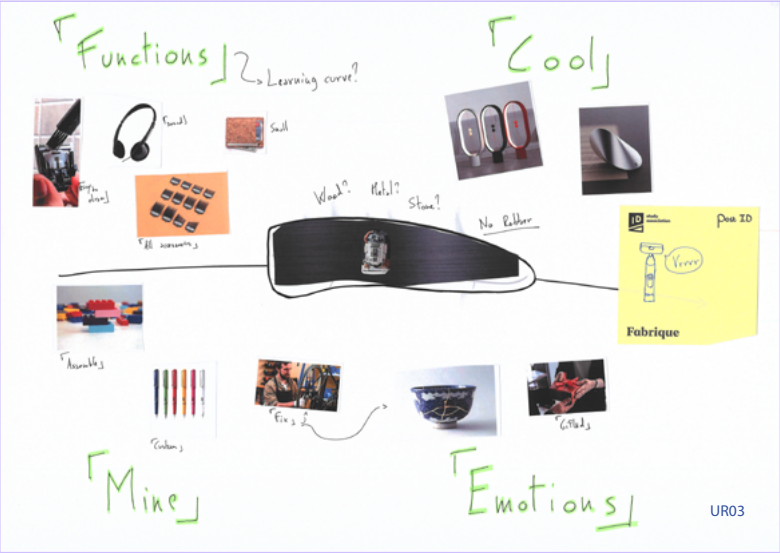


Figure 37. Presence of each theme on the codes



This collage collects the product qualities that UR03 would need for his groomer to become irreplaceable.

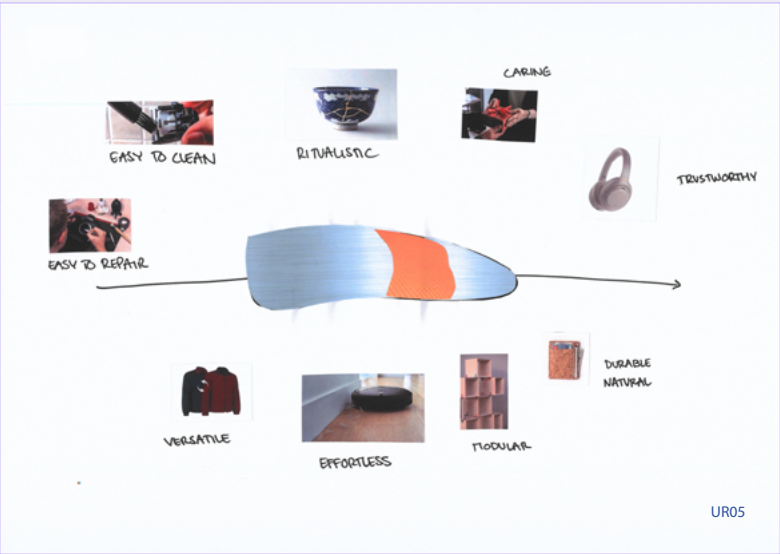
He created four categories. Firstly, it had to meet a number of functional requirements, such as being easy to maintain and versatile, with features that he could personalise.

Second, the design should be iconic and timeless. An object to be proud of or to show off.

Thirdly, he wanted the object to have a story that carries some kind of emotional load.

Fourthly, he wanted the device to be linked to his identity. Not only through customisation, but also through the sense of ownership that comes from being able to assemble or repair the device himself.

Regarding the material qualities, the device should be made out of materials that are pleasant to hold or to look at.



The collage of participant UR05 gathers a bunch of different qualities that would lead to irreplaceability.

There are some qualities that are more emotional. The use of the machine should feel like a ritual. It should also be reliable, so that at no point does the user feel that he can cut himself or that the machine will suddenly stop working. Finally, it should be effortless in the sense that the interaction with the device invites him to take up his routine.

He also stressed that the device should be modular, in case certain parts of the trimmer break. So that they can be replaced. Otherwise, the emotional part would be in vain, as it cannot be repaired.

As for the materiality of the device, he wanted it to be very simple. He also liked metal and did not like the rubbery texture of the handle..

1. **Identity + Materiality**
2. **Narratives + Evolvability**

These tandems are described in more detail on page 45.

Many associations with high-end products were also found over the transcripts of the sessions as it is discussed on page 46.

Two examples of the collages made during the second activity are shown in Figures 38 and 39.

- Figure 38. Collage by UR03 in the second activity
- Figure 39. Collage by UR05 in the second activity

3.6 Research findings

Once presented with the raw data from the contextmapping sessions, this section sheds light on the research questions previously defined at the beginning of the chapter after conducting the quantitative analysis. These are addressed in the same order as they were presented:

1. What does the grooming experience look like?

It is undeniable that every user forms his unique grooming routine over time. Nonetheless, participants' answers helped identify a **grooming experience flow** independent from the frequency and the type of product used.

If the specific way of approaching each step may differ per user and device, the infographic in Figures 40, 41 and 42 over the following pages illustrate such flow. It captures both the more physical grooming routine and the experience layer through which users usually go. The infographic reveals insights into the user experience that offer valuable pointers for designing for Emotional Durability in grooming devices.

- **Support the ritual:** Research highlights the ritualistic nature of grooming, described by users as "a well-being thing" and a moment of relaxation. The given intimate interaction could offer a foundation for emotional connection with the device.

- **Build confidence:** Results emphasise the positive impact grooming has on self-esteem, with users reporting feelings of satisfaction and confidence.

- **Habitualisation and mutual learning:** While routines become habitual over time, with users often opting for familiarity, the project offers an intriguing opportunity. What if not only the user gets used to the device, but the device also learns from the user? Designing for "mutual habit" could further foster an emotional connection.

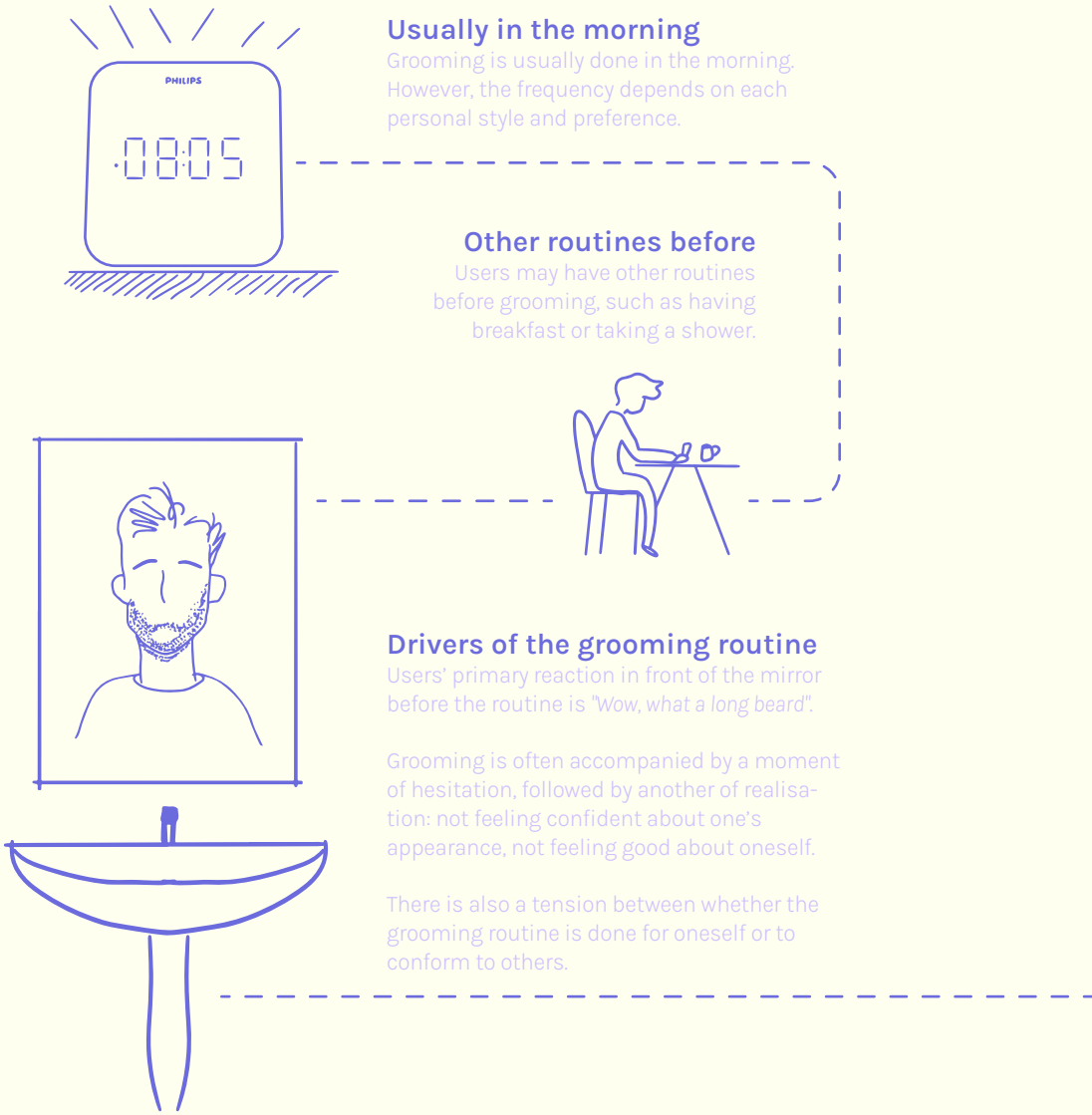


Figure 40. The grooming routine I

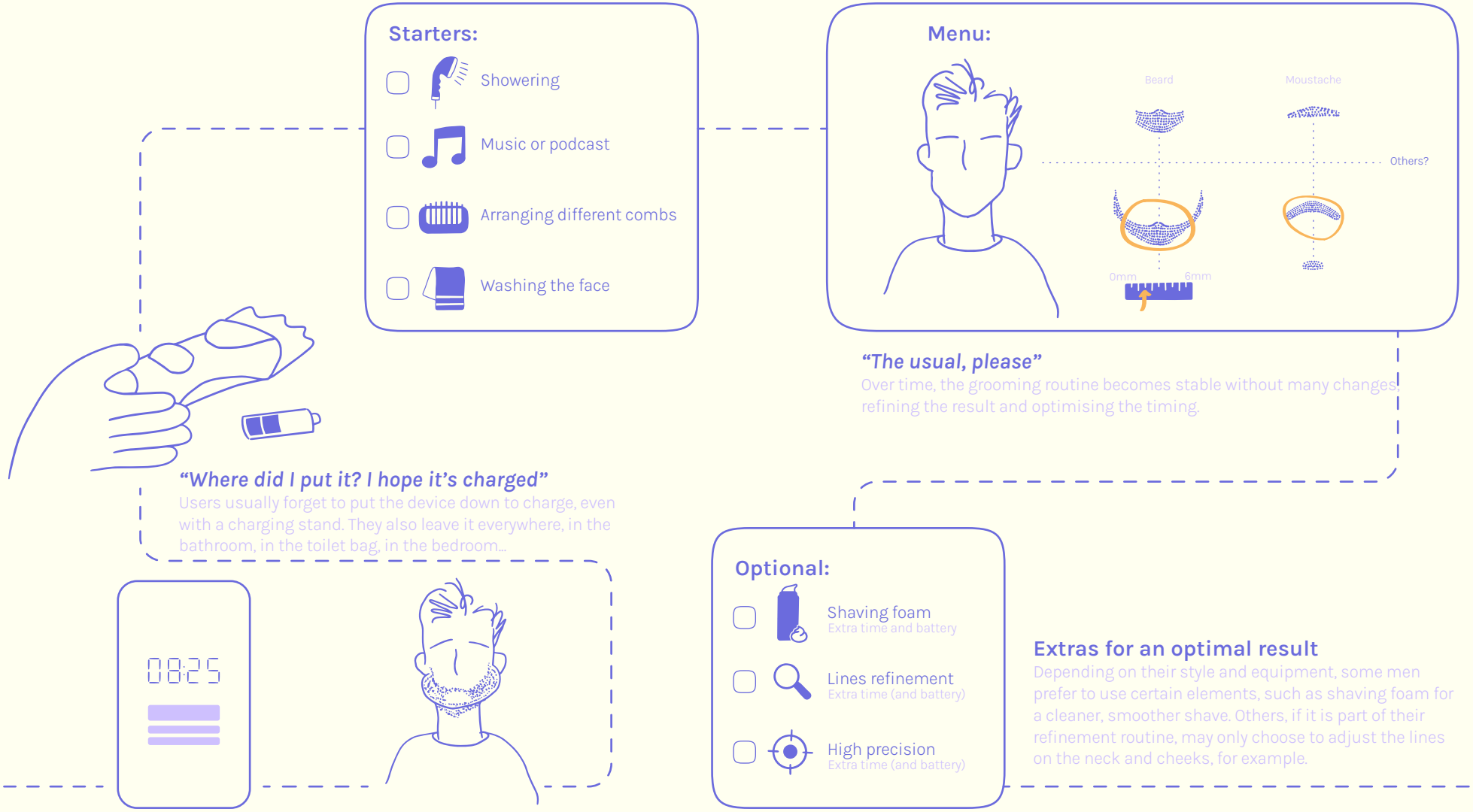


Figure 41. The grooming routine II

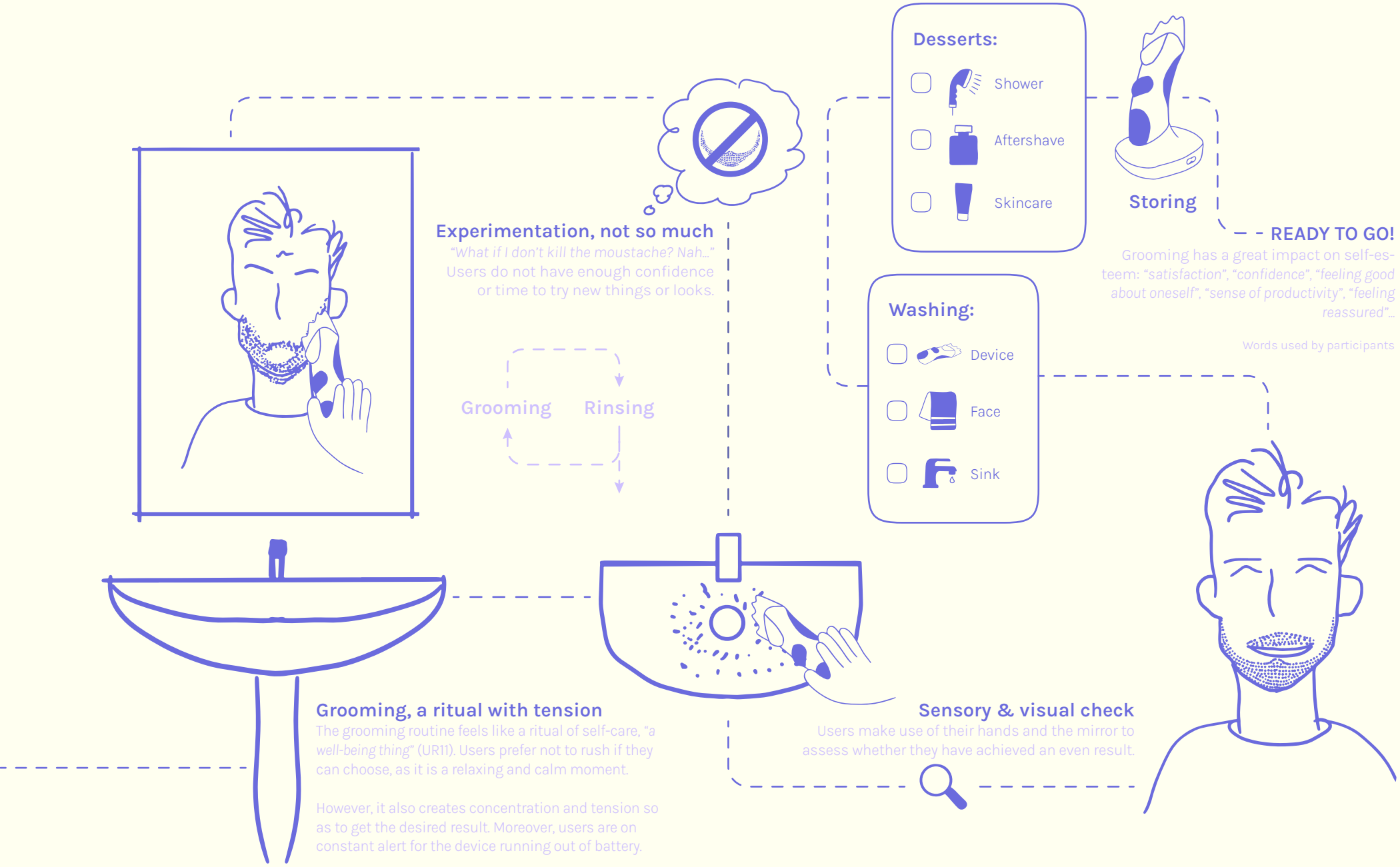


Figure 42. The grooming routine III

2. What kind of relationship do users form with their grooming devices?

The research revealed that users primarily develop **utilitarian relationships** with their grooming devices. They view their devices as **tools to achieve a desired personal appearance**. This instrumental focus is characterised by the device's ability to perform its task effectively. Words like "reliable", "gives me what I want", and "trustworthy" were used to describe such relationships.

However, there is a different type of relationship that grooming devices develop with their users, which is more tacit. It is inferred from participants' stories that were shared during the discussion in the icebreaker and the first activity. This relationship is between the device and one's self-concept. The following text aims to emphasise how well-tightened these two are, even though it remains more of a **non-explicit relationship**. It is a personal reflection based on a mix of interviewees' experiences. Written in the first person, it aims to immerse the reader in this intimate relationship.

All in all, grooming devices, while seen as utilitarian tools, hold a **more complex role in users' lives**. When talking about attachment in the activity after the break, many of the participants said that the attachment towards their electronic devices is not because of what the device does, but what it enables the participant to do.

The main takeaway for the design intervention implementing Emotional Durability principles is that the desired connection should not be linked to the user as a partnership relationship, but **linked to the self-concept** of every user, which leads to the next research question, in which is explained how it could be done.

Me, myself & my trimmer

From participants stories, I found that the perception of self and the pressure to conform to societal standards are the driving forces behind their grooming routines. There exists an intriguing tension between these two. The motivation behind grooming extends beyond a mere "too long beard"—it is about feeling confident and comfortable in front of the mirror and others.

Despite time constraints, I also acknowledge the ritualistic nature of my grooming routine. I would say that grooming is more than just another task to do—I associate it with tranquillity and me-time. I prefer not to rush through this process, although I cannot always respect so.

Once I arrange everything and assuming the device is sufficiently charged, the groomer resumes its central role. It transforms into more than just a tool—it becomes a means of self-definition and self-expression.

It brings a moment of concentration and tension: drawing imaginary lines, stretching the face in every direction, using both hands...

My relationship with my beard trimmer hinges on this exact moment of interaction. There is no way I can build an emotional connection over time if the product does not fulfil my needs. But in this case, I think my needs should be understood differently. It is not about what the product affords itself, but what the product affords me to do, or let's rather say, to be.

Suddenly, the familiar buzzing sound of the device, already internalised, is now different, slower. The ritualistic moment gets paused. The initial math of previous shavings failed to determine whether it was charged enough.

The concentration with the devices turns into annoyance towards the device. Rather I speed up or I will end up with only one side of the face groomed. Why cannot be used while plugged? -I wonder with only half a moustache on my face. At this moment, I also realise that I did the math wrong because I should have changed the razor a while ago but did not because I thought I could use it for a bit longer.

At this point, I look in the mirror, a bit annoyed but embracing the absurdity of the moment. "Actually, how would look this style if I do this and that..." I used to have a different style before, using different combs and lengths... but it was taking too much time... Or was it my break-up?

Anyway, the device seems to be slightly charged again enough to finish! Right after checking the result in the mirror, quite positive emotions arise. As many participants mentioned, I also experience a mix of satisfaction, neatness, reassurance, confidence... After washing the device, and putting it again to charge, my grooming routine is done and I am ready to go.

3. Which themes from the Haines-Gadd et al. (2018) framework resonate most strongly with users and their grooming devices?

Thematic analysis revealed that five themes from the Haines-Gadd et al. (2018) framework resonated most strongly with users and their grooming devices: Narratives, Identity, Evolvability, Materiality, and Integrity. In fact, these themes are intrinsically connected to the user's self-concept as explained below. The analysis also revealed the following interconnection between themes:

Materiality to reflect identity:
Participants linked materiality to identity, suggesting that the physical qualities of the grooming device should reflect the user's personality and identity. For example, some users felt their current devices lacked personality and wanted a device that conveyed a specific style or lifestyle. Words like "timeless," "clean design," "iconic" and “good ageing” were used to describe desired material qualities that aligned with their likely changing perception of the self.

The desire for customisation and personalisation emerged as a way to bridge materiality and identity. Users expressed a wish to personalise their devices with materials, textures, and colours that resonated with their individuality. However, while customisation allows for some level of personal expression, it may fall short of capturing the full depth of an individual's identity.

True personalisation goes beyond selecting predefined options and instead involves infusing the grooming device with elements that reflect the unique moments, physical characteristics, cultural influences, or lifestyle aspects that shape who the person is. To make the grooming device irreplaceable, the materiality should embody the essence of the individual as a one-of-a-kind product that reflects symbolically who his owner is.

Evolving Together, Narratives and Evolvability:
Participants explained they would like to own a groomer that is more than just a physical object. They desired devices that embodied a story or narrative that aligned with their values.

On the other hand, they acknowledged that evolving needs require evolving groomers. Modularity, upgradability, and easy repairability were seen as ways to ensure a long-lasting connection with the device throughout their shared journey. This focus on adaptability also reflects the user's recognition that their self-concept and grooming needs may evolve over time.

Nonetheless, this evolution of the product, to become meaningful, and therefore, lead to irreplaceability, should be aligned with one's personal evolution. The product's narrative should be a shared story with the user's, shaped by the product's usage over time. Thus, this personal narrative turns the grooming device into a unique and irreplaceable aspect of the user's personal care routine, rather than a mere object with a task to accomplish.

Integrity as foundation:
The theme of Integrity, while unexpectedly very present, differed from the others. Comments on integrity primarily focused on baseline expectations of product quality, reliability, and responsible manufacturing practices. These comments were less about emotional connection and more about ensuring the device remains functional. As they were asked to envision a groomer for the next 15 years, all of them reflected that the product should be able to endure such a period.

Integrity serves as a foundation for the other themes to flourish. A reliable and well-made device allows users to focus on aspects like identity expression and narrative building through materiality, and evolvability, respectively.

4. Are high-end products more suitable to trigger emotional connections with their owners?

The research suggests high-end products can foster **stronger emotional connections** with users compared to low-end products.

As Figure 43 shows, the analysis of participants' collages, mockups and responses revealed a consistent desire for material and product qualities often associated with high-end products. Of these qualities, it is worth highlighting:

- **High-quality materials and construction:** Words like "metal", "sturdy" and "high-quality materials", "durable", "elegant" were frequently used to describe the materiality of their vision. These terms, usually associated with high-end products suggest a preference for products built to last, which can instil a sense of trust and reliability in the user.

- **Versatility:** Participants expressed their preference for groomers that could afford them any style they could want over the years in different environments of usage. This preference is also associated with high-end products that deliver a diverse range of options or functions.

Interestingly, the brands that participants mentioned when envisioning their ideal grooming device leaned towards high-end brands like Apple, BMW, Patagonia, and Le Creuset. Whether these or the others are high-end brands is subjective, their justifications were more posed on the high-end side.

Nonetheless, their choice was not only influenced by the performance of the products of such brands but also by the **symbolism** behind each and its alignment with the user's self-concept and values. For instance, Patagonia's association with sustainability might resonate with an eco-conscious user, while Apple's focus on technology and design might appeal to someone who values innovation and aesthetics.

High-End as a gateway, not a guarantee:
It is worth noting that these results do not mean that low-end products cannot be emotionally durable, but that high-end products are more prone to build emotional connections in comparison. They can act as **gateways** for these connections to form. High-end products often combine functionality, aesthetics, and product and brand symbolism that can resonate with a user's identity and desired narratives.

In conclusion, high-end products offer fertile ground for designers to trigger Emotional Durability. These devices can not only deliver exceptional performance but also facilitate their self-concept and values expression.

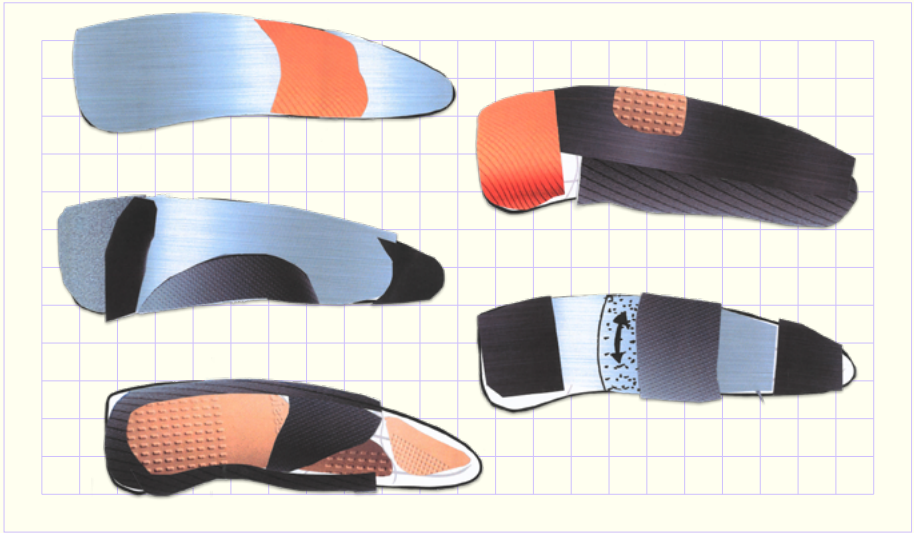


Figure 43. Mockups of irreplaceable groomers with high-end material qualities

3.6 Conclusions

This chapter investigated users' relationships with their grooming devices and explored potential avenues for fostering Emotional Durability in these products with generative methods (see Figure 44). The findings highlight the importance of considering the user's self-concept when designing grooming devices for Emotional Durability. Two key theme pairings emerged as pathways for the design phase:

- **Identity and Materiality:** By offering options for personalisation and materiality that resonate with the user's desired image, designers can create a stronger and enduring connection.

- **Narratives and Evolvability**: Designing devices that can evolve alongside the user's needs and preferences allows the product to become part of the user's personal narrative.

Moving forward, the next stage will focus on high-end grooming devices to explore how the design principles within these themes can be translated into concrete interactions, features or functionalities within this specific product category.

Figure 44. UR03 with his trigger set in the first activity

04

Design Direction

This chapter sets the design course, drawing on user research and the Literature Review. It defines the design focus, establishes a Design Goal and Interaction Vision, and outlines criteria for evaluating concepts. Finally, it justifies the Philips All-in-One 9000 Series Groomer as the target product.

4.1 Defining the scope

This section defines the focus for the ideation and conceptualisation phases of the project. It builds upon findings from user research and Literature Review, phases that explored the design framework for Emotional Durability of Haines-Gadd et al. (2018) in the context of grooming products. The scope, which is illustrated in Figure 45, sets at which moment of the experience the intervention is aimed, the means to do it and to which product it will be applied.

User research revealed a key insight: aligning the grooming device with a user's self-concept could foster a strong and lasting emotional connection. Furthermore, from the nine themes explored in the design framework, four resonated most with participants, particularly those related to self-alignment with the device. These four themes are paired to create two paths for building an emotional connection: **materiality to reflect one's identity** and **evolvability to build a shared narrative**.

It is crucial to move beyond fostering product attachment based on simple or generic aspects of one's identity. To truly become irreplaceable, it is important to imbue the product with a high symbolic load, shaping it into a unique and deeply personal device. This rich symbolic meaning will ensure that it becomes an irreplaceable part of the user's daily life, transcending mere personal expression.

The focus of this project, based on the insights from the Literature Review that product attachment forms through frequent and repeated interactions, is on redesigning the **product-user interaction during the grooming routine**. In doing so, the user can progressively embed his symbolism into the product to build the emotional connection. This approach prioritises the user's direct experience with the device over marketing or service design strategies, which tend to be more one-off or less frequent interactions.

Finally, the target product for this intervention will be a **high-end** grooming device characterised by versatility and high-quality materials. Particularly, it will be the Philips All-in-One 9000 Series Groomer, which is justified later in the 4.4 section of this chapter.

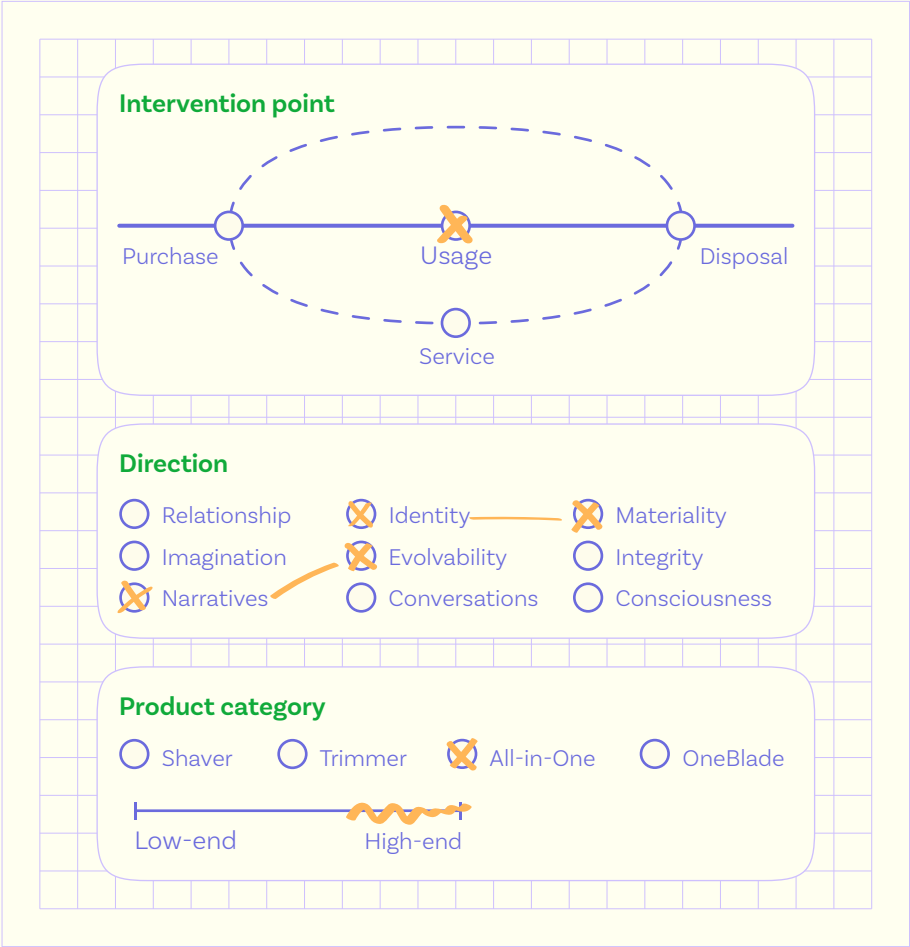


Figure 45. Scope definition

4.2 Design Goal

According to the scope definition, a design goal has been phrased to state the intended effect that wants to be achieved with the **product interventions**:

Align the Philips All-in-One 9000 Series with oneself by providing a pre-set for a personalised experience during the grooming routine.

What

The aim is to increase the symbolic value that users assign to their device. By limiting the scope to a product intervention, it is easier to focus on the interaction and experience of symbolism rather than, for example, functionality.

Effect

The design aims to cultivate an emotional connection by subtly encouraging users to embed their own meaning and story into the device through the interaction.

Direction

"The attributes that make something personal are precisely the sorts of things that cannot be designed ahead of time" (Norman, 2004); therefore, Design should focus on enabling these attributes to become personal over time. Find more in section 4.5 on page 54.

Where & when

The emotional connection will be formed as a result of a bit-by-bit process of recurring interactions part of the grooming routine. For the product, see section 4.4 on page 52.

4.3 Interaction Vision

The interaction vision illustrates the intended qualities of the interaction with the final concept through a metaphor. Figure 46 depicts the chosen metaphor:

The interaction with the device should feel like water wearing a rock.

Unique

Just as the water creates a one-of-a-kind form with each rock, no two users will have the exact same experience.

Natural

The interaction should feel as organic as water shaping a rock.

It adapts itself in a natural, flowing way based on the interactions, fostering a sense of co-creation.

Gradual

The interaction should unfold like a slow, steady current, subtly adapting to users' preferences over time.

Each use builds upon the last, creating a personalised experience that evolves seamlessly.

Figure 46. Interaction Vision (source: Adobe Text-to-Image beta feature)

4.4 Product Category

This section explains the motivation behind choosing All-in-One devices, particularly the Philips 9000 Series, for the product intervention.

User research revealed two key product requirements for an irreplaceable grooming device: high-quality materials and versatility. Participants emphasised the importance of a product that is both durable for long-term use and adaptable to evolving grooming needs like beard styles.

Among the four product categories explored (shavers, OneBlade devices, beard trimmers, and All-in-One devices), shavers are not a suitable choice. While Philips offers a wide range of shavers, they merely focus on one function, achieving a clean shave.

OneBlade devices and beard trimmers offer more versatility, but All-in-One devices go a step further. They can groom not only the face but also other body areas. Additionally, All-in-One devices occupy a premium strategic position within the Philips grooming portfolio, making them ideal candidates for this project.

All-in-One 9000 Series

Within the All-in-One category, Philips offers four tiers. The 9000 Series represents the highest level and the most versatile option. This combination of high-quality materials, versatility, and premium positioning aligns perfectly with user wants for durability, adaptability, and a strong emotional connection with the device. Therefore, I believe the 9000 Series, shown in Figure 47, provides the ideal design space for integrating the user interaction redesign aimed at fostering Emotional Durability.

Figure 47. Philips All-in-One 9000 Series (source: Mediamarkt product online site)

This choice for high-end products is further strengthened by the greater flexibility and resources for experimentation they offer designers to push the boundaries of "business as usual". This contrasts with entry-level products, where designers are often more constrained in their experimentation.

As Figure 48 shows, this product consists of one main trimmer handle to which all the heads can be clicked in and a OneBlade handle and its blade. Depending on the bundle, the included accessories can be used for up to 20 different purposes.

Figure 48. Philips All-in-One 9000 Series with all its attachments (source: Philips product online site)

4.5 Direction of exploration

As indicated in the Design Goal, the design direction through which the intended effect is sought points to personalisation during usage, as a means to allow users to imbue their meaning into their grooming device. Thus, this direction is defined as “providing a pre-set for a personalised experience”.

The Literature Review and the User Research findings emphasised the need for consumers to embed their personal symbolism into the product to become emotionally durable and irreplaceable. While customisation can be an initial step in so doing, is it really compelling?

I resonate with Norman’s (2004) claim that the **attributes that make something truly personal cannot be designed ahead of time**. This is aligned with what was stated before in the third case study with designing for a personalised experience as a promising pathway. I believe that **embedding** this personal meaning **during usage** is what loads the product of **emotional significance** and personal relevance – symbolic value. In other words, what is going to be explored is how to redesign the product, so the attributes become personal over time. A raw All-in-One trimmer that through usage transform into a unique device.

In a nutshell, the project points towards mass-personalisation through the two design lines previously discussed (1: materiality + identity, 2: narratives + evolvability), as illustrated in Figure 49.

4.5.1 Mass-personalisation

This subsection focuses on the concept of mass personalisation to define some guidelines for the design space, drawing upon the work of Mugge et al. (2009), who identified seven dimensions of product personalisation:

1. **Mental effort:** The degree of creative involvement offered to the consumer.
2. **Physical effort:** The degree of physical involvement required by the consumer.
3. **Flexibility:** The extent to which a product can be personalised more than once over time.
4. **Initiation:** Involves the person who initiates the personalisation: the consumer or the designer.
5. **Goal of personalisation:** Consumers can personalise products for utility-related and appearance-related goals.
6. **Personalisation moment:** Refers to when the personalisation process takes place: before purchase, before usage, or during usage.
7. **Deliberateness:** Products may get personalised without the consumer’s deliberate input.

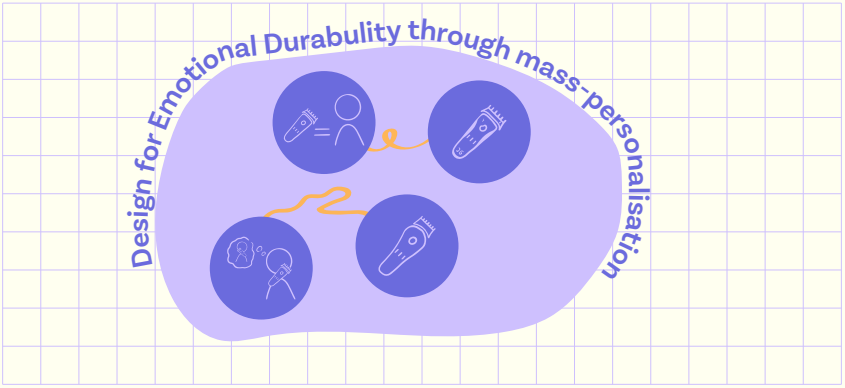


Figure 49. Direction for the design exploration

An analysis hereunder of the desired degree of each dimension within the grooming context and for the two design pathways. Figure 50 summarised such analysis with the ideal state for each dimension. The last two dimensions on the graph include the characteristics of the sought participants for the workshops, not the intended value of these dimensions.

The design intervention should be **flexible**, as users' sense of identity may change over the years, or the product should be able to evolve. This requires the personalisation to be adaptable rather than fixed.

Regarding initiation, as the ultimate goal is mass personalisation—or mass Emotional Durability— the design should initiate the personalisation by providing the means to do so. However, it may be clearer to phrase it as: **the design enables the user to lead the personalisation**.

With respect to the goal of personalisation and the degree of deliberateness, I would like to still leave these open during the design phase, as I feel interventions on both ends of each can contribute to making the device emotionally durable.

I envision the **personalisation occurring during usage** for the most effective intervention for Emotional Durability. This is based on the findings of the Literature Review, which suggest that integrating symbolism or personal meaning into the functionality of the product can make the interaction more meaningful over time, thus triggering and strengthening the emotional bond.

Finally, as the targeted product is a high-end product, consumers are likely to be highly willing to invest mental and physical effort due to the high involvement and investment associated with such products. Furthermore, as a device with several features, this product invites users to discover and learn how to use it over time.

Therefore, even if the intervention does not require a big mental or physical effort, a target group with this predisposition will likely respond more positively to the personalisation and experience a more meaningful interaction, compared to users who may not be as willing to involve themselves in the personalisation experience.

