The Emotional Design Deck:

A new tool for Designers to develop meaningful and iconic furniture.

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Abstract

Over the past 25 years, Emotional Design has gained significance as a valuable approach to understanding how products can forge emotional connections with consumers. In today's competitive market, businesses must engage consumers on an emotional level to thrive, with emotion often serving as the critical link in many industries. Beyond providing a competitive advantage, creating emotional connections helps foster consumer attachment, reducing the likelihood of premature product disposal and thereby contributing to sustainability efforts.

A range of tools exist to help designers learn about different emotions, and consider consumer emotion in product interactions. However, there is a notable lack of tools that offer Emotional Design strategies for practical application, and none in the field of furniture design. This thesis introduces the research, design and development of the Emotional Design Deck. Figure A1 positions the Emotional Design Deck alongside other existing tools, showcasing its unique functionality and how it addresses a gap in current research and design tools.
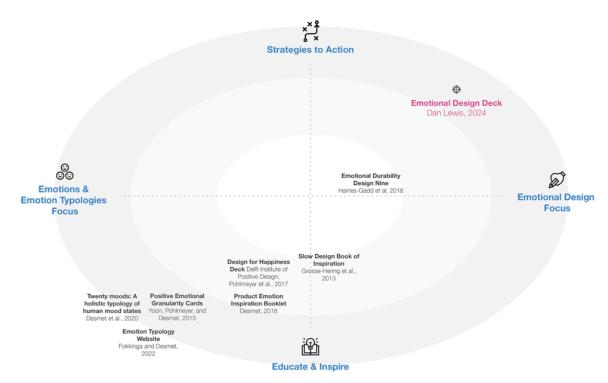
Figure A1 Emotional Design Deck in context, alongside other existing tools.

This study's research methodology employs pragmatism and utilises a mixed-methods empirical approach. The research approach is both inductive and abductive. It incorporates cross-sectional studies, analysing consumer data at specific points in time, alongside a review of iconic furniture and historical design movements. This approach integrates contemporary consumer insights with lessons from enduring products that have remained relevant over time.

The Emotional Design Deck represents a significant contribution to new knowledge, in the form of a physical card set developed for designers. Its aim is to encourage designers to incorporate consumer-centric approaches into their furniture creations, fostering connections with consumers on an emotional level. Comprising 48 strategy cards organised into three core themes of Aesthetics, Experience, and Meaning, the deck offers a broad range of strategies for design application. Each card features a unique strategy title and an illustrative image on the reverse, setting the context. On the front side, designers are presented with a clear strategy question, followed by additional details to explore further. The Emotional Design Deck and the detail of the cards content, design and development is explored in this thesis.

The Emotional Design Deck was tested and evaluated by both students and industry professionals to assess its functionality and usability. The tool proves beneficial in various contexts, placing Emotional Design strategies in the hands of a wide range of users.

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I would like to begin by expressing my gratitude to my supervisors, Professor David Webb, Professor Jess Power, and Professor Maria Martinez Sanchez. Their expertise, guidance, support and encouragement have been invaluable throughout my journey toward completing this doctoral thesis. I also extend my sincere thanks to Professor David Hawkins for his inspiration and encouragement during the early stages of my PhD.

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Authors Declaration

I hereby confirm that this thesis is my original work and has not been submitted for any other degree at University of Staffordshire or any other institution. All materials that are not my own have been appropriately identified and referenced.

Signed

Dan Lewis

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1. Introduction

1.1 Context

In the last 25 years, Emotional Design has emerged as an important and valuable concept to connect products with consumers on an emotional level. Ho et al. (2012) suggested that Alan Cooper (1999) was the first design professional to study emotion and design, making a connection between software and interaction design. In the same year, Overbeeke and Desmet (1999) coined the phrase 'design and emotion' and the Design and Emotion Society was established at the Delft University of Technology. For the purpose of this study Emotions are defined as *conscious mental reactions (such as anger or fear) subjectively experienced as strong feelings usually directed toward a specific object and typically accompanied by physiological and behavioural changes in the body.* 'Emotion' (2024).

It can be ascertained from literature that the way products are designed and developed has an impact on the designer, the consumer, the individuals manufacturing the product, and society as a whole (Belk, 1988; Chitturi, 2009; Desmet, 2012; Desmet, Pohlmeyer and Forlizzi, 2013; Eichler et al. 2021; Fokkinga and Desmet, 2013; Ho 2012, 2014; Luger, Hofer and Floh, 2022; Papanek, 2019). As Dorrestijn et al. (2013) stated 'Implicitly or explicitly, designers always affect the lives and wellbeing of users and of society at large.'

In a competitive marketplace, products and services must connect with consumers for businesses to survive, and in many sectors, emotion is the key to that connection. Esslinger (2009) recognised the importance of emotion stating, '…even if a design is elegant and functional, it will not have a place in our lives unless it can appeal at a deeper level, to our emotions.'

In addition to establishing a competitive edge, connecting with consumers on an emotional level helps develop consumer attachment, preventing premature disposal of the things they own and in turn supporting sustainability goals (Chapman, 2005; Grosse-Hering et al. 2013; Haines-Gadd et al. 2018; Mugge, Schoormans, and Schifferstein, 2005, 2009; Russo and Hekkert, 2007; Schifferstein, and Zwartkruis-Pelgrim, 2008; Van Gorp, 2010). As with consumer electronics, clothing and other products, furniture is often considered to be disposable by consumers. The North London Waste Authority (2018/19) reported that a staggering 22 million items of furniture are discarded annually in the UK alone, with the predominant portion being sent directly to landfill sites.

This level of waste, alongside the power of Emotional Design to create meaningful connections between people and their products presents an opportunity to improve the situation. By employing practical Emotional Design strategies in terms of aesthetics, functionality and meaning, it becomes feasible to design new furniture that considers the emotional bond with consumers. This approach fosters attachment that evolves over time, motivating the conscientious upkeep, repair, and preservation of these items. The inclination to safeguard and hand down these cherished possessions is nurtured, diverging from the prevalent cycle of constant disposal and replacement.

It is well documented that furniture supports our daily lives (Cranz, 2000; Jiang, Niu and Zhou, 2017; Lees-Maffei et al. 2020; Seker and Koc, 2021), offers us comfort, and provides a safe space to relax and reflect. It is central to our life with family and friends and sets the stage for gatherings, special occasions, and intimacy. Furniture can be part of our professional life too, creating a space to work, learn and accomplish goals and ambitions that link to fulfilment and pride. The furniture we own allows us to curate our homes and build a space that represents who we are, our values and our taste to others. Our close physical contact with furniture also represents an important aspect in the relationship between person and product, as well as our pets. Furniture can be passed down, often through generations and the meaning of a piece can often be more important to its custodian than its functionality, despite its condition. These reasons all demonstrate the importance of furniture in our lives and reiterate the opportunity to further consider the emotional connection with consumers when designing new furniture. Furniture offers a compelling opportunity to cultivate emotional bonds between individuals and products, in part because of its enduring quality. Furthermore, in contrast to consumer electronics that constantly advance, often prompting or necessitating replacements due to obsolescence, furniture possesses the capacity to sustain its functionality and aesthetics over the course of centuries, meanwhile accumulating meaning and narrative as time unfolds.

It has been ascertained that in the Emotional Design field, a range of tools have been developed to inspire, educate, and support designers in their work to consider the emotions of the consumer. These tools include the Product Emotion Inspiration Booklet (Desmet, 2018), the Emotional Durability Design Nine (Haines-Gadd et al, 2018), and the Slow Design Book of Inspiration (Grosse-Hering et al, 2013.) In addition, tools to measure emotional response of the consumer, as well as target specific nuanced emotions have been created. These tools include the Product Emotion Measuring Instrument (PrEmo) (Desmet, 2019), the LEMtool (Huisman et al, 2013), and the Positive Emotional Granularity Cards (Yoon et al, 2015.)

1.2 Contribution to Knowledge

However, there is a gap in knowledge in relation to a dedicated tool specifically tailored to the design of furniture. Therefore, the objective of this research is to bridge this gap by designing, developing, and testing a tool that caters specifically to embedding Emotional Design strategies in the design of furniture. This mixed-methods research adopts existing Emotional Design research and strategies along with new consumer and designer insight, workshops and the analysis of trends data and iconic furniture. Action research was used as the underpinning methodology to enable a continuous reflection to be gained from learning and diagnosing. A wealth of rich data has been generated, resulting in clear themes that have been used to inform the development of the Emotional Design Deck, a new tool for Designers.

1.3 Aims & Objectives

This research explores how Emotional Design strategies, and characteristics found in iconic and cherished furniture can be identified and cultivated for application in the creation of new products. The ultimate aim is to develop a tool for Designers that enables them to embed Emotional Design strategies into their furniture design projects, aiming to create products that establish meaningful connections with people. This was explored through five core objectives:

1. **To identify trends in the types of furniture that consumers own and love, as well as furniture which is now considered 'iconic'.**

Identifying the existing connections that consumers have with their beloved furniture was essential in capturing the reasons that the items were cherished, and allowed for the development of themes that were essential in shaping the content and design of the tool. A review of iconic furniture to identify shared characteristics expanded exploration beyond the study participants, examining items that have been popular for more than a century.

2. **To examine existing research to determine Emotional Design strategies that can be used by designers to create furniture that people love.**

A comprehensive literature review of existing Emotional Design research examined the strategies identified within the field to assess their suitability for incorporation into the new tool. Additionally, the review encompassed frameworks and philosophies presented by designers and researchers, and notable works known for evoking emotional responses from consumers.

3. **To analyse existing tools that support Designers in their work, focusing on Emotional Design tools, but also other design tools or processes to establish key strengths and weaknesses.**

Analysing existing tools ensured the new tool met Designer needs, revealing strengths and weaknesses in content, design, and accessibility. This process informed the development of a design brief and specification. While Emotional Design tools were scrutinised, generic design tools were also assessed, with designer surveys providing additional insights for refining the brief and specifications of the new tool.

4. **Synthesise the categories of furniture types, existing Emotional Design strategies, and existing tools to create a specification for a new tool.**

Consolidating findings from Research Objectives one to three, strategies were grouped, combined, and refined to streamline the tool's content. Simultaneously, findings relating to design style, accessibility, and format informed the creation of a clear and detailed design brief and specification for the tool.

5. **Build and Test a tool for Designers that supports them in the design process to create furniture that people love.**

Using the design brief and research findings on identified strategies, the design tool was developed and initially piloted with design students. Quantitative and qualitative feedback from students, along with insights from an international conference led to refinements. Subsequent testing with industry designers resulted in the ultimate iteration of the tool presented in this thesis, alongside comprehensive findings from Research Objectives one to three. This represents a significant contribution to the field of Emotional Design.