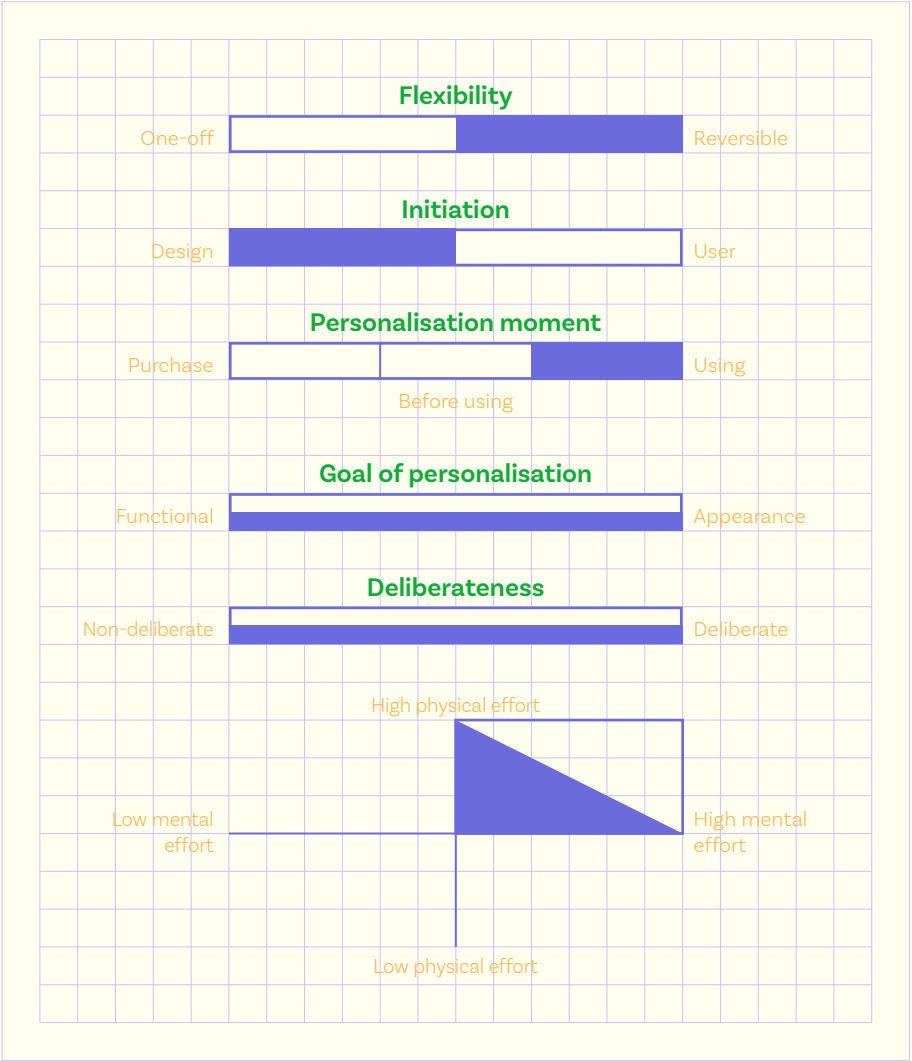


Figure 50. Desirability of personalisation dimensions

4.6 Design Criteria

According to the Design Goal and the desired qualities, the following design criteria and testable targets in Figure 51 are defined to be used to evaluate future concepts later in the project.

These criteria are based on the four chosen themes of the Design framework and their relevant strategies that better fit this Design Direction.

Design Criteria	Testable Targets
1. User and product build a narrative together	It captures moments and shows the progression It creates a sense of nostalgia It promotes reflection of use It creates a ritual out of a habit
2. The materiality of the product develops over time	Its materiality embraces imperfection Its materiality ages gracefully Its materiality reflects the course of time
3. The materiality of the product reflects the user´s identity	It can be personalised into a unique personal product
4. The features of the product evolve over time	The grooming experience becomes personalised The interaction enhances the experience over time It is conceived modular and/or adaptable to be used in a different way or to be upgraded
5. User drives his product personalisation	The personalisation should foster a sense of co-creation between the user and the product

Figure 51. Design criteria and testable targets

05

Ideation Phase

This chapter describes the outcomes from the ideation activities. A participatory approach was employed, conducting two workshops to empower users to co-create ideas that resonate emotionally with them. Following this, a third co-creative workshop was held with a group of designers to explore how to apply the design streams resulted from the previous workshops.

5. Ideation phase overview

The ideation phase, as Figure 52 illustrates, has been characterised by **co-creation workshops**. As two areas of exploration were defined in the Design Direction, two independent and identical workshops were conducted in parallel (W1 and W2), each of them focused on one of these areas.

As described in the following sections, the workshops unlocked three streams of ideas to explore the design space for applying Emotional Durability.

A third workshop was organised with the design team of the Grooming department aimed at exploring the possibilities within each of these three sub-directions.

The following sections delve into the rationality behind these workshops, displaying their outcomes and discussing the design implications of these.

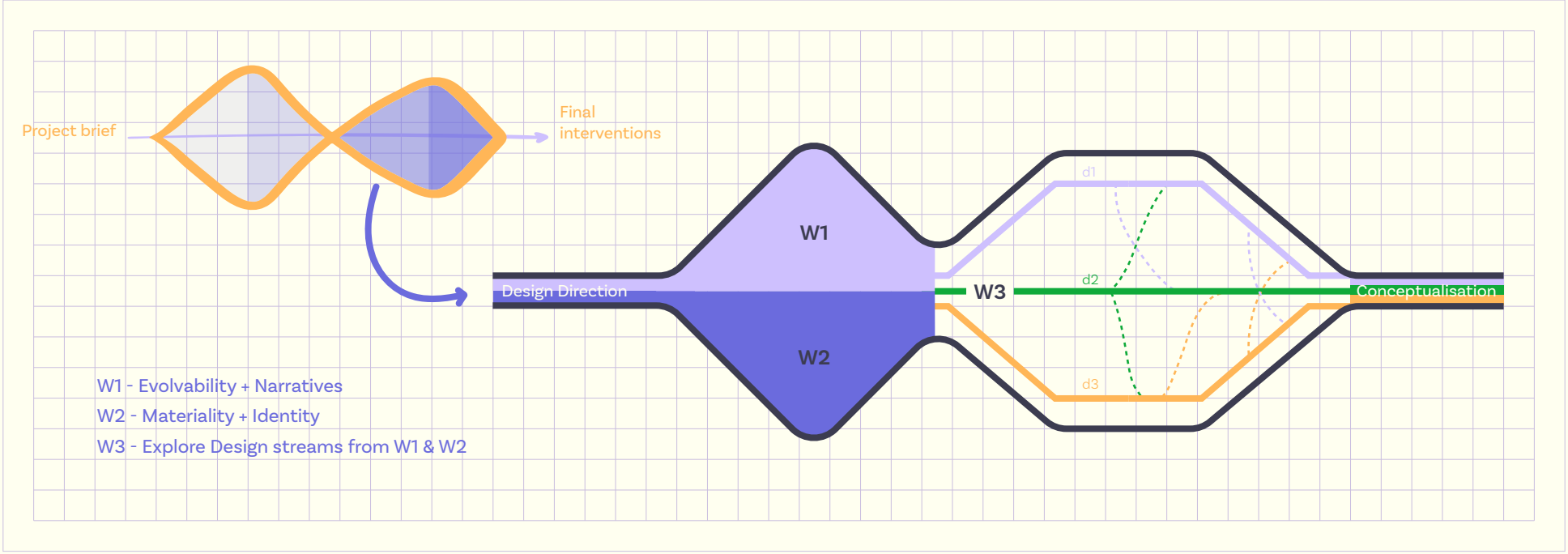


Figure 52. Ideation process overview

5.2 Co-creating with users

This **participatory** approach is chosen to involve the people who will be served through these product interventions. Emotional Durability and the grooming context are two topics quite intimate due to the personal nature of the experience of attachment and the personal care routine, respectively. Therefore, these co-creative workshops facilitate a more **insightful exploration** of ideas, by building upon the personal perspectives of the participants. They unlock a great volume of ideas that already **resonate** strongly with users' wants for Emotional Durability in the grooming context.

The following subsections describe the criteria for recruiting participants, the organisation of the workshops, and their results and subsequent discussion.

5.2.1 Recruiting strategy

Two complementary strategies were used to recruit participants for the workshops. On the one hand, **Philips' consumer market segmentation** was used to find participants who fell within the target audience for the high-end Philips All-in-One 9000 Series. The following demographics were considered for recruitment: age and generation, working status, and current ownership and use of an electric grooming tool.

In addition, the provided information regarding the level of commitment or time and money willing to spend were also consider to recruit the participants within this target group.

In fact, these characteristics of the recruited participants fit well with the findings of the user research and Literature Review, which supports the choice of the product for the current design intervention.

The second recruitment strategy is more in line with the defined direction of the exploration towards **mass personalisation**. As mentioned in the design goal, the idea is to explore in these workshops how to provide users with the tools, materials or whatever that will enable them to personalise their product and their grooming experience.

Thus, according to the analysis conducted on the seven dimensions for mass-personalisation of Mugge et al. (2009), these participants should be willing to

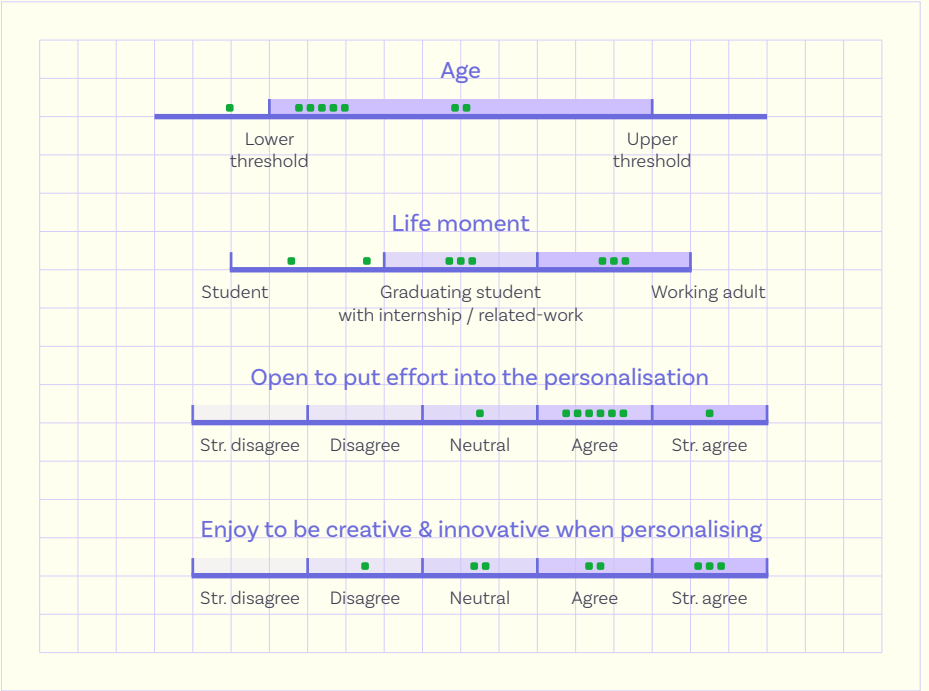


Figure 53. Information considered when recruiting participants

allocate mental and physical effort on potentially personalising and imbuing personal significance into their device. This would result in a meaningful interaction that would ultimately lead to an emotionally durable device.

The eight recruited participants were asked to complete a short survey to assess their suitability for the workshops. They also indirectly chose which workshop they wanted to attend. In the last question, they were given two options, each with one of the two workshop topics. They were asked which would lead to a stronger emotional connection with their product.

Figure 53 summarises the responses of the eight participants. As it can be seen, not all the participants met all the recruitment criteria due to the limitations of my network within the target group. The following mitigation strategies were considered:

1. The participants identified as students were either doing a full-time internship, a master's graduation internship or a part-time job at TU Delft related to their studies, with the exception of one participant. This measure aimed to approximate as much as possible the employed status of the targeted group.

2. Only one participant fell out of the age thresholds and working status but fulfilled the other criteria.

3. Only two participants held design-related studies. This was avoided as much as possible to bring a user-mindset to the table instead of designer attitudes that could bias the workshops.

5.2.2 Workshop planning

The first two workshops intend to independently explore the two directions to foster Emotional Durability previously defined as of the Literature Review and the User Research:

1. Evolvability to build a narrative. Initial question: How can we make the All-in-One 9000 Series evolve over time to embody a meaningful narrative?

2. Materiality to reflect one's identity. Initial question: How can we design the All-in-One 9000 Series to reflect user's identity during usage?

As Figure 54 displays, both workshops are **identical**. The workshops are structured according to the Integrated Creative Problem Solving methodology (iCPS), developed at TU Delft. This is characterised by a three-diamond process called: goal refinement, idea finding and solution finding.

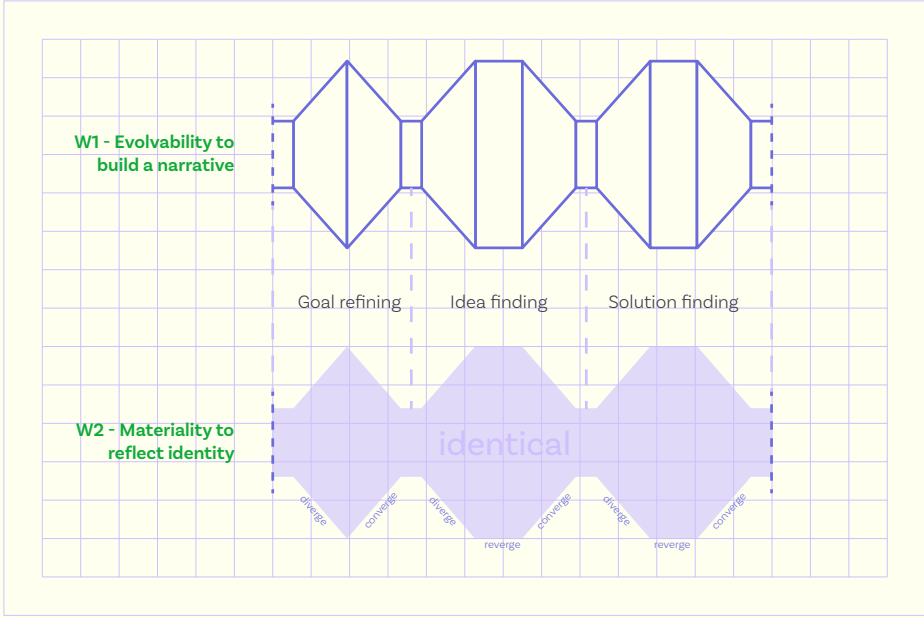


Figure 54. Overall structure of co-creation workshops with users

Briefly, the goal refinement diamond aims at reformulating the given question based on a common understanding of the problem by the participants. Idea finding focuses on generating as many options and ideas as possible, focusing on quantity rather than on quality. Lastly, the solution finding diamond elaborates on the few ideas that make it to the last diamond.

This structure for the workshop allows, firstly, to establish a common view of the goal of the session, getting everyone on the same page and uncovering hidden opportunities. Secondly, it encourages a continuous and thorough exploration of the design space through its focus on divergence, exemplified by the principle of 'quantity breeds quality'. This is key to the current project, as otherwise participants may become fixated on the very first ideas they can think of, particularly around personalisation.

However, given the limited time participants have, this complete structure had to be adapted, not assigning the same amount of time to every activity or diamond. As the aim of the workshops is to generate the greatest number of ideas, the focus is on the second diamond, with some compromises on the first diamond (less time allocated) and the third (no reverge planned).

Each workshop lasted 2 hours, including a brief introduction, a break and a wrap-up. Figure 55 below provides a brief explanation of the workshop activities.

Activity	Description	Duration	Aim
1. Hidden presumptions to restate the goal	Assumptions discussion Restate of the initial question	20 mins	Let them verbalise their assumptions about the topic of the session to get a broader vision of the topic. Reformulate the given initial question into a sparkling question based on a common understanding of the task to ideate about.
2. Purge	Quick round of brainstorming	5 mins	Dump first ideas to the reformulated problem to let participants free themselves from fixated thoughts.
3. Negative Brainstorming	Brainstorming of bad ideas later turned into positive	25 mins	Come up with ideas beyond the obvious to diverge and explore hidden opportunities and ideas. This technique fosters a fun and collaborative environment of hitchhiking among participants, breeding quantity of ideas.
4. Random clustering and Hits & Dots	Organise the ideas to select the promising ones	10 mins	Visually organising the ideas and creating clusters encourage participants to review each idea and to assess its value to the ultimate goal. The voting part aims at selecting the ideas that resonate more strongly with them.
5. Interactive brainstorming	Brainstorming on the chosen ideas, shifting per rounds	20 mins	Explore the solution space by generating as many variations of these four ideas as possible. By switching the sheets they are working on, participants can contribute to each topic while hitchhiking on each other.
6. Modelling concept	Use of clay to shape their final concept	25 mins	Modelling clay is used to facilitate them bring their concept to life, thinking of the shapes and materials of their concept, besides the main idea. A template is then provided to reflect on the irreplaceability and characteristics of the concept. During the second workshop, this was complemented with the AI rendering tool Vizcom, as explained in Section 5.2.3. Find the templates for this activity on Appendix F.

Figure 55. Activities of the co-creation workshops with users

5.2.3 Results: Workshop 1

The initial goal of this workshop was to explore in which ways the device could evolve over time to build a shared story with its owner. Figure 56 shows how the initial question was transformed by the participants into a rather more complex but descriptive one. Their ideation diamond resulted in the five clusters which are also illustrated in Figure 56.

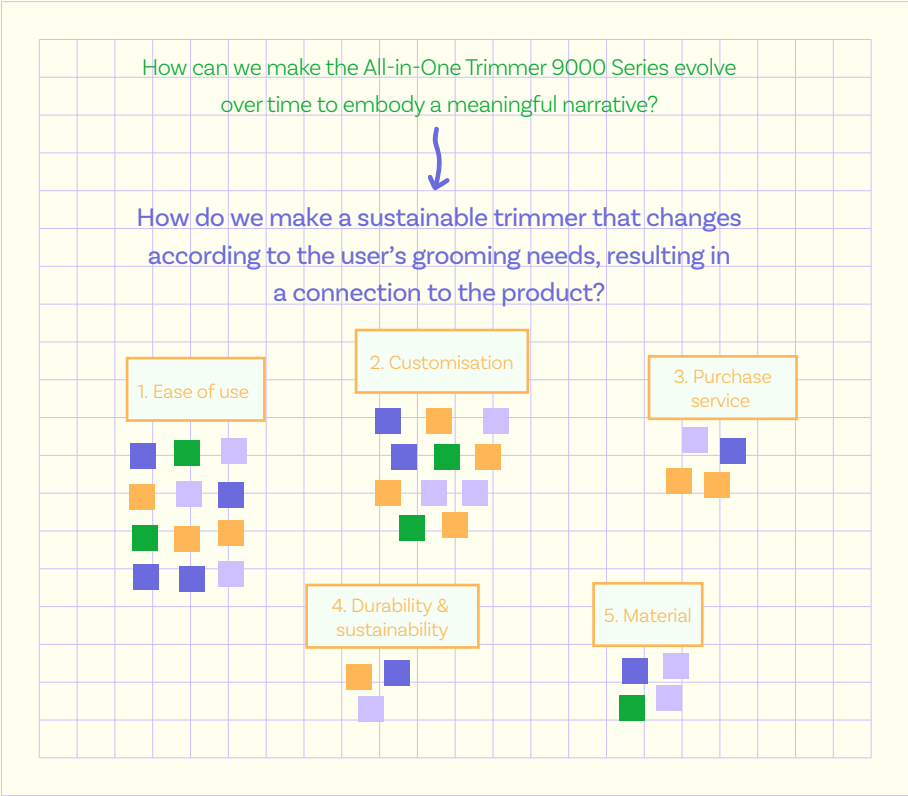


Figure 56. Overview of reformulated question and clusters of ideas in W1

Later, they elaborated on the four ideas they had voted for as the most interesting. Lastly, they individually created a final concept with clay (see Figure 57 below), bringing together between two and three ideas of the previous activity. Find two examples on the next page in Figures 58 and 59.

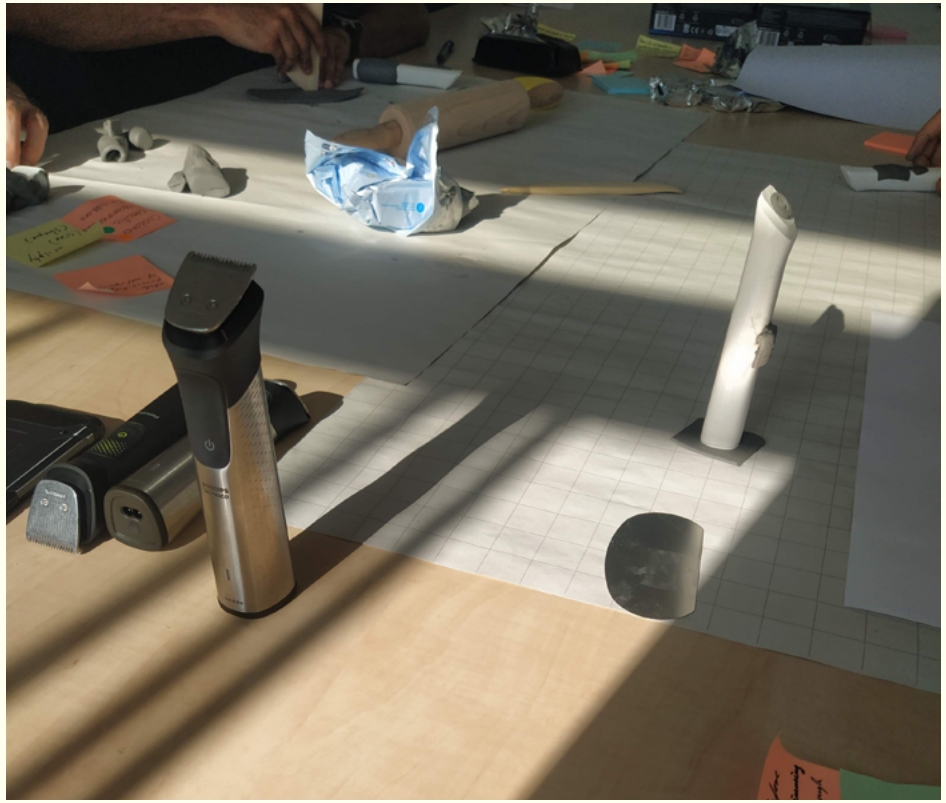
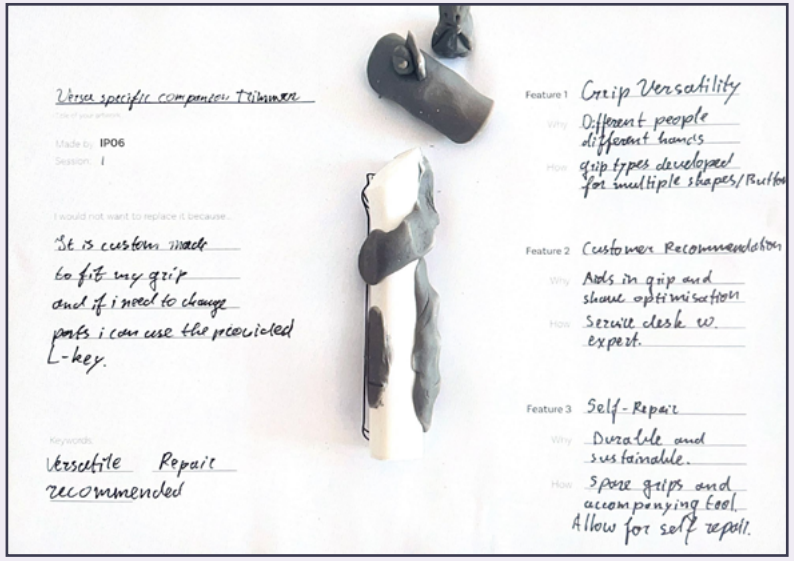


Figure 57. Activity with clay to shape their irreplaceable groomer

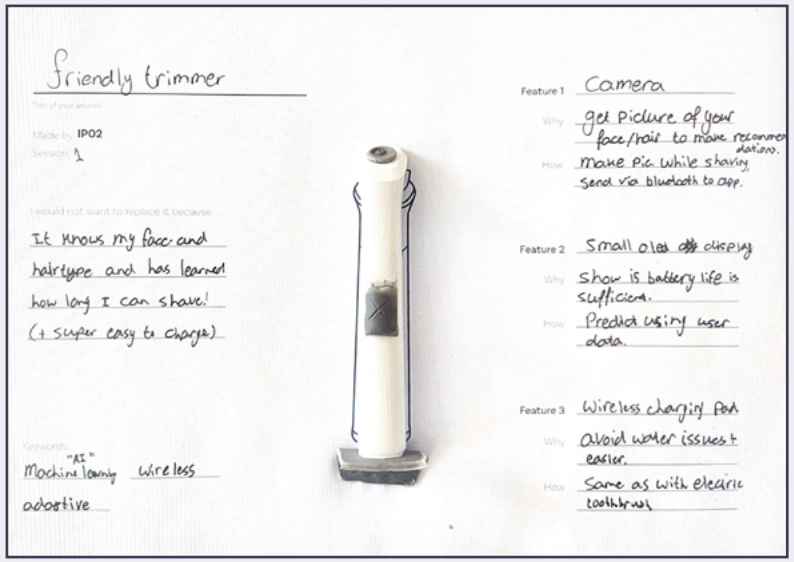


The concept of this participant integrates three ideas: hand-shaped grip, self-repair and customer recommendations.

He mentioned that he would not want to replace his trimmer for the symbolic meaning of the grip fitting his hand, and because he could fix the trimmer himself if necessary.

In addition, this concept involves a customer service. It would be in charge of personalising the grip and providing grooming recommendations to improve the grooming experience.

Although the three ideas are very interesting, it could be more impactful if the customer service and grip personalisation happen during usage, as it would really create a shared narrative between the user and the trimmer.



The ideas that this concept integrates are a camera to get recommendations based on type of face or hair, personalised feedback battery, and an easy charging method.

While the last feature seems more disconnected from the initial goal of the workshop, the other two capture how the device could evolve internally to provide a personalised experience.

As he mentioned, the durable emotional connection would be based on the ability of the trimmer to adapt its feedback (or behaviour) according to his user over time. The narrative would be built upon the learning process.

- Figure 58. Final concept of W1 developed by IP03
- Figure 59. Final concept of W1 developed by IP02

5.2.3 Results: Workshop 2

The initial goal of this workshop was to explore in which ways the device could reflect the identity of its owner. Figure 60 shows how the initial question was transformed by the participants into a more comprehensive question that considered the required engagement of users. Their ideation diamond resulted in the three clusters which are also illustrated in Figure 60.

Later, they elaborated on four ideas that they voted to be more interesting for them. Lastly they individually created a final concept bringing together between two and three ideas of the previous brainstorming activity, as Figure 61 exemplifies.

Unlike the previous workshop, participants could explore the materiality of their concept by utilising Vizcom. It is an AI-powered creative tool designed to turn sketches into realistic renderings quickly. This improvement came from the realisation of not enabling participants to visualise the materiality of their ideas, losing an important aspect of the product intervention. The results can be seen on the next page in Figures 62, 63, 64 and 65.

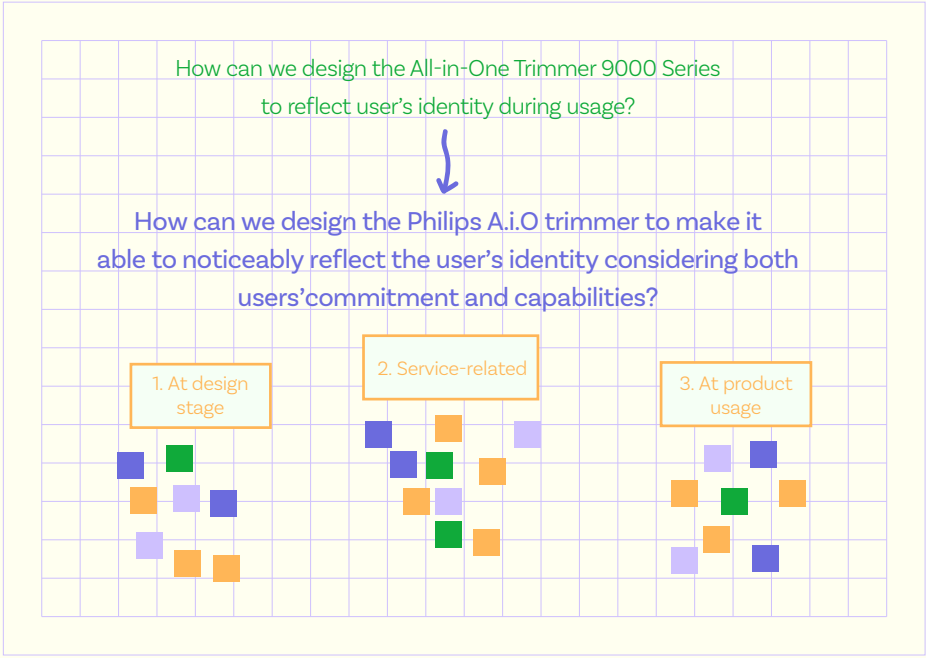
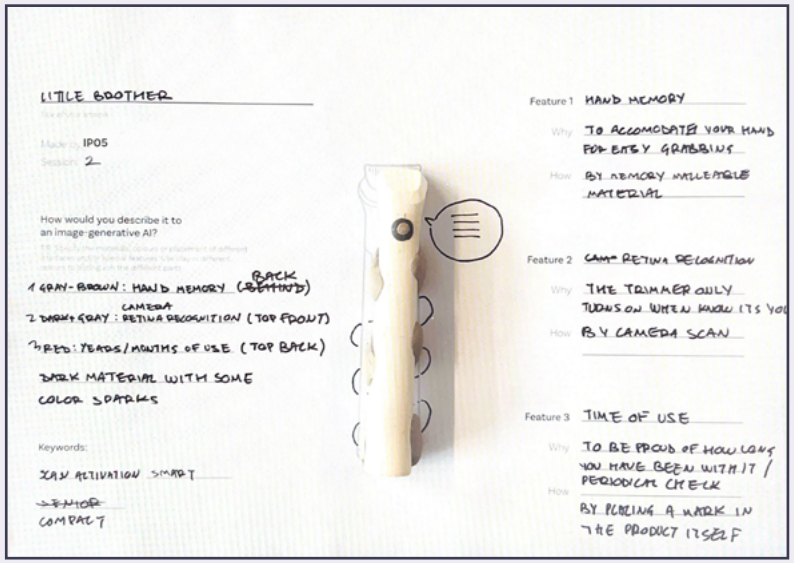


Figure 60. Overview of reformulated question and clusters of ideas in W2

Figure 61. Final concepts made with clay and some pre-shapes



The concept of this participant integrates three ideas: hand memory grip, retina recognition and passage of time showing.

This concept emerges from the different ideas that were brainstormed about "DNA designs" during the last diamond.

The first two ideas intend to link the literal identity of the user to the trimmer to generate the emotional bonding with the device. It is interesting how participants with different briefs and workshops came up with the same idea of the grip but for different purposes: to make the product evolve and to make it reflect one's identity. This emphasises the complementary nature of both directions.

In fact, the light on the back that tells how old the device is seems more aligned with the evolution direction than with the material-identity tandem.

Regarding the materials, he chose a timeless and "high-end'ish" palette of colours as shown in Figure 63 (although the render did not capture the colour sparks he specified in the prompt).

The final concept on Figure 65 envisions a system or service in which users can acquire patches or attachments. It is based on the idea of "personalisation through activities that one loves", aimed at bringing passions and stories from the user to the trimmer.

Thus, on the image we can see a beach volley ball because of his sport practice, the NIKE logo for his devotion for the brand (he envisioned this as a collaboration between brands), or a yellow submarine because of The Beatles, among others.

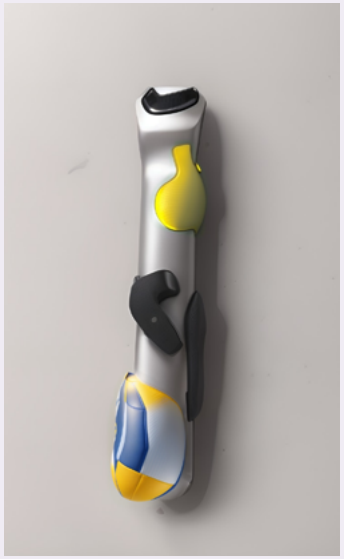


Figure 62. Final concept template from W2 by IP05

Figure 63. AI-rendered front view of final concept by IP05

Figure 64. AI-rendered back view of final concept by IP05

Figure 65. AI-rendered of final concept by IP06

5.2.5 Discussion: 3 design streams

After analysing the content of their ideas and the rationale behind their final concepts, three design streams were found (two from the first workshop and a third one from the second workshop).

While many ideas align with the design streams, others were not of interest due to various factors. Besides technological or manufacturing feasibility, these ideas fell outside the scope of the design direction of the project. In addition, their potential to trigger Emotional Durability was unclear, as they lacked the embedding of symbolic meaning needed to foster the sought emotional connection. Below, the three streams are introduced:

1. The physical device evolves according to its usage

Participants explored ways in which the material of the groomer could evolve over time to capture how it has been used. Despite unrealistic ideas, I found interesting those in which the **properties of the materials** used in the trimmer enable it to change over time. For instance, what if the grip, made out of rubber, could adapt to the hand of the user, like memory foam polymers used in pillows and mattresses. In fact, many of the ideas written in the last activity involved the grip adapting in different ways to the hand of the user.

Another interesting idea is to **make the usage or evolution more noticeable**, so the narrative becomes more explicit. For instance, different elements of the trimmer could change its colour either because of wearing away certain coating or because the colour of the material reacts to certain environment factors (e.g. temperature, contact with water, humidity, pH...). It could be a way to celebrate the passing of time.

Product interventions on this direction would lead to Emotional Durability because would result in the device becoming physically unique due to continuous usage, capturing the shared journey. The device would become a **physical representation of how it has been used**, infusing the symbolic value every time it turns more apparent.

Nonetheless, while interesting, this direction feels a bit constraint given the short number of elements that form the outer structure of the trimmer. What other pieces could evolve? Would users perceive these interventions positively? Would not switch the negative connotations of the course of time but make it more judgemental and thus less emotionally durable?

Upgradability and modularity are topics that also hold potential to be explored within this design stream, as these interventions would also imply a physical change of the product.

Interestingly, this idea taken to an extreme could lead to Paradox of the Ship of Theseus. So I ask the reader, could the trimmer be considered the same object after having all of its original components replaced over time? Could that be considered that the object became emotionally durable when there is nothing from the original product? In my opinion, I would not considered emotionally durable. There would be a narrative of an evolution of a grooming entity, but not of a certain product, which is the ultimate goal.

2. The features of the device evolve according to its usage

Many of the ideas that the participants came up with during the first workshop were related to the device being upgraded and **enhancing the ease of use and result over time**. I found particularly interesting how the implementation of **Machine Learning** technologies could not only improve the grooming experience, but also trigger some connection with the device due to the teaching-learning shared process.

Interventions of this kind would feed the symbolic value users put to their device. The continuously renewed instrumental and hedonic value derived from the **constant learning** would form a unique story between the user and his device. The connection would be form on the shared **pursuit of the perfect trim.**

Therefore, I would like to investigate if users are prone to develop such emotional connection with a device that learns their grooming preferences and routines, adapting its behaviour over time. Would they recognise this behavioural evolution as a shared narrative or a meaningful interaction? Would they identify their device as an extension of themselves? This stream opens up an interesting line of work about what could a groomer learn from its usage and for which purpose.

> *Take a moment to think about owning a grooming device that could learn from your usage patterns. It would improve its performance to deliver a better result and personalised feedback. It would take it some time to do it right, indeed. But how great would it be? Why would you want to replace it for another device that knows nothing (if only it could even learn) about you?*

On the other hand, some participants explored service-oriented ideas, like recommendations for accessories or maintenance checks. Whether an in-store or online service may facilitate upgradability or a shared narrative, these would reduce the interactions that lead to the emotional connection to a more punctual circumstance. Plus, this connection would not with the device, but with Philips. For this reason, I would like to explore other intervention ideas that afford **product evolution or a narrative** that are present on a **daily basis**. Nonetheless, these ideas of usage or add-ons recommendations could still be merged somehow with the previous line of work of Machine Learning and smartness.

3. Building a common language to celebrate user's identity.

The wording "common language" emphasises the bidirectional exploration that participants investigated during the second workshop. On the one hand, they were very interested in **"DNA-based" designs**. Either the device only responds to the person that owns it or it behaves in specific ways according to the owner. This first direction could be seen as materiality responding to user's identity rather than reflecting it.

On the other hand, participants did also explore how the trimmer could provide **personalised feedback**. Concerned by the engagement that this would require to the user to set up, ideas revolved around giving users the chance to customise certain aspects of the feedback. Participants also ideated about the trimmer as a smart device that can provides personalised feedback. This opposite direction of communication of the shared language could be understood as materiality celebrating user's personality, as the feedback would be tailored to the user in terms of content and shape.

This design stream delves into the subtle intersection between customisation and personalisation. It pursues meaningful interactions that are intricately tailored to the **user's preferences and personality**.

However, one challenge lies on the fact that all this symbolism could be easily replicated on a different device with the same features. This drawback could be mitigated with the implicit **"Labour leads to love"** principle of this stream. The investment of time and effort in personalising the device cultivate an attachment based on the shared moments to set everything up within the device. This could result in a reluctance to replace the product, as the bond formed through the personalisation process becomes (nearly) irreplaceable, even if the same result of personalisation could be achieved with a new device.

This direction is the one of the three that could require the greatest engagement of users, as their input would be needed to initiate the personalisation. However, this is also the most flexible one, as it can be changed over time.

5.2.6 Opportunities and challenges of the 3 streams

This subsection summarises in Figure 66 the main takeaways and challenges that each of the three design streams from the workshops imply.

It is noteworthy that the design streams, while strongly aligning with specific pairs of themes from the Emotional Durability Design Nine framework (Haines-Gadd et al., 2018), also exhibit subtle connections to other framework themes such as Conversations, Imagination, and Relationship. This demonstrates the multidimensional nature of Emotional Durability and the interconnectedness of the overarching themes within the framework. This observation aligns with the essence of the framework, which encourages the use of its strategies in combination, with certain themes playing a secondary role in supporting others.

It should be noted that the fulfilment of the Design Criteria discussed in Chapter 4 will ultimately depend on the execution of these streams. Since each stream may better satisfy some of the criteria or dimensions and overlook others, it should be acknowledged that it is the combination of these what will lead to robust product interventions, which are presented in the next chapter.

Opportunities | Challenges

d1: Physical Device Evolution

- The evolution of the device's physical aspects over time can imbue a sense of uniqueness and personal history, fostering an emotional connection with the user.

- Material adaptability and changes in appearance can serve as visual representations of the shared journey between the user and the device.

- Balancing meaningful physical evolution with practicality and durability to ensure that the changes do not compromise the functionality or longevity of the device.

- Managing user perceptions of the evolving physical attributes, ensuring that the changes are interpreted positively and do not hinder its psychological lifetime.

d2: Device Features Evolution

- Leveraging Machine Learning to enhance the grooming experience can create a strong bond for helping in shaping his appearance.

- Continuous improvement and adaptation of features based on user behaviour can strengthen the narrative and emotional attachment associated with the device.

- Build a reliable smart device for a versatile product like the All-in-One used for several parts of the body.

- Addressing user acceptance and trust in the device's evolving features.

- Risk of forming the emotional connection with the features, being the device easily replaceable.

d3: Common Language for User's Identity

- Building a common language based on personalised feedback and identity-driven interactions can elevate the emotional connection.

- Enabling user-led personalisation and customisation fosters a sense of ownership and emotional durability as users invest time and effort in shaping their device.

- Balancing user involvement in personalisation with the time and effort resources that users are willing to allocate.

- Acknowledging the potential limitation of the personalisation's uniqueness to a specific device, as similar personalisation could be replicated on other devices, challenging the emotional attachment.

Figure 66. Opportunities and challenges of the three design streams

5.3 Co-creating with designers

A third workshop with the Design team at Philips with people from the Grooming & Beauty department is being conducted for two primary reasons:

1. Leverage their design expertise to explore the design space of the different design streams. Bringing together designers from different backgrounds like product design or UX design to the table to collaborate offers a great opportunity to thoroughly explore how the product intervention could take form.

In fact, their familiarity with the product targeted for the intervention presents both challenges and opportunities. While their familiarity with the product could lead to some design fixation, the novelty with the design streams would mitigate this effect. Thus, the balance between familiarity and novelty during the workshop presents an exciting opportunity to gather different ideas, challenge preconceptions and uncover new areas of interest.

2. Personal learning objectives. Creative facilitation is one of the skills I wanted to hone during my graduation project. Thus, this third workshop is a great opportunity to facilitate another session in a more professional context at the time I learn from more experienced designers how they think and work.

The goal of this workshop is to, once analysed and synthesised the input from participants, explore how these three design streams could be applied in the current product to trigger Emotional Durability. The following subsection describes how it was structured.

5.3.1 Workshop planning

This workshop is also structured according to the Integrated Creative Problem Solving methodology (iCPS). Nonetheless, the first diamond, goal refinement, given the clear goal of the workshop and the design expertise of the participants was simplified to a presentation as a workshop brief. The workshop was designed to last 2 hours and 30 minutes. Figure 67 illustrates the activities followed during the workshop. Overall, the line of thought behind the workshop was to:

1. Ideate on how to tackle the three design streams.

2. Envision the interaction implementing such ideas.

3. Envision what the product that affords such interaction would look like. Thus, the product design does not constrain the interaction, but emerges from it.

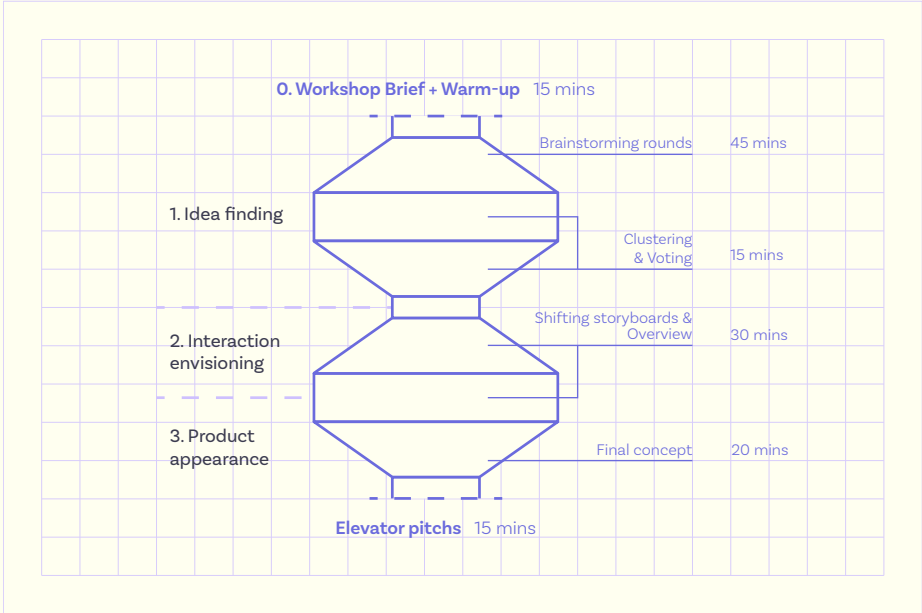


Figure 67. Overview of the third workshop structure

The brainstorming rounds are interspersed with discussion rounds in which participants, in pairs, have a few minutes to present and talk about the ideas they generated before shifting topic of brainstorming. **Trigger questions** (see Figure 68) are also provided between rounds to inspire and delve deeper into each design stream.

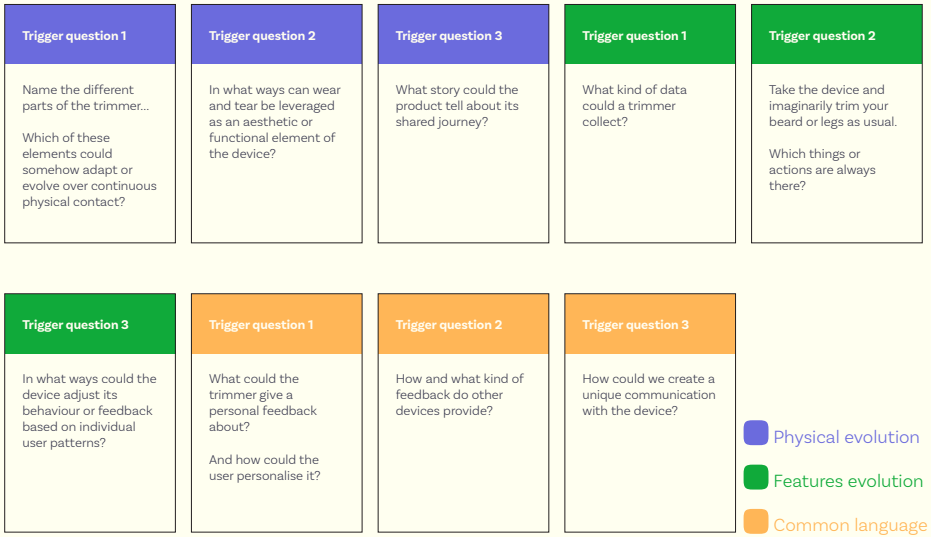


Figure 68. Trigger questions used during the third workshop

After this activity, participants individually get to envision what the interaction between product and user would look like with a shifting **storyboard** sketching activity.

Lastly, in pairs, two interactions are chosen to be combined in a converging activity in which the goal is to design the physical product intervention (providing different tools to visualise it: sketching, clay, wireframes and Vizcom). The workshop finish with a presentation round of final concepts.

5.3.2 Results: Workshop 3

This workshop was held at the Philips offices in Amsterdam with five participants. I also participated in the workshop and subtly introduced some of the ideas I had from previous workshops in order to explore their further development. Of the five designers in the workshop, four have extensive backgrounds in Product Design, while the remaining participant specialises in UX Design. All of them are part of the Grooming department and are well-versed in the product being intervened.

Figure 69 illustrates all the ideas generated during the first activity in a pre-defined matrix. To visually categorise the ideas, a vertical line separates those that facilitate the product's evolution over time building a narrative with the user (on the right) from those that would allow the product to reflect the user's identity (on the left). In addition to this binary categorisation, the vertical axis indicates the level of mental or physical effort required to personalise the interaction.

Figure 69. Ideas organised after the brainstorming activity

This categorisation of ideas highlights the blurred line between the two main directions, as some ideas could serve both purposes and are placed in the middle. This is underlined by the fact that there should theoretically be twice as many ideas in the right cluster, as two of the three design streams came from the evolvability narrative tandem.

There are two reasons for this. Firstly, because the main directions are not opposite, but rather complementary. The three streams could offer design ideas to each other — allowing for a leap from the direction for which they were originally conceived to the other. Secondly, the resource group was more engaged with the topic of the physical evolvability of the product, presumably due to their predominant experience in product design.

To select the ideas to be developed into interaction/storyboards in the next activity, participants were asked to vote for those that would lead them to develop the most lasting emotional attachment to their device. Figures 70 and 71 illustrate two storyboards:

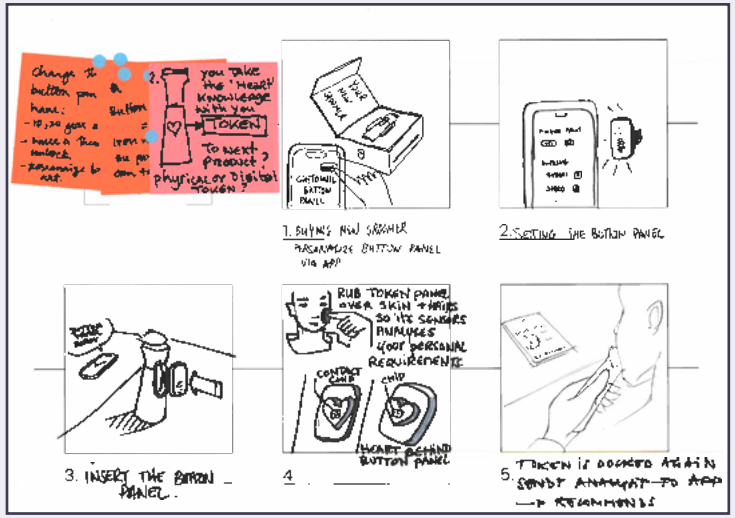
Figure 70. Storyboard sketched during the workshop I

This storyboard explores how the device could provide personalised haptic feedback to the user who, after purchasing the product, would have personalised their own buzz beat. As the final steps show, in addition to feedback on the status of the device, the trimmer would also provide haptic feedback on the user's grooming technique.

The focus is on building a common and unique language with the device through communication that is unnoticed or unintelligible by others.

It could be interesting to test the potential to create product attachment by celebrating the user's personality and senses through personalised feedback.

Figure 71. Storyboard sketched during the workshop II



This storyboard introduces a new interaction concept using a smart token device. Its content could be personalised through the current app. Once set up, the token can be plugged into the trimmer.

While the current idea lacks an emotional connection, I see potential for cultivating it. Combined with other concepts, the token could influence the trimmer's features or behaviour over time, or celebrate the user's identity.

Inserting the token to activate the trimmer could create an emotional connection between the user and the device as a metaphor for bringing it to life.

During the final activity in pairs, three final concepts were created by combining two of the interactions sketched on the storyboards from the previous activity. Figures 72 and 73 show two of them.

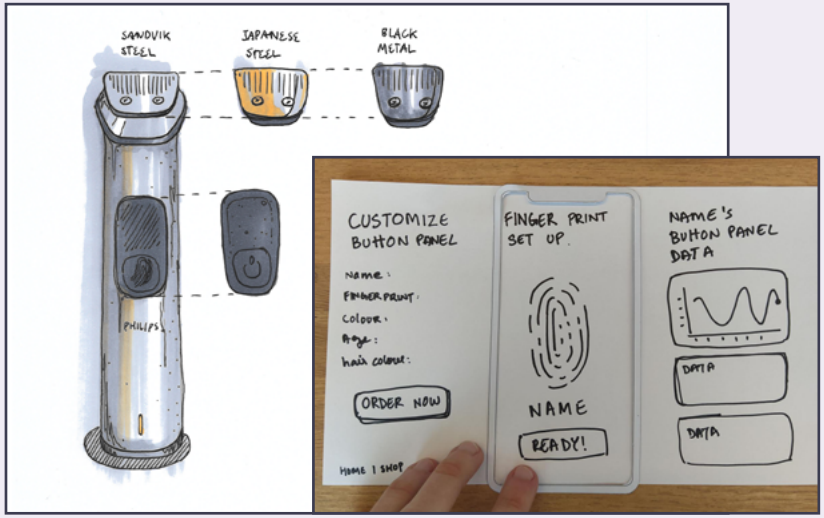


Figure 72. Final Concept I

This final concept combines the graceful ageing of the handle with the idea of the token, which no longer has a display but retains the fingerprint activation mode. The aesthetics of the trimmer have been simplified with a completely metallic handle and a simple control button, emphasising its high-quality and timeless design. The app would display the data collected by the token.

The irreplaceability would be determined by the unique patterns created by the patina on the handle and the symbolism associated with the personal token linked to one's identity. I appreciate the simplicity of this redesign, with the handle developing its own story and the trimmer responding only to the user.

I wonder how other elements of the trimmer could also develop their own story, rather than being left out of the evolution. I am also contemplating whether turning the device into a black box but aesthetically simple would have a positive or detrimental effect on triggering product irreplaceability.

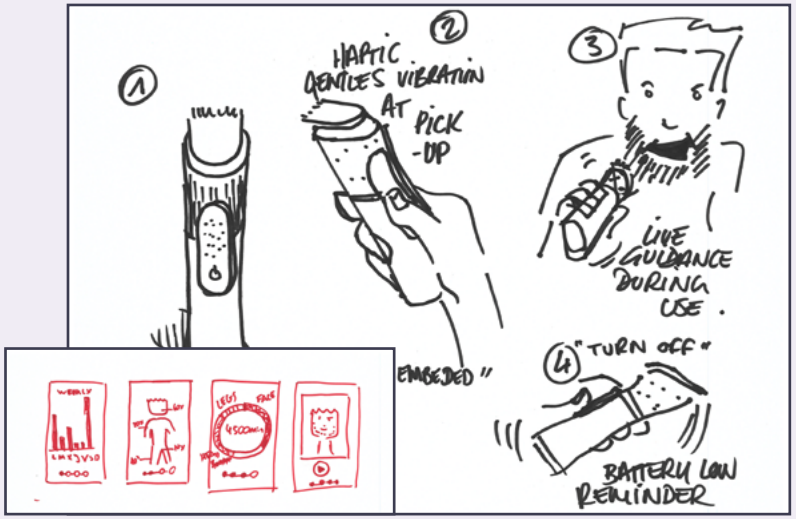


Figure 73. Final Concept II

This concept combines the previous idea of haptic feedback with a concept called "Grooming Wrapped," which is similar to a grooming version of the Spotify's annual Wrapped. Grooming Wrapped would provide an annual visual summary on the phone of the data collected by the trimmer throughout the year.

This intervention aims to establish an emotional connection with the device by allowing the user to personalise the feedback and receive personalised usage information in return.

While I believe that these haptic personalisations and the Grooming Wrapped annual feedback could emotionally connect the user to the device, I have reservations about their effectiveness if these interactions occur solely through the app. I question the extent to which a sense of irreplaceability can be built towards a device that behaves as you want, but that you do not tell directly to it how to do it.

Can an app effectively convey the feeling of infusing one's personality into the device? Moreover, while the data is collected by the trimmer, the fact that it is displayed on the app could undermine the device's intended message of how well it knows the user.

In my opinion, this intervention would be more effective without intermediaries: the user telling the device how to behave, and the trimmer telling the user how he behaves.

5.4 Conclusions

In closing this chapter, exploring the initial design directions with users provided valuable insights for interventions that could foster Emotional Durability towards the grooming device under the design intervention (see Figure 74).

These insights converge into three distinct pathways: **Physical Device Evolution, Device Features Evolution, and Building a Common Language for User Identity.** While these streams do not represent specific interventions, but rather a **framework** for combining user-inspired ideas, they highlight user perspectives on fostering a meaningful connection through product interaction.

The participatory ideation also emphasised the importance of material qualities like the iconic perception of metal, timeless greyish tones, and comfortable, non-sticky grip materials.

However, it is important to acknowledge that participatory approaches, while beneficial, have **limitations**. Although the first two workshops helped to refine directions and ensure that the interventions will resonate with users from the outset, a significant proportion of the ideas generated are not directly applicable. The streams are the result of analysing the user's ideas from a higher construal level. The third workshop and I later explored how to turn these imaginative ideas into tangible interactions. Thus, although the co-creation approach facilitated the generation of ideas on how to trigger product irreplaceability, it also involved a considerable investment of time.

Accordingly, the conceptualisation of the product interventions in the next section is the result of combining and iterating the ideas generated after defining the design streams.

Figure 74. Participants clustering ideas after the brainstorming

06

Product Interventions

This chapter presents three interventions designed to make the All-in-One 9000 Series irreplaceable. Each intervention stems from the ideas and design streams of the ideation phase. In each intervention, the new interaction and the reasoning behind are explained in detail.

6.1 Interventions Overview

This section provides an overview of the three distinct product intervention concepts aimed at fostering Emotional Durability in the Philips All-in-One 9000 Series. These are the result of the iterative conceptualisation based on the design streams of the ideation phase.

These interventions all strive for irreplaceability, but from different angles. This allows to explore the multifaceted nature of Emotional Durability within the grooming context and to identify the aspects of the three streams that resonate most strongly with users. Therefore, each concept integrates different modifications stemming from the three of the streams, resulting in contrasting and comprehensive product experiences.

Figure 75 provides a visual overview of these three different concepts. The following sections will describe and analyse further these proposals.

Figure 75. Three Product Interventions Overview

6.2 Intervention 1: IMPRINT

6.2.1 Description

The first intervention stems from the first and third design streams. The **physical product would evolve over time based on its usage**, creating a shared narrative that celebrates the owner's identity. IMPRINT highlights the adaptability of the trimmer in an explicit and unique way, showcasing how the product is used.

The user embeds their identity directly into the device **from the first day of use throughout its entire lifetime.** To achieve this, the intervention includes the following modifications:

Grip area

This modification involves replacing the TPE rubber with a material such as EVA, which offers similar durability properties but better flexibility and softness. This allows the user to **mould the grip** area of the handle **to their hand** over time.

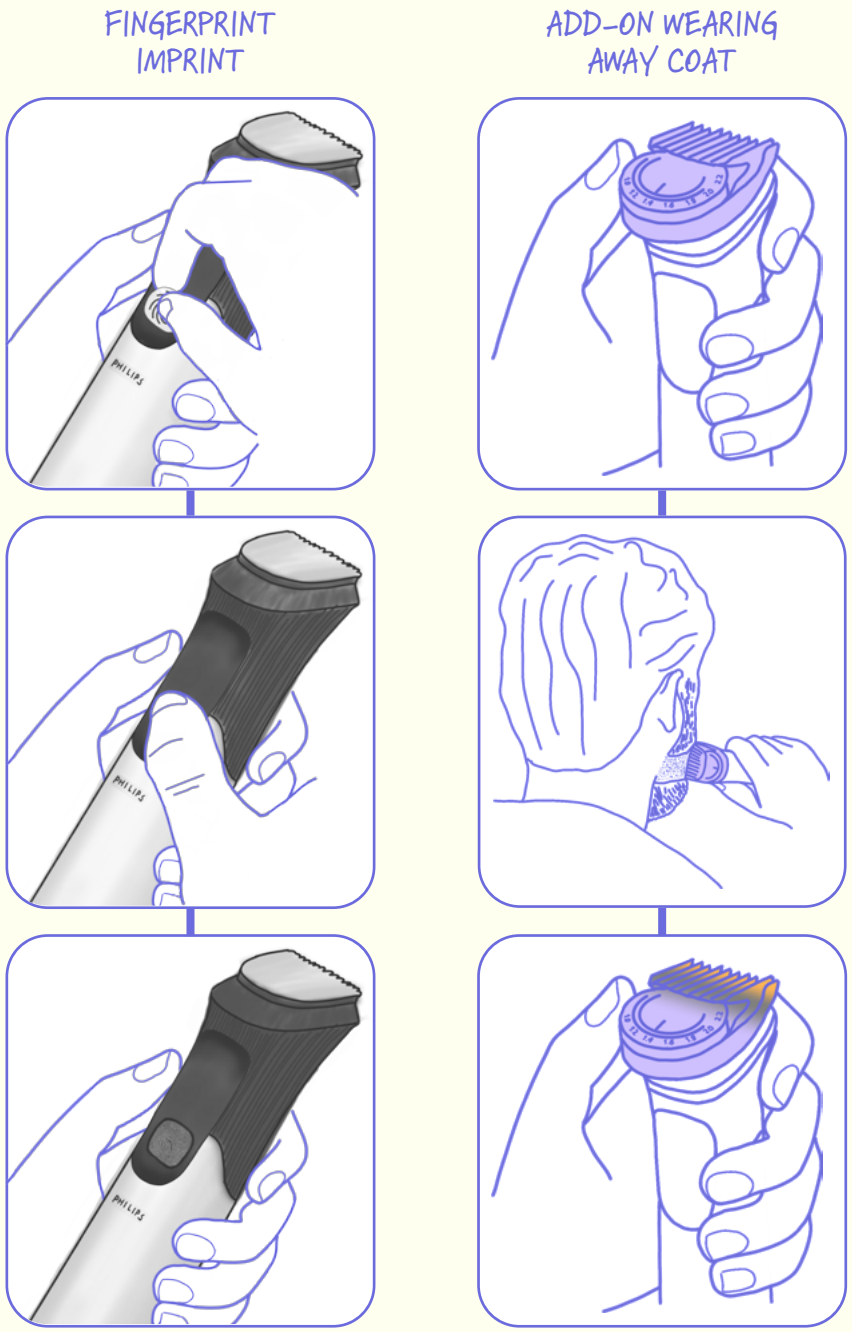
Although this material choice would require further research, EVA is commonly used in product applications such as footwear and sports equipment, where it is known for its cushioning properties. Additionally, as observable in Figure 76, the area designated for the grip material has been expanded to provide more surface to be moulded with the user's hand.

Colour coating on add-ons

Currently, the available add-ons have different grey or darker colours, not being that easy to spot your most used add-on, camouflaged among the over 10 accessories the trimmer includes. How can you identify the ones you use the most? What can they tell about you?

By using a coating that masks the true colour of the piece, **the actual colour would be gradually revealed in a unique way** as the add-on is used and the coat layer wears away, especially in areas of direct and repeated contact with the skin or fingers (see Figure 77). It could be done in a similar way **scratching cards** are done.

Figure 76. Main modifications on Concept 1



Fingerprint imprint

Products that can be controlled with buttons tend to be perceived as tools and used without any emotional connotation. Buttons do not feel personal. To tackle this, the current ON/OFF button, placed below the finger recess, would be relocated externally.

As depicted in Figure 77, the button would be properly covered with **air-dryable clay**. After the unboxing, users would imprint their fingerprint the first time they use the device. This interaction would mark the initial point of the shared story together. After hardening, this imprint explicitly links the trimmer to his user, who would be reminded of this every time he uses the device.

6.2.2 How it contributes to Emotional Durability

IMPRINT addresses Emotional Durability and irreplaceability by intentionally making the passage of time visible and associating it with the device's owner.

It underscores the themes of Evolvability and Narratives by enabling the user to shape the evolution of their device with their hands. In doing so, the concept of Identity becomes prominent, as the user imbues the product with strong symbolic meaning through shaping it. This concept aligns with the design framework strategies of showing progression, co-creating a story, and personalising the product to make it unique.

The emotional connection and sense of irreplaceability are derived from the **symbolic meaning embodied** in the product's shaped appearance. Even if the final appearance could be replicated in a new trimmer over time, it would not carry the same significance, as it would be a forced replicate of the outcome rather than allowing the user's routine to naturally shape the device. This concept is anticipated to tap into the symbolic value more than the other two because of its more **explicit narrative**.

Figure 77. Interactions that shape the materiality of the trimmer I

Figure 78. Interactions that shape the materiality of the trimmer II

Each modification aids the trimmer to become irreplaceable from a distinct perspective. On one hand, a handle that moulds to the hand fosters a connection based on the sense of achieving a **perfect match** between the product and the user. It evokes a feeling of an extension of oneself that has been gradually achieved over time.

The colour-changing attachments, on the other hand, establish an emotional connection based on the **unique pattern that is revealed** as the coating wears off. This approach is more playful and creates a sense of engagement with the device and the specific add-on. Furthermore, this visible evolution can offer the user insights into their grooming technique and routine.

Apart from the enjoyable self-crafted appearance, the revealed pattern could offer another meaningful association. These patterns would enhance the **ease of recognition** of the add-ons that the user typically uses. Generally, this device comes along with several add-ons, with some of them may not be easy to distinguish. Therefore, the pattern would enable users to quickly identify their accessory through this unique visual cue as the one illustrated in Figure 78.

The colour or pattern revealed might also contribute to creating a **connection with Philips as a brand**. If the revealed pattern is reminiscent of Philips' distinctive or iconic brand elements, such as the logo or the traditional lime colour of the Philips grooming portfolio, it could become a symbolic reminder of the brand (as shown in Figure 79).

Finally, the **fingerprint stamp aims to evoke a sense of ownership**. This modification allows the user to directly imprint their identity onto the product. Symbolically, it links the device to its owner for the rest of its lifetime, like having signed the product as their own.

The decision to keep the metal handle as it is underlines the functional stability of the device. This choice conveys the message that the core of the trimmer, its high performance, remains unchanged and is simply imbued with the way it is used.

Nonetheless, this intervention also raises some **critical points** to be explored in the evaluation of the concept. On one hand, it is important to consider if users would perceive these evolutions as personal enough to become emotionally connected to the device. If so, the longer the time passes, the stronger and more lasting the connection would be. However, these three modifications tend to reach a final state of form after a while. What would happen then? Would the connection be strong enough to endure over time?

Additionally, as these changes explicitly reflect the passage of time on the product, it remains to be seen whether users would respond positively to them, or if, on the contrary, they might be detrimental to the psychological lifetime of the trimmer.

Figure 79. Render of IMPRINT

6.3 Intervention 2: MyGroom

6.3.1 Description

Aligned with the second design stream, **the features of the grooming device on this concept evolve over** time through its use and continuous learning. Drawing inspiration from the other design streams, the intervention integrates **physical elements that support and visualise this ongoing narrative** in the pursuit of unlocking the perfect trim. It includes the following modifications:

Fingerprint activation sensor

As drawn in Figure 80, this modification replaces the ON/OFF button with a fingerprint sensor following the same argument of the previous intervention of lacking a personal interaction. It is the first milestone of the narrative towards your perfect trim, linking it to yourself. This interaction not only unlocks the device, but also the other digital features to be personalised.

Machine Learning + app

Current grooming devices perform the same task time and again without hesitation, but without improvement neither. With AI and Machine Learning (M.L.) algorithms popping up in our everyday lives, integrating them into grooming devices can offer a more meaningful experience that continually improves over time.

MyGroom integrates M.L. algorithms within the trimmer making use of the existing **Philips GroomTribe app** via Bluetooth. By recognising usage patterns, the device would learn from each grooming session to adapt its performance. This internal evolution would result in tailored battery indications, adjusted cutting element speeds and real-time feedback. The more the device is used, the more accurate it gets, gradually unlocking all the potential of the algorithm.

The wireframes on Figures 81 and 82 illustrates these features.

Figure 80. Main modifications of Concept 2

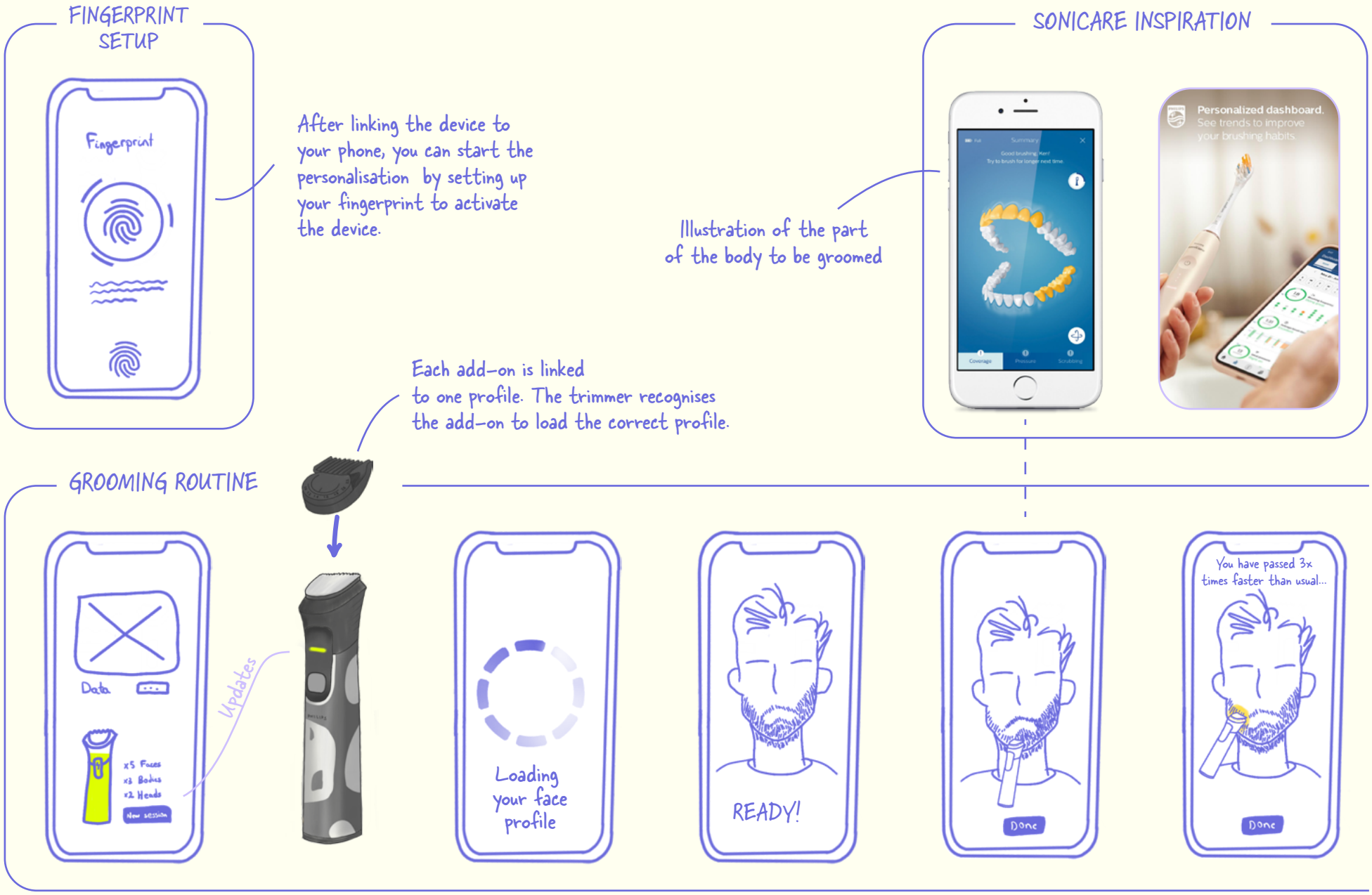
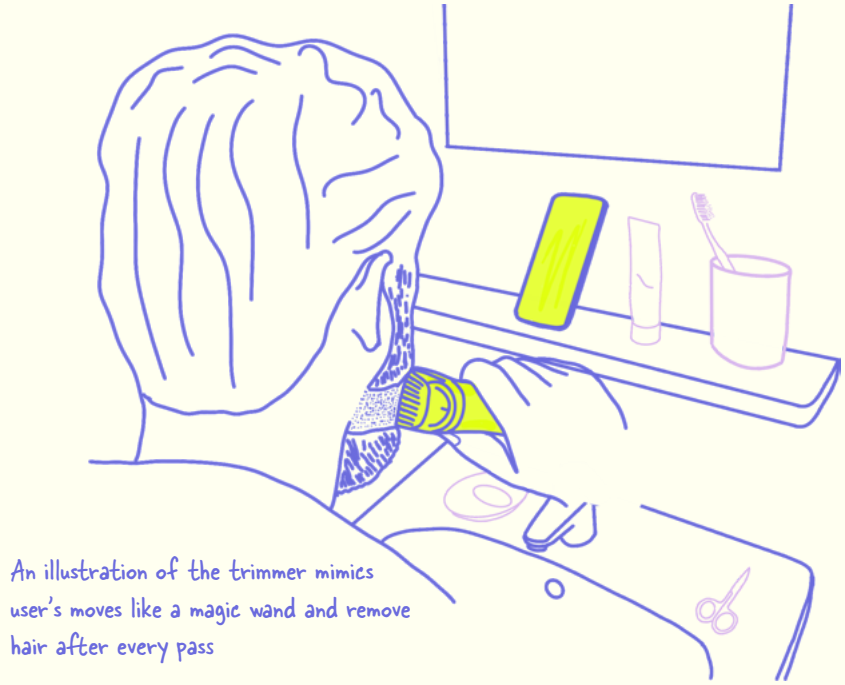
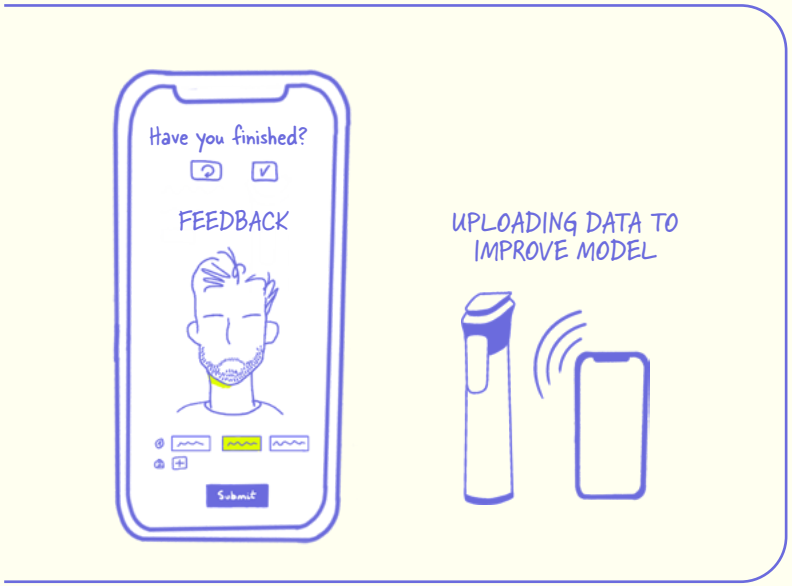


Figure 81. Main wireframes of the new feature within the app



An illustration of the trimmer mimics user's moves like a magic wand and remove hair after every pass



Each add-on would be associated with a body part (beard, body, hair...), allowing the device to recognise and load the correct **body part profile** onto the device and the app (refer to Figure 81). The battery indicator then automatically updates to show the remaining trims based on usage patterns within that profile.

Additionally, the app loads the **user's digital twin**, inspired by the Philips Sonicare app, where the user can receive real-time feedback on their phone while brushing their teeth. Each body part profile would have a digital twin. The app would display an icon of the trimmer that mimics the user's movements (like a magic wand) and would depict the hair being shortened in the area the user has just passed over, providing real-time feedback.

For instance, the app could inform the user if the device detects that they should pass over a specific area again based on previous usage patterns. Finally, the user could provide specific **feedback about certain areas**, allowing the model to adjust the cutting element speed to enhance the result and experience. This data, along with battery usage data, is uploaded to update the model and the information displayed on the app.

To emphasise the ritualistic interaction, the **GroomTribe app would be indispensable** to start and finish the routine, nudging users to immerse in the M.L. narrative.

Battery indicator (part of the M.L. intervention)

No matter from which tier your grooming device is, they all indicate the remaining battery, some with LED lights, others with a display. Yet, they lack a personal connotation. "What does 20% or 1 strip mean? Can I still use it?"

Consequence of the M.L. modification, the battery indicator would provide **personalised feedback** based on previous grooming and user behaviour to show the possible trims, grooms, or shaves with the remaining battery. Furthermore, it has been repositioned above the fingerprint sensor so that users can immediately view the charge level on top of their finger upon turning on the device.

Figure 82. Role of the phone on the new grooming routine

Wireless charging pad

Grooming devices are often used for many years, making it challenging to recall when they were purchased or how long they have been in use. The new feature of the wireless charging pad aims to make explicit the time spent together, the time invested in pursuing the perfect trim.

The integrated display on the charging pad informs users about this every time the device is placed to charge. Inspired by the representation of a tree's age on its trunk, an animation of rings corresponding to the trimmer's age flows outwards from the centre of the display until they disappear as waves when the trimmer is placed for charging. It evokes a sense of pride and accomplishment as more rings accumulate over time. Each additional ring can serve as a personal milestone.

The last ring, depicting the current year, remains on the screen to show the progress of the current year, followed by a green ring indicating the current battery status (see the storyboard on Figure 83).

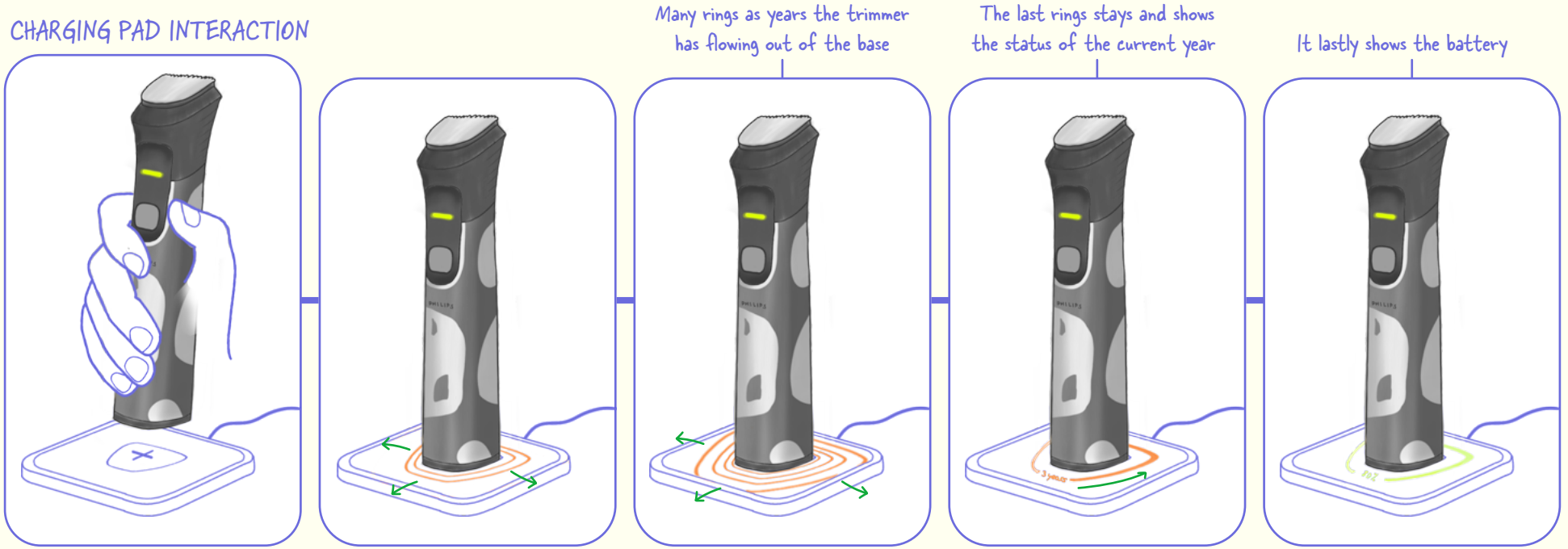


Figure 83. Sequence of animations within the new charging pad

Handle coat layer

Over time, products obviously age. However, unlike visible ageing, the evolution of this product's features may go unnoticed due to its invisible nature. In fact, this ageing is actually positive, as the more it is used, the greater experience it provides. The handle coat layer is the physical embodiment of the device's evolution and refinement over time. As the device is used, the high-quality material of the handle unveils (see Figure 84), representing the unique and personal unlock of the perfect trim.