1.4 Emotional Design Definition

Emotional Design is a field focused on how designed objects and experiences influence consumer emotions. This can range from something as simple as a shelf, to something as complex as a supercar. Emotional Design considers how a product's appearance, functionality, and associated meaning affect the emotions of the user and their overall relationship with the product. Norman (2004) describes these influences in terms of the visceral (appearance), behavioral (function), and reflective(meaning) levels, which are adapted from the ABC model of attitudes from psychology.

2   Literature Review

2.1 Introduction

This chapter, a four-part thematic literature review, examines Existing Frameworks, Emotional Design over time, Emotional Design Strategies and Existing Emotional Design Tools to contribute towards fulfilling the aim and objectives. Part one of this chapter provides an insight into the existing Emotional Design Frameworks developed over the last twenty years, discussing their commonalities and benefits to being used in the development of the new tool. Part two examines Emotional Design over time and introduces strategies for the new tool. Part three explores Emotional Design strategies, considering which are relevant to the tool and which are not. Part four presents, and critically analyses the strengths and weaknesses of existing Emotional Design tools, concluding how good practice has influenced the design of the new tool.

When developing the Emotional Design Deck, it was essential to consider consumer and designer perspectives, but also to examine the current state of knowledge in terms of existing strategies, design tools and furniture, to embed this theoretical foundation within the new tool. Each of the four parts of the literature review varied in its approach (see chapter 3, page 54).

2.2 Part 1 – Existing Frameworks

2.2.1   Introduction

This part of the literature review examines the theories of leading researchers in Emotional Design, highlighting key similarities and differences. The review helps build an understanding of existing theories that influence the research activities taking place within this study. Design researchers have developed varied perspectives on product experience to understand our emotional connections with products. The review progresses chronologically, comparing frameworks and concepts from older to more recent research, complemented by empirical knowledge from my own practice.

The Framework Map (Fig. 2.1) consolidates previous studies into a visual representation, using Norman's (2004) Visceral, Behavioural and Reflective categories as anchor points. These categories define product components related to aesthetics, functionality and meaning. The choice of three variables ensures an effective map, preventing clustering of numerous experience types in a central zone. Each coloured item's position is informed by the authors' definitions and researcher interpretation. This chapter discusses the frameworks included in the map, highlighting similarities and differences.
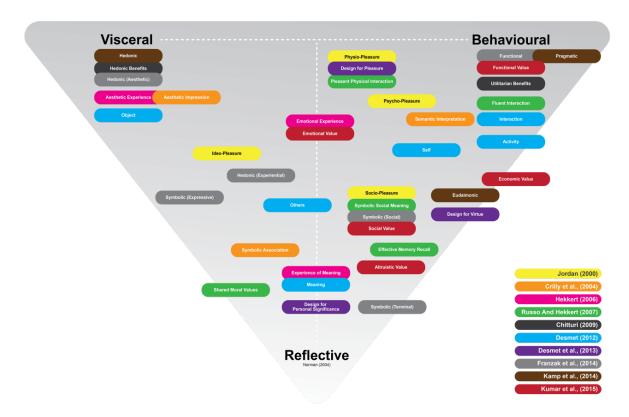
Figure 2.1 Emotional Design Framework Map.

Pleasure Types (Jordan, 2000)

Jordan (2000) acknowledged that the connection between individuals and products transcends mere usability. He considered the complex realm of human emotions, noting that people's 'hopes, fears, dreams, aspirations, taste and personality' influence their interactions with products. Jordan (2000) further expanded upon four pleasure types initially conceptualised by anthropologist Lionel Tiger (1992), encompassing physio-pleasure, socio-pleasure, psycho-pleasure and ideo-pleasure, exploring their relevance to product design. Physio-pleasure is described as relating to the body, with pleasures derived from sensory organs and connected to touch, taste, and smell, as well as feelings of sensual pleasure (Jordan, 2000). The feeling of soft upholstery, or smell of a leather chair both represent physio-pleasures. Jordan (2000) describes the socio-pleasure type as 'the enjoyment derived from relationships with others… issues such as status and image may play a role here.' In the context of furniture, an item can serve as a conversation starter or offer a shared space for socialising, connecting directly to relationships with others. The psycho-pleasure type, as articulated by Jordan (2000), focuses on the cognitive and emotional responses of a product user. This encompasses considerations related to the cognitive demands of using the product and the ensuing emotional reactions. Considering the cognitive demands of using a product ensures that the usability and satisfaction are at the heart of the design. For instance, addressing the complexity of extending a dining table in a manner that ensures a positive user experience, balancing safety, and ease, aligns with the principles of psycho-pleasure. Lastly, ideo-pleasure, as described by Jordan (2000), involves considering the aesthetics of a product and the values it embodies. For instance, a product made from

biodegradable materials may be seen as embodying environmental responsibility. Aesthetic appeal is crucial, encompassing both visual attractiveness and the associated meanings conveyed by aesthetics. While conveying material values solely through aesthetics may not always be possible, supplementary marketing materials can highlight positive selling points like responsibly sourced timber or local manufacturing.

This framework of four pleasure types (Tiger, 1992, Jordan, 2002) emphasises aspects related to a product's appearance, usability, emotional impact, and social connection. This provides a comprehensive structure for designing with consumer emotions in mind. While there is overlap among the pleasure types, the pyscho-pleasure type is perhaps less relevant to furniture design when compared to more complex products and user interface design.

Visceral, Behavioural, Reflective (Norman, 2004)

Norman (2004) similarly discusses the different factors relating to interactions between people and products, noting that humans are 'conscious of our role in the world and we can reflect upon past experiences'. Norman (2004) builds upon the ABC model of attitudes from psychology, describing how our 'human attributes result from three different levels of the brain; the automatic, prewired layer, called the visceral level; the part that contains the brain processes that control everyday behaviour, known as the behavioural level; and the contemplative part of the brain, or the reflective level.'

When applied to design, the visceral level concerns a products appearance, the behavioural level relates to the pleasure and effectiveness of use, whilst the reflective level is dealing with the issues of self-image, personal satisfaction and memories (Norman, 2004). Norman's visceral level aligns with Jordan's ideo-pleasure type, the behavioural level aligns with the psycho-pleasure type, and the reflective level aligns with the socio-pleasure type. Jordan's physio-pleasure type intersects with more than one of Norman's levels, most notably the visceral and behavioural.

Norman's three-level model concisely deconstructs the consumer experience with a product, examining its visual impact and immediate appeal, the functional aspects influencing user emotions, and the associated significance of the product. In addition to the three-level model, Norman (2004) provides examples of products and how they connect with consumers on these distinct levels. The model's strength lies in its memorability and accessibility, offering the flexibility to delve deeper into each facet for a comprehensive understanding if appropriate.

Cognitive Response to Design (Crilly et al., 2004)

Crilly et al., (2004) outline three cognitive responses to product visual form in their review of existing literature and development of an integrated conceptual framework on the subject of product appearance. These are Aesthetic impressions, Semantic interpretations and Symbolic associations.

However, they emphasise that these responses are interconnected and not independent and that the importance placed on these responses by consumers may vary. Their 'Framework for consumer response to the visual domain in product design' explores further into these cognitive responses within the context of consumption, including designer influences, cultural factors and environmental distractions. Although encompassing a wide spectrum of consumer responses and influences, the three cognitive response types align closely with those proposed by other authors, particularly Norman (2004), who defined the visceral, behavioural, and reflective levels.

Set of Effects (Hekkert, 2006) and Framework of Product Experience (Hekkert and Desmet, 2007)

Hekkert (2006), like Norman (2004) and Crilly et al. (2004), defines three experience types as a 'set of effects' including the aesthetic experience, the experience of meaning, and the emotional experience. The aesthetic experience relates to our senses and the extent to which they find satisfaction, such as the tactile feel, or visual appeal of an object (Hekkert, 2006). The experience of meaning links to the significance associated with products, like an item received as a gift, whilst the emotional experience encompasses the feelings and emotions evoked by a product, such as the comfort and warmth provided by a deep, soft chair (Hekkert, 2006). Hekkert (2006) also discusses how the experience relating to the products function isn't just about how well something works, suggesting that 'the function of a product can very well be experiential, like to enjoy, to enrich, to inspire, to strengthen one's identity … and many believe such experiences are nowadays more decisive in people's buying behaviour than the primary or utilitarian function'.

Much like Norman and Jordan, Hekkert's set of effects recognises the different factors that affect and form a user's experience of a product. This set of affects, are further developed and defined by Hekkert and Desmet in their Framework of Product Experience (2007). Hekkert and Desmet (2007) restate the aesthetic experience as a product's ability to delight our senses, whether through beauty, pleasant sounds, or appealing scents. They highlight the experience of meaning; wherein cognitive processes allow consumers to interpret metaphors and find personal or symbolic significance in objects. The emotional experience involves the 'affective phenomena typically considered in emotion psychology and in everyday language about emotions, love and disgust, fear and desire, pride and despair, to name a few' (Hekkert & Desmet, 2007). Hekkert and Desmet's three types of experience align broadly with those of Norman and Jordan, each defining levels or types of experience that characterise the consumer-product relationship. While each framework provides a comprehensive view of factors influencing these relationships, their distinctiveness lies in how they categorise and label these factors.

Principles of love in human-product interactions (Russo and Hekkert, 2007)

Russo and Hekkert (2007) specifically investigate principles of love in human-product interactions, outlining five key principles of fluent interaction, including affective memory recall, symbolic meaning, shared moral values and pleasant physical interaction. Russo and Hekkert (2007) emphasise the importance of fluent interaction, particularly when individuals seek immersion and control in their experience. This concept, akin to flow in game and user interface design, remains relevant even in furniture use. The affective memory recall principle proposes that people develop affection for products that evoke memories, such as gifts or holiday reminders (Russo and Hekkert, 2007). This attachment fosters a sense of irreplaceability, often leading to efforts to repair and preserve the cherished item rather than disposing of it prematurely. The third principle, symbolic (social meaning), involves products that contribute to self-identity or facilitate social activities (Russo and Hekkert, 2007). In line with previous frameworks, furniture that fosters social interaction embodies togetherness, preserving memories of joyful occasions. The fourth principle, as outlined by Russo and Hekkert (2007), is shared moral values. They suggest that individuals develop an affinity for products aligning with their ethical beliefs, including factors like manufacturing process, materials, and brand communication. Consumers are more likely to favour furniture with transparent details on responsibly sourced, renewable materials. Russo and Hekkert (2007) identify the final principle as pleasant physical interaction, including a product's tactile properties like texture, shape, and weight. Russo and Hekkert's five principles of love align with values, experiences, or levels in other frameworks. While fluent interaction differs somewhat, it can still be linked to psycho-pleasure (Jordan, 2002) and the behavioural level (Norman, 2004).