Figure 84. The coat on the handle wears away over usage

6.3.2 How it contributes to Emotional Durability

The emotional connection is expected to strengthen over time because it gets better the more the device is used. Internally, it learns from user patterns to adapt its behaviour and feedback. The potential effectiveness of this concept in instilling a sense of irreplaceability lies in the hypothetical scenario of why anyone would want to replace a product that knows your grooming routine as well as you do. A device that has joined you in the pursuit of the perfect trim.

Externally, this same narrative is emphasised by visualising this beneficial ageing through the two physical modifications (charging base and handle coat).

This intervention exemplifies the rhizomatic nature of Haines-Gadd et al.'s (2018) framework, combining strategies from the Narratives and Evolvability themes, while also incorporating elements from the Relationships theme by creating a ritual. It also integrates strategies from Conversations by providing mutual feedback during and after usage; from Imagination by creating an effect of magic with the digital twin and the charging pad, as well as emphasising materiality through the handle's coat. However, the combination of several strategies does not necessarily make the concept effective.

The current **app would play a key role** in creating an emotional attachment with the device as the communication channel. This idea emerged from the third workshop with the design team, which explored whether the app could benefit from this intervention to instil more emotion into the interaction.

However, from a critical standpoint, it remains to be seen whether a digital app that is not directly embedded in the product can create a lasting emotional connection with the trimmer for several reasons.

1. Embedding the emotions in the app may lead users to form a bond with the app's features rather than with the device, thereby failing to make it irreplaceable.
2. While it may be tempting to keep the trimmer simple by transferring any interface or feedback to the app, it could be counterproductive, potentially creating a black box trimmer, especially since it involves machine learning.
3. Given users' reluctance to download very niche apps, an intervention where an app of this nature takes the lead role may struggle to foster user engagement and, consequently, trigger Emotional Durability on a larger scale. Therefore, the app is designed as essential for using the device.

Moreover, in today's interconnected digital landscape, all our digital products are all linked. We can **easily transfer data** from one smartphone to another, so what would prevent us from transferring our algorithm from trimmer A to trimmer B?

To achieve Emotional Durability effectively, interventions of this nature require additional **features that are non-transferable and deeply embedded in the device**. As Figure 85 shows, this is emphasised through the charging pad and the handle coat layer.

The yearly rings, for example, are unique to each trimmer and would be lost if the trimmer is replaced, even if other data could be transferred. This gamified representation of the trimmer's age aims to visually display the length of the user's relationship with the device, encouraging them to strive for as many rings as possible.

Additionally, the unveiling of the metal handle serves as a gentle nudge for users not to replace their trimmer. Not only for the unique pattern they have acquired, but also for the time it takes to unlock the metal level. This discourages them from discarding the entire progression; resetting the premium appearance and perfect grooming experience by getting a new trimmer while it is still functional.

Therefore, while some aspects of this intervention may have critical points alongside their strengths in making the trimmer irreplaceable, the other modifications not only address these issues but also make the intervention more compelling.

Looking back to this intervention at the end of the project, I must admit that the intervention indeed feels too full.

The physical modifications were added upon the iteration process. They helped create not only a unique experience, but also a unique product.

However, the cohesive element behind the evolution towards the perfect trim could have been more compelling maybe only with the coat layer, which, in my opinion, truly resonates with it.

Figure 85. Render of MyGroom

6.4 Intervention 3: TrimBuddy

6.4.1 Description

This intervention is mainly aligned with the third design stream, aiming to establish a common language that celebrates the user's personality. In essence, the user communicates to the device how it should behave, while the device, in turn, provides feedback to the user about their grooming habits. This is achieved through anthropomorphism, with the device displaying a personality that celebrates the user's identity, creating a unique and personal grooming experience.

The trimmer's aesthetics have been modified by changing the grip area, with the goal of exploring the impact of specific materials and elements in creating a lasting emotional connection. The modifications in this intervention include:

Material of the grip

Many participants in the research and ideation workshops expressed their negative view towards rubberised grips that become sticky over time. Elaborating on this claim, this modification explores whether the perceived quality of the grooming device can also foster a durable connection with the product. This modification does not seek to imbue personal meaning into the product, but to **stress the high-end nature of the device**.

A different yet similar metallic finish is applied to the upper part (see Figure 86). It aims to accentuate the TrimBuddy as an indispensable element of the trimmer, serving as the only element for interacting with the device (alongside the cutting element and attachments).

TrimBuddy

In my opinion, another reason why we often perceive our everyday products as mere tools is because we typically have no control over their internal behaviour, which makes sense, right? It would become an extremely time and mental demanding activity, and dangerous as well. However, letting users provide some input into the device's behaviour can create a sense of agency, ownership, and ultimately meaningful interaction, leading to a durable emotional connection.

Figure 86. Main modifications of the Concept 3

This is precisely what the **TrimBuddy token** (see Figure 86) aims to achieve. Resembling a Xiaomi band in physical appearance, it features a **tactile display** to navigate through various screens and a **scooped button** on the lower part to operate the trimmer.

It would be included next to the trimmer in the packaging, intended to be plugged in by the user immediately after unboxing. This interaction serves as a metaphor for **bringing the trimmer to life**, the moment when the interaction with the product begins, as illustrated in Figure 87. From its insertion, it creates a sense of animacy that reflects this personal process of teaching and shaping its behaviour.

Its purpose is to **empower users to develop their own language with their device** by enabling them to embed their personality and uniquely shape the interaction, as if they were raising a child, in this case, a trimmer. Emphasising this metaphor of "bringing it to life", a **magnetic alignment** would be followed by a breathing effect on the LED ring while the TrimBuddy is setting up (see Figure 87).

The TrimBuddy's display would show various data, such as battery status or the recommended body part for the attached accessory. If implemented, other possible content should be further explored to leverage the full range of opportunities it offers. Figure 90 includes a possible structure of wireframes with different features.

LED light ring

If the user brings to life the trimmer, the LED light ring represents the quality time spent together, the **device's lifetime usage.** Each cycle would correspond to a specific number of minutes, causing the ring to gradually illuminate after each usage until it is fully lit.

Upon completion, a new colour (or level) would be unlocked, enriching the interaction solely by using the device. To better integrate this feature with the token, the light's colour would be linked to the display's colour theme, changing after each new level is unlocked. Similarly, new screens or features could be unlocked with the new levels.

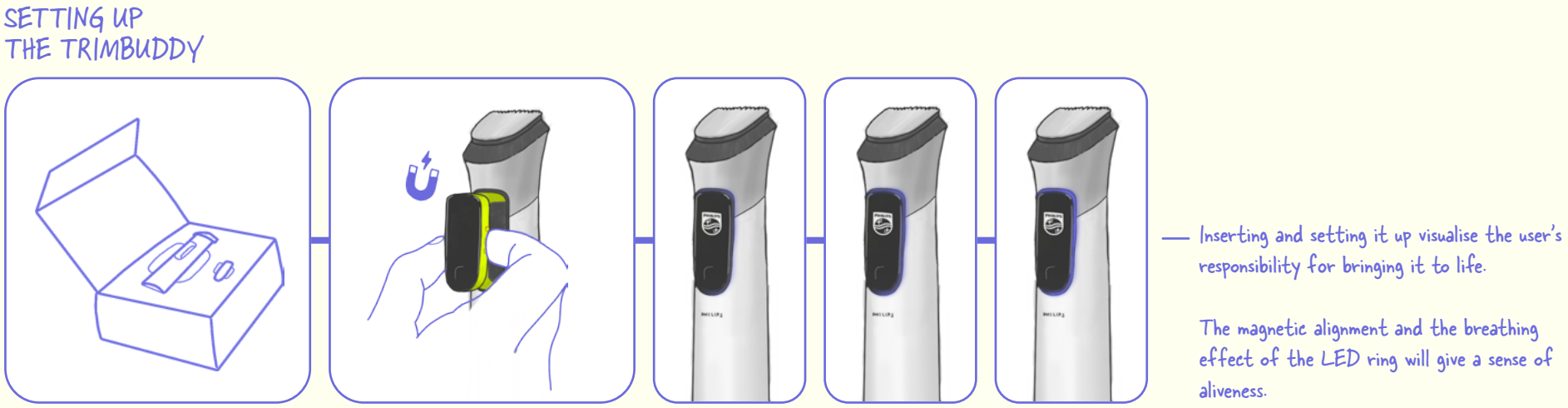


Figure 87. "Giving birth" interaction

Haptic feedback personalisation

Integrated into the token, this modification aims to empower users to creatively personalise how the device communicates with them, effectively bringing the device to a more mature state of life. It seeks to **convert a functional and essential feature into a personal and meaningful interaction**.

Users could record and set their own haptic feedback, creating a unique buzzing rhythm (see Figure 88). The act of training the device to provide personalised haptic feedback is an essential part of imbuing it not only with animacy, but also with your personality. It should feel like teaching an unintelligent device how to behave, celebrating your individuality. The grooming device's internal engine makes haptics well-suited, as it would only need to adjust its speed to transmit the feedback (which could also be checked on the display).

Grooming summary feature

Inspired by Spotify's Wrapped, users could access their grooming summary at any time on their display. It represents the bidirectional communication with the device, telling back the user how he behaves through data collected during usage. This summary, shown in Figure 89, would consist of several screens with concise visual and numerical representation of their trimmer usage, serving as a shared history record.

This intervention has the potential to transform the TrimBuddy into a transferable element across the Grooming (or Philips) portfolio. However, the intervention **does not include the transfer of data** from one device to another, as the data reflects the interaction between the user and the specific device. It could potentially store data for several devices, but further research would be needed considering storage and interaction limitations and implications.

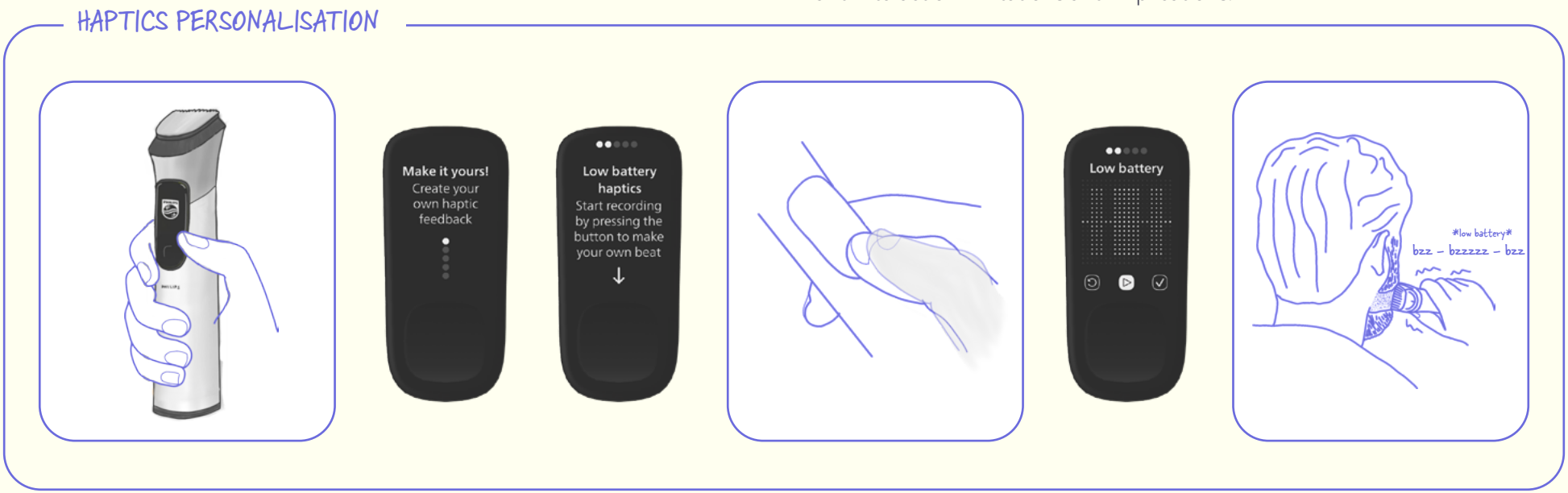


Figure 88. Haptics personalisation interaction

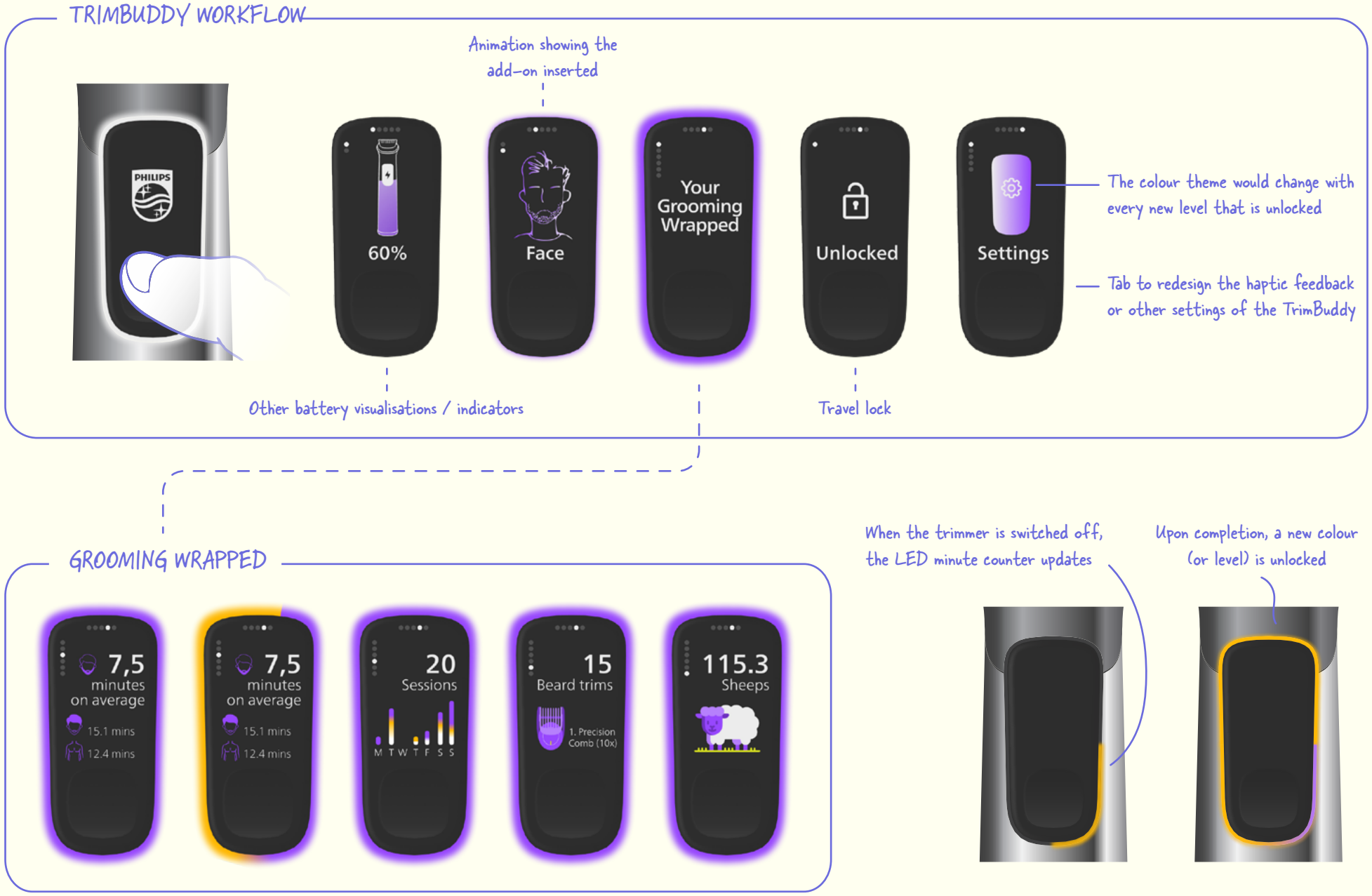


Figure 89. Some of the setting up and annual grooming summary wireframes

6.4.2 How it contributes to Emotional Durability

The TrimBuddy intervention, rendered in Figure 90, approaches Emotional Durability by enabling the device to celebrate the user's identity and shared narrative through personalised feedback embedded in the materiality of the device.

This intervention aligns with the strategies of Enabling Personalisation, Making it Unique, Infusing the product with the user's personality and Facilitating self-discovery from the themes of Identity, Materiality, and Narratives. **Anthropomorphism** serves as the common thread to unite these strategies.

The concept of a **common language is explored through two forms** of different feedback. Firstly, there is feedback on the device's performance. It is expected that users will form a certain attachment to their trimmer by letting them personalise the unique way it would communicate with them. However, this modification alone may not suffice to make the device irreplaceable, as the personalisation may lack strong symbolic meaning and could be replicated on another device.

On the other hand, the grooming summary aims to celebrate the user's use of the device by displaying usage data collected while being used. If the TrimBuddy were replaced with another device, the haptic feedback could be replicated. But the history of your data and its visualisation would be lost, inaccessible and thus irreplaceable, as explained before.

Finally, the interaction attributed to the LED ring would not only unite all the TrimBuddy's features but also potentially foster a lasting emotional engagement. While level upgrades could unlock new personalisations or data visualisations, its primary purpose is to visually represent how the device is used through a gamified time counter light, like a progress bar that increases after every use, prompting users to continue using the trimmer to keep their progress.

Consequently, the main critical point of this intervention rests on whether the combination of these modifications, which may individually evoke attachment but not necessarily irreplaceability, can collectively become highly symbolic and effectively transform the device into an irreplaceable item.

Figure 90. Render of TrimBuddy

6.5 Conclusions

This chapter has covered the three product interventions on the All-in-One 9000 Series. As Figure 92 shows, it has been an **iterative process** in which concepts were continually assessed to identify what worked best and where further refinement was required to strengthen them.

The conceptualisation started with each intervention addressing only one of the design streams each. However, it was the iteration what made apparent the **interconnection between concepts**, serving as building blocks for one another to create more comprehensive and robust interventions.

As summarised in Figure 91, each intervention tackles Emotional Durability from a different angle. IMPRINT focuses on the physical product experience, highlighting the evolution of the device over time and its explicit link to the owner through physical personalisation. MyGroom combines the physical and digital product experience by leveraging machine learning to continuously improve and personalise the grooming experience. On the other hand, TrimBuddy is primarily an embedded digital intervention, allowing users to communicate their personality to the device and receive personalised feedback.

The conceptualisation iteration concluded when the three interventions fulfilled all the **Design Criteria** outlined in chapter 4. This self-assessment is presented in the **next chapter**, in which only the final evaluation of the three interventions is discussed along with the input from users.

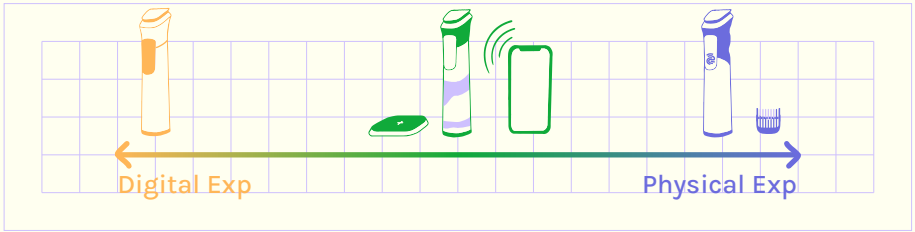


Figure 91. Mapping the interventions on a Digital-to-Physical scale
Figure 92. Visualisation of the iterative process

07

Interventions Evaluation

This chapter presents the evaluation of three product interventions through theoretical and practical assessments. Firstly with the design criteria and later evaluated with users. Ultimately, the goal of this chapter is to identify the key elements of the interventions for making the device irreplaceable.

7.1 Evaluation Overview

This section provides an overview of the evaluation activities conducted to refine and assess the product interventions outlined in the previous section. It could be divided into **theoretical and practical evaluations**.

Firstly, the interventions underwent an initial self-assessment[4] against the criteria defined in Chapter 4. This includes a Harris Profile with the Design Criteria from section 4.6, and an analysis of the mass personalisation dimensions outlined in section 4.5. Additionally, their alignment with the Interaction Vision defined in section 4.3 is also discussed.

Secondly, the interventions underwent a thorough user evaluation with concept cards, low-fidelity prototypes, and interviews to assess them from the users' perspective.

Figure 93 illustrates this evaluation process, which will be further detailed in the following pages.

[4]It is important to note that this evaluation has been conducted iteratively during the conceptualisation phase with earlier concepts to refine the interventions.

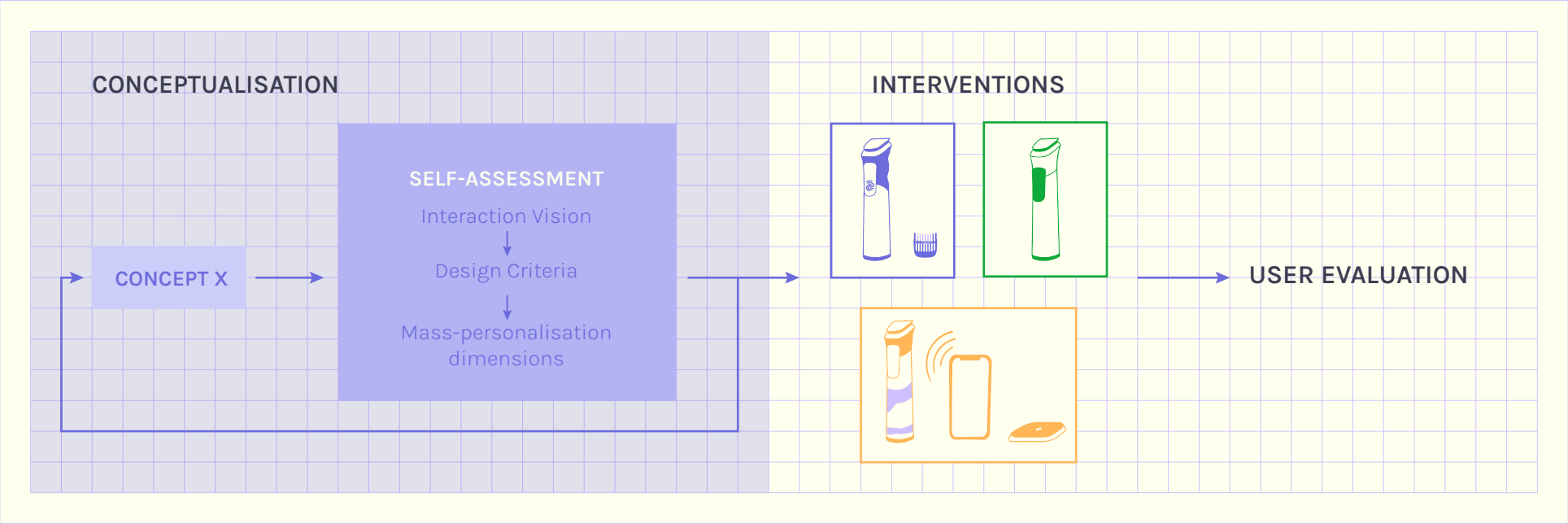


Figure 93. Overview of the evaluation phase

7.2 Harris profiles

The Harris Profile was used to identify which aspects of the interventions needed improvement or were suitable for the other interventions. This tool provides a visual analysis of the fulfilment of the Design Criteria.

These criteria can be found in section 4.6 on page 56. A Harris Profile is a graph that visualises the strengths and weaknesses of the design concepts in relation to predetermined design requirements (van Boeijen et al., 2013).

Figure 94 depicts the results of this evaluation, where:

++ indicates the intervention significantly fulfils the corresponding criterion.
+ indicates partial fulfilment.
- indicates indirect addressing of the criterion
-- indicates that the criterion is not considered or included.

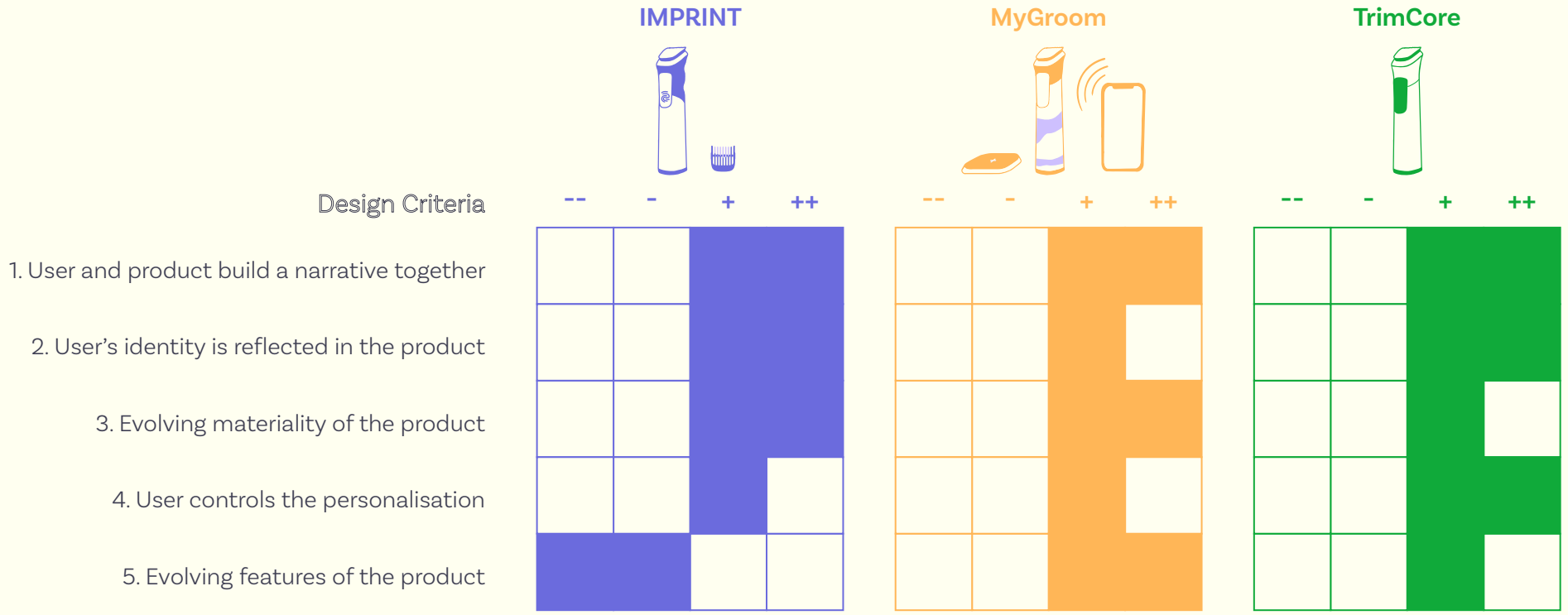


Figure 94. Harris profiles of the three interventions

The criteria are ordered according to the expected efficacy, with those that are more likely to result in product irreplaceability positioned at the top. Consequently, those criteria that may be less effective in isolation, merely triggering product attachment, are positioned at the bottom.

As illustrated in Figure 94, **almost all the criteria are fulfilled** to some extent in all the interventions. With IMPRINT focusing on the evolution of the material elements of the device, it does not include any feature evolution, resulting in a score of -- for this criterion. The similarity of certain characteristics among interventions is the outcome of the iterative process of this evaluation aimed at refining the criteria fulfilment.

This assessment rates visually the interventions in the following order of theoretical efficacy: **1. IMPRINT, 2. TrimBuddy, and 3. MyGroom**. IMPRINT scores the best on the most important criteria due to its primary focus on the emotional and symbolic effects of personalisation. TrimBuddy appears to be a more physically static intervention, given its fixed metallic appearance, with only the light ring evolving over time. However, compared to IMPRINT, TrimBuddy offers a broader scope for the user to control their personalisation through the display and its features.

MyGroom is the intervention that performs best on the last criterion due to the integration of algorithms that enable the device to learn over usage. However, while the intervention seems to perform well overall on the other criteria, it presents some limitations on certain characteristics that require further exploration. For instance, if the elements that truly drive personal symbolism outweigh the critical points of the elements that fulfil the lower criteria.

This visual representation of strengths and weaknesses reveals potential combinations of concepts. For instance, depending on how users value and appreciate the characteristics of MyGroom and TrimBuddy, a very powerful intervention could emerge from the integration of both. This is because the combination would lead to all the criteria being properly fulfilled, and because of the technological nature of both interventions, which would facilitate a seamless combination. In fact, the underlying narratives are partially compatible, as the process of bringing it to life and shaping its behaviour can contribute to make the features evolve in the pursuit of the perfect trim.

7.3 Mass-personalisation Dimensions

This section analyses and compares the three interventions with regards to the seven dimensions for mass-personalisation discussed in section 4.5. Based on that analysis, Figure 95 illustrates this comparison with the ideal case per dimension and intervention through a series of spider charts,

IMPRINT

1. Flexibility. While the user has some control over the wear or adaptation of the device, the personalisation of IMPRINT is not easily reversible after some time of usage.

2. Initiation. The personalisation process of IMPRINT is initiated by both the design of the device and the user. The modifications empower the user to imbue it with their identity and personal symbolism, making it unique and personal.

3. Personalisation moment. The personalisation occurs during the use phase, intending to progressively raise product attachment over time.

4. Goal of personalisation. The modifications of IMPRINT are primarily appearance-driven, with some functional consequences such as a better grip with the handle or improved usage of the add-ons for better results.

IMPRINT

5. Deliberateness. The hand-shaped grip or add-on modifications occur naturally due to the usage of the device, being somewhat indirectly deliberate. The fingerprint stamp is a deliberate action to signify ownership. It acts as a personal identifier.

6 & 7. Physical & Mental effort. This intervention results in a highly personalised product that requires minimal mental and physical effort as a natural result of using the device.

MyGroom

1. Flexibility. MyGroom excels in flexibility, allowing for personalisation through continuous teaching and learning with mutual feedback to control the experience.

2. Initiation. The personalisation process of MyGroom is initiated by the trimmer, which requires initial input from the user (such as setting the fingerprint and user profile) to be used.

3. Personalisation moment. Personalisation begins immediately after purchase and extends throughout the device's lifetime. Each interaction with the trimmer adds another layer to the shared story, physically symbolised by the light rings on the charging base and the unveiling of the metal handle.

4. Goal of personalisation. The trimmer's personalisation serves both aesthetic and functional purposes, imbuing the device with personal meaning through user-tailored features and unique aesthetics resulting from user usage.

MyGroom

5. Deliberateness. The personalisation of this intervention is entirely deliberate, as the user provides feedback to the trimmer to adjust its behaviour, and also has control over the wear of the handle coat or the finger activation sensor.

6 & 7. Physical & Mental effort. MyGroom requires more effort from the user compared to other interventions to leverage all the benefits of the device. This could result in a lack of engagement. However, this effort could also align with the *labour leads to love* principle, where the investment of time and effort leads to a lasting emotional connection with the product.

TrimBuddy

1. Flexibility. TrimBuddy also offers users great flexibility, allowing them to decide which haptic feedback to personalise, when to do it, and when to change it.

2. Initiation. The personalisation process of TrimBuddy is initiated by the trimmer, as it deliberately requires initial input to be used. Over time, the personalisation is taken over again by the device, providing personalised data and unlocking new levels (and features or visualisations) as the device is used.

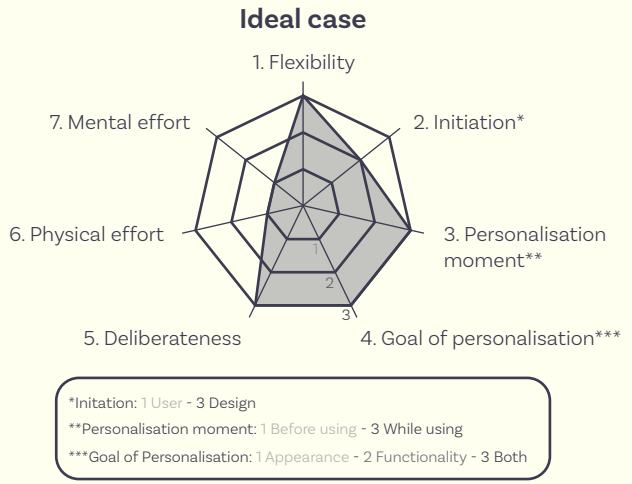
3. Personalisation moment. Despite this personalisation occurring after purchase or periodically, it provides the user with a personalised experience each time the device is used. This is due to the fact that the feedback is only perceived and understood by the user, which is a consequence of the intimate nature of haptics. Furthermore, the grooming summary could be accessed at any time. The more the trimmer is used, the more insightful and personalised the information becomes.

TrimBuddy

4. Goal of personalisation. The personalisation of the trimmer and the personalised data is a hedonic intervention for a functional goal, strongly loaded with the personal meaning of the user, their personality, and the way they use the device.

5. Deliberateness. The user has some control over personalisation, but TrimBuddy retains control over what the user can personalise at each stage and how the data is visualised.

6 & 7. Physical & Mental effort. While it may require some mental effort to personalise the feedback, it is combined with low physical and mental effort required for the grooming summary, providing effortless moments of self-discovery.



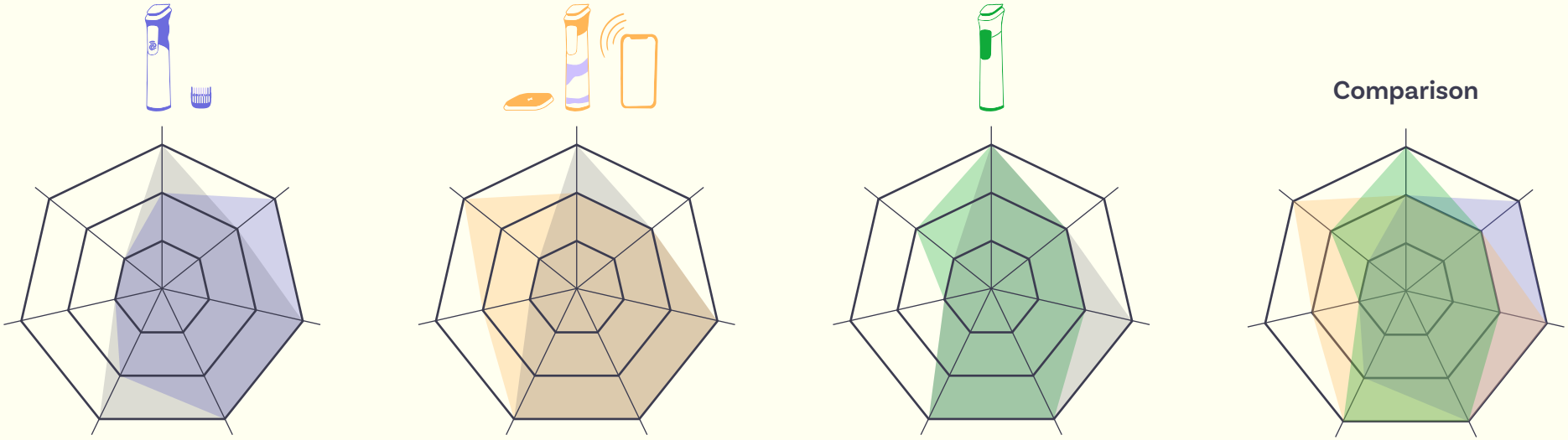


Figure 95. Comparison of the fulfilment of the 7 mass-personalisation dimensions

In conclusion, while IMPRINT emphasises the sense of effortless co-creation between user and device during the grooming routine, its downside is the lack of reversibility. MyGroom stands out for its deliberate personalisation with the ritualistic interaction between the device and the app, yet it may lack ease of use and requires more effort. TrimBuddy excels in effortless, intimate personalised experiences, but its drawback may lie in the personalisation moment, which occurs only before usage. Figure 96 illustrates these strengths and weaknesses for mass-personalisation.

This analysis underscores the importance of considering not only the benefits but also the potential drawbacks of mass-personalisation within this context. It lets anticipate and address potential challenges that users may encounter to trigger the emotional connection with the device by these personalisation means.

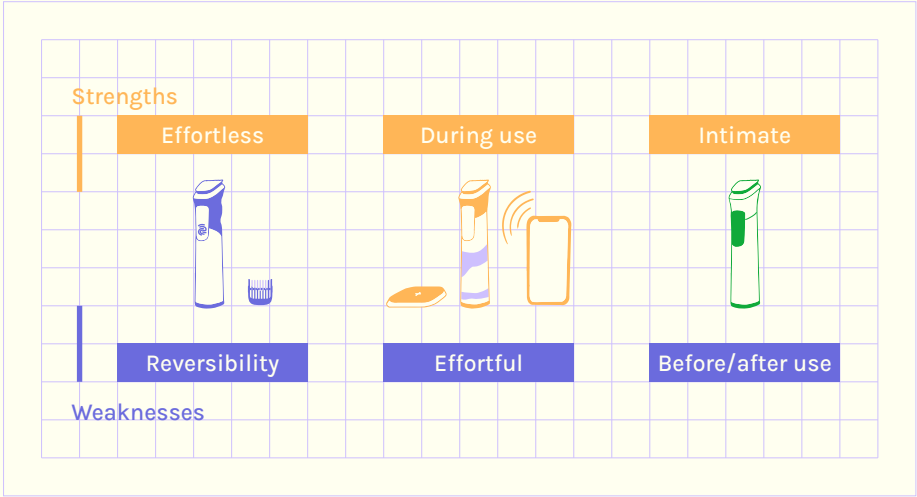


Figure 96. Main takeaways from the mass-personalisation analysis

7.4 Interaction Vision through emotional metaphors

This section relates the Interaction Vision (I.V., see section 4.3 on page 51) to the metaphors behind the main interactions of each intervention. Each of the three interventions incorporates the qualities of unique, natural, and gradually, mirroring the process by which individuals imbue their belongings with personal symbolic meaning, ultimately making them irreplaceable.

IMPRINT

This intervention **explicitly represents the I.V.** as the user gradually moulds the materiality of the device through natural usage. This process results in a unique device where each use builds upon the previous one.

The images on Figure 97 were used as inspiration to elaborate this intervention:

Figure 97. Inspiring images for the metaphor of IMPRINT

MyGroom

The narrative behind MyGroom is that the trimmer's performance improves the more it is used, resembling the growth process of a tree. After each usage, it *absorbs* the user's feedback and patterns of use to feed its model, strengthening its main internal technological backbone and expanding the M.L. algorithm as its roots.

Therefore, this concept is primarily underpinned by the internal technological evolution, and explicitly supported by the physical modifications. These illustrate the shared journey as a tree, conveying the feeling that only over time the perfect trim can be unlocked together. Overall, MyGroom makes the passage of time a driver for keeping the device rather than for replacing it, with an experience that gradually becomes completely personalised.

The images on Figure 98 illustrate this metaphor:

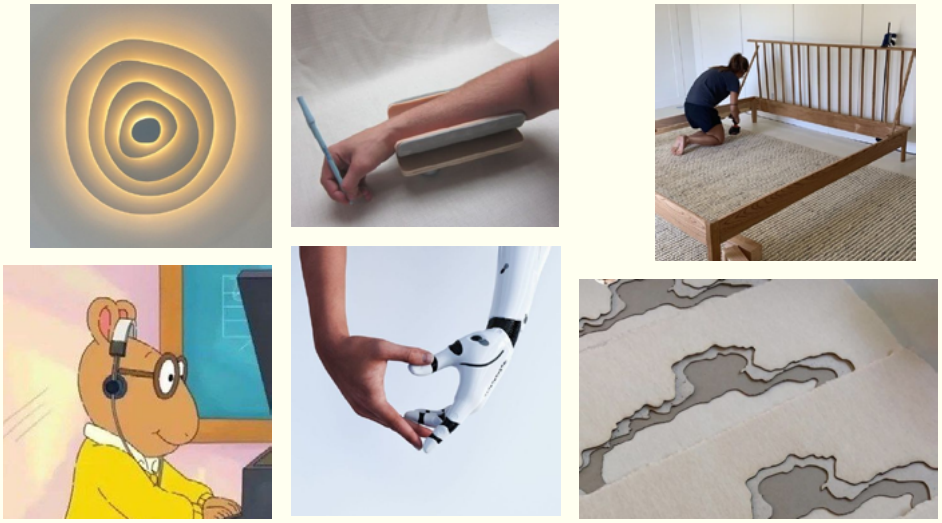


Figure 98. Inspiring images for the metaphor of MyGroom

TrimBuddy

Its metaphor occurs when the trimmer is being used for the first time. The interaction of inserting the TrimBuddy into the handle and its setup behaviour elicits in the user the sense of **bringing it to life**, as if it were their own creature that they must care for and teach how to behave and communicate. This initial interaction lays the groundwork for an emotional connection that would strengthen over time through the other modifications, resulting in a unique and personal product.

The images on Figure 99 illustrate this metaphor:

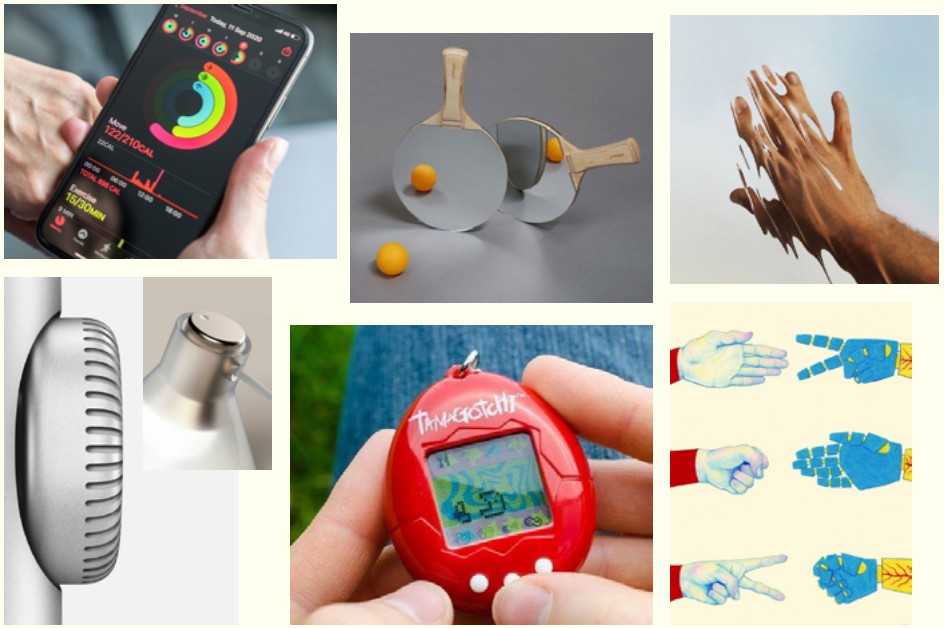


Figure 99. Inspiring images for the metaphor of TrimBuddy

Thus, the three interventions incorporate the qualities of the Interaction Vision to a greater or lesser extent. They provide an emotional experience that facilitates users to embed their identity and symbolism into the product.

7.5 Evaluating with users

7.5.1 Scope & Research questions

This research activity aims to evaluate the three design interventions for the Philips All-in-One 9000 Series grooming product. It focuses on their potential to cultivate emotional connections and foster a sense of irreplaceability with users. By understanding how these interventions influence user-product relationships, the research seeks to identify the design elements that better extend the lifetime of the device.

Therefore, the following research questions are explored with this user evaluation:

1. **How do the design interventions influence users' perception of the product's irreplaceability?**
2. What **elements of the design interventions** contribute most to users' emotional connection with the grooming device?
3. What **other design considerations** can be derived from the user evaluation to promote Emotional Durability?

7.5.2 Procedure

As Figure 100 illustrates, this evaluation with users combines **concept cards,** physical and digital **low-fidelity prototypes,** and short, focused **interviews**. Figure 101 includes the structure of the session, with a time duration estimation of 1 hour. Each participant reviews the three interventions. Although the materials may differ from one intervention to another, the structure remains the same among interventions as stated in Figure 100.

The questions, included in Appendix G, follow a semi-structured interview style. It allows to evaluate and delve into the specific aspects of each intervention from the same starting point. Notably, it is important to acknowledge a limitation of this study. Participants' opinions are rooted in assumptions and speculations about future scenarios, since interventions' ultimate impact (Emotional Durability) will only manifest in the long term.

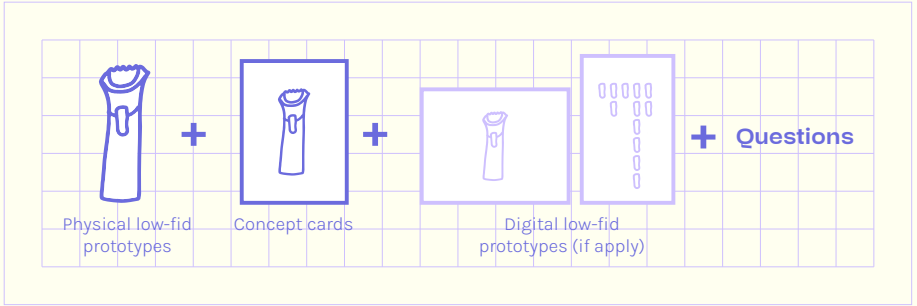
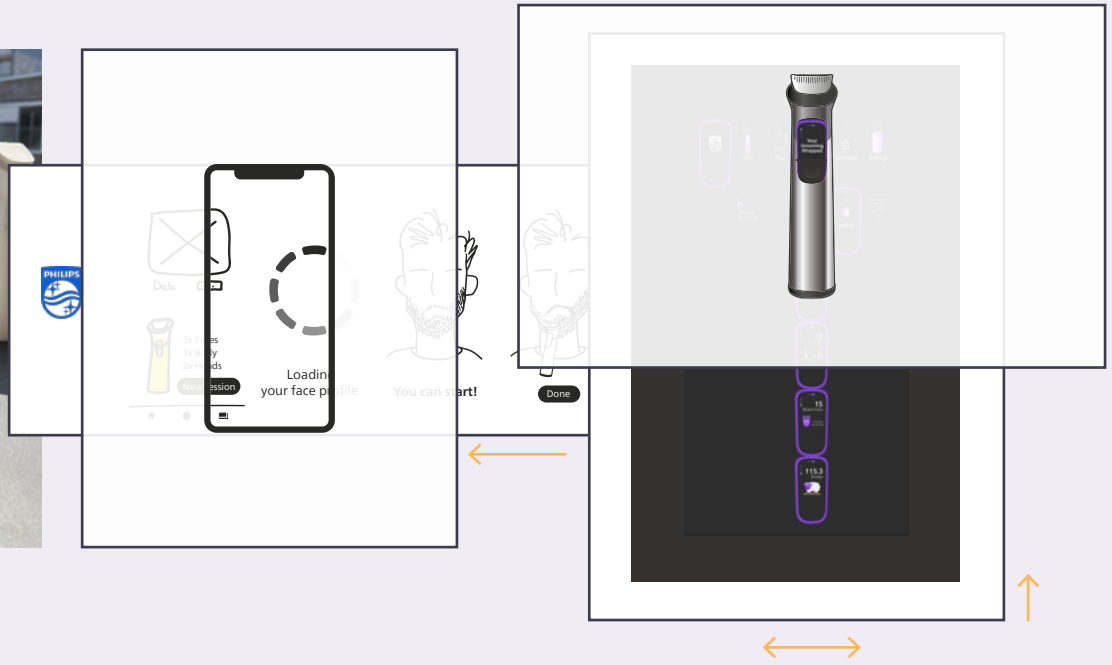


Figure 100. Materials used in the evaluation sessions

Activity	Duration	Description
Introduction	5 mins	Welcome participants, explain the research goals and the structure of the session, obtain informed consent.
Warm-up	5 mins	Discuss participants' current grooming device and present the current Philips All-in-One 9000 Series.
Intervention Evaluation (3x)	3 x 15 min	For each intervention: 1. Explain it to participants, making use of the visualisations in the **concept cards**. 2. Present the corresponding **prototype** and allow some time for **interaction**. 3. Semi-structured **interview** focusing on the potential for triggering product attachment and irreplaceability (see Appendix G).
Wrap-up	10 mins	Ask for their overall impressions of the product interventions (see Appendix G), thank them for their time, answer any questions they may have.

Figure 101. Structure of the evaluation session



As mentioned before, a kit of visuals and interactive prototypes was crafted for each intervention. These can be found in Appendix H.

Figures 102, 103, 104, 105 and 106 show some of these materials.

7.5.3 Recruitment strategy

The recruitment strategy for the validation of the interventions followed the approach used in the ideation phase, aligning the participants with the **Philips market segmentation** targeted towards the All-in-One 9000 Series. Figure 107 presents the general demographic information of the recruited participants.

In total, 6 participants took part in the user test, showing signs of saturation within the data as reflected in the next subsection. The majority of them were in a working adult life situation. Only two participants were students, both of whom were interns near to the conclusion of their studies, close to the working status. Notably, none of the participants had a background in design, yet highly-educated with diverse backgrounds, all having received college education. All of them make use of electrical grooming devices, with different frequency of use, as depicted in Figure 107.

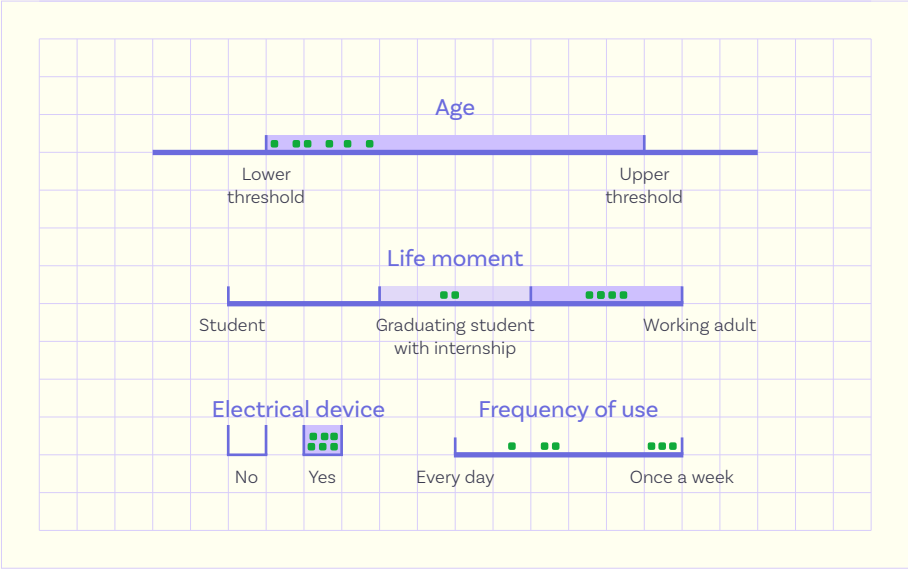


Figure 107. General demographic information from participants

7.5.4 Results

This section gives an overview of the data gathered during the evaluations. The results are initially presented from a broader perspective (see Figure 108), later more detailed in Figure 109). They are subsequently discussed in the following subsection.

Figure 108 below shows how the participants ranked the three interventions in terms of whose replacement is most likely to be postponed the most due to their specialness.

Participant	1st	2nd	3rd	4th
IE1				Current device
IE2				Current device
IE3				Current device
IE4				Current device
IE5				Current device
IE6				Current device

Figure 108. Structure of the evaluation session

The most noteworthy finding regarding the effectiveness of the interventions is that **the three** of them would be considered **more special than the grooming device they currently own**.

Against initial expectations, **MyGroom** emerged as the most valued intervention in terms of instilling a sense of specialness. However, as anticipated in the previous self-assessment, it was directly **linked to the data and algorithm**, rather than to the device itself. As they explained, IMPRINT scored higher than TrimBuddy because the personalisation of the latter would be easier to replace and replicate in another device compared to IMPRINT. This is discussed in more detail on the next page, addressing the first research question.

Figure 109 provides a closer look at which elements within each intervention would evoke an emotional connection. For instance, the add-on wearing away coat is the modification on which the sense of irreplaceability would be built for IMPRINT. In the case of MyGroom, it would be the implementation of M.L. and A.I. and the metaphor of the rings to indicate the trimmer's age. Lastly, for TrimBuddy, it would be the gamified LED light ring of levels and the grooming data..

On the contrary, as Figure 109 shows, **modifications that solely responded to symbolic considerations failed to elicit Emotional Durability** due to their lack of functionality. For example, both the physical and digital fingerprints received low ratings. The right-hand column displays the frequency with which each feature was selected by participants to create their most unique and irreplaceable trimmer - the super features. Grooming data, the M.L. algorithm, and the add-on wearing away coat emerged as the elements of the interventions that significantly set the device apart from the others to make it irreplaceable for them.

This is further elaborated on the next page with the analysis of the effectivity of each modification.

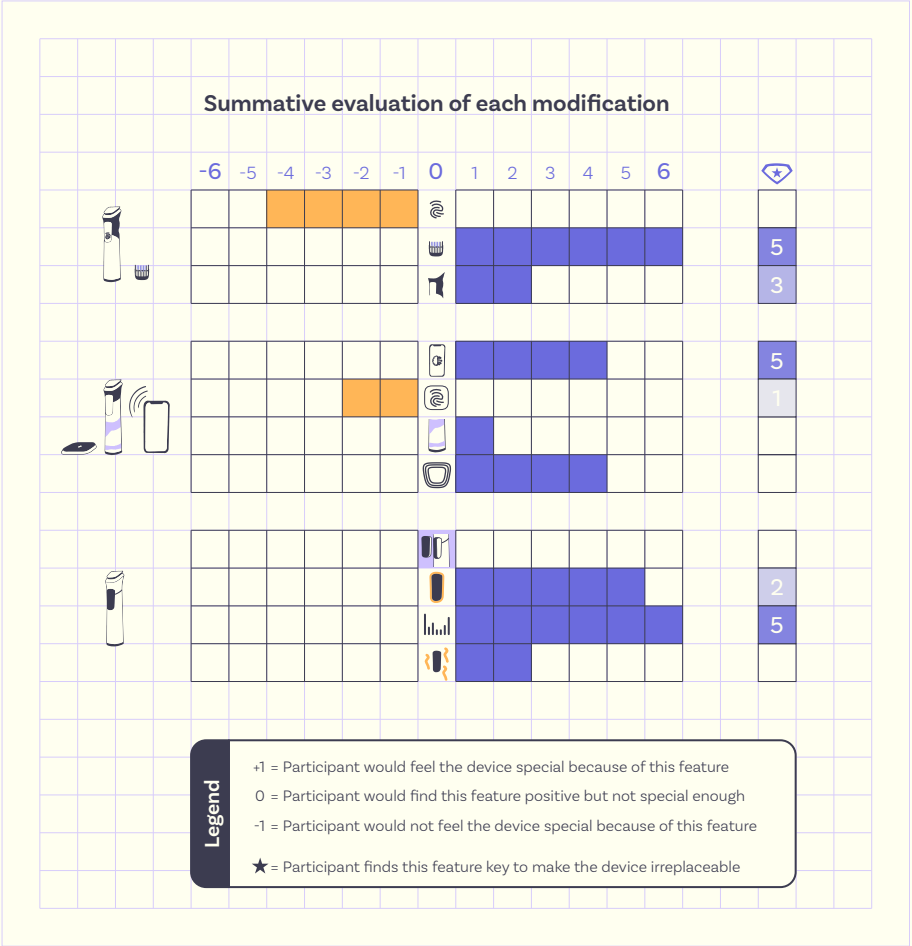


Figure 109. Summative evaluation of each modification

7.5.5 Discussion: Research Questions

This subsection sheds light on the research questions previously defined at the beginning of the section. These are addressed in the same order as they were presented:

RQ1. How do the design interventions influence users' perception of the product's irreplaceability?

The three interventions would result in products that participants would perceive as more special and would feel more connected to compared to their current devices. Furthermore, with a few specific exceptions for certain modifications, they asserted that in the case of owning and using any of these interventions, **an identical device would not hold the same special meaning** for them.

This sense of specialness was not always associated with the symbolism with which some of the modifications were designed. As discussed on the following page, not every symbolic modification was perceived as meaningful. It was the **combination of useful symbolism** that made the interventions less likely to be replaced.

Referring to the psychological durability dimensions and their hierarchy discussed in the Literature Review on page 17, the perceived **emotional connection was less strong when** it seemed that the intervention was **only addressing the symbolic dimension** without adding any additional instrumental or hedonic value. This is closely linked to the fact that grooming devices, despite their symbolic significance in shaping our identities, still are perceived as tools for their intended purpose.

The strength of the three interventions lies in the combined effect of their modifications, which, to a greater or lesser extent, enhances these psychological durability dimensions over time. They are more compelling when these dimensions intertwine, with the **symbolism of a personalised product enhancing the functionality and pleasure of use**.

Interestingly, **MyGroom** was the intervention that participants rated as the one they would postpone the most its replacement. However, the element that would trigger the strongest connection is the M.L. algorithm. Consequently, this **sense of irreplaceability would be linked to this transferable feature** rather than to the device itself. Nevertheless, participants were drawn back to their device for their data about their shared journey. If the algorithm were to somewhat attach users to the device, the yearly rings would reinforce its irreplaceability.

On the other hand, **IMPRINT** scored a bit lower. Participants found its modifications quite personal and symbolic but lacking some functional value to have been better considered. Nonetheless, they would be r**eluctant to replace their device due to the time it would take them to shape it.** Another identical device would not hold the same meaning as it would not have undergone this personalisation process.

Finally, **TrimBuddy** introduces a intriguing research direction about the **role of data in evoking product attachment and irreplaceability**. However, the irreplaceability of this concept is hindered by its one-off interactions. Although the result is a sense of bringing the product to life or personalised communication, participants did not find them particularly special as they could easily replicate them in another device.

Overall, it could be said that participants would become more attached to modifications that provide added functional value. However, what triggers the perception of irreplaceability are the modifications that make the physical device personal and unique. As discussed on the following pages, modifications that only tap into the symbolic dimension did not resonate equally strongly with them.

RQ2. What elements of the design interventions contribute most to users' emotional connection with the grooming device?

To answer this research question, Figures 110, 111 and 112 explain in detail the effectiveness of each modification within each product intervention based on the qualitative analysis of participants' responses. These figures are an extended version of the results previously displayed in Figure 109.

The dots next to each modification represent the participants' assessment of the irreplaceability of that modification:

- No contribution for irreplaceability
- Not sufficient for irreplaceability
- It contributes to device irreplaceability

Fingerprint stamp

Overall, all but one of the participants felt that this change was **superfluous**.

They felt that this stamp would not be as meaningful for a number of reasons. Firstly, because this modification would **not bring any added value** to the grooming experience. Secondly, because they would not be able to visually identify the stamp as their own. Thirdly, because it would be a **one-off interaction** and they would not imagine looking at it every time they picked up the device.

Therefore, although they acknowledged that it would allow them to associate the trimmer with themselves, the lack of utility and the ease of replacement would not help to create an emotional connection and sense of irreplaceability with the device.

"Our fingerprints look the same. Only a robot or a police guy can get to know the difference between both of them. That's why it would not tell me that much either". IE1

Hand-shaped grip

Unlike the fingerprint stamp, the new grip was better perceived for two reasons. Firstly, because participants did see value in having a grip that moulds to their hand for the convenience and comfort that this would bring. Secondly, because of what it would mean to them to have a perfect and unique grip.

Those who were positive about this feature confirmed that they would feel **attached** to their device, not only because of the final result, but also **because of the time it would take to get it**. Additionally, because it would not be that easy to replace, although **it would not be as important to keep.**

However, one possible limitation of this modification should be acknowledged. As the All-in-One device is designed for multiple purposes, it is to be expected that it will be handled differently depending on the area being groomed.

"I've never really asked anyone how they hold their razor, but it would make me feel like it's much more my own." IE2

Add-on colour coat

This modification is one of the MVPs of the evaluations. Every participant recognised this feature as a **key driver in developing an emotional attachment** to their device.

This is not only because of the unique pattern that is revealed, but more importantly because of the **ease of recognition** and the sense of ownership that is created over time.

It was confirmed that this effect **would not have a negative connotation over time**. Instead, it was a feature that would encourage them not only to keep the device, but also to use it more often. They found this modification to be a **playful and engaging** personalised feature that would make their routine more efficient and insightful.

"I'd like to use it very wildly to see how it works". IE3

Figure 110. Analysis of the effectivity of the modifications of IMPRINT

Machine Learning Algorithm

Unexpectedly, this feature and the requirement to use the app was very much welcomed. With the exception of the person who praised it negatively, participants recognised the tension that the **requirement to use the app** creates, even though they would **embrace it** for the benefits it brings.

They acknowledged that they would become **attached to their data** or algorithm rather than the device, even though it is embedded in the trimmer. This is because the **main interaction is through the app**, **detaching it from the device.** It is emphasised by the **transferability** of the data to another device at any time.

The predisposition to keep the product due to this feature may be related to this ultra-personalised experience in combination with other more unique modifications. Thus, while this modification would not individually result in an irreplaceable product, users would be significantly more hesitant to replace it. Reflecting on Mugge's (2017) hierarchy in the experience of attachment, it would be as if the symbolism were intertwined with the specific and unique characteristic of this feature.

"It would be much easier for me to connect to the device if it were inside the device, without the need for an intermediary app." IE5

Fingerprint sensor

This modification received a similar evaluation from participants to its physical counterpart. Although they recognised that it was seamlessly integrated into the digital application and that they could somehow enjoy this personal interaction, **it would not create a special connection** with the device.

It would be personal but not unique as they could replicate it on any other device in an instant. In addition, they also commented that this feature, which already exists in other devices, **is personal but not that meaningful** to them because it is associated with a sense of security rather than a symbolic interaction.

"I used to unlock my phone with my fingerprint and now with my face, and to be honest, it doesn't seem very personal to me either". IE5

Handle coat layer

This feature was rated lower than the coat layer of the add-on. Participants **lacked a more functional benefit** to trigger a sense of specialness. Only two participants liked this slow exposure of the metal as an encouraging feature to use and keep the device.

This modification aims to externalise the evolving nature inside the trimmer. However, unlike what is happening inside, the unveiling does not have enough meaning for the participants to prevent them from replacing their device, as it is only an **aesthetic process**. As they said, they could buy another machine with this premium look from the beginning.

"I have a premium product, but it is not premium when I get it." IE2

Year rings animation

This modification was loved by almost all participants for its potential to create an emotional connection with the device. It is striking how this modification, although clearly also lacking a functional purpose, is valued much more than any other modification lacking a functional purpose. The main difference with these other modifications is that it implies data. As explained further on the next page, and in particular in the third research question, participants showed a **strong preference for data about their usage to increase the likelihood of postponing the replacement of their device.**

This modification encourages users to strive for the full ring as a gamified feature. Even if the algorithm could be transferred, replacing the device would mean the loss of progress, triggering the irreplaceability of the product.

"The ring thingy is cool, and if the device works as good as the new ones, I'd stick to my ring to complete it." IE3

Figure 111. Analysis of the effectivity of the modifications of MyGroom

Inserting the token

The perception of this interaction, which was envisioned as the basis of the lasting emotional connection, was polarised. While some participants affirmed that inserting the token would give them a sense of attachment for bringing it to life, other participants **did not find this interaction sufficient to trigger this connection.**

Furthermore, this interaction has other implications for the effectiveness of the other features of the device. Although the contents of the token would be uniquely associated with the trimmer, participants stated that they were likely to form a s**ense of irreplaceability with the band.** However, as it could not be transferred, it would be extended to the device itself.

"It would be like a milestone for me, an event from which everything else begins" IE3

Grooming data

This modification was a success. The six loved it. It would prevent them from replacing the trimmer if it was still working properly. This feature would trigger emotions such as **pride, fascination and excitement**, leading to behaviours such as sharing the data with others, using the device more often and, ultimately, keeping the device longer.

Their emotional connection is built on the combination of **useful and playful visualisations** of their data usage. It is reinforced by being **embedded** into the device, compared to accessing it through the app. Again, participants would become attached to their data. However, **as it cannot be transferred** in this case, **the attachment makes the trimmer irreplaceable**.

In addition, when asked what type of data they would be more attached to, every participant pointed to **time of use rather than time of ownership**, as this would result in bolder, more precise and playful figures. This is the reason why, even though they resonated with the year ring feature, it was not later selected as a super feature.

A further and more general consideration of the role of data in promoting Emotional Durability is discussed on the next page.

"I want to know now how many sheep I have sheared!" IE6

Personalised haptics

While this feature was generally liked as a way of making the interaction with the device more personal, participants did not resonate with it as a means of making the device irreplaceable.

The ease of replicating the beat recording on another device means that the **connection** created by the personalised haptics was ultimately **short-lived.** In addition, some participants felt that this personalisation was a bit cumbersome and shallow.

"I don't think I would connect with the device with this because I could replicate it on another device" IE4

LED light ring

The idea of a usage time counter through the light ring that unlocks different levels (and colours and potentially features) resonated strongly with participants. Similar to grooming data, this would **motivate them to use the device more often and likely to keep it longer.**

Although the intervention as it is now defined does not imply this, the irreplaceability of this design would be further enhanced if **unlocking levels had some implications in terms of features**. As the participants mentioned, these should not be related to the core function of the trimmer, but a combination of additional functional and personalised features.

Again, it is the data that triggers the stronger emotional connection to the device. However, this feature would be more difficult to interpret without the grooming data feature, where users could easily access it.

"I wouldn't do without my lights, not at all!" IE6

Figure 112. Analysis of the effectivity of the modifications of TrimBuddy

This user validation has encountered one of the biggest **challenges** in designing for Emotional Durability and product attachment: **individual preferences**. However, there was a **common understanding of what was not working** and **what would definitely impact their perception of product irreplaceability**.

On the one hand, there are modifications that do not contribute to product irreplaceability at all, as they lack **meaningful utility** and fail to create any type of emotional connection. As explored in the Literature Review, symbolism is key to triggering a sense of irreplaceability, but the instrumental and hedonic value are the gateways for it to flourish. This includes the fingerprints modifications and the token inserting interaction.

Additionally, the modifications whose **interactions** are considered **one-off** may fall within this group. These interactions are unlikely to generate a strong connection with the product because they can be **swiftly replicated with identical meaning on a new device.** They fail to imbue the product with a lasting sense of uniqueness through frequent interaction, which is ultimately what strengthens the emotional connection (Mugge et al., 2008).

There are modifications that would create an emotional bond with the device but may not suffice to develop a sense of irreplaceability. The most valued modification within this group is the M.L. algorithm and its smartphone-based interaction. Its **detachment from the device hinders the perception of irreplaceability**. Nonetheless, it would definitely make participants more hesitant to replace their device, even though they could easily transfer their data.

The modifications at the top of the list for triggering product irreplaceability are characterised by their engaging, personal, non-transferable, and useful nature. These are the characteristics that the super features share (except for the M.L. algorithm, which is transferable). Participants affirmed that these modifications would make them reluctant to replace their device even when a new and better device is in the market, as their process, progress, and personal meaning would be lost.

RQ3. What other design considerations can be derived from the user evaluation to promote Emotional Durability?

Besides what has already been discussed previously about the holistic sum of utility and symbolism, there are other design implications for fostering Emotional Durability with our devices. This evaluation with users has uncovered these additional implications.

1. The role of an app

Participants were much **more open than expected to being nudged to use an app** with the device on a regular basis. They acknowledged that, although other users may find this cumbersome, they would be fine with it due to all the benefits that it brings. Only one participant showed a negative predisposition.

Despite the fact that the participants' age fell within the age thresholds of the market segmentation of the All-in-One 9000 Series, all were closer to the lower threshold. Thus, older participants may have displayed a more hesitant attitude towards this forced interaction. Every new generation is more dependent on their smartphone on their daily basis. Therefore, even if these participants that did not grow up with them in their hands were positive about it, the upcoming potential users may display an even greater acceptance of this interaction.

Nonetheless, the ultimate goal of this project is to delay product replacement as much as possible through a lasting emotional connection with the device. The M.L. algorithm and its data would somewhat contribute to this lasting connection. However, in addition to the **transferability of the data**, the way in which the **interaction** was designed **through the app** would not lead to product irreplaceability because users would **not perceive their data as part of their device**, even if it is stored internally. It would lead to a **feeling of detachment**.

In conclusion, even if the M.L. algorithm does not suffice for irreplaceability given its likely transferability, the connection with the device would be stronger if the interaction is embedded into the device, not relying on an external element. However, the specialness of this modification does not translate into product irreplaceability.

2. What is happening with data?
That was my first reaction after going through the results and analysing the interviews. Participants were critical of those symbolic physical modifications because they would not add any value to them.

However, **those modifications that made use of data usage to trigger the symbolism were much better considered**. This attitude was first observed with the year rings reminder and emphasised later with the grooming summary, which was chosen as a super feature by all except for one.

This opens a very intriguing research and design direction to better understand what is the role of one's data. Can data-driven interactions foster product attachment and irreplaceability? Apparently, yes.

Our daily life is full of habits and routines, and our grooming routine is not an exception. As shown in the User Research chapter, we generally follow the same steps time and again. But, are we really aware of it? In my opinion, this is where the strength of data lies. Personalised and appealing visualisations of how we use our device can instil a sense of pride, ownership, curiosity, and excitement. It is an opportunity for self-discovery to engage users with their device and to optimise the grooming experience with meaningful information.

One of the **strengths** of this modification in TrimBuddy is that it is **embedded** into the device, rather than accessed through the app. Therefore, **the attachment to the data translates into product irreplaceability**. There is one last important component of this data-driven interaction: we are social beings. Participants related the emotions of pride and excitement to the need for sharing these data visualisations with others.

All in all, this study unveils the potential of data in enhancing the grooming experience and creating enduring emotional connections with products.

3. Product aesthetics without personalisation
The aesthetics of the device, while conveying durability or high-quality, may not serve as the starting point for an emotional connection. A superior appearance alone may not imply personal or emotional meaning for them. It is difficult to infuse it with emotional or personal significance as it lacks of personalisation.

Reflection on this user evaluation

As you may have already read, this test with users has validated some assumptions and yielded other unexpected but interesting findings.

However, I think it is important to keep in mind that this evaluation required participants to purely speculate. They had to imagine themselves with the interventions after a few years of usage.

Saying that I mean that, even if their answers were based on their personal experience of attachment and their own grooming routine, what they said would not be what they would actually do. Take a look to these two quotes from IE6 within 15 minutes:

> *1. "I find quite useful that to use the device you have to use your phone[...]"*

> *2. "[...] I bought a scale that I have to use an app to weigh myself. And in the end the result is that I don't weigh myself."*

By this I mean that the results I have just presented are very optimistic for the application of Emotional Durability, but that we should also be cautious because we cannot really assess them at present.

There is one additional factor that was not contextualised in the evaluations. The All-in-One 9000 Series is an expensive device. During the project, this initial investment has been assumed as an extra initial layer to add to the emotional connection.

In the evaluations, some participants said they would consider replacing it for another better device even if it were functioning properly. However, firstly, I wonder if they would really consider replacing a device that is probably over €100 and working well with a better one that would cost even more. Secondly, and more personally about my smartphone, I sometimes think I could just get a new one. But this thought never translates into an actionable behaviour.

Thus, I wanted to highlight the psychological effect that owning a high-end device implies, which is beneficial for extending the lifetime of a functional device.

7.5.6 Takeaways of the evaluation with users

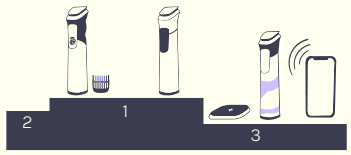
This subsection summarises in Figure 113 the main takeaways from each research question and intervention.

RQ1: Design interventions perception of irreplaceability

1. The three would trigger a stronger emotional connection than their current device.

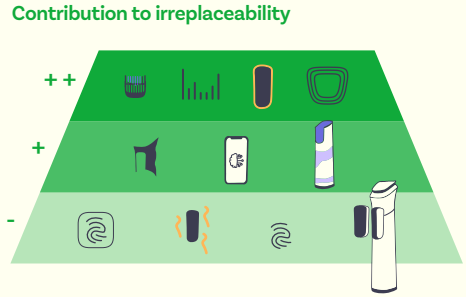
2. An identical device would not hold the same meaning for any of the three interventions.

3. Combining useful symbolism within the intervention makes the products less likely to be replaced.



RQ2: Modifications that contribute the most to Emotional Durability

Modifications that are **engaging, personal, non-transferable, and useful** are more likely to trigger product irreplaceability, while those lacking utility or are easily replicable were not effective.



RQ3: Other design considerations

1. Relying on **intermediaries** do not lead to product irreplaceability. The connection would be stronger if the interaction is embedded into the device.

2. **Data-driven** interactions can foster product attachment and irreplaceability, especially when data and device are indivisible.

3. A superior appearance alone may not imply a deep personal or emotional meaning, not triggering a sense of irreplaceability.

Figure 113. Main takeaways from the user evaluation

7.6 Conclusions

Throughout this chapter, the three interventions on the All-in-One 9000 Series have been evaluated. A self-assessment was followed by a more thorough examination with users.

The first sections discussed how the interventions fulfilled the design criteria and aligned with the design vision and direction. Although at this point, the interventions were considered effective enough to be validated with users, this initial analysis revealed not only the theoretical strengths but also their weaknesses

Evaluating the interventions with users with prototypes and visualisations (see Figure 114) raised the most interesting findings. It confirmed some assumptions. For example, the limitation of the M.L. algorithm within MyGroom to transfer its emotional connection to the device, as users stated their attachment would be towards this digital element.

Overall, **the three interventions were found to be effective in triggering a stronger connection** compared to their current devices. However, only a series of modifications, -the super features, were found to be effective in making the trimmer irreplaceable. These super features include the add-on wearing-away coat, the grooming data summary, and the LED light ring. These super features are characterised by being **engaging, personal, non-transferable, and useful**, providing a unique grooming experience. While other features were positively appraised, they were not considered enough to make the device irreplaceable. One-off interactions lacked personal significance and were found to be replaceable due to the ease of replication.

These findings mark the starting point of the next chapter, where the insights gathered will be leveraged to undergo the final design iteration, and to formulate the final conclusions and recommendations.

Figure 114. Participant IE3 interacting with the prototypes

08

Final Design

This chapter presents the final product intervention on the Philips All-in-One 9000 Series. It explains in detail the new interactions aimed at making the device emotionally durable. It is followed by a thorough analysis of the fulfilment of the Design Criteria.

8.1 Introduction

This chapter presents the final product intervention for the All-in-One 9000 Series. It is derived from the previous evaluation of the three product interventions described in the previous chapter. **All-about-One** is the result of the combination of interactions that would result in the most irreplaceable and unique device under the umbrella of functional symbolism, which is the underlying link between the different features.

Looking only at the results of the user evaluation, one would expect to find more similarities with MyGroom. However, although participants associated this intervention with the most special meaning, a deeper look into their reasoning reveals that this intervention would not lead to product irreplaceability. The transferability of the algorithm, which was identified as the most special aspect, would hinder this ultimate goal. Finally, the participants affirmed that the other modifications of MyGroom would contribute to not wanting to replace their device. However, when compared with the other modifications of the other interventions, they all preferred the others due to the lack of instrumental added value within MyGroom.

Therefore, All-about-One should be seen as a **combination of elements mainly derived from IMPRINT and TrimBuddy**. The sketch in Figure 115 illustrates these similarities. Nevertheless, MyGroom has been crucial with its insights from the user evaluation, obviously alongside those from the other two concepts.

The following pages present All-about-One -the final intervention, detailing the new interactions of the intervention. This is followed by a discussion of how this intervention contributes to making the device irreplaceable. It is also discussed why certain elements were omitted even though they could have been included in the final intervention.

Figure 115. Main modifications of All-about-One

What if you had a trimmer that...