Product Benefits Framework (Chitturi, 2009)

Chitturi (2009) defines a two-dimensional product benefits framework with hedonic and utilitarian product benefits. Utilitarian benefits are described as the functional benefits of a product, whilst the hedonic benefits could be seen as luxuries, and relate to the aesthetic and experiential benefits. Taking the example of a mobile phone, Chitturi (2009) proposes that battery life represents a utilitarian benefit, whereas the colour and form embody hedonic aspects. Chiturri (2007) found that consumers 'attach greater importance to the hedonic (versus utilitarian) dimension, but only after a 'necessary' level of functionality is satisfied.' This implies that once consumers are confident in a product's functionality, aesthetic and experiential benefits become crucial in influencing their purchase and ownership decisions. Chitturi (2007) found that 'the failure to meet a utilitarian expectation leads to negative prevention emotions of anxiety and anger, whereas the failure to meet a hedonic expectation merely leads to negative promotion emotions of sadness and disappointment'.

The two-dimensional product benefits framework (Chitturi, 2009) can be aligned to some extent with the other frameworks discussed, however it is simpler, with less detail about the specifics of each product benefit type.

Emotions in Human-Product Interactions (Desmet, 2012) (Fokkinga and Desmet, 2012, 2013)

Desmet (2012) defines 25 positive emotions in human-product interactions and six sources of these emotions, namely those evoked by the object, its meaning, the interaction, facilitated activity, ourselves, and others involved. These sources closely align with previous research. For instance, 'others involved' corresponds to socio-pleasure (Jordan, 2000) and spans the behavioural and reflective levels (Norman, 2004). In addition to positive emotions experienced, Fokkinga and Desmet (2012, 2013) also discuss how negative emotions can play a useful role in the interactions between products and their users, developing their Framework for Rich Experience.

Nuanced Emotions (Yoon et al., 2014, 2016)

Yoon et al., (2014) advocate for designers to cultivate developed emotion knowledge to enhance their design process. They argue that understanding the nuances between emotions can improve the effectiveness of evoking desired emotional responses. Furthermore, Yoon et al., (2016) elaborate on 'Positive Emotional Granularity' (PEG), emphasising the advantages of designers having a nuanced understanding of emotions for the design process.

Emotional Design and brand engagement (Franzak et al., 2014) (Bordegoni et al., 2014)

Franzak et al., (2014) explore the role of Emotional Design in enhancing brand engagement, categorising design benefits into Symbolic, Hedonic and Functional types. Franzak et al., (2014) found that 'certain design benefits matter more to brand engagement than others' and in particular 'symbolic design benefits lead to high-arousal emotions that are more intense than emotions resulting from hedonic design benefits.' Symbolic design benefits include social values, for example sense of belonging, expressive values, self-identity, and terminal values associated with freedom and altruism (Frankzak et al., 2014). This implies that, when the goal is to elicit positive emotions through products, it would be effective to carefully consider how the symbolic benefits of the products can be communicated and shaped. Likewise, Bordegoni et al., (2014) discuss how important the meaning values are in the emotional connection with a consumer, stating 'a product is successful only if the customers recognise that the product actually delivers some intangible benefits.'

Frankzak et al., (2014) suggest that hedonic values relate to the aesthetic and experiential, the way a product looks, and the experience provided. These hedonic design benefits align with the hedonic benefits described by Chitturi (2007, 2009). The symbolic values also align with the Reflective level defined by Norman (2004), whilst the Hedonic values align with the Visceral and Behavioural levels.

Pragmatic, Hedonic and Eudaimonic (Kamp et al., 2014)

Kamp et al. (2014) sought to create a 'tool for assessing the contribution of products to wellbeing' proposing three product-attribute categories, namely pragmatic, hedonic, and eudaimonic. Kamp et al. (2014) propose that products with predominantly pragmatic attributes are primarily functional and aid in task completion, eliciting minimal emotional response. Conversely, those with mainly hedonic attributes evoke strong emotions and provide a form of distraction for the consumer, while products with predominantly eudaimonic attributes contribute to meaningful goals or engaging activities. These categories align with design benefits identified by Franzak et al. (2014) and Chitturi (2007).

Framework for Positive Design (Desmet et al., 2013)

Desmet et al., (2013) consider how design can contribute to the happiness of individuals and their subjective well-being, introducing a framework for positive design with three main components of, pleasure, personal significance and virtue. Design for Pleasure aims to evoke positive affect and provide immediate enjoyment, Design for Personal Significance focuses on personal meaning and aspirations. Design for Virtue addresses sustainable practices, social good, and ethical considerations. While Design for Virtue presents challenges for designers, opportunities exist to embed sustainability, social responsibility, and behavioural nudges into products. Unlike some frameworks, Desmet et al. (2013) assert that all three components are necessary for an individual's subjective well-being and flourishing, as informed by their research.

Consumer Values (Kumar et al., 2015)

Kumar et al., (2015) discuss how 'product design can create social, altruistic, functional, emotional and economic values for the consumer' finding that in their study, emotional value had a more significant impact on brand affection than the other values. However, they note that the importance of these values may vary based on the product type, particularly between public and private use contexts. These values align with various frameworks discussed, such as social value aligning with the reflective level (Norman, 2004), the symbolic meaning (Russo and Hekkert, 2007) and symbolic design benefits (Franzak et al., 2014).

2.2.2 Literature Review Part 1 Summary

The extensive body of research discussed reveals the complex emotional connections individuals form with products and lays the groundwork for the primary research conducted in this study. This foundation shapes the consumer survey, interview structures, and the development of the Emotional Design tool itself. Despite variations in frameworks, there is a shared understanding that the consumer-product experience involves multiple facets. For an Emotional Design tool to support the design and development of products that resonate with people on a personal level, it must incorporate strategies addressing each of these facets.

While a tool could be tailored to focus on a single aspect, such as the creation of meaning in products, the tool developed in this study aims for a more comprehensive approach, presenting strategies that engage with the diverse elements of the consumer-product experience. By leveraging existing research, this study adopts an adaptive approach, using established knowledge to guide the tool's design and expand on current findings with fresh insights. The final tool and its dissemination serve a pivotal role in bringing this research and the broader literature on Emotional Design to designers and students who may be unfamiliar with this domain. Notably, frameworks like Norman's (2004) three levels have informed the survey and interview structures used, further aligning the research methodology with established theories in Emotional Design.

2.3 Part 2 – Emotional Design over Time

This part of the Literature Review explores the influential design movements of the last two centuries within the context of Emotional Design, highlighting how this has informed strategies that are integrated into the Emotional Design Deck. The integration of these themes in the tool's design and development is detailed in Chapter 6, while this review also intersects with the examination of Iconic Furniture in Chapter 4.

Whilst Emotional Design is a relatively new term, designers, and design movements have always sought to connect with consumers through their work, evoking emotions and connecting with people through the objects they create.

The design industry's grasp of the concept of Emotional Design has evolved, with Human Factors and Ergonomics initially exploring how products influence people, psychologically and physiologically. A surge in User Experience and User Interface design, especially with digital products, then shifted the focus for many Industrial Designers. They now consider user actions and responses as much as the physical object itself.

In recent times there has been increased awareness and openness about discussing mental health and well-being (Schomerus et al., 2012, Zhang and Firdaus, 2024) and this seems likely to continue. This has impacted upon Industrial Design to some extent, particularly in the digital product sphere, where designers are expected to think more deeply about the psychological effects of products and services.

Some design movements prioritised a shocking new aesthetic, while others make a people-centred approach central to their work. Each movement has influenced subsequent work and reflected the prevailing mood of its time, shaping today's design philosophies. Examining these movements offers valuable insights, as they resonate with consumers, eliciting emotions in the objects and spaces they engage with. Strategies drawn from the design movements discussed are presented on the visual map (Fig. 2.2) and integrated into the Emotional Design Deck where evidence suggests that they can be beneficial to furniture designers aiming to create products that establish meaningful connections with people. This map does not aim to present the wide impact that each movement made on design, culture, and society at the time, but instead outline some key characteristics and philosophies that can influence the tools Emotional Design strategies being developed.

Figure 2.2 Design Movement Strategies.

The Arts and Crafts movement was a reaction to industrialisation and saw a return to handcrafted objects made by individuals and not just machines. As Wilhide et al (2016) state 'the artists, architects, designers, artisans and writers of the Arts and Crafts movement … were convinced that the decline of artistic standards provoked by industrialisation was linked to a social and moral deterioration'. Whilst the Arts and Crafts movement preceded the term Emotional Design and may not have made the evocation of emotion in consumers its primary aim, the movement prioritised people, working conditions, and personal fulfilment, with principles that resonate with modern Emotional Design strategies.

The first version of this Arts and Crafts armchair (Fig. 2.3), designed by Philip Webb in the 1860s, and manufactured by Morris, Marshall, Faulkner & Co, later known as Morris & Co, embodies the movement's emphasis on handcrafted construction and natural materials. Upholstered in the 'Violet and Columbine' floral fabric, created by William Morris in 1883 using wool and mohair, the chair showcases Morris' signature style of intertwining flowers, leaves, and flowing stems in vibrant hues.

Figure 2.3 Arts and Crafts armchair, designed by Philip Webb in the 1860's.

The movement shows a respect to the connected meaning of an object, it's quality and the conditions in which it's made. This no doubt encouraged consumers at the time to think more about the things they owned, and treasure handcrafted objects. Incorporating handmade elements into mass-produced goods today could deepen emotional connections with consumers, alongside considering local production. Recent years have seen increased interest in heritage, provenance, and socially impactful products like TOMS® shoes, indicating a consumer preference for such values.

Art Nouveau embraced organic forms, drawing inspiration from nature to create stunning products, buildings and art that blurred the line between fine art and applied arts. The movement utilised machinery to craft intricate and ambitious designs, evoking emotions of fascination from the consumer. The visceral reaction to Art Nouveau designs at the time often split opinion, including the reaction to the Paris' Metro entrances, designed by Hector Guimard, with some people even describing them as 'un-french'. Wilhide et al (2016) discuss the 1900 Exposition Universelle in Paris, describing how the movement 'captured the public imagination and Art Nouveau became the first international decorative style of the modern age … the Exposition Universelle flaunted new technologies and ideas.'

Designed circa 1900 by Louis Majorelle, this Art Nouveau cabinet (Fig. 2.4), epitomises the movement's nature-inspired sculptural aesthetic, featuring sinuous curves and intricately carved stylized leaves. The cabinet also showcases marquetry, wherein various coloured wooden veneers are intricately arranged to form patterns and images, a hallmark of Art Nouveau furniture.

Figure 2.4 Arts Nouveau cabinet, designed circa 1900 by Louis Majorelle.

The enduring ability of Art Nouveau to capture the attention of the public who are fascinated with the beautiful, organic forms, is still profoundly influential today, especially within architecture, as

exemplified by Antoni Gaudi's remarkable Sagrada Família in Barcelona. Our connection with the natural world, and the influence it can have on the design of furniture has a clear link to Emotional Design and guides strategies within the new tool.