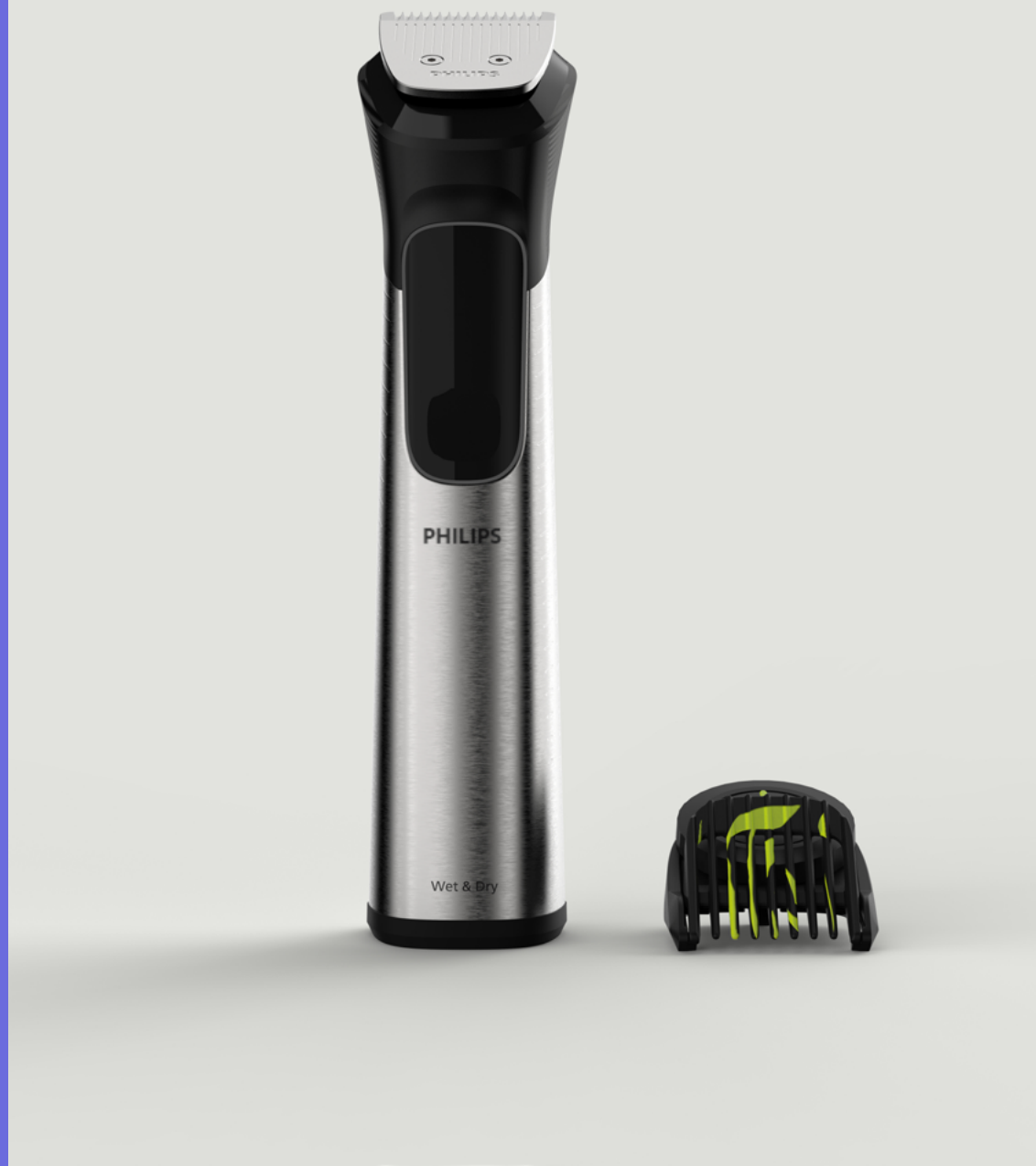
The more you use it, the more unique it is

The more personal it gets, the more streamlined your routine becomes

What if you had a trimmer where ...

Your identity embraces your routine to add a small, yet powerful added value

Why would you want to replace such a product?



8.2 All-about-One

8.2.1 Description

The modifications within this intervention, as mentioned earlier, followed the same stream of **symbolic value embedded in the product that can be used to enhance the grooming experience**.

As these modifications have already been described in detail in Chapter 6, they will now be briefly outlined. The duality of symbolism and functionality that defines each modification can be found on the next pages. Refer to the following legend to better understand the visuals and the content of each modification:

Text

Symbolism vs Added value

Visuals

Product - User Interaction

Digital UI screens

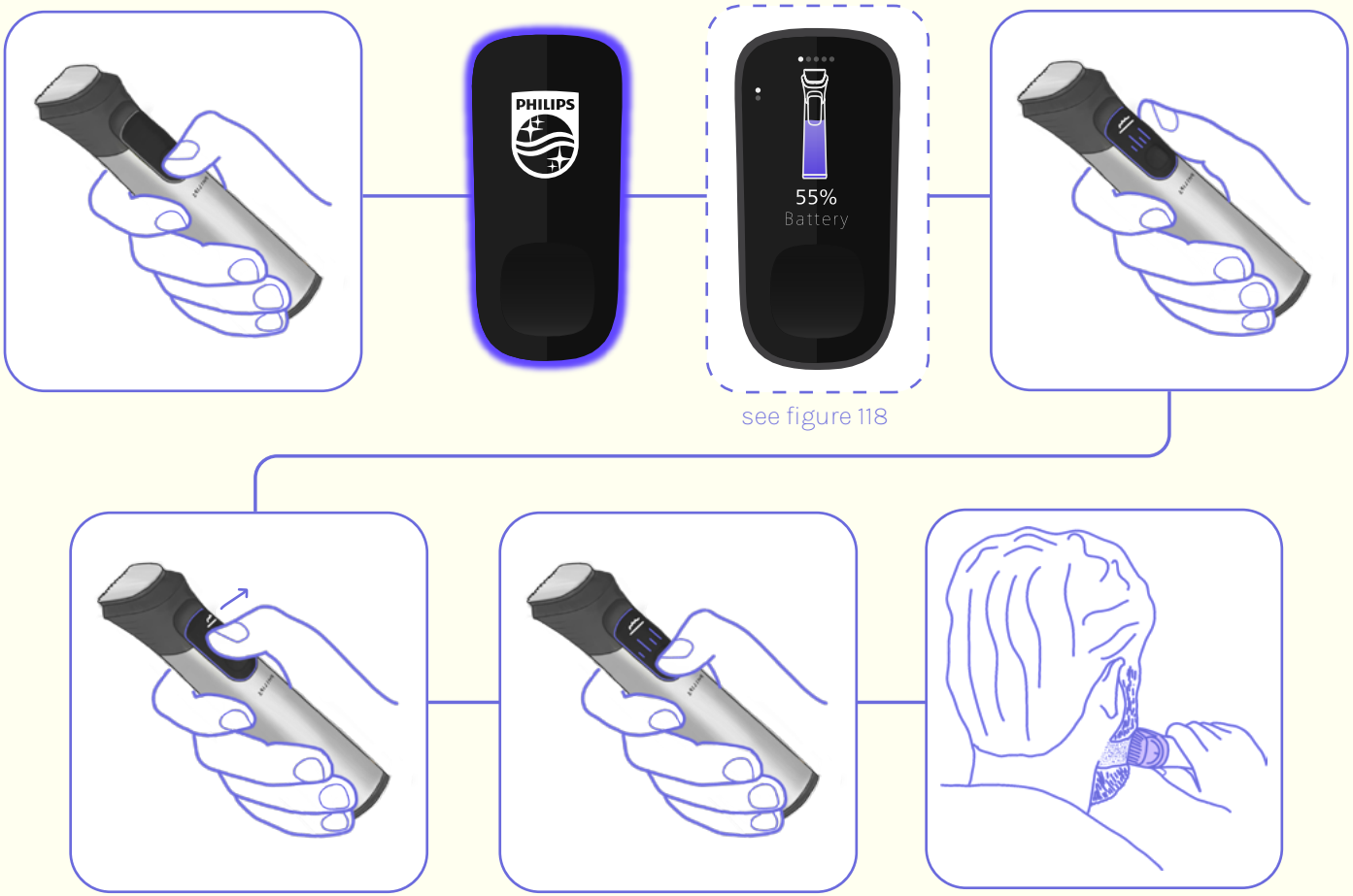
Personalised grooming data

To enable this modification, an **embedded UI** has been placed on the handle (see Figure 116) . Unlike the intervention from which this modification stems, this display cannot be inserted or removed. This responds to its lack of effectiveness in triggering an emotional connection because it is a one-off interaction, and for facilitating the transferability of the information it contains. The insertion interaction has therefore been omitted.

As illustrated in Figure 117, to operate the device, users must first press the button to turn on the display. They can either scroll through the screens (shown in Figure 118) or start trimming directly by pressing the button again.

Figure 116. The UI is embedded where the current control panel is located

Embedded UI Interaction storyboard



see figure 118

Figure 117. Interaction with the embedded UI

The main feature within the display is the **visualisation of the grooming usage data**. In this tab of the interface, users can check information about how they are using their device at any time.

The data would be collected by the device as it is used. This usage summary, shown in Figure 120, would consist of several screens with a **concise visual and numerical representation** of their trimmer usage.

In addition, if the device is able to count and time the routine, it could also provide **personalised feedback about the battery status**, as shown on the left bottom corner of Figure 119.

All-about-One does **not allow for data to be transferred** from one device to another, as the data represents the user's interaction with that particular device. As noted earlier, making the data and the device inseparable effectively transfers the attachment to the data towards the device.

Figure 118. Horizontal carousel of main screen within the display

In addition, the UI would incorporate small **animations and smooth transitions** to give the data and its visualisations a more emotional feel, rather than simply providing *grooming numbers*. Some of these are shown in Figure 125 on page 121.

The more it is used, the more personal it becomes as more data logs are entered. These visualisations serve as a historical record of the shared journey.

The more data it contains, the more useful it becomes. Users can better understand their patterns and plan their grooming sessions based on the information provided.
(e.g. beard trims left with the remaining battery or average times).

Figure 119. Different battery visualisations

Figure 120. Vertical carousel of different personalised grooming data visualisations

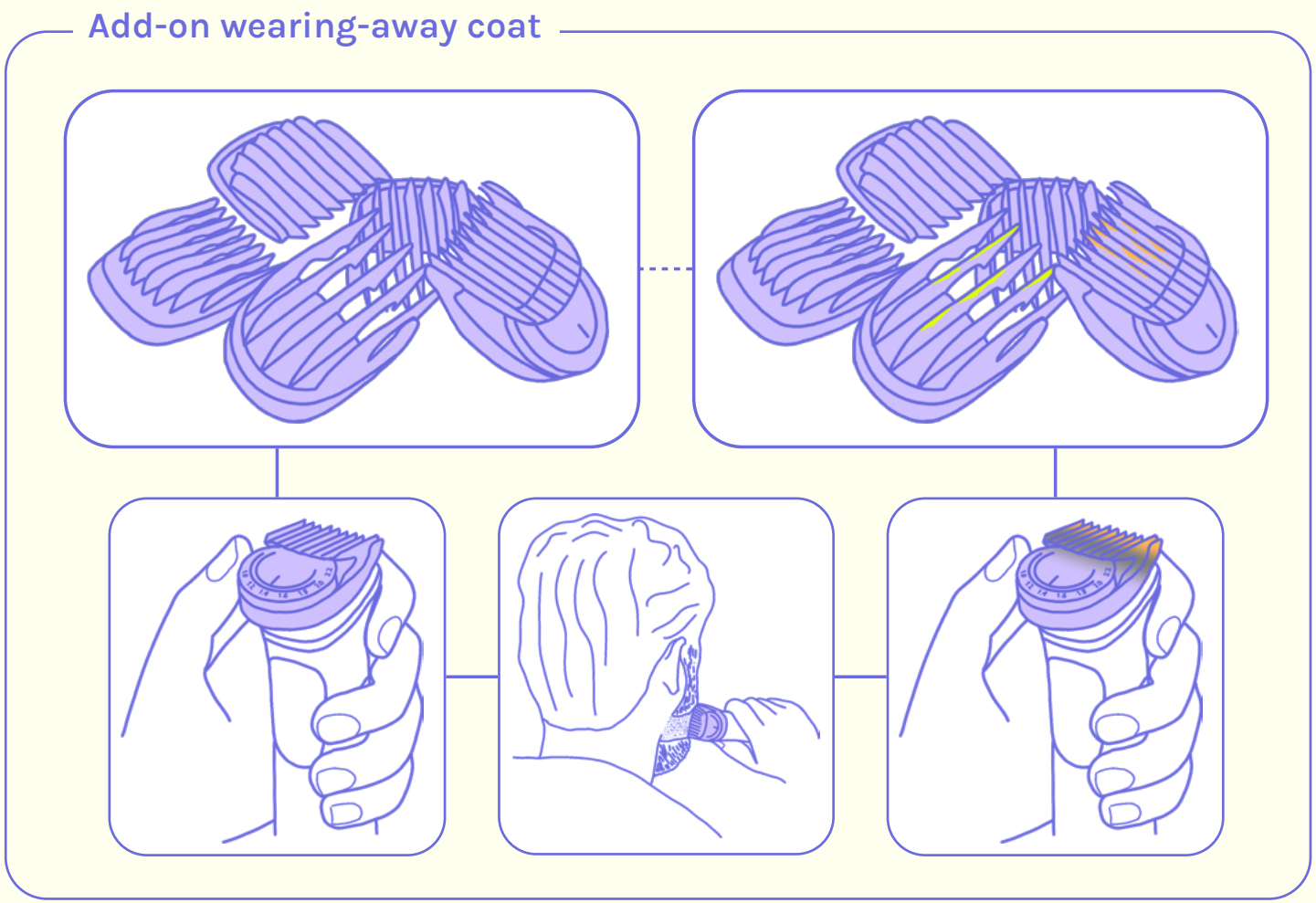


Figure 121. Interaction with the add-ons

Add-on wearing-away coat

As introduced before, this modification to the attachments is characterised by making their current dark colour a layer of paint that **gradually wears away** the more the comb is used (see Figure 121).

The unique way it is used reveals the colour underneath through a unique pattern.

These patterns would enhance the recognisability of the add-ons. This would make it easier for users to identify their favourite comb.

LED Light ring

This modification should be seen as an addition to the grooming usage data. It is not embedded in the UI, but placed around it. This ring represents the quality of time spent together, **the time of use of the device**. After each use, it gradually lights up according to the number of minutes it has been on. As shown in Figure 123, once the ring is fully lit, users would **unlock the next level**, which is associated with a different colour. The **colour theme** within the display would automatically update to the colour of the new level.

In addition, level upgrades would be linked to features within the display. New features or visualisations, such as those shown in Figure 122, would be unlocked upon completion of certain levels.

Figure 122. Certain levels would unlock new visualisations

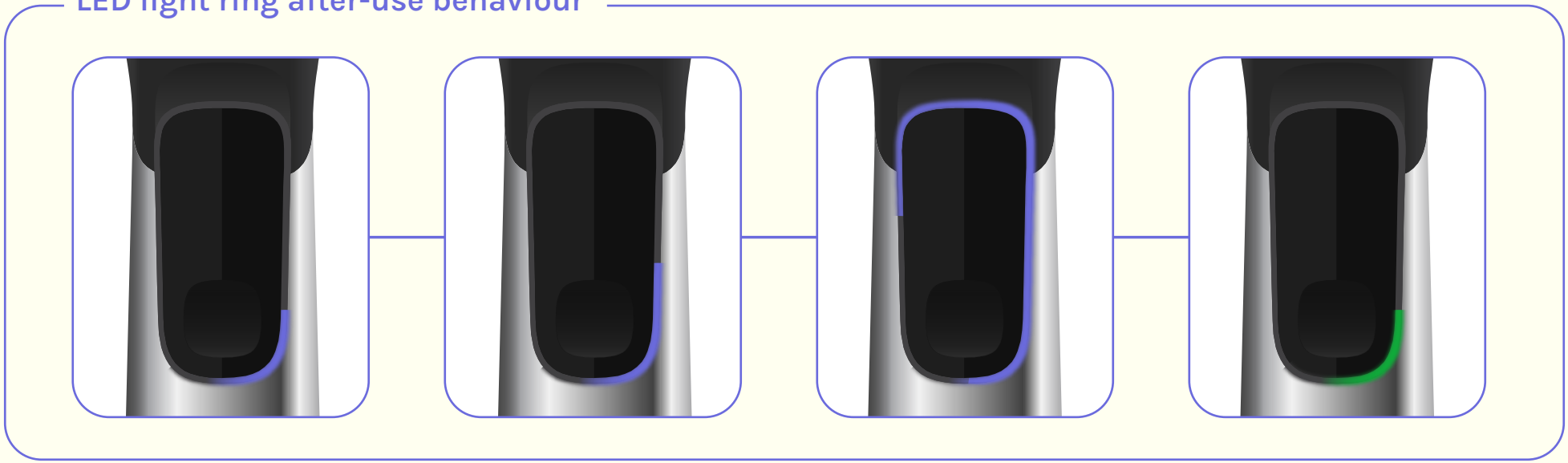


Figure 123. LED light time usage counter gradually increasing after each use

Users will be able to keep track of the time they have used each time they turn it off, as a reminder of the time spent together.

This dimension remains rather shallow in this modification. The only benefit, and a relative one, is that, over time, it would unlock new but not fundamental functions or visualisations.

The render in Figure 124 visualises what the product would look like after some use with these modifications. To better understand the behaviour of the UI and its connection to the LED ring, a digital prototype can be found in the video or on **Figma** by clicking the button below:

Interactive Prototype

Once loaded, press the button on the display to turn it on. You can simply drag the screen to the right or to left to swap to the next tab. Depending on the screen, you may also be able to scroll up and down.

Figure 124. Render of All-about-One personalised after prolonged use

Figure 125. The interaction includes animations to be more emotional

8.2.3 How it contributes to Emotional Durability

The modifications that shape this final intervention are characterised by **tapping into the three psychological dimensions** of Haug (2019), discussed earlier in the Literature Review. The specialness of this intervention is that the **symbolic value** that is being imbued into the product over usage **feeds into the other two dimensions**. The outcomes of the personalisation process are leveraged not only to make the grooming experience more personal, but also to streamline it. In so doing, **these dimensions**, far from decreasing over time, strengthen and **are boosted the more the device is used**.

In addition, this final intervention draws on the takeaways from the analysis on consumption & the self from the Literature Review. It facilitates the **continued alignment of the device with the self**. Over time, as the product is used and effortlessly personalised, the product would exhibit strong personality similarities with its owner, which was found to be a trigger for product attachment (Govers & Mugge, 2004). It is the continued alignment that would make this emotional connection long lasting, driving the product's irreplaceability.

Besides the overarching strategy of product personalisation, this final intervention is in line with the four themes from the Emotional Durability Design Framework from Haines-Gadd et al. (2018) that defined the design directions. See below for the strategies employed:

1. **Materiality:** 1) make it unique and 2) celebrate imperfection.
2. **Identity:** 1) promote self-discovery and 2) infuse one's personality into the product
3. **Evolvability:** 1) enable transformation and 2) show progression
4. **Narratives:** 1) create a story together and 2) show progression.

These new interactions are characterised by being **engaging, personal, non-transferable** and, to some extent, providing some **functional added value**. None of the modifications can be easily replicated. The engaging nature of the interactions would trigger a sense of irreplaceability and an early replacement refusal in order not to lose the meaningful narrative created. Similarly, an identical product would not have the same meaning as it would lack all the meaning derived from the personalisation process.

The colour-changing attachments create an emotional connection through unique patterns that are revealed as the coating wears off. It offers playful engagement while also increase the ease of recognition of the different attachments. The grooming usage data aims to celebrate the user's use of the device. If the device were to be replaced, the data would be lost, inaccessible and therefore irreplaceable.

Lastly, the light ring visualises how the device is being used through a gamified time counter, like a progress bar that increases after each use, encouraging users to continue using the trimmer to keep their progress.

However, the **stability and predictability of changes over time can lead users to feel bored or fatigued with the device**, potentially weakening the emotional attachment and increasing the likelihood of replacement. In addition, the gamified interaction of the LED light, while intended to increase engagement, may feel superficial to some users. As it adds less value to the grooming experience, users may not resonate as deeply as intended, leading to a lack of meaningful connection with the device after a period of use.

8.2.4 Some technical considerations

As a consequence of the new interactions, their implementation requires further technical consideration to ensure feasibility.

Add-ons modification

In considering the modification of the attachments, the main concern is how this effect might be achieved. Although the specific composition of the coating is beyond the scope of this project, Figure 126 provides some examples already on the market whose materiality shows a similar behaviour.

We do not have to look too far to find the first example. The blades of the OneBlade have a **wear indicator printed on the blade** which, over time, reveals the signal for blade replacement. Similar features have been patented before (Siamak, 1995; Welsh, 1997; Wielstra, 2006). More details on the design of the specific polymer composition for the coating should be found on the following: Fundamentals of Friction and Wear of Materials (ASM, 1980, pp. 414–416).

On the other hand, this coating could also be inspired by **scratch cards**. This coating, known as scratch-off latex, would also provide the desired effect of wearing off over several contacts with the skin or hair.

Figure 126, besides these examples, includes a picture from an **interactive mockup** of the precision comb. Its outer colour coat can be worn off. It was made with oil pastel crayons and acrylic paint.

Figure 126. Examples and mockup of the wearing-away coat

Embedded tactile UI

The tactile UI would allow a more seamless interaction without having to integrate more buttons on the handle. However, one might wonder what would happen if a tactile screen were placed right where the handle is gripped. To **prevent the user from crashing** the UI while using the device, it should include a **proximity sensor** that turns off the screen when it detects that the user is holding the device (see Figure 127).

This solution is inspired by the behaviour of smartphones when held to the ear to listen to a voice message or during a call. When doing this, the screen turns off until the phone is moved away.

In addition, the conditions in which this device is used should not be a problem for the screen. Wearable devices such as Xiaomi Bands or Apple Watches show similar behaviour and interactions, and are also waterproof to a certain depth and for a certain time, which should not be the conditions of use of the trimmer.

LED light ring

RGB lights allow for any colour and any shade. However, **the way in which the UI is currently designed may hinder the wide range of colour possibilities.** For example, if red is regularly used to indicate low battery (see Figure 125), this would mean that it could not be used as a 'level' colour.

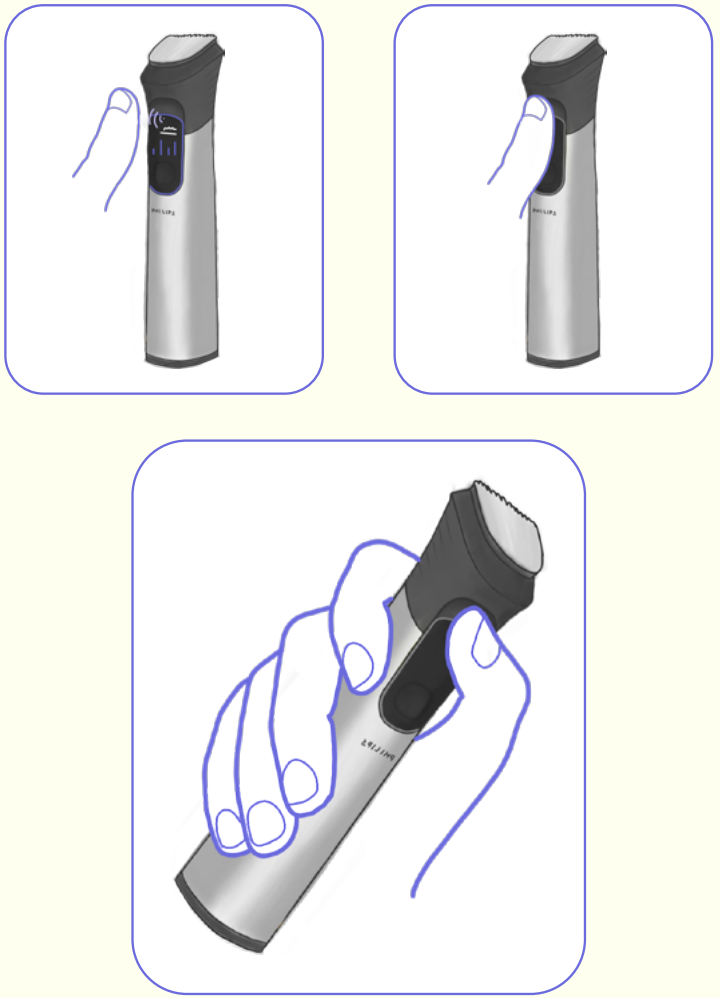


Figure 127. A proximity sensor is included to prevent from tactile errors

8.2.5 Why not the other modifications?

The evaluation of the interventions showed that the modifications implemented in All-about-One are the most effective in making the product emotionally durable.

Yearly ring animation
It was found to be effective in triggering product irreplaceability. However, although participants confirmed that this would help them feel connected to the device, **they preferred this information to be a more accurate and faithful representation** of this usage metaphor. It is for this reason that the interaction with the counter of time usage prevails over the representation of time of ownership. Nevertheless, this information could also be part of the type of visualisation that is unlocked by the different colour ring levels.

Hand-shaped grip
It was ultimately left out of the final intervention for a number of reasons. Although it was seen as a very unique personalisation, the participants would not find it that special because they did **not expect it to be very different** from the current handle.

This is emphasised by the **versatility** of the All-in-One trimmer, a device that serves multiple purposes. Thus, it remains to be seen whether this modification really makes a difference, as it is likely that users will hold the product differently depending on the part of the body being groomed. This could lead to a 'flat' grip over time, as there **may not be a single way to grab the device.** In addition, as discussed internally at Philips, it is precisely this type of soft material that tends to age less gracefully over time due to the conditions of use, eventually becoming **sticky**.

As pointed during the user research, this remains one of the main drawbacks, as the physical durability of the product is necessary for the Emotional Durability to flourish.

Machine Learning algorithm
Finally, as explained in the introduction of the final intervention, the modification of the Machine Learning algorithm is not included, despite its high functional personalisation. This modification hinders the irreplaceability of the device due to its transferability.

The remaining modifications, at the bottom of the pyramid shown in Figure 128 (classification based on the evaluation of the previous interventions), were not considered for the final intervention because of their high symbolic load without offering any added value to the grooming experience.

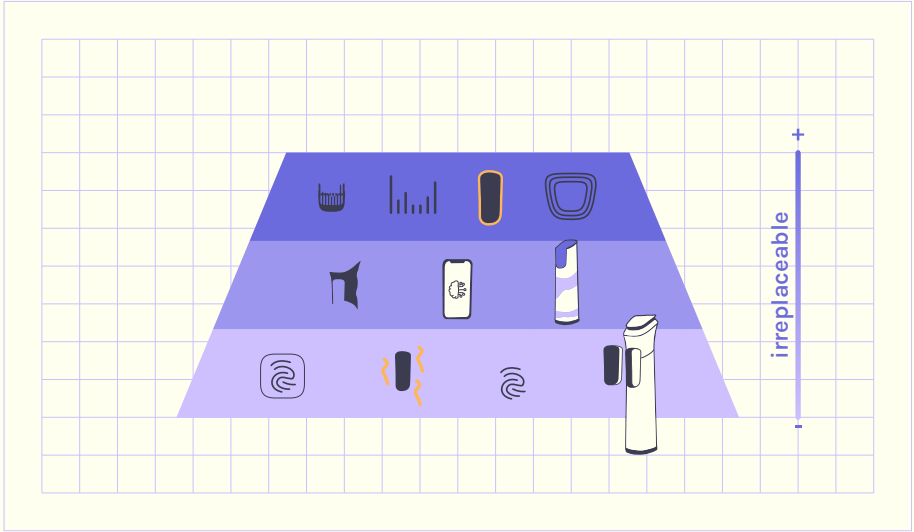


Figure 128. Pyramid of irreplaceability of the explored modifications

8.3 Design assessment

8.3.1 Fulfilment of Design Criteria

The Harris Profile method was again used to visualise how the final intervention meets the Design Criteria. These criteria can be found in Section 4.6 on page 56. Figure 129 illustrates the comparison between the previous interventions and All-about-One, where:

++ indicates the intervention significantly fulfils the corresponding criterion.
+ indicates partial fulfilment.
- indicates indirect addressing of the criterion
-- indicates that the criterion is not considered or included.

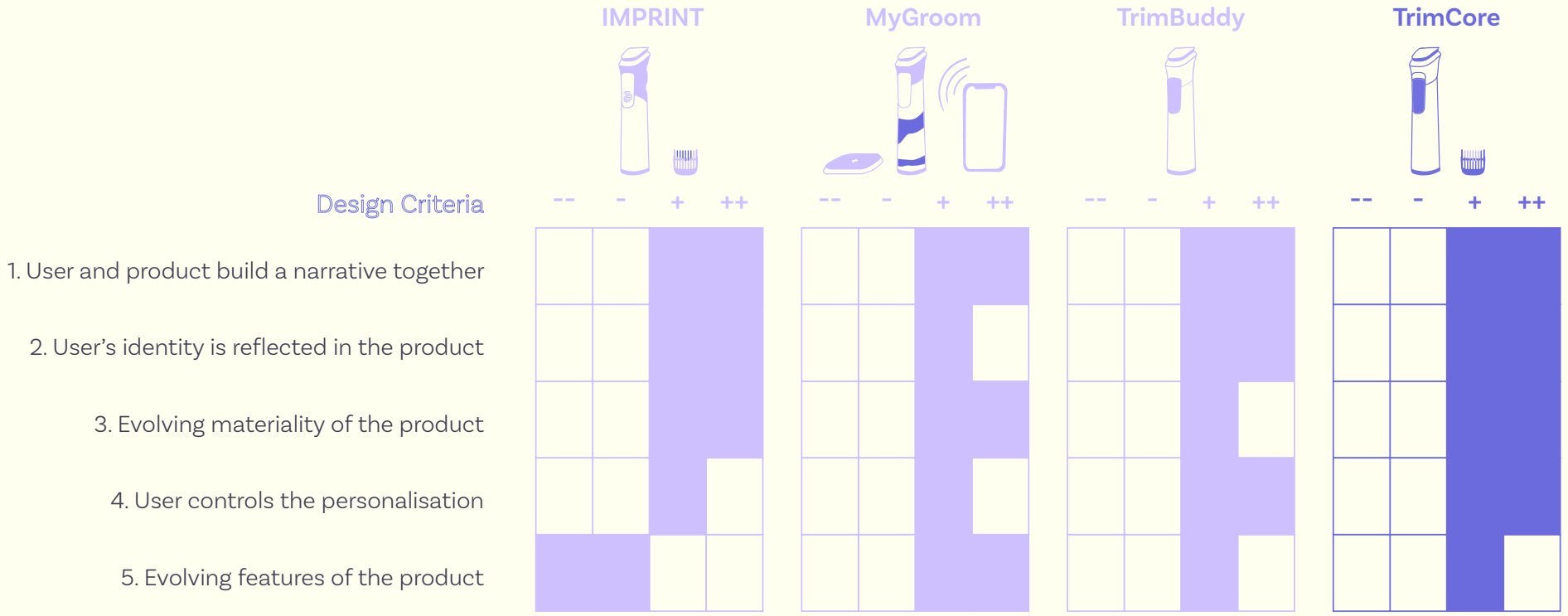


Figure 129. Harris profile of the final design in comparison with the previous interventions

The high fulfilment of the design criteria is due to the fact that it primarily combines the most effective modifications of IMPRINT and TrimBuddy. All-about-One incorporates the strengths of each to satisfactorily meet all criteria except the last, which is partially met.

The three modifications within All-about-One facilitate the construction of a shared narrative with the device. This narrative is the result of the evolution of the physical and digital materiality of the device. Said evolution is a direct consequence of the personalisation process through which the user imbues the device with his identity. In other words, **the process of personalisation through repeated use aligns the device with the user, creating a visual history of the process.** This cohesive interplay is what triggers the lasting emotional connection.

Regarding the control of personalisation, the final personalised product is a direct result of the natural use of the device. The control is therefore in the everyday use.

However, the intervention does not fully meet the last criterion. Although the device would offer added value the more it is used, **it cannot be said that the features of the device really evolve.** In addition, even if the light ring levels were linked to some kind of new visualisation or features, these would not really have a major impact on the grooming experience, so as the final design to be rated ++.

Nevertheless, this criterion remains the least important of the five based on Mugge's (2017) hierarchy in the experience of attachment. Product attachment based on (unique) features without personal significance would not lead to product irreplaceability because of the ease of replacement.

Overall, the All-about-One intervention successfully meets the design criteria, although t**here is still room for a stronger link between symbolism and feature development within the UI.**

8.3.3 All-about-One against mass-personalisation dimensions

This subsection analyses the final intervention in terms of the seven dimensions of mass personalisation discussed in Section 4.5 on page 54. Based on this analysis, Figure 130 uses a series of spider diagrams to illustrate how the All-about-One scores compared to the ideal case defined in Chapter 4 and to the previous interventions.

All-about-One

1. Flexibility. While the user has some control over the wear and the data collected by simply using the device, the personalisation is not easily reversible after some time of use. Either because the coat has already worn off, or because a large amount of data would be required to significantly reverse the visualisations.

2. Initiation. The personalisation process of All-about-One is initiated both by the design of the device and by the user. The modifications allow the user to imbue it with his identity and personal symbolism through use.

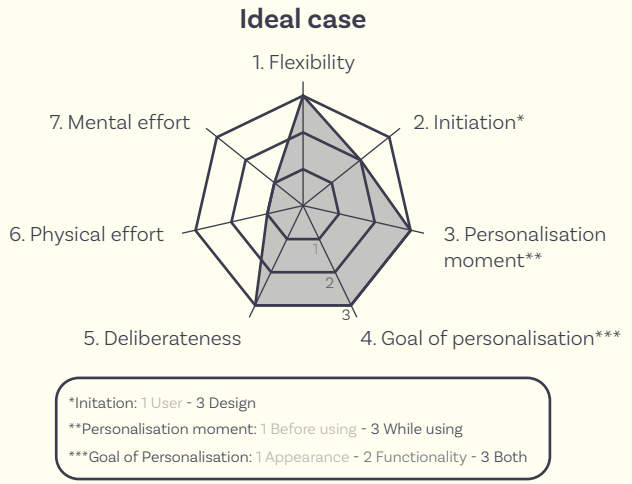
3. Personalisation moment. The personalisation occurs during the use phase, intending to progressively raise product attachment over time (Mugge et al. 2008).

4. Goal of personalisation. The modifications of the final intervention aim to load the device with personal meaning in such a way that it can be leveraged during the grooming routine by adding an extra value to the product. Thus, the personalisation responds to appearance/symbolism and functionality.

All-about-One

5. Deliberateness. Personalisation is partly intentional, as the result is a consequence of the natural, unique way of using the device. There is no direct input from the user to set the personalisation. However, it could be considered intentional when users engage with the device and their grooming routine.

6 & 7. Physical & Mental effort. This intervention results in a highly personalised product that requires minimal mental and physical effort as a natural result of using the device.



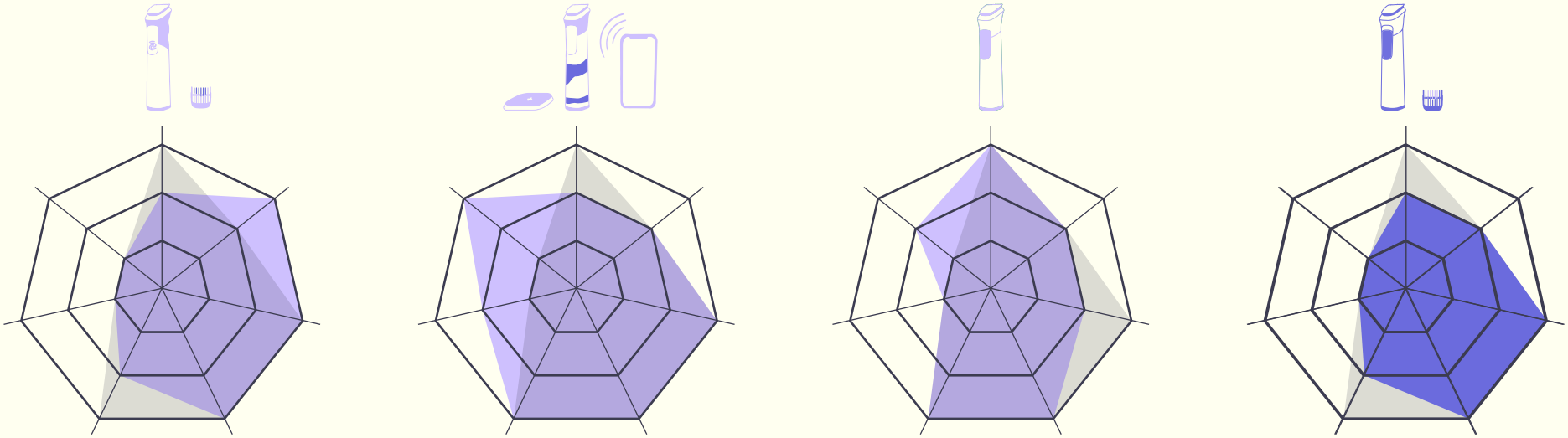


Figure 130. Comparison of the fulfilment of the 7 mass-personalisation dimensions of the final design and the previous interventions

The strength of the intervention lies in the goal of personalisation, which addresses both symbolic and functional goals. Furthermore, personalisation is effortless while using the device. The main disadvantage is the lack of flexibility.

Is the lack of flexibility really a disadvantage? On the one hand, this feature would emphasise the irreplaceability of the device, as it would be very difficult to replicate the personalisation in another device. On the other hand, it could also be a barrier for consumers if they are not happy with the result.

However, I personally would not say that they would not like the result, but rather the personalisation itself. The former would mean that they do not like the visualisation or the pattern when it is just a representation of how the device is used. Would that mean they were not happy with their routine or their skills? So I think it would be related to not wanting that information rather than the content itself.

8.3.4 Alignment with the Design Vision

This section relates the Interaction Vision (see Figure 131) to the final intervention. The new interactions in All-about-One are strongly aligned with the qualities described in the Design Direction.

1. The repeated usage of the device would result in a unique and personal product.
2. Personalisation unfolds gradually, with each use building on the last.
3. The personalisation is effortless, result of simply using the device as usual.

Therefore, the interaction with the new All-in-One 9000 Series feels like water wearing a stone. The underlying thread of **functional symbolism** aligns with the Interaction Vision, since the more the device is used, the more streamlined the grooming routine becomes.

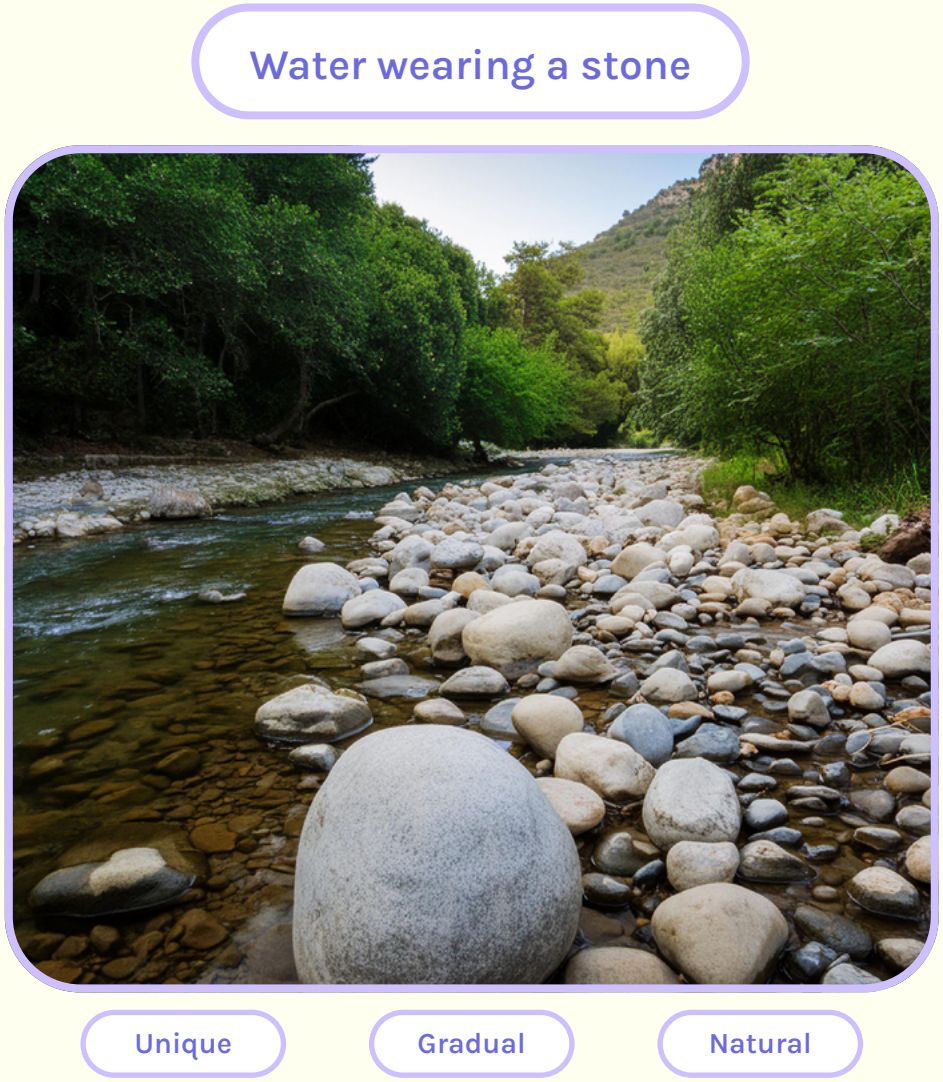


Figure 131. Interaction Vision summary

8.4 Conclusions

The All-about-One intervention for the All-in-One 9000 Series is the result of a combination of modifications from previous interventions, aimed at creating a unique and irreplaceable grooming device with strong Emotional Durability. As the render shows in Figure 132, the modifications include a coating on the attachments that wears off over time, an embedded UI with grooming usage data and an LED light ring that tracks usage time. These last two could be seen as a **digital patina.**

As a final design, All-about-One incorporates the findings from the entire project, from the Literature Review to the insights from the evaluation of the previous interventions.

The modifications are designed to tap into the psychological durability dimensions. **It uses the symbolic dimension to feed the instrumental and hedonic dimensions** the more the device is used, strengthening and increasing over time the connection between the user and the device. These modifications align with the Emotional Durability design framework themes of materiality, identity, evolvability and narrative. The intervention also aligns with the design criteria and mass personalisation dimensions, fulfilling most of the criteria for creating an emotionally durable and personalised product.

However, the potential for user fatigue and the lack of a **strong link between symbolism and feature evolution are areas for improvement**. Thus, it remains to be seen whether the lasting emotional connection can be extended over years of use, with the device remaining meaningful in the long term as intended. This and other limitations of the project are discussed in the next and final chapter of the report.

Figure 132. When the trimmer is switched off, the light comes on to show the usage time progress.

09

Discussion

This final chapter of the report presents the final conclusions of the project, reflecting on its limitations and making recommendations for further research on Emotional Durability. The report concludes with some personal words about the project.

9.1 Contribution

This project aimed to investigate how to make grooming devices emotionally durable through product design. The experience of product attachment and the underlying rationale behind our consumption patterns provided the right lens through which analyse the emotional needs to make products irreplaceable. Mass-personalisation in the usage phase of the device was the focus of the design intervention in order to trigger this enduring emotional connection with our grooming products.

Although it is acknowledged that all the proposed modifications and interactions throughout the project were not novel, they were innovative within the grooming context. This project has provided valuable insights for Emotional Durability as an effective approach to sustainability, particularly for Philips as a mass-producer of consumer durables.

9.1 Contribution to Emotional Durability practice

The innovation of this project lies in the approach employed as well as in the outcomes that it has yielded. The **participatory approach** involving users at research, ideation and evaluation has made possible to narrow down from an abstract design framework with several plausible strategies to tangible user-product interactions. This participatory approach has assured that the research findings and design solutions were faithfully aligned with consumers perspectives, ensuring the new interactions resonate with users.

Another contribution of this project is a set of **guidelines** of how to apply effectively the concept of Emotional Durability. While they are tightly grounded on the grooming context, there are several **insights that can be extended and applied to other consumer durables product categories**. This underscores the potential for broader applications of Emotional Durability in different product categories, contributing to more sustainable consumption patterns.

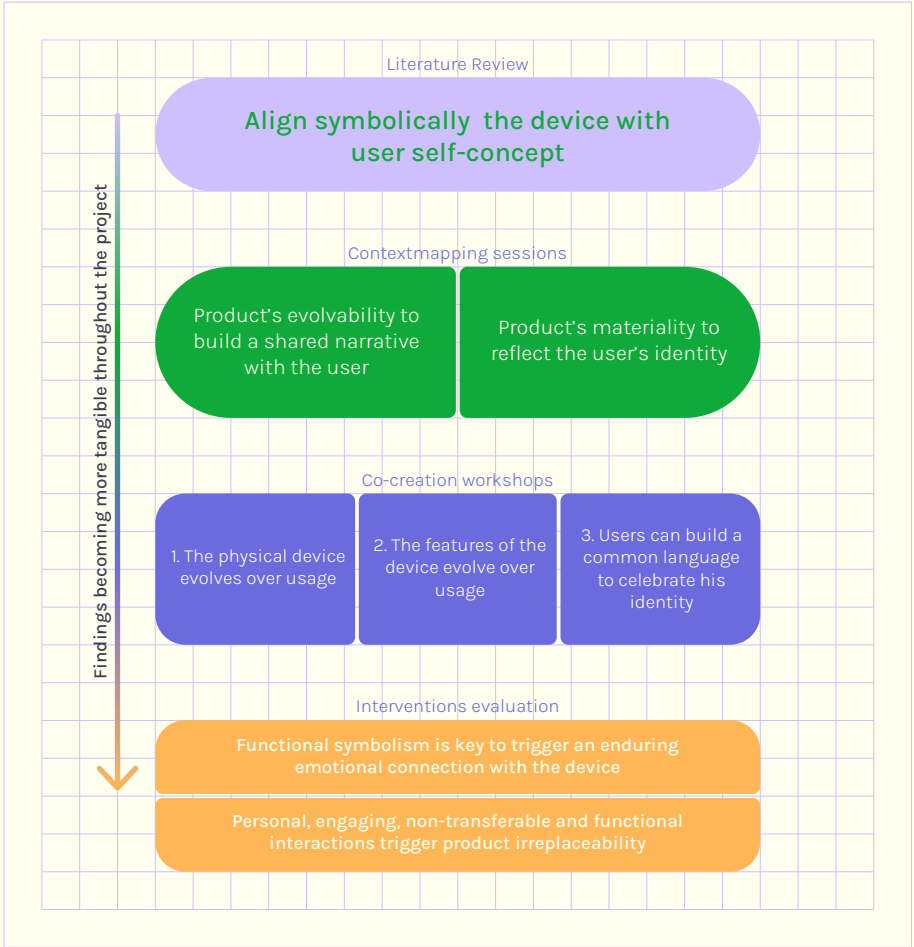


Figure 133. List of main takeaways gathered throughout the project

Figure 133 synthesises how these **interaction design insights** have been framed throughout the project. This is already a big step for further applications of Emotional Durability, which is likely to become more important in the upcoming years given the likely rise of e-waste that will be generated and the consumer's sustainable awareness.

The majority of these more tangible insights were gathered thanks to the **research-through-design** process. Beyond assessing whether the interventions would result in special possessions, this project provides a thorough **examination of the typology of interactions that can result in a strong bonding with our products**.

Overall, **All-about-One** and the project itself are an example of how interaction design can challenge consumers towards more sustainable consumption patterns. It makes the course of time a **driver for keeping**, rather than for replacing.

9.2 Contribution to Philips

This project not only challenges consumers' behaviour. By introducing the concept of Emotional Durability, the project has opened new perspectives within Philips' current sustainable design practices. It emphasises that, besides addressing the end of life of products, **product experience design can slow down consumption**; thereby contributing to sustainability in a more holistic manner.

Furthermore, this project illustrates that personalisation is feasible even for a mass-producer of consumer durables like Philips. It demonstrates that fostering emotional connections with devices is possible on a large scale. In addition, it has been found that **personalisation during the usage phase**, rather than just before or after purchase, is essential for making (grooming) products emotionally durable.

Designing for Emotional Durability not only carries positive environmental implications for the company in light of the upcoming governmental sustainable regulations. It also contributes to an enhanced and outstanding product experience. Thus, Philips would establish a deeper connection with consumers.

The results from the evaluations of the interventions demonstrated that participants, having developed an irreplaceable connection with their devices, showed a strong inclination to repurchase the same product or its next generation if their current device were to break down. This **brand attachment** effect derived from a positive product experience can lead to repeat customers and advocates for the brand, potentially **offsetting the impact of selling fewer products**. In a context where consumers are increasingly concerned about their consumption behaviours and are more inclined to retain their products, this loyalty derived from the product experience could become particularly significant.

Overall, this project has shown that **designing for the sake of keeping** is not only beneficial for the environment but also for product experience.

9.2 Limitations

Besides the contributions and results, there have been some limitations during the project to bear in mind when interpreting the results and contributions.

1. Time constraints

The time frame of the graduation project set some limitations and made it **not possible to validate the final intervention** with users.

However, given the participatory approach taken during the project, the final concept aligns with the entire research outcomes of the project. It incorporates the modifications that would ultimately lead participants not to want to replace their product.

Therefore, although All-about-One was not formally validated, there is a strongly traceable path to **assume its effectiveness**.

2. Network constraints

I had limited access to the user market segmentation associated with the All-in-One 9000 Series due to the demographics of this group and my current network in the Netherlands. This limitation impacted on the recruitment of participants within this specific group throughout the project, leading to certain trade-offs to be able to complete the research activities.

3. Long-term measurement of Emotional Durability

Emotional durability is a phenomenon that, if it could be truly measured, would only manifest over the long term, after owning a product for an extended period. Therefore, a significant limitation of this project is that while many participants were involved in the research activities, their responses were pure **speculations** based on their current or past experiences.

There is potential for **significant variability** between what participants have expressed and what they would actually do in the long term. Especially in a topic involving product attachment and replacement, where **numerous contextual factors could not be anticipated** or considered during the project. For example, the physical durability of the device and potential alternatives due to gifts or negative personal experiences, for example.

4. Long-term viability of the emotional connection

A limitation of All-about-One is the potential for consumer boredom or fatigue. It is possible that over time, the emotional connection could start to weaken due to the stability or sense of final state of the personalisation.

Questions arise about whether the emotional connection would be strong enough to persist over time or if it would eventually begin to decrease, only partially preventing early replacement, which would be already a significant achievement.

9.3 Recommendations

The culmination of this project provides valuable findings into Emotional Durability, but also have had some limitations as discussed earlier. Thus, this section provides a series of recommendations to enrich the understanding and practical application of Emotional Durability, setting the stage for further research and innovation within this topic.

1. Assess environmental impact of new interactions

While striving for Emotional Durability, it is important to carefully assess whether the cure could end up being worse than the disease. Taking the example of the final intervention, it would need to be assessed if the environmental impact of implementing the wearing-away coat and its manufacturing process, and the embedded UI would end up being much higher than replacing the current device for another one.

Otherwise, although consumption would be slowed down as the product becomes emotionally durable, **there would not be such a positive environmental impact**, which is the underlying driver of the project.

2. Explore the role of Aesthetics in Emotional Durability

In the early stages of the project, aesthetics seemed to be more important for participants to trigger the product's irreplaceability. However, as the project progressed with more tangible interventions, **the relevance of aesthetics seemed to decrease** for participants to trigger the emotional connection.

One possible **hypothesis** worth exploring is whether poor aesthetics without any symbolic value may have a detrimental effect on the emotional connection compared to the non-beneficial effect of superior aesthetics. Further research should be conducted to understand the true effect of aesthetics within the topic of Emotional Durability, considering these findings.

3. Explore the compatibility of Emotional Durability and current business practices

Emotional durability as a theoretical concept may **find hurdles in aligning with business goals**. It is important to explore a middle ground between current practices and the ideal case, in which products are designed to be physically and emotionally durable so as not to be replaced. This initial step can help partially reduce the environmental impact and influence consumer behaviours while also paving the way for further interventions in which Emotional Durability gradually takes the lead in the **business-sustainability tension**.

One potential direction for further investigation is the role of **data-driven interactions** as a means of introducing new services that are linked to the trimmer. Alternatively, services that are centred around the concept of **self-repair**, as discussed on the following page, could also be explored.

4. Product durability and integrity practices as gateways

The durability of a product is a key factor in fostering Emotional Durability. Every participant mentioned during the research activities that their device, **in order to become irreplaceable, should be durable**. It is evident that there is no way they will not want to replace their device if it gets broken down or if the instrumental value decreases considerably over time. It is therefore required that the device can withstand the course of time.

An additional factor that can reinforce the emotional bond between users and their devices is the opportunity for users to undertake repairs themselves. This event would truly mark a **milestone** in their shared journey, making this **self-repair** situation a trigger for making the device emotionally durable. However, this was overlooked during the project as this interaction would not be part of the everyday use of the device, which was the focus of the design direction.

Thus, it would be very interesting for both Emotional Durability practice and Philips to investigate how self-repair can empower users to not only avoid replacing their device when it stops working, but also to **create a latent sense of irreplaceability** in the long term as a consequence of this previous repair. Empowering users to restore their psychological instrumental value would tap into the symbolic dimension.

Therefore, the combination of this self-repair option with the everyday interactions as in the All-about-One concept would definitely result in a more compelling intervention.

These four recommendations open up interesting streams of research. More collaborations between academia and companies to explore these recommendations further will hopefully lead to new interactions and product experience or services within our everyday products aimed at positively influence our consumption behaviours and environmental impact.

9.4 Afterword

Reflection on the outcomes

Although I have already shared some of my reflections throughout the report, this one takes an overall perspective to reflect on the outcomes.

Looking critically at the research findings, I can see that some of the insights from the Literature Review and User Research phase were later partially overlooked.

Certain modifications that were expected to be more effective did not result in such lasting emotional connections for the same reasons that were argued in the previous stages of the project.

One concern I had at the beginning of the project was how to deal with the intangibility of Emotional Durability. However, after each research milestone, I have been able to translate theoretical insights into an effective product intervention that triggers a lasting emotional connection, designed for the sake of keeping.

It should also be acknowledged that All-about-One would not have been possible without this participatory approach. While it is true that it requires a lot of preparation, participants with availability and qualitative analysis; their insights ensure that the design phases are not a shot in the dark. Indeed, I believe that this would have been the case without this approach, given the individual, unique preferences and experiences of attachment that each person has.

Reflection on the experience

I am very grateful to have had the opportunity to spend so much time on a project that really resonates with my personal and professional interests.

On the one hand, I am a person who ends up worshipping the most mundane objects I have at home, even changing the way I use (or display) them. This project has also helped me understand the way in which I form attachment to my own possessions.

On the other hand, Design for Interaction is a master whose projects can take so many directions that it is sometimes difficult to align it with your interests. This topic and Philips have allowed me to delve into interaction and product experience design with physical products, which is my particular area of interest.

One of the things I enjoyed the most was the multidisciplinary nature of this project. One day I was a UX researcher and the next day a creative facilitator. One day I was a product designer using Solidworks, Keyshot and the 3D printer, the day after I was a UX designer using Figma and creating user journey maps. So I am proud of myself for not being afraid to try new things and step out of my comfort zone, to acquire new skills and to strengthen and connect them.

One tension I have enjoyed navigating is that of participatory design. Who has the last word? Do you betray the process if you do not faithfully follow the opinions of your participants? This project has forced me to face this dilemma. And I would say that it is not a question of betraying, but of arguing. At the end of the day, users are the experts on their experiences, but we designers are the experts on making the right design choices.

Finally, I would like to say a few words about Philips and my time there. I am aware of how lucky I have been to work with such a leading company. I can tell how my design practice has been shaped during these last months by observing and talking to different professionals, grasping design methods and practices, but also interpersonal skills.

This experience has deepened my conviction that Product Design can effectively target consumption patterns to have a more holistic impact on sustainability.

08

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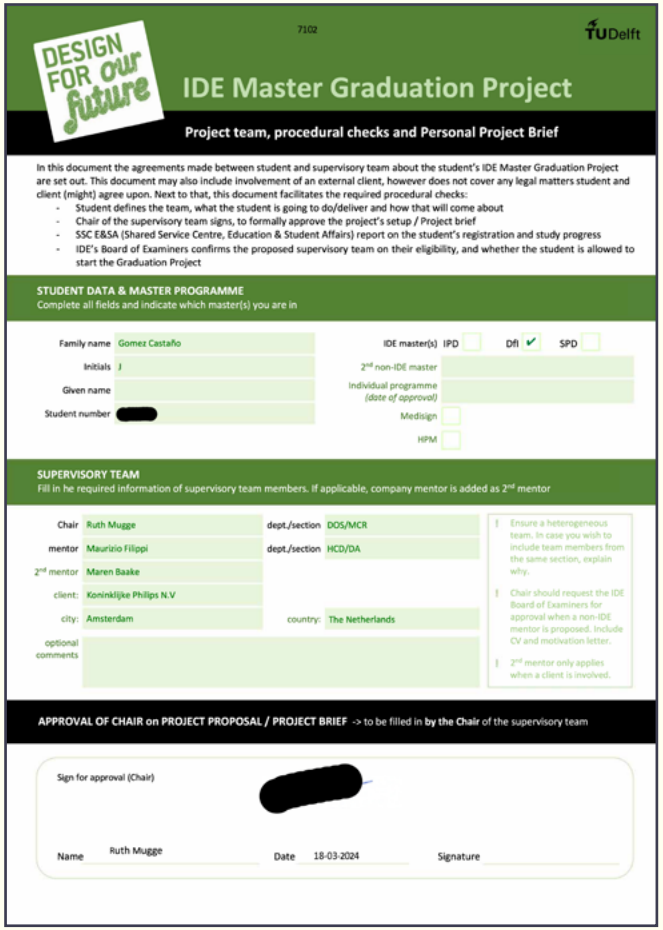
Appen-dices

A Project Brief

This appendix includes the project brief signed at the beginning of the project during the kick off meeting:



7102

TU Delft

DESIGN FOR our future

IDE Master Graduation Project

Project team, procedural checks and Personal Project Brief

In this document the agreements made between student and supervisory team about the student's IDE Master Graduation Project are set out. This document may also include involvement of an external client, however does not cover any legal matters student and client (might) agree upon. Next to that, this document facilitates the required procedural checks:

- Student defines the team, what the student is going to do/deliver and how that will come about
- Chair of the supervisory team signs, to formally approve the project's setup / Project brief
- SSC E&SA (Shared Service Centre, Education & Student Affairs) report on the student's registration and study progress
- IDE's Board of Examiners confirms the proposed supervisory team on their eligibility, and whether the student is allowed to start the Graduation Project

STUDENT DATA & MASTER PROGRAMME

Complete all fields and indicate which master(s) you are in

Family name: Gomez Castaño
Initials: J
Given name:
Student number: [redacted]

IDE master(s): IPD ☐ Dfl ✔ SPD ☐
2nd non-IDE master:
Individual programme (date of approval):
Medisign ☐
HPM ☐

SUPERVISORY TEAM

Fill in he required information of supervisory team members. If applicable, company mentor is added as 2nd mentor

Chair	Ruth Mugge	dept./section	DOS/MCR
mentor	Maurizio Filippi	dept./section	HCD/DA
2nd mentor	Maren Baake		
client:	Koninklijke Philips N.V		
city:	Amsterdam	country:	The Netherlands
optional comments			

ℹ Ensure a heterogeneous team. In case you wish to include team members from the same section, explain why.

ℹ Chair should request the IDE Board of Examiners for approval when a non-IDE mentor is proposed. Include CV and motivation letter.

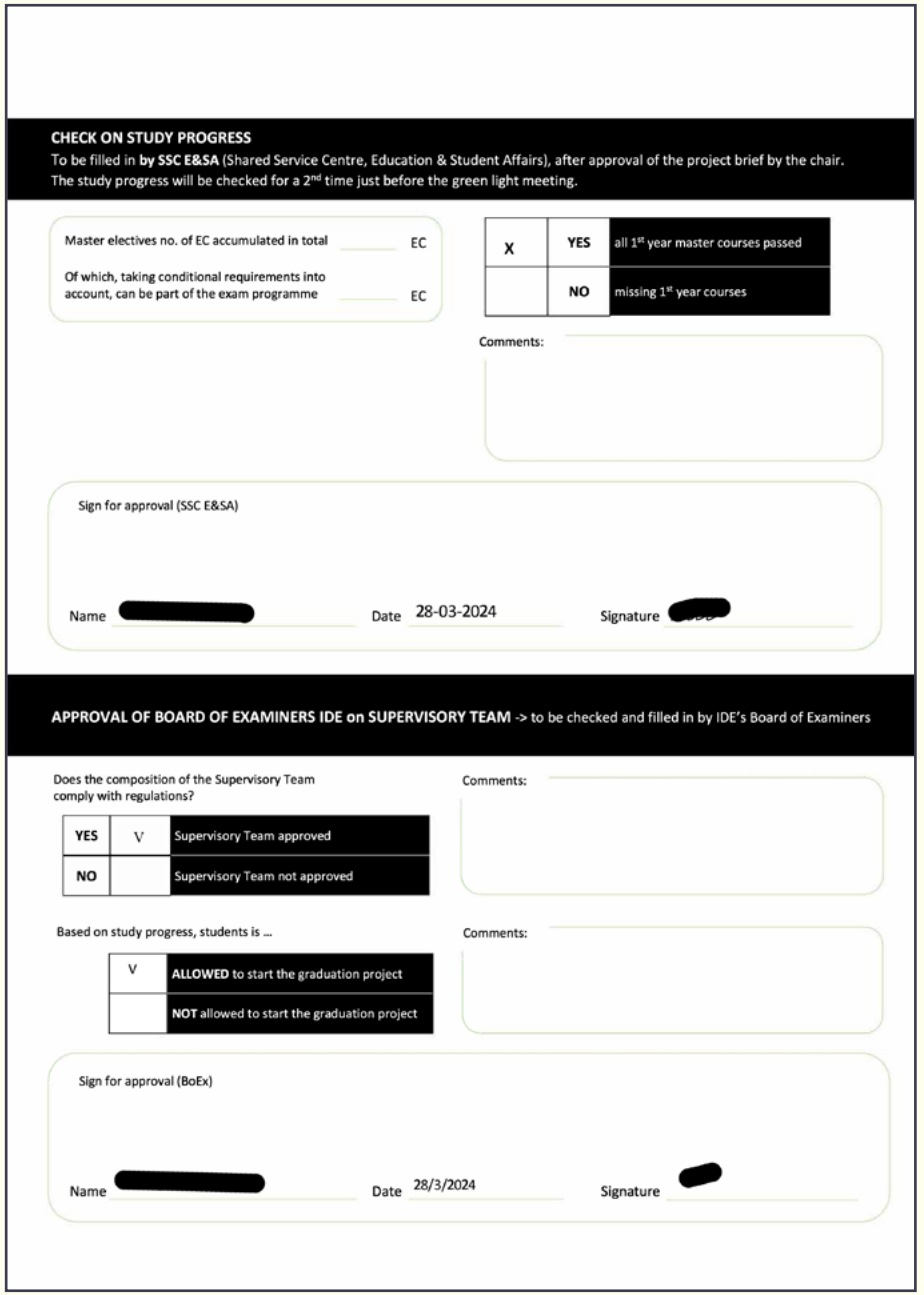
ℹ 2nd mentor only applies when a client is involved.

APPROVAL OF CHAIR on PROJECT PROPOSAL / PROJECT BRIEF -> to be filled in **by the Chair** of the supervisory team

Sign for approval (Chair)

[redacted]

Name: Ruth Mugge Date: 18-03-2024 Signature:



CHECK ON STUDY PROGRESS

To be filled in **by SSC E&SA** (Shared Service Centre, Education & Student Affairs), after approval of the project brief by the chair.
The study progress will be checked for a 2nd time just before the green light meeting.

Master electives no. of EC accumulated in total: ____ EC

Of which, taking conditional requirements into account, can be part of the exam programme: ____ EC

X	**YES**	all 1st year master courses passed
	NO	missing 1st year courses

Comments:

Sign for approval (SSC E&SA)

Name: [redacted] Date: 28-03-2024 Signature: [redacted]

APPROVAL OF BOARD OF EXAMINERS IDE on SUPERVISORY TEAM -> to be checked and filled in by IDE's Board of Examiners

Does the composition of the Supervisory Team comply with regulations?

YES	V	Supervisory Team approved
NO		Supervisory Team not approved

Comments:

Based on study progress, students is ...

V	**ALLOWED** to start the graduation project
	NOT allowed to start the graduation project

Comments:

Sign for approval (BoEx)

Name: [redacted] Date: 28/3/2024 Signature: [redacted]

DESIGN FOR our future

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Personal Project Brief – IDE Master Graduation Project

Name student Javier Gomez Castaño Student number [redacted]

PROJECT TITLE, INTRODUCTION, PROBLEM DEFINITION and ASSIGNMENT

Complete all fields, keep information clear, specific and concise

Project title Design for Emotional Durability: cultivating lasting connections with Philips grooming products

Please state the title of your graduation project (above). Keep the title compact and simple. Do not use abbreviations. The remainder of this document allows you to define and clarify your graduation project.

Introduction

Describe the context of your project here; What is the domain in which your project takes place? Who are the main stakeholders and what interests are at stake? Describe the opportunities (and limitations) in this domain to better serve the stakeholder interests. (max 250 words)

Over time, the concept of Circular Economy has gained importance, proposing different approaches to mitigate products' environmental impact (see Figure 1), particularly at disposal. As Haines-Gadd et al. (2018) simplify, these range from user-focused to producer-focused. However, maintenance, one of these, requires active participation from both parties. As Mugge (2017) argues, making a product easy to repair is not enough. Its success would ultimately depend on consumer engagement. Planned obsolescence is another challenge that this approach faces, where products are intentionally designed to become outdated quickly, driving premature replacements and waste (London, 1932; Chapman 2009).

Hence, domestic electronic durables usually follow a linear pattern of purchase, usage and disposal (Mugge, 2017). In fact, many of these are disposed of despite being still functional (van Nes, 2003). Therefore, to engage consumers in this maintenance loop, products should be produced not only to be easily reparable and long-lasting but also to have a longer psychological lifetime (Chapman, 2009).

Design for Emotional Durability is a User-Centred approach to sustainability that investigates how products can be designed to establish enduring emotional connections with users, leading them to keep and use them for longer (Haines-Gadd et al., 2018) (see an example of gracefully-aging-materials strategy in Figure 2).

Grooming products, given their frequent and intimate usage and their long lifespan, offer Philips Personal Care an ideal context to investigate the applicability of emotional durability for a triple gain. Firstly, a subsequent reduction of environmentally hazardous e-waste. Secondly, a by-product enhanced consumer experience. Thirdly, an increased brand loyalty as a result of product emotional attachment being transferred to the brand, Philips.

→ *space available for images / figures on next page*

introduction (continued): space for images

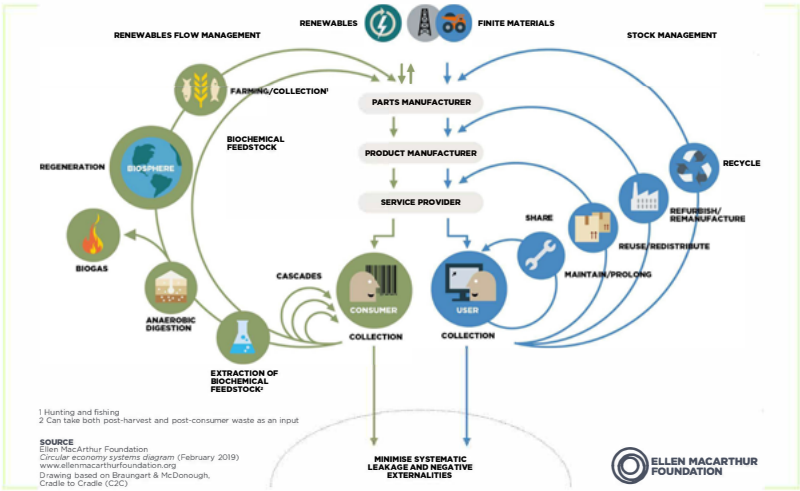

image / figure 1 The maintain/prolong loop is one of the strategies that requires the most from consumers

image / figure 2 A pair of shoes reveals a Puma pattern after excessive wear to foster emotional durability (Whitings,2013)

DESIGN FOR our future

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Personal Project Brief – IDE Master Graduation Project

Problem Definition

What problem do you want to solve in the context described in the introduction, and within the available time frame of 100 working days? (= Master Graduation Project of 30 EC). What opportunities do you see to create added value for the described stakeholders? Substantiate your choice.
(max 200 words)

Circular Economy interventions usually tackle the issue from the producer's perspective, not challenging consumers to change their consumption behaviour (Chapman, 2009). However, what is the point of making products long-lasting if consumers have no intention to keep or take care of them? Hence, the problem I want to solve is to bridge the gap between durable products and consumers' willingness to keep them through emotionally durable designs.

A further challenge in design for Emotional Durability is the inherent variability in individual preferences and types of emotional attachment (Orth et al., 2018). Not all consumers are equally likely to form strong emotional bonds with their products. An added difficulty and opportunity for Philips lie in the tension between mass-produced products and the unique nature of the sought product-owner relationship.

Lastly, to the best of my knowledge, Emotional Durability practical applications within product design, particularly for mass-produced goods, remain limited. How and to which products can Philips apply it effectively? An opportunity emerges in how the existing academic strategies will be used. Given the central role that consumers play in this topic, involving users not only in the research but also in the ideation process will help to identify and apply the Emotional Durability underlying mechanisms.

Assignment

This is the most important part of the project brief because it will give a clear direction of what you are heading for. Formulate an assignment to yourself regarding what you expect to deliver as result at the end of your project. (1 sentence) As you graduate as an industrial design engineer, your assignment will start with a verb (Design/Investigate/Validate/Create), and you may use the green text format:

Design a product intervention to foster a durable emotional connection between grooming users and their devices in their self-care routine.

Then explain your project approach to carrying out your graduation project and what research and design methods you plan to use to generate your design solution (max 150 words)

I will begin by exploring academic literature on emotional durability and product attachment. Analysing strategies, case studies, and limitations will help identify opportunities within the grooming context.

Next, I will conduct a user research phase to delve into actual routines and user perceptions of their grooming devices to study the applicability of the literature findings. I will follow a participatory approach, with self-reporting activities and contextmapping sessions.

At the end of this phase, I will write a Design Brief with a Design Goal and an Interaction Vision, among others. These will set the focus for co-creative sessions with grooming users to ideate design solutions. Following iterative design-driven research, I will develop and continuously evaluate a few selected concepts based on the design criteria defined in the Design Brief.

Lastly, final interventions will be prototyped and tested with users to measure their effectiveness in fostering emotional connections with grooming devices, using previously defined testable targets.

Project planning and key moments

*To make visible how you plan to spend your time, you must make a planning for the full project. You are advised to use a Gantt chart format to show the different phases of your project, deliverables you have in mind, meetings and in-between deadlines. Keep in mind that all activities should fit within the given run time of 100 working days. Your planning should include a **kick-off meeting**, **mid-term evaluation meeting**, **green light meeting** and **graduation ceremony**. Please indicate periods of part-time activities and/or periods of not spending time on your graduation project, if any (for instance because of holidays or parallel course activities).*

Make sure to attach the full plan to this project brief.
The four key moment dates must be filled in below

Kick off meeting	5 mar 2024
Mid-term evaluation	2 mayo 2024
Green light meeting	27 jun 2024
Graduation ceremony	25 jul 2024

In exceptional cases (part of) the Graduation Project may need to be scheduled part-time. Indicate here if such applies to your project

Part of project scheduled part-time	
For how many project weeks	
Number of project days per week	

Comments:

Motivation and personal ambitions

Explain why you wish to start this project, what competencies you want to prove or develop (e.g. competencies acquired in your MSc programme, electives, extra-curricular activities or other).

Optionally, describe whether you have some personal learning ambitions which you explicitly want to address in this project, on top of the learning objectives of the Graduation Project itself. You might think of e.g. acquiring in depth knowledge on a specific subject, broadening your competencies or experimenting with a specific tool or methodology. Personal learning ambitions are limited to a maximum number of five.
(200 words max)

I am excited to start this graduation project because I feel it aligns with my personality and interests. By investigating the potential of emotional durability in grooming products, I can delve into a topic that resonates deeply with my own relationship with my belongings. It opens an interesting window for personal introspection. Therefore, this project serves as a great opportunity for me to explore my personal interests, and contribute to the field of emotional durability and sustainability.

Through this project, I aim to further develop my facilitation skills (acquired in my electives period), empowering users to actively participate in the design process. I am eager to explore the interplay between academic design theories and user-generated ideas.

Additionally, I want to improve my academic writing skills, which I feel is not my particular strength. Communicating my literature review insights and design findings effectively is a personal ambition.

Lastly, I am interested in proving my prototyping skills to effectively translate interaction design concepts into tangible representations that resonate with users and foster the intended emotional connection.

Graduation Project Plan

Javier Gomez Castaño

Select a period to highlight at right. A legend describing the charting follows.

Week Highlight	1

Kick-off: 05/03/2024 Week 1

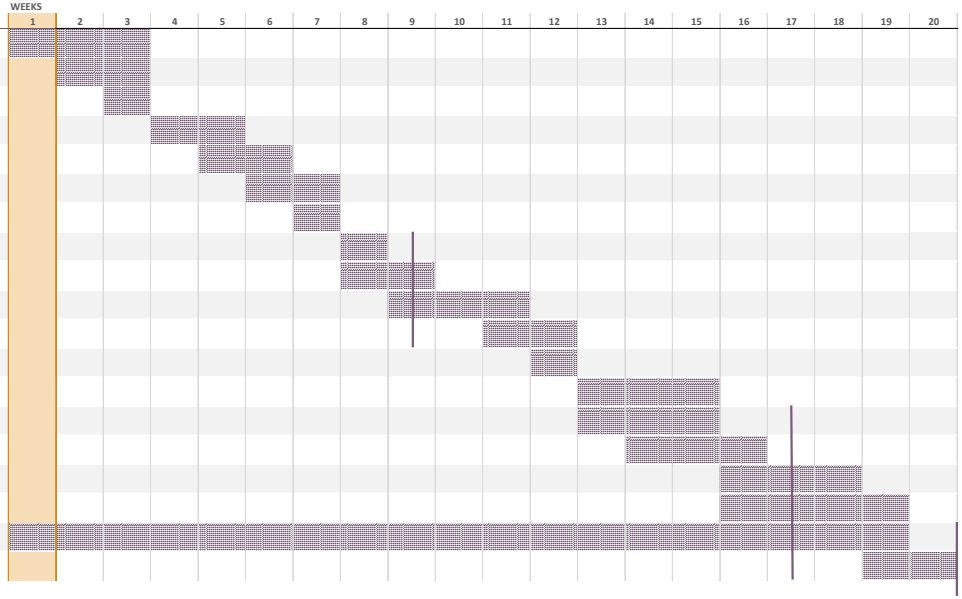
Mid-Term: 02/05/2024 Week 9

Green-light: 27/06/2024 Week 17

Graduation: 25/07/2024 Week 20

Plan Duration | Actual Start | % Complete | Actual (beyond plan) | % Complete (beyond plan)

ACTIVITY	PLAN START	PLAN DURATION	ACTUAL START	ACTUAL DURATION	PERCENT COMPLETE
Identify relevant literature	1	3			0%
Organise and synthesise findings	2	2			0%
Lay out thesis	3	1			0%
User research preparation	4	2			0%
User research activities	5	2			0%
User research analysis	6	2			0%
Organise and synthesise findings	7	1			0%
Design brief	8	1			0%
Lay out thesis	8	2			0%
Co-creation preparation & sessions	9	3			0%
Co-creation outcomes analysis	11	2			0%
Organise and synthesise findings	12	1			0%
Conceptualisation	13	3			0%
Concepts prototyping	13	3			0%
Final Concepts evaluation in context	14	3			0%
Organise and synthesise findings	16	3			0%
Lay out thesis	16	4			0%
Write thesis	1	19			0%
Presentation	19	2			0%



Block 1 - Literature review

I will explore academic literature on emotional durability, emotional design and product attachment, and review Philips' grooming portfolio.

Block 2 - User research

I will delve into actual personal care routines and user perceptions of their grooming devices to study the applicability of the literature review findings. A Design Brief will be written for the ideation, conceptualisation and evaluation.

Block 3 - Ideation & Conceptualisation

Co-creative sessions with grooming users will be held to ideate. After assessing these ideas, I will develop a few concepts, based on established design criteria in the Design Brief.

Block 4 - Concept evaluation

The last phase of the project will be for iteratively assessing and improving the final concepts with users.

B Contextmapping theory

This appendix explores the potential of contextmapping, a user research technique developed by Sanders and Stappers (2012). To understand its effectiveness, the four types of knowledge (see Figure B.1) should be introduced:

1. **Explicit knowledge:** can be easily explained with words.
2. **Observable knowledge:** can be witnessed in others' actions.
3. **Tacit knowledge:** what we know but have difficulty expressing.
4. **Latent knowledge:** subconscious thoughts and ideas we might form based on past experiences.