Between the two World Wars, Art Deco flourished, embodying progress and optimism with its blend of craftsmanship and mass production. Its glamorous and stylish products drew inspiration from various contemporary styles, including Constructivism, Cubism, Modernism, Bauhaus, Art Nouveau and Futurism, aiming to captivate consumers and evoke a sense of hopefulness. The movements influence extended across architecture, transportation, appliances, jewellery and graphic design before World War II brought such luxury to an end (DK, 2023).

Gilbert Rohde's chest of drawers (Fig. 2.5), designed for the Herman Miller Furniture Company circa 1934 exemplifies how some Art Deco furniture was pared-back, with simple modernist forms, departing from the organic forms of Art Nouveau. Versions of this piece contrast light and dark finishes, incorporating maple, mahogany, and black enamelling, synonymous with the Art Deco style.

Figure 2.5 Chest of drawers designed by Gilbert Rohde circa 1934.

Art Deco furniture, in contrast to that of the preceding Art Nouveau movement was generally simpler with strong, geometric forms that remain popular today. As fashion and trends recycle and reflect what has come before, Art Deco influenced furniture can appeal to consumers who are new to the style, as well as those who have experienced it before. For that reason, the strategy to revisit influential design movements like Art Deco features in the new tool.

Despite the changing design approaches and philosophies of the Bauhaus, it's legacy will be it's simple, pure, and unadorned products that still feel modern today. The Staatliches Bauhaus, a school for Art and Design was founded in 1919 by Walter Gropius, promoting the enduring philosophy of form follows function. This approach, as part of, and complementary to modernism and futurism is also visible in the work of Le Corbusier, who prioritised functionality over ornamentation in architecture and product design, embracing the idea of objects as machines for living.

Mart Stam's Cantilever Chair (Fig. 2.6), designed circa 1926-1927 was influenced by the tubular steel chairs that Marcel Breuer had previously developed at the Bauhaus, and Stam saw the opportunity that tubular products presented to design and produce affordable furniture (DK, 2023). The chair represents a pure and simple form that follows its function, free from unnecessary decoration, and which is strong and light. Furniture designed and manufactured in this style remains incredibly popular today, and new products that can be built at home by the customer simplify the delivery process and suit the shift to online shopping.

Figure 2.6 Cantilever Chair designed by Mart Stam circa 1926-1927.

The Form Follows Function philosophy of the Bauhaus contrasts with the work of the Art Deco and Art Nouveau movements, which aim to visually seduce the consumer with beautiful designs. Yet when applied with the consumer experience in mind, it prioritises the emotional response and well-being of the consumer, and therefore a key strategy within the Emotional Design Deck.

Surrealism in design, much like Critical or Speculative Design, prioritised unique pieces resembling artworks rather than consumer products. Unlike the rational aesthetics of 1920s modernism, Surrealism sought to surprise and captivate audiences by defying conventions. By altering existing products in surreal ways, designers detached the objects from their original meanings or purposes, prompting viewers to think beyond conventional structures and customs.

The MAgriTTA Chair by Roberto Matta (Fig. 2.7), designed in 1972 pays homage to his friend and fellow surrealist, René Magritte who is perhaps best known for his self-portrait 'Son of Man' in which he is wearing a bowler hat, with his face obscured almost entirely by an apple. This playful piece of

furniture consists of a fiberglass bowler hat, containing a green foam apple, angled to indicate its function as somewhere to sit.

Figure 2.7 MAgriTTA Chair, designed by Roberto Matta (1972).

Emotional Design Strategies that create a talking point, or express the artistic style of the designer, echo the fun and playful nature of Surrealism and its neighbouring design movements. This objective, to create playful, fun experiences for the consumer is captured within strategies of the Emotional Design Deck.

Streamlining, or Streamline Moderne, is a movement that grew from Art Deco which used long curving and flowing forms that wrapped around the inner components of products and vehicles. Embracing new technology, designers crafted products with a stylish aesthetic and a sense of safety, as seen in the redesigned KitchenAid mixer by Egmont Arens in 1937 (Fig. 2.8). Renamed the model K, it became incredibly popular for its softer, domestic appearance and remains iconic today.

Figure 2.8 KitchenAid mixer, designed by Egmont Arens (1937).

The Streamlining movement offered consumers visually exciting products that felt both new and familiar, bridging the gap between novelty and tradition. The visual appeal of Streamlining was new enough to be exciting, but the connection to Art Deco was still visible enough for the consumer to accept this new style. Integrating strategies inspired by Streamlining's sculptural forms, the new tool also emphasises conveying meaning through visual design.

The Organic Design movement, championed by Frank Lloyd Wright's Organic Architecture, aimed to harmonise buildings and products with nature. Products of the Organic design style often feature curves, and smooth forms, like that of Streamline Moderne, but tend to use more natural materials like wood and leather, also connecting with the consumers sense of history. The Short Chair (Fig. 2.9), designed by Marcel Breuer in 1936, uses laminated birch plywood and serves as a prime example of the organic design movement to create a simple flowing form with natural materials.

Figure 2.9 Short Chair, designed by Marcel Breuer (1936).

Whilst many products are still designed in an organic style today, it is perhaps the use of materials and a move to appear more sustainable that is the real legacy of the movement. The increased use of stone, marble, real wood and houseplants in interior design also reflects consumers' desire for a deeper connection to nature and organic materials.

From the Arts and Crafts movement, to Organic Design, and today's sustainability focus, an appeal in the human connection to nature and organic materials is evident. Reflecting this, the Emotional Design Deck features strategies considering the influence of nature and material values.

The Scandinavian style, which emerged before World War II but gained prominence in the 1950s, remains enduringly popular in design. The work of Alvar Aalto, Arne Jacobsen and Verner Panton epitomise the movement's simple and uncomplicated style. These designers emphasised affordability in their work, reducing components and embracing mass production. A prime example is Aalto's Model 60 Stacking Stool from 1933 (Fig. 2.10), featuring just three unique parts.

Figure 2.10 Model 60 Stacking Stool, designed by Alvar Aalto (1933).

Today, many industrial designers embrace the design philosophy of simplicity and affordability, epitomised by Scandinavian design. IKEA, renowned for its flat-pack furniture, continues to innovate with new materials and fixing methods, making Scandinavian-style furniture accessible to the masses. The functionalism and minimalism of Scandinavian design offer a visual appeal that feels both familiar and fresh, whether through colours, materials, or simple forms, and objects that retain design elements from their predecessors often hold meaning for consumers, evoking nostalgia or familiarity. The enduring popularity of Scandinavian style, with its simple and uncomplicated forms, led to the integration of strategies reflecting this aesthetic and philosophy into the Emotional Design Deck. These strategies focus on familiarity, a less-is-more aesthetic and timelessness.

While Scandinavian minimal products boast timeless design, they're often also associated with disposable behaviour due to their affordability. To counter this, strategies have been developed to strengthen the bond between consumers and their furniture, making disposal a tougher decision.

Despite Pop Art being a movement predominantly of the art world, the design of products was quickly influenced. The emergence of built-in-obsolesce and disposability lead designers to develop new products including paper furniture. Mirroring the youth culture of the time, products were incredibly bright, colourful, and cartoon-like in their form. Material and manufacturing innovations saw greater use of plastics which also gave designers the opportunity to create unusual, moulded shapes in bright colours. The Blow Chair designed in 1967 by Jonathan De Pas, Donato D'Urbino, and Paolo Lommazo, epitomises the Pop Art movement 'representing the youthful optimism in design, and a desire for whimsical and inexpensive pieces' (DK, 2023). Also designed in 1967, the Tongue Chair by Pierre Paulin (Fig. 2.11), is a sculptural single form in which the backrest undulates and connects with the seat.

Figure 2.11 Tongue Chair designed by Pierre Paulin (1967).

Designs from the Pop Art movement connected with their consumer, and the visual appeal and associated meaning made people think. Pop Art, influenced in part by Surrealism, likewise offers consumers fun and whimsical objects and experiences which can create emotional bonds between people and products. As discussed in reference to Surrealism, strategies that consider fun, joyful experiences for the consumer are integrated within the new tool.

Postmodernism, partly a reaction, or response to modernism, aimed to be brighter, more fun, and more experimental. Designs with simple lines and childlike colours, convey a sense of joy and playfulness. In architecture, postmodernism was a departure from Le Corbusier's Machines for Living, and buildings like the TV-am studios bore a closer resemblance to a theme park than a conventional workplace, characterised by vibrant colours, intricate patterns and references to historical architectural elements, all interspersed with whimsical oversized props. Figure 2.12 shows a pair of armchairs inside the TV-am studio building (1983).

Figure 2.12 TV-am Studio Armchairs (1983).

The Memphis Group, founded by Ettore Sottsass, was a major force in 1980s Postmodernism. They exaggerated influences from past design movements, using vibrant colours, bold patterns and unconventional forms to create innovative products. Their designs often featured plastic laminate in multiple bright colours and patterns, challenging conventional expectations. Both Postmodernism and Memphis also used visual metaphors to communicate with the consumer in a fun way, and the Flamingo Table (Fig. 2.13), part of a series by Michele de Lucchi for Memphis in 1983, exemplifies their bold geometric forms and unique colour combinations, making it a standout piece in any space.

Figure 2.13 Flamingo Table, designed by Michele de Lucchi (1983).

Memphis and Postmodernism both evoke emotional responses with their vibrant, colourful, and witty products. Alessi exemplifies contemporary Postmodern design, using character design and anthropomorphism to create emotional connections with consumers. Strategies inspired by Postmodernism, including anthropomorphism and visual metaphors, are integrated into the Emotional Design Deck.

2.3.1 Literature Review Part 2 Summary

An exploration of the influential design movements spanning the past two centuries in the context of Emotional Design has revealed distinct themes. These themes seek to unravel and expose the fundamental philosophies and methodologies that served as guiding principles for the designers of those movements. It is important to note that these themes do not aim to replicate or imitate the specific style of any single movement, as such an approach would be superficial and inauthentic, resulting in new products that merely mimic older ones. Instead, by understanding the underlying principles of these iconic movements and objects, designers can generate new, original products infused with the visionary thinking of some of the most successful designers who made their mark on the world.

Table 2.1 presents the themes that emerged from the review of influential design movements. The description of how the themes are used in the design and development of the tool is presented in Chapter 6.

Emerging Themes Emotional Design over Time *(Design Movements)*	Connected Meaning of the object, it's Quality and Manufacturing Conditions
	Handcrafted Elements
	Locally Manufactured components
	Natural Influence
	Sculptural Sinuous Lines
	Fascinating Forms
	Glamour and Optimism
	Simple, Strong, Geometric Forms
	Contrasting Materials
	Form Follows Function
	Free from Decoration
	Strong and Light Products
	Surprise and Excite the Consumers
	Fun and Playful Meanings
	Express Artistic Style
	Wrapped Flowing Forms
	Most Advanced Yet Acceptable
	Embrace New Materials and Technology
	Products and Spaces in harmony with their surroundings
	Reflecting Nature
	Curving smooth forms with natural materials
	Simple, Less is More Style
	Familiarity and Functional Minimalism
	Utilise Mass Production
	Bright, Colourful and Fun
	Whimsical, Joyful Experiences
	Cartoon-like Forms
	Vibrant Colour and Pattern
	Visual Metaphor and Anthropomorphism
	Geometric Forms

Table 2.1 Literature Review Part 2 Emerging Themes from influential design movements.

2.4 Part 3 - Emotional Design Strategies

2.4.1 Introduction

The aesthetics, experience, and meaning of a product are inexorably linked and difficult to separate. A product's appearance informs consumers about its function and use, while the chosen materials and design details convey meanings that consumers interpret (Jamaludin, Zulkapli and Abidin, 2013; Krippendorff, 1984; Petiot and Yannou, 2004; Sunstrum, 2022; Sunstrum et al. 2024). This part of the Literature Review explores individual design strategies, and existing research relating to them, to consider their inclusion within the Emotional Design tool that has been developed.

In addition to researchers developing frameworks that break down the complex experience that people have with products, existing literature that explores individual strategies that fall within the domain of Emotional Design are also of particular interest to this study and the design tool being developed. Examples include strategies relating to aesthetics, functionality and meaning of products and furniture. Prior research literature exploring aesthetics-based strategies include the use of anthropomorphism, as detailed by Disalvo et al (2003), Miesler et al (2011), and Magli (2011). This involves employing anthropomorphic forms, imitating human shapes or behaviour, to evoke emotions in consumers. Similarly, research into the application of surprise as a design strategy explores how it can influence both the functional and experiential aspects of products. Studies conducted by Rodriguez Ramirez (2014), Ludden et al (2008), and Lacey (2009) delve into surprise as a design strategy and its impact on the consumer experience with products.

A wealth of existing research from designers and marketing professionals also considers strategies which relate to the meaning level of the experience people have with products. Relevant studies explore topics such as product attachment and brand loyalty, emphasising the influence of meaning. An example of such a strategy is customisation and personalisation, enabling consumers to act as co-designers, investing time in the customisation process, which can foster the creation of meaning. Research by Franke et al. (2008) and Mugge et al. (2009) both showcase potential benefits associated with this strategy.

These example strategies, namely anthropomorphism, surprise as a design strategy, and customisation and personalisation are all discussed in the forthcoming section, alongside several others, with consideration of how they impact upon the tool being developed.

2.4.2 Visual Metaphor

Visual metaphors can be a useful tool to communicate with a consumer and can be used to not only explain functionality but also to inject a sense of fun or humour into a product. Some visual metaphors are more explicit and obvious than others.

Hekkert et al. (2015) define a product metaphor as 'any kind of product whose design intentionally references the physical properties (e.g., form, sound, movement, smell, and so on) of another entity for specific expressive purposes.' This referencing of the properties of other entities, particularly in the shape and form of the object being designed, can be very powerful in evoking emotion in the consumer. Brands like Alessi often make use of visual metaphor in their products to inject a sense of fun and character, for example Stefano Giovannoni's Magic Bunny Toothpick Holder, designed in 1998 (Fig. 2.14), that embodies the phrase 'pull a rabbit out of a hat' in the physical design of the product. The product references both the aesthetic representation of the expression, as well as the functional movement when the user lifts the bunny by its ears, revealing the wooden toothpicks hidden within the black hat.

Figure 2.14 Magic Bunny Toothpick Holder, designed by Stefano Giovannoni (1998).

Hekkert et al. (2015) distinguish between embodied metaphors, rooted in sensorimotor knowledge, and learned metaphors, based on cultural expertise. The Alessi example mentioned earlier represents a learned metaphor, leveraging the 'pull a rabbit out of a hat' expression for a deeper connection with the product. Cupchik (2003) emphasises the designer and consumer's role as creative partners, communicating through the product to interpret its metaphorical meaning.

Generating concepts with visual metaphors requires thoughtful reflection, research, or moments of inspiration. Overlooking this strategy however, would miss opportunities to connect emotionally with consumers. Hence, visual metaphor forms a strategy within the Emotional Design Deck.

2.4.3 Anthropomorphism

Employing anthropomorphism in design, like visual metaphor, allows designers to convey functionality and evoke emotional responses from consumers. Anthropomorphism, as noted by Disalvo et al (2003) 'can be found in the earliest functional product forms and behaviours.' It can be applied overtly or subtly, using terms borrowed from human anatomy, such as the pinched waistline of a perfume bottle or the shoulder line of a car. Anthropomorphic designs, such as household items resembling cute animals or car fronts mimicking facial expressions, are common. They also help form brand recognition and identity, reflecting the brand persona.

DiSalvo et al. (2003) explore how anthropomorphism can be employed in shaping both the form, and behaviour of a product to either seduce a consumer or communicate the products functionality to them. The authors detail a series of anthropomorphism social theories to explore why we anthropomorphise, including the familiarity thesis and comfort thesis (DiSalvo et al 2003). The familiarity thesis suggests that 'we anthropomorphize because it allows us to explain things we do not understand in terms that we do understand, and what we understand best is ourselves,' whilst the comfort thesis suggests that 'we anthropomorphize because we are uncomfortable with things that are not like us and 'making' things be like us reduces that discomfort' (DiSalvo et al 2003). Both theories highlight the emotional connection facilitated by anthropomorphism in products.

Anthropomorphic designs emotionally connect with people by tapping into our inherent connection to others and the significance of the human body and face. Miesler (2011) notes that 'creating anthropomorphic features is one strategy … to accomplish Emotional Designs,' recognising how anthropomorphism can evoke consumer emotion.

Human faces, particularly those exhibiting the 'baby schema' of round faces and large eyes, evoke emotional responses from consumers, and incorporating this into product design can enhance cuteness and personality (Miesler, 2011). It is crucial however to ensure that the product type is conducive to a sense of cuteness and that the appeal of this cuteness aligns with the preferences of the target market.

Magli (2011) suggests that while it's commonly believed that objects closely resembling human traits establish stronger connections with people, the reality is that objects that avoid blatant mimicry tend to forge more successful connections. Magli (2011) describes how 'a design may work more effectively when, for example, the object is simply turned towards us with the tension and torsion of its entire body. This was the case with the Brionvega television sets of the 1970's, which curved out towards the viewer.'

Anthropomorphic products often use subtle shapes to hint at human or animal features. This approach is especially effective in furniture design, where direct mimicry can lead to negative reactions. Instead,

furniture pieces like Verner Panton's Panton Chair designed in 1959 (Fig. 2.15), and Arne Jacobson's Series 7 Chair (1955) (Fig. 2.16), feature seductive flowing forms and pinched waistlines that are more human than they are machine.

Figure 2.15 Panton Chair, designed by Verner Panton in 1959.
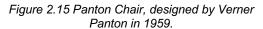
Figure 2.16 Series 7 Chair, designed by Arne Jacobson in 1955.

Anthropomorphism is a key strategy in the Emotional Design Deck for furniture, leveraging its strong emotional connection with consumers.

2.4.4 Most Advanced Yet Acceptable / Similarity and Complementarity

Creating products that are embraced and ideally cherished by consumers requires thoughtful consideration on the extent of innovation. In many industries, including smartphones, cars, and furniture, incremental updates to existing designs often prove more successful than radical departures. This trend reflects consumers' preference for familiarity and gradual change over ground-breaking innovations.

Raymond Loewy's 'Most Advanced Yet Acceptable' (MAYA) principle, introduced in the 1950s, suggests that consumer products should embody innovation while remaining within the bounds of consumer comfort.

Hekkert et al (2003) corroborated the Most Advanced Yet Acceptable principle, highlighting the need to balance 'novelty and typicality in trying to be as innovative as possible while preserving, as much as possible, the typicality of the design.' This balance is crucial for mass-market furniture, where consumers expect functional performance based on past experiences, while seeking something new for their home.

Post et al (2016) explored the principle of unity and variety in design, emphasising the importance of balancing these elements for aesthetic appreciation. They introduce 'unity-in-variety' as maximising both unity and variety to achieve optimal aesthetic appeal. Similar to MAYA, this principle underscores the need for balance, ensuring that diverse design elements harmonise to avoid visual complexity or confusion for the consumer.

Berghman and Hekkert (2017) propose a 'Unified Model of Aesthetics,' emphasising that 'aesthetic appreciation of an object – and of a designed product in particular – is a function of it displaying perceptual unity-in-variety, of it being typical, yet novel (or MAYA) and of it symbolising both social connectedness and autonomy.' This concept of typicality relates to consumer expectations and stereotypes associated with products like chairs or tables. Coates (2003) suggests that products closely aligned with these stereotypes appear logical to consumers, while those deviating from norms may feel more novel, underscoring the need for balance between typicality and novelty in design.

Van Gorp (2010) suggests that in relationships, similarity is key for initial attraction, while complementarity becomes more important over time. Van Gorp (2010) argues that this principle also applies to design, where products often blend familiarity (similarity) with distinctive features (complementarity) to enhance long-term consumer attachment.

Understanding concepts like MAYA, the interplay between Similarity and Complementarity, and balancing Typicality versus Novelty is crucial for Emotional Design. These principles shape both the initial appeal and the lasting connection between the consumer and the product. Designers naturally balance familiarity with innovation, offering options from conventional to daring. Therefore, the new Emotional Design Deck incorporates strategies to reinforce these principles.

2.4.5   Customisation & Personalisation

The products that hold the most significance for us, enduring over time, typically carry associated memories and meanings. Such connections may arise from items received as gifts, possessions acquired during memorable holidays, or heirlooms passed down through generations. Consequently, the ability to create meaning in products becomes a key strategy for establishing a more compelling and enduring connection with consumers.

While products acquired as gifts or purchased during holidays often come with attached memories and meaning, these constitute only a fraction of one's possessions. Therefore, strategies to embed meaning in new products should be considered. One such effective approach involves customisation and personalisation, allowing individuals to tailor products to their unique preferences and experiences.

Franke et al (2008) found that the ability to customise a product, increased the consumers' willingness to purchase, however the authors did recognise that the findings no doubt reflect certain product types more than others. Customisation adds significant value to products used in social contexts, enabling individuals to express their taste, values, and status. However, for items prioritising functionality and private use, like domestic goods, customisation may not notably boost consumer interest. In such cases, the added production costs may outweigh the perceived benefits in value.