Contextmapping specifically targets tacit and latent knowledge. It utilises the "Path of Expression" (Figure B.2) to explore a participant's past, present, and future experiences. This approach recognises the present as a link between past memories and future aspirations. In other words, past experiences influence our current behaviour and emotions, while future dreams shape how we perceive the present.

Unlike traditional methods like interviews ("say activities") or observations ("do activities"), contextmapping is a generative technique. It incorporates elements of both but emphasises a third category: "make activities." These activities, often involving creative prompts, serve as a gateway to access participants' deeper tacit and latent knowledge by engaging in associative and creative thinking.

Considering the focus of this research on Emotional Durability, a concept often rooted in tacit knowledge and past experiences, contextmapping is a particularly valuable tool. By employing the "Path of Expression" and "make activities," this technique allows participants to explore their grooming routines and emotional connections with devices beyond readily articulated thoughts.

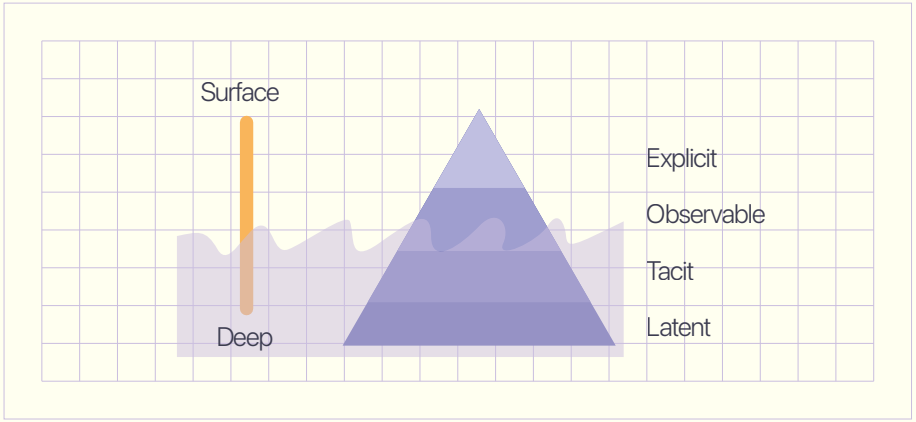


Figure B.1. Different types of knowledge (adapted from Sanders & Stappers (2012))

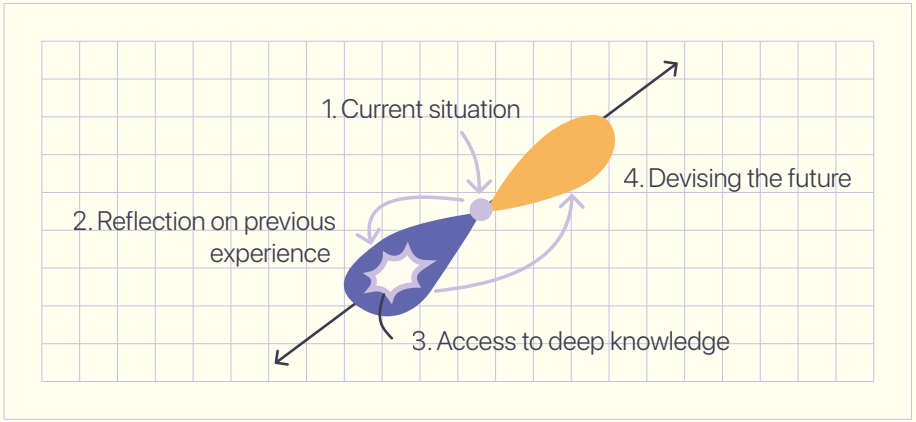


Figure B.2. Path of Expression (adapted from Sanders & Stappers (2012))

C Contextmapping detailed session plan

C.1 Sensitising booklet

Activity	Task	Goal
Day 1: Grooming environment	Task 1: Participants will be asked to groom their faces on the first day. Task 2: Participants will be asked to draw the different elements in their grooming environment.	The goal is to gather information about the grooming routine at the time these tasks set participants into the topic of grooming by first reflecting on their experience.
Day 2: Irreplaceable possessions	Task 1: Participants will be asked to sketch a moment with an electronic product they feel attached to. It will be followed by some questions about why or how the attachment developed.	Put the seed for reflecting on emotional connections and the drivers behind them in preparation for the final activity of the session.
Day 3: Product-user relationship	Task 1: Participants will be asked to map their current relationship with their groomer (user in the centre and a few concentric circles around). Task 2: Write a break-up letter for their groomer	Make them think of what kind of emotional connection they have with their groomer. What could lead them to substitute their device? Why are they not in love with them? What emotional aspects should be reinforced?

Figure C.1. Detailed tasks within the sensitising booklet

C.2 Contextmapping session

Activity	Duration
1. Introduction	5 mins
2. Icebreaker	10 mins
3. Activity 1.a & 1.b	35 mins
4. Break	5 mins

Activity	Duration
5. Energiser	5 mins
6. Activity 2	25 mins
7. Wrap up	5 mins

Figure C.2. Time schedule of the session

Activity	Description	Goal
1. Introduction	Brief explanation of the project and the aim of the session. Distribute consent forms. Thank them for coming.	
2. Icebreaker: Your groomer	Participants are asked to create a quick sketch and write down an onomatopoeia related to their current grooming device. They then take turns presenting their creations (and groomer) and sounds to the group, stating how often they use them and how they acquired them.	Break the ice and create an engaging atmosphere at the beginning of the session. Gather basic information about their grooming habits.
3. Activity 1: Grooming routine	**1a Grooming steps** Participants will create a collage representing their typical grooming routine using images and words. **1b Grooming experience** Using tracing paper on top, they will identify and mark emotional touchpoints or feelings they experience throughout their routine.	Understand participants' current grooming routines and environments. Identify emotional connections associated with different aspects of their grooming routine.
4. Break		
5. Energiser: Symbolic possessions	Participants are asked to bring an object they feel particularly attached to the session. Then, while standing up, they have to explain to the group why they are attached to this object and how they came to possess it.	Introduce the concept of emotional attachment. Spark ideas about features that promote Emotional Durability in future products.
6. Activity 2: Envisioning irreplaceable groomer	Participants are presented with a sheet depicting an abstract, non-descriptive curved shape. They are asked to imagine using this shaver several times a week for the next 15 years, taking its functionality for granted. The prompt asks them to consider what would make this an irreplaceable part of theirs by making use of the provided textures, images and words.	Encourage participants to think beyond the physical aspects of a shaver and focus on the emotional connection they desire. Explore what qualities foster an irreplaceable relationship with a grooming tool (the provided imagery and words are related to the themes of Haines-Gadd et al. (2018) framework).
7. Wrap-up	Ask them if they want to say something else. Thank them for coming.	

Figure C.3. Detailed description and goal per activity of the session

D Sensitising booklet

This appendix includes the sensitising booklet handed to the participants of the contextmapping sessions 4 days prior to their session. As the following figures show, the booklet is designed with daily short tasks to prepare the right mindset for the focus group.

Beyond the blade:

From habit to connection

Graduation Project

TU Delft PHILIPS

The grooming of _____

Introduction

Hey! Thanks for taking part of our research. We're working with Philips to explore how Emotional Durability can be applied to their grooming products.

Our goal is to understand how people develop emotional connections with their grooming devices and how these connections can be fostered through design. This will encourage users to use and cherish these products for a longer period of time.

Feel free to interpret the tasks and questions in your own way. And don't hesitate to to skip some parts if you feel so, or even to go beyond!

Instructions

This booklet will guide you through a 3-day journey to explore your grooming routine and the ways you connect with your current grooming device.

You'll find one or two creative tasks each day designed to spark reflection. Participating in them will not only benefit the research but also help you come to the session prepared to share your unique perspective!

Day 1: Grooming environment

We're starting with something familiar – your daily grooming routine. Take a few minutes to complete your usual face grooming routine. Which steps do you follow?

On the illustration, sketch or write down the different elements you use in your daily face grooming routine!

Day 2: Irreplaceable possessions

Think about all the electronic products you use in your daily life. Is there one you feel particularly attached to?

Take a few minutes to sketch a moment where you interact with this special electronic product!

What is the product? What are you doing in the sketch?

Why do you feel attached to this product?

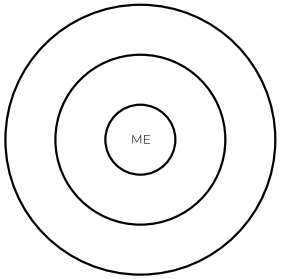
What specific features or qualities contribute to your emotional connection?

Bonus! Bring this special electronic product with you to the context mapping session

Figure D.1. Content of the booklet I

Day 3: Groomer-user relationship

Use the illustration to visually represent your bond with your current device. Place the device closer to the centre for a strong connection, further away for a weaker one.



Why have you placed it there?

Imagine you're writing a "break-up letter" to your grooming device. Express your frustrations or what's missing in your current relationship.

NB! Don't dwell on how bad your device works. Instead, focus on your emotional connection (or lack thereof). What would make you feel more connected or satisfied?

Thanks for your insights and participation in this journey! We are excited to see you in our upcoming session, where we will continue exploring your grooming experience and the connection you display towards your device.

Please, do not forget to bring your booklet and your cherished possession with you! Your reflections are essential to our collective exploration.

Do you have any questions?

Would you like to engage further in the project?

☐ YES

☐ NO

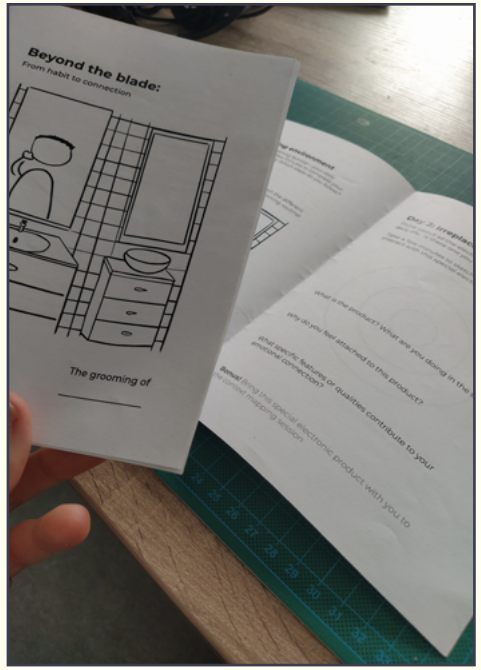


Figure D.2. Content of the booklet II

E Contextmapping trigger sets

This appendix includes the trigger sets of pictures, words and textures used in the contextmapping sessions during the User Research phase. These are the materials that participants used to create their collages and mockups.

E.1 Activity 1: Grooming routine

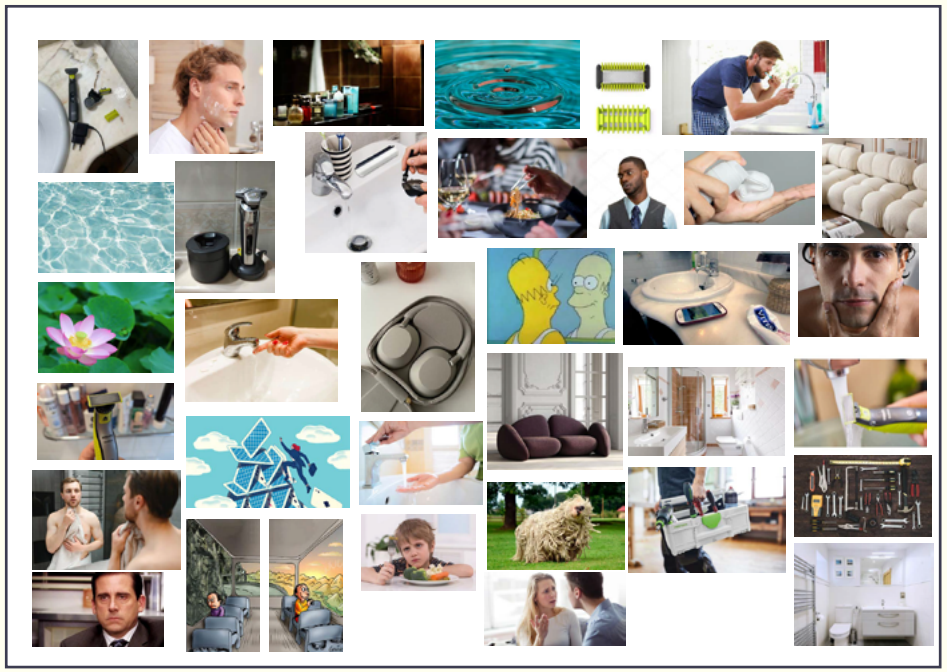


Figure E.1. Page 01 of the trigger set for activity 1

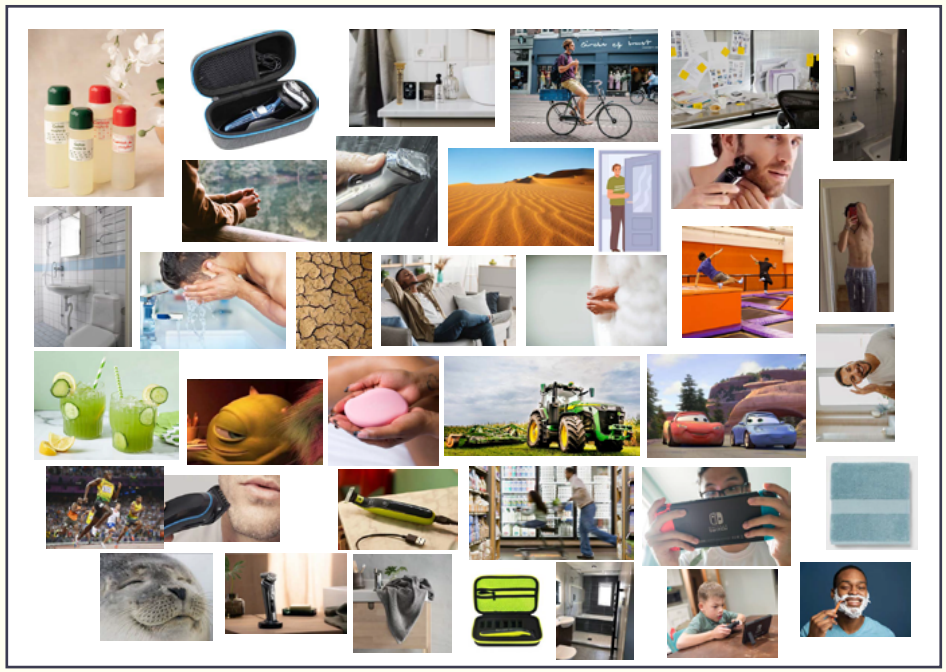


Figure E.2. Page 02 of the trigger set for activity 1

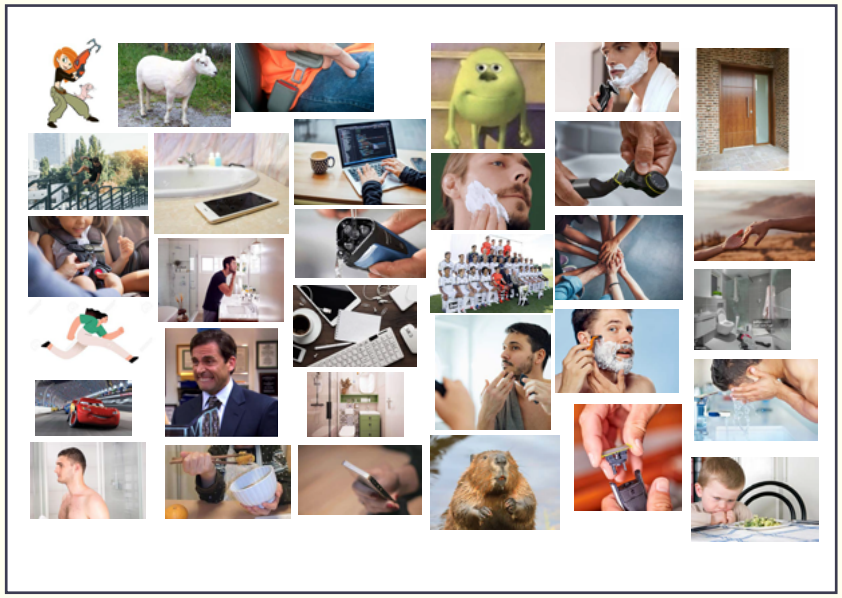


Figure E.3. Page 03 of the trigger set for activity 1

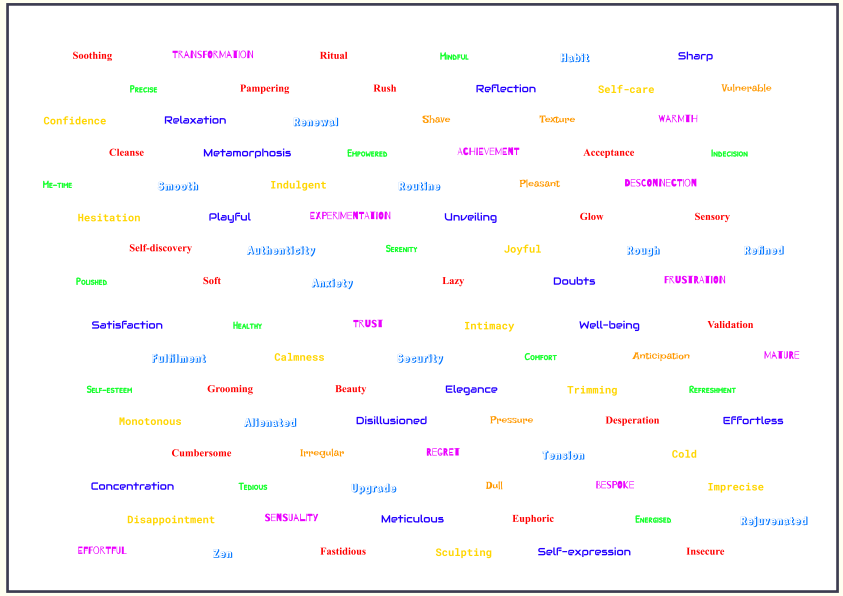


Figure E.4. Page 04 of the trigger set for activity 1

E.2 Activity 2: Irreplaceable groomer

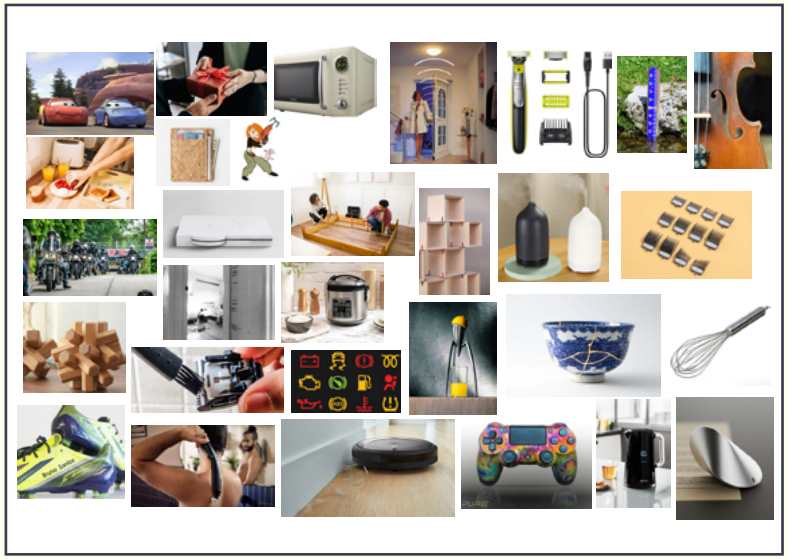


Figure E.5. Page 01 of the trigger set for activity 2

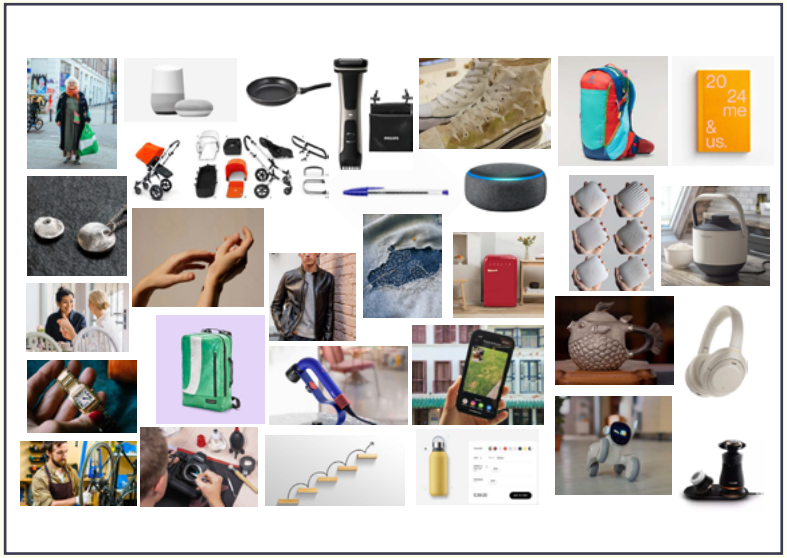


Figure E.6. Page 02 of the trigger set for activity 2

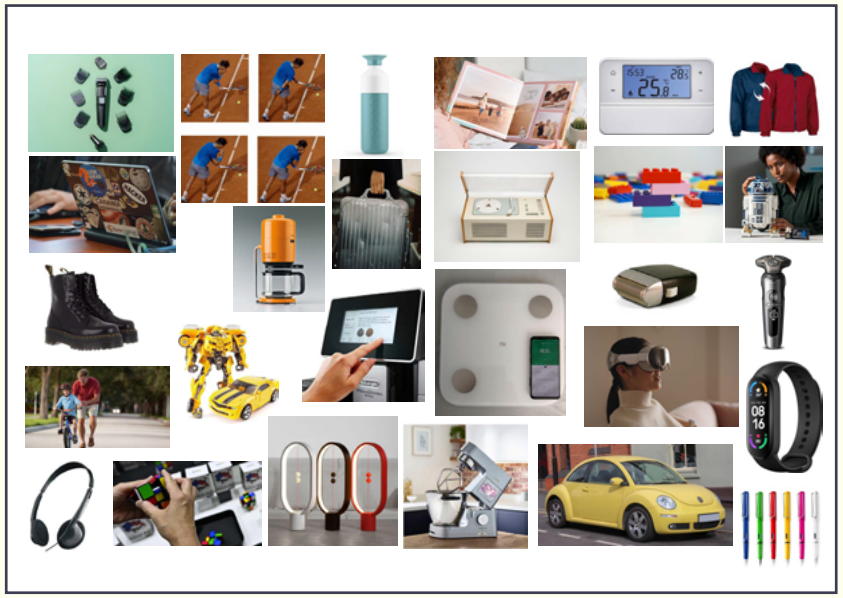


Figure E.7. Page 03 of the trigger set for activity 2

Figure E.8. Page 04 of the trigger set for activity 2

Figure E.9. Page 05 of the trigger set for activity 2

E.3 Templates for the activities

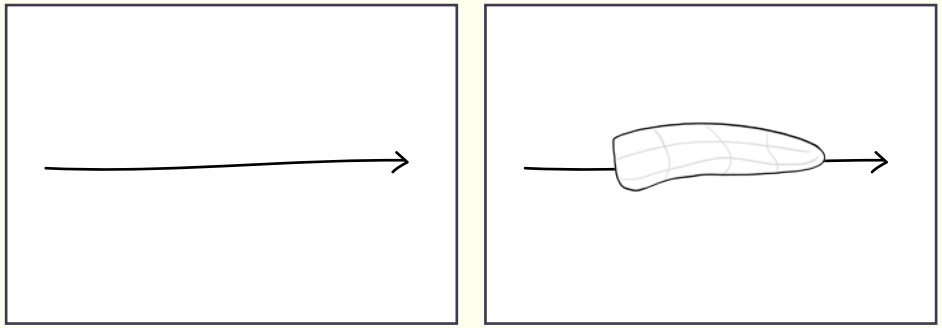


Figure E.10. Templates for the activities of the contextmapping session

F Co-creation workshop template materials

This appendix contains the materials provided to participants in the co-creation workshops during the final activity with the modelling clay These are an A3 template to be filled out with the rationale behind their final concept and the prompt for the AI software; and a 3D printed probe of a shrunk version of the All-in-One 9000 Series.

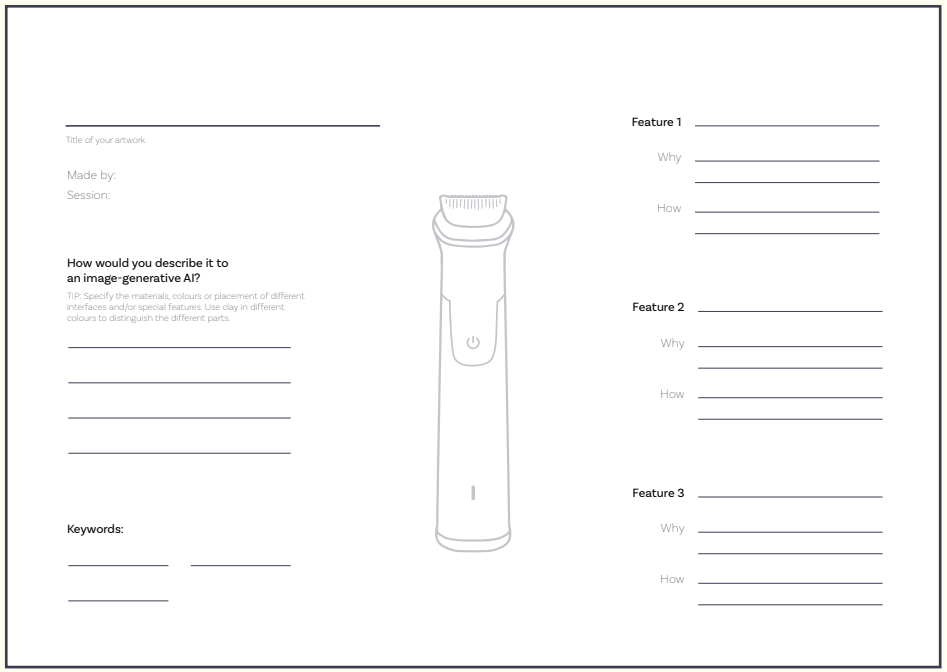


Figure F.1. A3 template

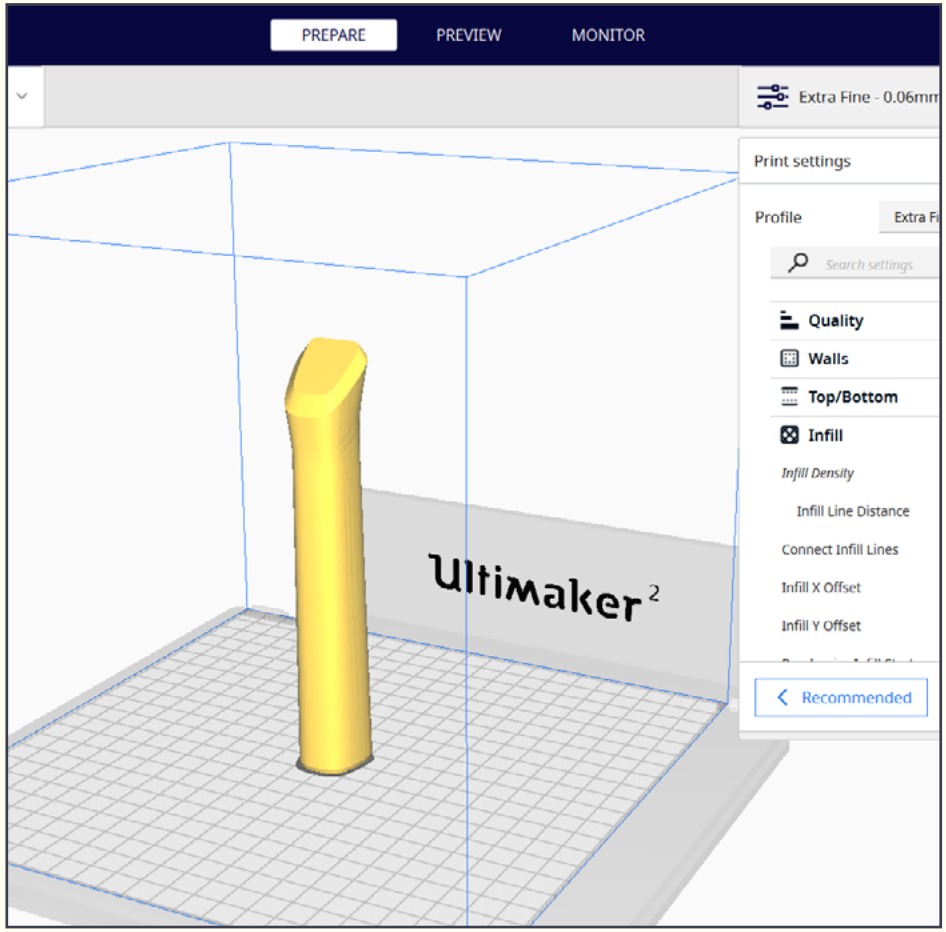


Figure F.2. Probe ready to be 3D printed

G Interventions evaluation set of questions

This appendix includes the semi-structured interview questions for the interventions evaluation. The questions are designed to delve deeper into the potential for triggering product attachment and irreplaceability.

G.1 In between interventions

These questions are asked after each intervention is presented and time has been allowed for interacting with the prototypes:

- What do you find positive about this design? Why?
- And what do you find negative? Why?

Now imagine you have been using this Philips device with this intervention for a couple of years already:

- Would this design be more special to you than your current device?
- What kind of emotions would it trigger on you?
- Could you explain me what elements of the intervention would foster this feeling of specialness?
- Would another identical product hold the same meaning for you? Why/why not?
- Again, imagine that you have been using this device for 5 years and it is still functioning properly. There is a new and improved device in the market. Would you then consider replacing this device for that one? Why (not)?

Follow-up questions should be asked to delve into the specific elements of each intervention. Points of attention per intervention:

- **IMPRINT**: do they respond positively to the explicit representation of ageing?
- **MyGroom**: If any, would they feel connected to the device, or just to the digital element?
- **TrimBuddy**: does the combination of features + appearance suffice to foster a lasting connection?

G.2 Wrap-up

These questions are asked at the end of the session to get a final opinion of participants comparing the three interventions. In addition, the impact of Emotional Durability on brand loyalty to Philips is also investigated:

- -Having explored all three interventions, can you rank them based on which one would make you most likely to keep using the product and postpone its replacement? Can you explain why?
- If you could combine elements from any of the designs, what would your ideal special Philips grooming device look like?
- Based on your experience with this ultimate design intervention, what would you do the day that it stops working and could not be fixed anymore?
- (If they mention something about coming back to a Philips grooming device) Do you think this positive experience would also make you more likely to consider other Philips products for your daily life?

H Materials used in the interventions evaluations

This appendix contains the different visuals and prototypes made for evaluating the interventions with users. These were complemented with an oral presentation of each concept to make clear what the intervention was about.

H.1 C1: IMPRINT

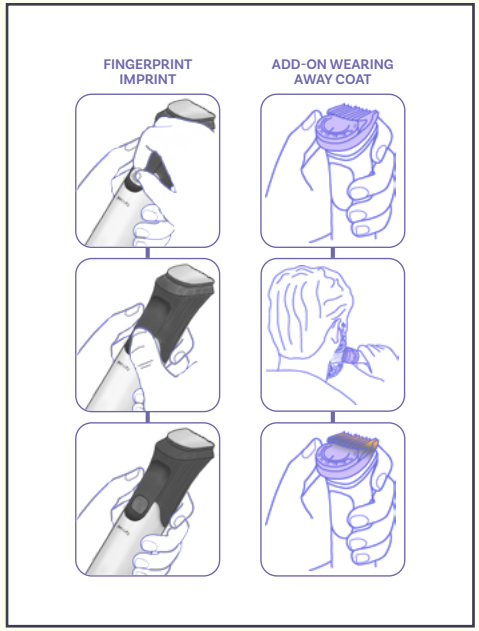
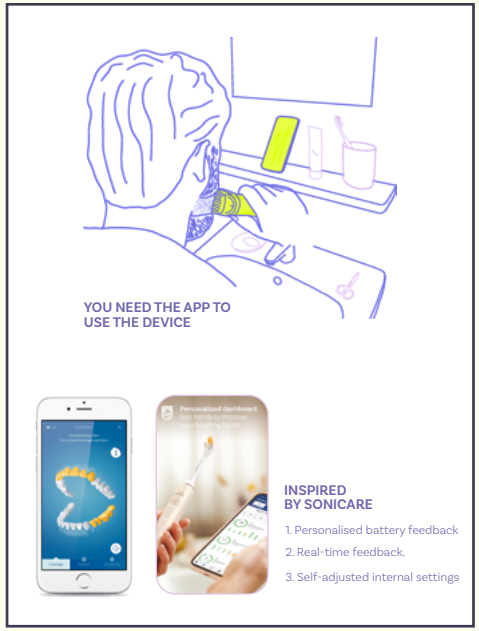


Figure H.1. Concept cards and physical prototype of IMPRINT

H.2 C2: MyGroom



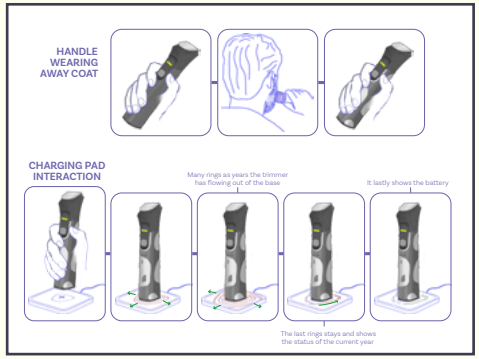


Figure H.1. Concept cards and physical prototype of MyGroom

H.3 C3: TrimBuddy

Figure H.1. Concept cards and physical prototype of TrimBuddy

H.4 Paper-based digital prototypes

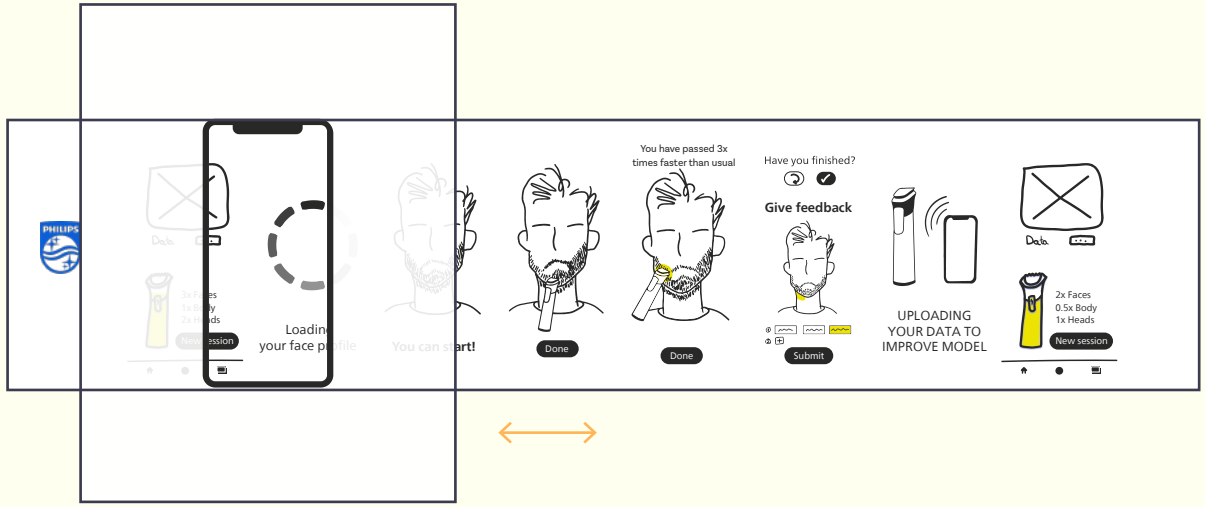
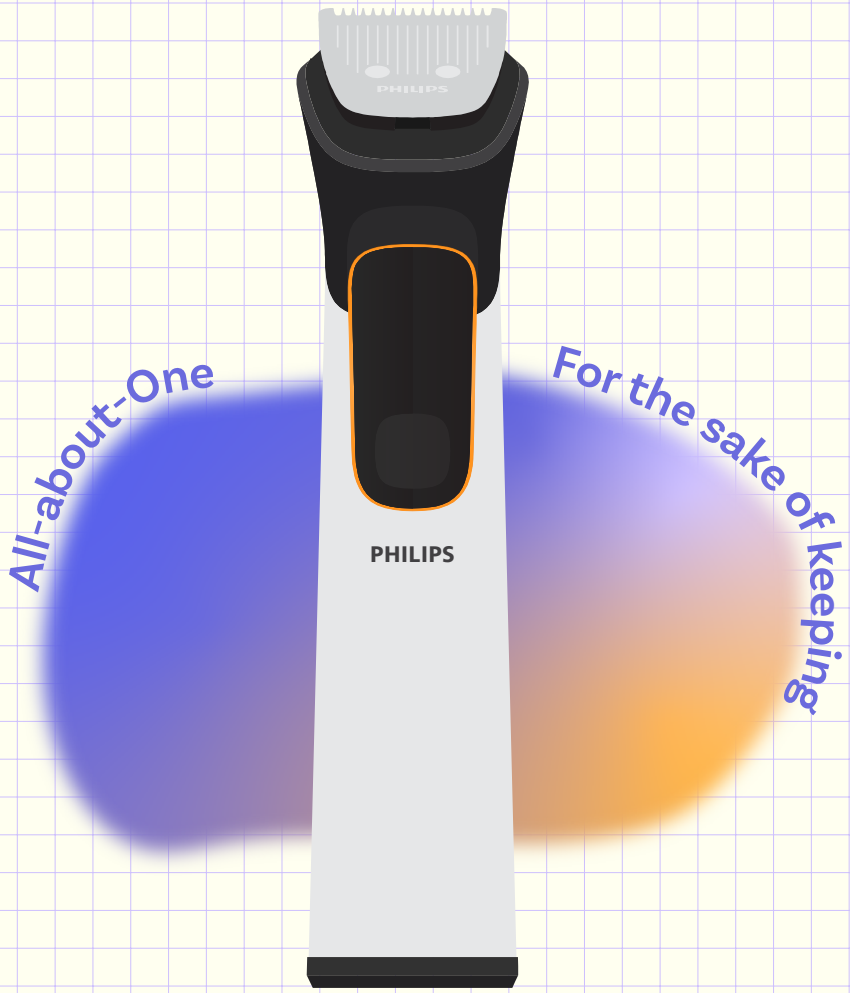


Figure H.4. Paper-based prototype of the digital component of MyGroom

Figure H.5. Paper-based prototype of the digital component of TrimBuddy


All-about-One
For the sake of keeping
PHILIPS