Furniture serves an essential functional and aesthetic role in our homes, reflecting our style and personality, while creating spaces for relaxation and socialising. Given its significance, furniture presents a prime opportunity for customisation and personalisation, with many retailers already offering customisation options like an 'any sofa, any fabric (ASAF)' product for sofas.

Franke et al. (2008) also recognised that consumers may buy certain products to 'fit in' or follow a trend, in which case, customisation would be counter intuitive. There are however brands which thrive with both customisable and non-customisable products, including Nike, who offer the opportunity to customise certain trainers within a framework which retains their design DNA. Furniture pieces deemed iconic by consumers and collectors, for example the Wassily Chair designed by Marcel Breuer in 1926, are likely to be preferred in their original colours, however new furniture could benefit from customisation options that build meaning for the consumer and enhance the emotional connection.

Several factors contribute to an increased willingness among consumers to purchase a customised product compared to a non-customised one. The act of customising the product instils a sense of involvement in its creation and the exerted effort and time invested may help establish a preliminary form of relationship between the individual and the product, positively influencing the strength of the emotional bond with the product (Mugge et al 2009). In contrast to the passive experience of merely viewing online images of products, customisation helps foster a more engaged and participatory consumer experience. Mugge et al (2009) found that product personalisation can stimulate emotional bonding with products and that the ability to customise a product could be used specifically as a design strategy. Thus, strategies that incorporate customisation themes are included in the Emotional Design tool.

2.4.6   Surprise as a Design Strategy

Surprising consumers with unexpected features, materials and forms can forge emotional connections between people and products. While designers naturally aim to infuse excitement and surprise into new products, research has emphasised surprise as a design strategy. Designers can employ various methods to achieve surprise, such as incorporating unconventional forms and materials or introducing unexpected features and mechanisms to enhance user experience. For instance, the soft-close mechanism in cabinets pleasantly surprises users, leading to sustained satisfaction. Rodriguez

Ramirez et al (2014) describe how surprise, as part of a product experience 'can result in the owner experiencing pride of ownership towards a surprising and fascinating product and also towards the brand.'

Designers 'often make use of visual-tactual incongruity to create surprising products' where the perceived shape or texture may differ from the actual tactile experience (Ludden et al., 2008). However, this approach may not always be appropriate in furniture design, as consumers typically expect comfort and performance from such products. Nonetheless, furniture can still offer experiential surprises, such as how furniture may move once in use, or how storage functionality opens, closes, or behaves.

Ludden et al. (2008) categorise surprising products into two types: Visible Novelty (VN) and Hidden Novelty (HN). VN products appear unfamiliar to consumers, lacking any basis in their previous experiences, whereas HN products appear familiar but possess unexpected tactile properties.

Ludden et al. (2008) propose six strategies for inducing surprise in products, emphasising the combination of familiarity with novelty. This fusion aligns with design principles such as Loewy's Most Advanced Yet Acceptable (MAYA), Unity and Variety (Hekkert et al., 2016), Similarity and Complementarity (Van Gorp, 2010), and Typicality and Novelty (Hekkert et al., 2003). These findings underscore the importance of balance in surprise-inducing design to resonate with consumers and avoid rejection. However, there are instances where surprise may not be suitable and 'touching something different from the expected may make the experience less pleasant' (Ludden et al, 2012).

Rodriguez Ramirez et al. (2014) presented a comprehensive set of strategies to help designers evoke surprise in their products. These strategies prompt designers to either depart from the familiar design of an object or employ a familiar element in a novel context.

Ludden et al. (2012) discovered that surprise can occur repeatedly with the same product, even during subsequent encounters. Participants expressed disbelief at feeling surprised again, but it was also noted that the intensity of surprise diminishes over time (Ludden et al, 2012).

Lacey (2009) investigated surprise as a design strategy in ceramics, exploring how shape, colour, texture and form can evoke emotions. Through consumer research, Lacey designed three cup and saucer sets, two of which incorporated performance-like qualities to surprise consumers. These sets utilised shape design to facilitate interaction between the cup and saucer, engaging consumers in unexpected ways.

The work by Lacey et al (2009) compliments that of Ludden et al (2008, 2012) and Rodriguez Ramirez et al (2014), demonstrating how surprise can be an effective element in connecting with the consumer.

Whether through visual-tactual incongruities or interactive experiences, the use of surprise as a design strategy can evoke emotions in the consumer.

2.4.7 Slow Design

Slow design, aligned with the broader Slow Movement, aims to decelerate the pace of life, fostering well-being for individuals, society, and the environment. Slow design emphasises thoughtful consideration of the user-product interaction, particularly regarding the pace of product use and its impact on user emotions, which is crucial in Emotional Design. As an example, brewing loose leaf tea in a teapot offers a different experience compared to the speed and efficiency of using an instant-boil hot water tap and a teabag. While one prioritises speed and convenience, the other involves a ritualistic process with specific artifacts. The slower, more relaxed process of using a teapot extends beyond the kitchen, embodying cultural tradition and shared history in tea preparation.

Research by Grosse-Hering et al. (2013) explored the application of Slow Design in industrial design, aiming to promote mindful product use, deepen attachment, and reduce waste. Their findings suggest that industrial designers can effectively apply Slow Design principles to mass-produced products, potentially enhancing product attachment. It was noted however that 'once slow becomes irritating the product attachment decreases as will the frequency of the product usage' having a counterproductive effect (Grosse-Hering et al., 2013). Products geared towards swift and convenient experiences may not align with slow design principles due to inherent mismatches in consumer expectations. Activities such as reading, writing, crafting and socialising associated with furniture offer better opportunities for embracing slowed-down experiences.

Grosse-Hering et al (2013) highlight that Slow Design principles act as catalysts rather than specific methods, prompting designers to think differently and create products with surprising interactions. This suggests a synergy between slow design and surprise as a design strategy. Their convergence has the potential to enhance user emotion and interaction, potentially leading to products that forge deeper connections with consumers.

Taking into account the experience that a piece of furniture delivers during its design is paramount, considering not only functional utility but also its aesthetics and associated meaning. Contemplating the pace at which a product is used becomes a part of this design process, and therefore slow design is included within the Emotional Design Deck.

2.4.8 Nudge

Nudge Design, stemming from Nudge Theory introduced by Thaler et al (2008), guides individuals towards specific choices without forcing actions. It often involves revealing previously hidden information to aid decision-making for better well-being. For instance, Apple's iOS 'screentime' feature

displays users' device and app usage, empowering them to assess time spent on activities like gaming or social media and make informed decisions for healthier usage patterns. Likewise the widespread use of Smart Meters to monitor home energy consumption responds to consumer demand for data-driven decision-making tools. Acting as a nudge, they encourage behavioural changes that can lower energy costs and promote sustainable usage.

Nudge design often focuses on electronic products capable of displaying information or controlling features. However, there are also successful low-tech applications, such as placing images of flies in urinal bowls to reduce spillage in public toilets. Dorrestijn et al. (2013) investigated products like The HygieneGuard, prompting children to wash their hands after using the toilet.

While nudge design may not suit all products, it's logical for those dependent on resources like fuel or water to integrate it to minimise wastage. Additionally, it's prudent to consider nudge design for products prone to misuse, leading to pain, danger, or accidents, such as ergonomic issues from prolonged smartphone or laptop use, fatigue from extended driving, and safety concerns in DIY activities.

Though technology in furniture may initially captivate consumers, it often compromises long-term sustainability due to obsolescence or unsupported software and hardware. Nonetheless, there are opportunities for furniture design to incorporate nudges to encourage social interaction, improve posture, or foster moments of reflection. The new tool being developed therefore proposes considering Nudge Design alongside Slow and Surprise as a Design Strategy, recognising that consumer experience profoundly impacts emotions.

2.4.9 Critical Design

Nudge, Critical and Speculative Design all aim to promote consumer awareness and potentially inspire behaviour change. Coined by Dunne & Raby in the mid-nineties, critical design poses questions, fosters contemplation, and challenges the status quo. Unlike Emotional Design geared towards commercialisation, critical design prioritises evoking emotions from its audience. Also known as Conceptual Design, Franzato (2011) highlights its central goal as communication of ideas over any other purpose.

Franzato (2011) highlights how critical design objects and exhibitions often appear simple but conceal ingenious inventions or witty semantic tricks, arousing observer interest and emotions. For instance, Dunne & Raby's Risk Watch (2007-2008), despite its conventional appearance, incorporates an earpiece instead of a traditional face, delivering reports on potential dangers in the user's country. This discreet delivery serves as commentary on security, privacy, and fear issues. Dunne et al (2013) emphasise that critical design, though often dealing with dark themes, aims to provoke thought on

cultural and social issues, utilising negative emotions as a powerful tool. They argue that while other cultural areas recognise human complexity, design often overlooks it.

Critical design, while not directly applicable to commercial industrial design, provides designers with a unique perspective to explore consumer emotions. It can evoke emotions like surprise or disgust, each serving specific purposes. Other research discussed, emphasises the importance of rich product experiences in fostering deeper consumer-product connections and that life itself is a nuanced blend of positive and negative experiences. While the new tool includes strategies like nudge and slow design to shape consumer behaviour, critical design, which pushes boundaries further, isn't included. This is because the tool focuses on creating furniture that forges enduring emotional connections between products and consumers, a goal not central to critical design.

2.4.10 Wabi-sabi

The Japanese philosophy Wabi-sabi celebrates the beauty of imperfections, impermanence, and the incomplete nature of objects, rooted in simplicity and authenticity. Juniper (2003) discusses how the philosophy of wabi-sabi and its principles are 'diametrically opposed to those of the western counterparts, whose values are rooted in a Hellenic worldview that values permanence, grandeur, symmetry, and perfection.' Despite differences, consumers form lasting connections with possessions, even damaged ones. Kintsugi, an art form, embodies wabi-sabi by repairing broken ceramics with a lacquer mixed with gold, silver, or platinum, turning breakage into beauty. Consumers often repair, reupholster, or modify furniture, valuing its history and narrative beyond mere functionality, often tied to shared experiences or inherited items.

Hamilton (2021) explores how wabi-sabi's value of imperfection can be seen as a craft quality, embracing the honesty of objects as they are, rather than how they ought to be. This principle aligns with the concept of honesty to materials, and is incorporated into the new tool as part of a broader strategy influenced by the philosophy of wabi-sabi.

2.4.11 Recycled Materials

Recycling, a practice with a long history, is now prevalent worldwide despite global disparities in recycling rates. In the 21st century, there's a heightened emphasis on recycling and sustainability, shaping consumer values and expectations regarding materials. Products made from 100% recycled materials often serve as distinctive selling points and increased consumer awareness of environmental impacts influences purchasing decisions (Kanchanapibul et al., 2014). The United Nations' Sustainable Development Goals (SDGs) (United Nations, 2015) guide global sustainable development efforts, providing a framework for businesses, including those in manufacturing.

Despite the widespread integration of recycled materials in various products, the furniture industry remains behind, with many manufacturers still relying on new raw materials. As of 2024, IKEA, for instance, states that approximately 17% of the materials in their products are recycled, expressing a commitment to increasing this percentage (IKEA, 2024). However, many furniture manufacturers do not disclose their use of recycled materials, and challenges include limited recycling capabilities for some materials and the associated costs. Du Bois et al (2021) discuss the underutilisation of recycled plastics in furniture due to unfamiliarity and lack of material identity. Nonetheless, there are examples of recycled plastics in furniture, such as the ecoBirdy Richard armchair (2021) (Fig. 2.17), and the On & On chair by Barber Osgerby (2019) (Fig. 2.18), both marketed not only for their stylish and uncomplicated design aesthetic, but also for their eco-friendly attributes. However, the relatively high retail prices of these products may place them beyond the reach of many consumers. With advancements in materials and manufacturing, the use of recycled materials in furniture is expected to increase in the future.

Figure 2.17 ecoBirdy Richard armchair (2021)   *Figure 2.18 On & On chair by Barber Osgerby (2019)*

Designers hold the power to convey meaning and values through product design and material selection. The distinctive speckled appearance of ecoBirdy's ecothylene® products mirrors the visual language of Circular&Co's reusable coffee cups (2018) (Fig. 2.19), made from recycled single-use paper cups. Both manufacturers deliberately preserve the patterns and textures developed during material manufacturing, demonstrating their commitment to sustainability. This mode of communication extends beyond purchase, as consumers carrying these eco-friendly items become inadvertent brand ambassadors, signalling their appreciation for recycled materials and a sustainable lifestyle.

Figure 2.19 Circular&Co's reusable coffee cups (2018)

Not all consumers appreciate the benefits of using recycled materials, as some may doubt their performance compared to non-recycled counterparts. This perception varies by product type; for example, Meng et al (2021) found that consumers preferred bags made from recycled plastic bottles over clothing made from the same material. Concerns about potential contamination and prolonged skin contact significantly influenced consumer preferences.

While wood is renewable, initiatives are emerging to improve sustainability in furniture manufacturing. Pringle et al (2018) discuss a method to upcycle furniture wood waste into 3D printable parts, showcasing innovation in end-of-life furniture utilisation. Goldfinger, a London-based company who design and produce wooden furniture introduced 'Treecycled timber' in their products, utilising wood from trees felled in the city due to weather, development, or disease (Goldfinger, 2024). They engrave map coordinates on the furniture, indicating where the tree was felled, adding meaning and narrative value for consumers.

Incorporating recycled materials into new product development presents challenges like availability and cost, but offers potential benefits. Recycled and recyclable materials can serve as a distinctive selling point for products, especially for consumers valuing sustainability. Distinctive textures and patterns also provide aesthetic opportunities for furniture designers, and can convey meaning. Design strategies promoting the use of recycled materials are integrated into the new Emotional Design Deck.

2.4.12 Social Context and Gifts

Belk (1988) stated that 'It seems an inescapable fact of modern life that we learn, define, and remind ourselves of who we are by our possessions'. Our cherished possessions often hold connections to family, friends, and events, enriching their meaning. These items help us maintain a sense of the past, vital for defining and preserving our identity (Mugge et al., 2005). The things we own can be said to

provide 'a sense of past, and tell us who we are, where we have come from, and perhaps where we are going' (Belk, 1988).

Design strategies aimed at fostering these connections may offer opportunities for designers to create new furniture pieces that facilitate the development of emotional attachments among consumers.

Kleine et al (1995) discuss how possessions help narrate one's life and that 'one kind of strong attachment reflects a person's desirable connections with others'. Furniture plays a central role in fostering social connections, whether around a dining table for a family meal, on a sofa chatting with friends, or perched on a stool in the kitchen while someone cooks. These repeated activities can support the accumulation of memories associated with pieces of furniture, building meaning and attachment. Mugge et al. (2005) suggest design strategies that stimulate social contact, encourage associations with others, and develop product-related memories to enhance consumer-product attachment. The overarching theme of togetherness can influence purchase decisions, particularly in the realm of home furniture, and creating spaces that facilitate shared experiences becomes especially relevant today, where technology disrupts our opportunities for quality time spent together. This emphasis on togetherness has also influenced trends in office furniture design, moving towards collaborative workspaces. Promoting the consideration of furniture as a social platform and a tool for togetherness is included within the new tool because of its power to support the accumulation of memories, linked to people, places and events. In addition to this, an item of furniture has the potential to metaphorically encapsulate memories of social use, potentially manifested through physical indicators, as previously discussed in connection with the concept of wabi-sabi.

Gift-giving and the inheritance of furniture can carry significant meaning within social contexts, with people often retaining items that may not be entirely to their taste, because of their inherent connection to someone else. Schifferstein et al (2008) suggest that creating products suitable for gift-giving can enhance consumer-product attachment by increasing associated memories. However, gifts must align with the recipient's identity to form a strong attachment (Kleine et al., 1995). Our possessions, like those that are inherited can 'carry relationships from the past into the present life story' (Kleine et al, 1995) for example, a dressing table passed down through generations maintains a powerful link and enduring attachment. Designers should consider how a piece's lifespan impacts its design, repairability, customisation, and potential modifications by future generations. Strategies related to gift-giving and inheritance are integrated into the new tool, alongside other social context considerations.

Furniture often holds significance through ties to specific places, professions, or pastimes, reflecting professional fulfilment, ambition, or personal expression. The circumstances of purchase and location can impact our feelings toward furniture and strengthen the attachment between consumer and product. According to Kleine et al (1995), product attachments can link to significant events, accomplishments, or expressions of self-esteem. For example, a home-office desk may symbolise

professional achievement, and owning certain furniture pieces can be aspirational. These considerations of significance tied to place, profession, and pastime are integrated into strategies within the new tool.

2.4.13   Corporate Social Responsibility

A company's conduct, including its business model, ethical stance, and sustainability practices, can significantly influence consumer perceptions and purchase decisions. While many consumers may not be familiar with Corporate Social Responsibility (CSR), they are often aware of related factors through news and social media. There is a growing interest in ethical consumption, with consumers demanding high levels of CSR from companies (이은정 & 남지형, 2021; Jamaliah Mohd et al., 2015). According to Thompson (2018), people increasingly seek products and services from companies with ethical operations and positive impacts on the world. Millennials, in particular, show sensitivity to CSR activities, with Generation Y consumers exhibiting higher awareness compared to other generations (Luger et al., 2022).

Companies vary in how they present their Corporate Social Responsibility (CSR) credentials, with some making it a central selling point, and others outlining initiatives on their website but not emphasising it in brand messaging.

Shoe manufacturer, TOMS® exemplifies integrating CSR values into its brand narrative. Known for its 'One for One' model, TOMS® now supports grassroots organisations focusing on clean water access, mental health, and safe birthing practices. Despite criticism, supporters find this commitment compelling, willing to pay a slightly higher price. The enduring emotional impact of the 'One for One' promise is felt each time the wearer uses the shoes (Fig 2.20), with branding serving as a reminder of their positive impact. Few furniture companies fully embrace CSR values in their brand narrative, suggesting designers could consider both manufacturing and sales approaches.

Figure 2.20 TOMS® Espadrilles (2006)

The manufacturing conditions of products are often hidden from consumers, with many produced far from their final destination. Occasionally, companies face scrutiny for poor working conditions in their factories, leading to damage to their brand and consumer loyalty. Negative reputations are hard to shake off, impacting consumer perception long-term. Interest in locally made products and the 'Made in Britain' mark reflects consumer demand for improvement. While designers may not control factory conditions directly, they can influence production location and methods.

A company's CSR profile is shaped by various factors, including community engagement, ethical workforce policies, and philanthropy. While some are beyond designers' direct influence, others are significantly impacted by them. Designers should prioritise environmental sustainability, aiming to reduce waste and use responsibly sourced materials. Papanek (2019) is renowned for his notable statement, 'There are professions more harmful than industrial design, but only a few,' which underscores the significant influence designers wield in shaping landscapes either burdened with pollution or distinguished by responsible practices.

To foster an emotional bond with consumers, designers must factor in the product's manufacturing narrative, materials and the company's CSR profile. Effectively conveying these elements through the physical design, packaging and marketing materials of the product establishes a communication channel between the designer and the consumer, effectively showcasing the values held by the designer to the consumer. The new tool incorporates strategies to encourage designers to consider these aspects.

2.4.14 Literature Review Part 3 Summary

The strategies explored within this chapter are not exhaustive but represent the key themes frequently discussed in the existing Emotional Design literature. These strategies consider how the way a product looks, the way it is used, and its associated meanings can impact on the way a consumer feels about the product, and their attachment and love towards it.

Table 2.2 presents the strategies that emerged from the review of existing Emotional Design literature. These strategies are embedded within the Emotional Design Deck and a description of how the strategies are developed and integrated in the design and development of the tool is presented in Chapter 6.

Emerging Strategies	
	Visual Metaphor
	Anthropomorphism
	Most Advanced Yet Acceptable (MAYA) / Similarity and Complementarity
	Customisation & Personalisation
	Surprise as a Design Strategy
	Slow Design
	Nudge
	Critical Design
	Wabi Sabi
	Recycled Materials (Material Values)
	Social Context & Gifts
	Social Corporate Responsibility

Table 2.2 Literature Review Part 3 Emotional Design strategies.

2.5 Part 4 – Existing Emotional Design Tools

2.5.1   Introduction

There are a wide range of existing tools available to designers in different formats, such as frameworks, diagrams, acronyms, card sets, digital booklets and online databases. These tools help structure thinking, deepen understanding of emotions and explore strategies for evoking emotions in design work. Additionally, there are tools for reporting and measuring consumer emotions either through self-report or physiological monitoring. The following section prioritises exploration of the education and inspiration tools, touching only briefly on tools which allow for the reporting and monitoring of emotions, as this study does not aim to produce a tool of this type. More in-depth analysis of existing tools to measure and report emotions can be found in the appendices.

Chapter 5 (page 157-158) includes information about design tools with broader applications, beyond Emotional Design, examining the awareness and utilisation of these tools among design professionals.

2.5.2   Education & Inspiration Tools

A variety of tools are available to designers and design students specifically tailored to evoke emotional responses from consumers. These tools serve to inspire and educate designers about emotions and strategies for Emotional Design. They come in various formats, from online databases to downloadable card sets, and are particularly useful in the early stages of the design process. They can also be utilised following consumer feedback to refine products' emotional impact. The content in these tools is largely applicable and relevant for use by furniture designers.

The majority of education and inspiration tools discussed are freely accessible online, typically presented in an easily understandable language and style. The subsequent section will outline these tools and their respective advantages and disadvantages.

2.5.3   Understanding Emotions

Firstly, there are a set of tools that aim to inform designers and design students about different emotions that consumers may experience in human-product interactions. These tools include the Emotion Rainbow (Desmet, 2012), the Negative Emotion Typology including the Rich Experience quality cards (Fokkinga, 2019), Positive Emotional Granularity Cards (Yoon et al., 2015), the EmotionPrism (Yoon et al., 2017) Product Emotion Inspiration Booklet (Desmet, 2018) and Twenty moods: A holistic typology of human mood states (Desmet et al., 2020).

The Emotion Rainbow (Desmet, 2012) is an online database featuring a spider diagram, facilitating exploration of nine positive emotions in human-product interactions and their nuances. Free for non-commercial use, it aids designers in grasping relevant positive emotions, serving as a valuable

resource for designers aiming to create products that evoke specific positive emotional responses. However, while the Emotion Rainbow provides examples of how these emotions manifest in existing human-product interactions, it offers limited information and lacks detailed design strategies to enhance specific emotional responses.

Contrasting with the focus on positive emotions in The Emotion Rainbow (Desmet, 2012), the Negative Emotion Typology, including the Rich Experience quality cards (Fokkinga, 2019) , offers an in-depth exploration of thirty-six negative emotions, accompanied by visual aids like images, video clips, and comic strips. It also introduces twenty-four 'rich experience qualities' that can complement negative emotions, showing how they can lead to positive outcomes. However, it primarily focuses on interpersonal experiences rather than human-product interactions, which may limit its direct applicability for designers seeking to evoke emotions through products.

As of 2024, the Emotion Rainbow (Desmet, 2012) and the Negative Emotion Typology (Fokkinga, 2019) have been replaced by a combined Emotion Typology website (Fokkinga and Desmet, 2022), providing similar functionalities discussed in reference to the Negative Emotion Typology (Fokkinga, 2015).

The Positive Emotional Granularity Cards (Yoon et al., 2015) are a downloadable card set available free for non-commercial use. They detail twenty-five positive emotions through definitions and illustrations, aiding designers in understanding various emotions, with the potential to select desired emotions that they aim to evoke through their work. However, as with the tool previously discussed, the examples provided on the cards mostly focus on experiences rather than product interactions, making it challenging for designers to translate their understanding of emotions into product characteristics.

The EmotionPrism (Yoon et al., 2017) is an online tool 'for designers to gain a better understanding of specific positive emotions and related expressive interaction qualities.'. It features twenty five video clips depicting human-object interactions to illustrate various emotions, along with written descriptions. Compared with the tools already discussed that aim to develop a designer's knowledge of emotions, The EmotionPrism is more abstract, and perhaps less accessible to designers. Moreover, as of 2024, the video clips on the website are no longer functional.

The Product Emotion Inspiration Booklet (Desmet, 2018) offers over seven hundred emotional experience examples collected by design students, each accompanied by a photograph. While its simple design makes it accessible, its basic anecdotal data limits its application. Designers and students could however use the booklet as a starting point, or to enhance their understanding of specific emotions before starting a design project.

Twenty moods: A holistic typology of human mood states (Desmet et al., 2020) is a free downloadable booklet for non-commercial use focusing on mood states, unlike other tools that concentrate on emotions. It describes twenty mood states with examples, photographs, and illustrations, making it accessible to designers and students aiming to develop an understanding of mood states. While emotions are more focused and transient, moods are broader and longer-lasting. Thus, designers may find it challenging to directly apply knowledge of mood states to products intended to evoke specific emotions. Nonetheless, understanding how emotions intersect with and contribute to moods can still inform design decisions.

In addition to the tools discussed above, two other tools that are no longer available sit within this category, namely The [product and emotion] Navigator database (Desmet 2003) and RealPeople DVD (Porter et al., 2005). These tools provided information about emotions in human-product interactions and consumer attitudes toward products.

2.5.4 Design for Emotion

In addition to the tools aimed at educating, informing, and inspiring designers and students about emotions and moods, there is a range of tools that provide specific design strategies to enhance the effectiveness of designs in evoking particular emotions, including the Slow Design Book of Inspiration (Grosse-Hering et al., 2013), the Design for Happiness Deck (Delft Institute of Positive Design, Pohlmeyer et al., 2017) and the Emotional Durability Design Nine (Haines-Gadd et al, 2018).

The Slow Design Book of Inspiration (Grosse-Hering et al., 2013) is a free for non-commercial use downloadable booklet introducing slow design concepts, and suggesting strategies for creating emotionally evocative products. Its accessible language and style make it inspiring for both designers and students, offering practical examples. However, due to its limited information, designers may find it challenging to apply slow design strategies directly to their work. Nonetheless, understanding how slow design principles can be utilised remains beneficial for designers aiming to evoke specific emotions in their products.

The Design for Happiness Deck (Delft Institute of Positive Design, Pohlmeyer et al., 2017) is a downloadable card set, free for non-commercial use, focusing on happiness, describing three key elements of pleasure, personal significance, and virtue. The authors propose that by exploring these elements, designers can develop products that enhance consumer well-being. Featuring an illustrated style and simple language, the card set is accessible to designers and students seeking to understand happiness. However, its limited information and few examples of human-product interactions may pose challenges for translating this knowledge into tangible product characteristics. Nonetheless, recognising the various aspects influencing happiness can be highly beneficial for designers.

The Emotional Durability Design Nine (Haines-Gadd et al., 2018) is presented in the format of a card set comprising nine theme cards and thirty-eight connected strategy cards, offering designers insights into incorporating emotional durability into their product designs. Haines-Gadd et al discuss how 'like a periodic table, the framework is full of powerful individual elements that can be used as sources for inspiration but also explored as compounds in varied combinations.' Haines-Gadd et al also describe how the framework can be used in sequence but how it is also rhizomatic with multiple, non-hierarchical entry and exit points. The practice-based methodology used to create the tool, including a literature review, designer interviews and clustering of concepts, mean that the tool successfully embeds Emotional Design strategies identified in previous work, and these strategies are presented in a clear accessible way to designers. However, the tool is not accessible to designers outside of the journal article, and it does not focus specifically on furniture design. As the strategy cards have limited information, designers may also find it difficult to practically apply the strategies to their work, suggesting there is an opportunity for a tool that has greater depth in terms of practical application.

2.5.5   Education & Inspiration Tools Summary

Various tools are available to enhance designers' understanding of emotions, mood states and design strategies for new products. Although each tool has its limitations, they offer opportunities for designers and students to access valuable resources for Emotional Design. By utilising tools like the Negative Emotion Typology with Rich Experience quality cards (Fokkinga, 2019) and the Positive Emotional Granularity Cards (Yoon, et al., 2015), furniture designers can gain insight into nuanced emotions and incorporate them into product development. These tools can guide designers in selecting specific emotions to evoke in consumers. Additionally, inspiration tools such as the Slow Design Book of Inspiration (Grosse-Hering et al., 2013) and the Emotional Durability Design Nine (Haines-Gadd et al., 2018) offer practical advice on Emotional Design strategies. However, these tools may lack depth, and the most comprehensive tool, the Emotional Durability Design Nine (Haines-Gadd, et al., 2018), is not readily accessible beyond the journal article.

None of the discussed tools specifically target furniture design strategies, highlighting a gap for the new tool being developed in this research study.

The analysis of existing tools has revealed their strengths and weaknesses, informing the development of the Emotional Design Deck. These insights guided the creation of a brief and specifications for the tool. Additional points identified through a survey of design professionals are discussed in Chapter 5.

2.5.6   Tools to Report, Recognise and Measure Emotions

In addition to the tools discussed above, each aiming to educate or inspire designers, there is a wide range of tools which can be used to report, recognise and measure emotions which may be useful in

an Emotional Design application. These tools can be categorised into two categories; those in which consumers self-report their emotions, and those which utilise hardware or software to monitor physiological changes of the consumer to identify emotions.

Self-Report Assessment Tools

There are a wide range of existing tools that allow consumers to self-report the emotional response that they are experiencing. Typically, these tools come in the form of computer programs, such as the Product Emotion Measuring Instrument (PrEmo) by Desmet (2019), where consumers can choose an emotion and its intensity. Alternatively, simpler options exist, like the Geneva Emotion Wheel (Scherer, 2005) taking the form of a basic printed template for consumers to manually record their emotional experiences using a pen or pencil. The accessibility of self-report assessment tools is generally high, enabling consumers to use them with minimal instruction.

Physiological Assessment Tools

Physiological assessment tools aim to and measure emotional responses by monitoring physiological changes, including facial expressions and speech. These tools typically necessitate both hardware and software components to monitor and report a consumer's emotional response to various experiences, including interactions with products. The level of monitoring varies across tools, with examples such as Visage Technologies Face Tracking (Visage Technologies, 2024) utilising a computer's integrated webcam to monitor facial expressions, and the Emotiv Epoc (Emotiv, 2024) requiring a headset that uses EEG to analyse brain activity and emotions.

2.5.7   Summary of most Appropriate Tools

Using either Self-Report or Physiological Assessment Tools with consumers when evaluating new or existing products presents both advantages and disadvantages. Several self-report tools are freely available for non-commercial use, making them accessible to designers who are familiar with them and able to incorporate them into their work. In contrast, most physiological tools require costly subscriptions and additional hardware and software, limiting their accessibility.

Furthermore, the manner in which each tool is utilised affects the consumer experience. Self-report tools involve consumers actively reporting their emotions, whereas physiological tools rely on technology to recognise and interpret physiological changes, placing consumers in a passive role. Both types of tools alter the typical consumer-product interaction, potentially impacting the authenticity of the experience, particularly when consumers wear monitoring equipment like portable EEG headsets.

Both tool types rely on interpretation, either by consumers who may lack a nuanced understanding of emotions, or by technology. In addition to this, research shows that the use of facial expression alone

to report and measure emotion lacks accuracy. Martinez (2020) notes that 'everyone makes different facial expressions based on context and cultural background' and that understanding a person's emotional state, or intent goes beyond facial expression.

While both tool types may serve a purpose in the design process, they each have limitations. They primarily aim to report emotions rather than suggesting strategies to modify them.

Table 2.3 provides information about one self-report and one physiological assessment tool currently available.

	Self-Report Assessment Tool	Physiological Assessment Tool
Tool Name	The Product Emotion Measuring Instrument (PrEmo) (Desmet, 2019)	iMotions Software (iMotions 2024)
Description	'emotion measurement tool that gives insights into people's nuanced feelings towards' (PrEmo, 2024)	'iMotions is your answer when looking to capture the full human experience.' (iMotions 2024)
Accessibility	Free of charge for non-commercial use. An intuitive interface with stylish illustrations.	Costly equipment and training required.
How it works	Online survey tool and card set with an intuitive interface allowing consumers to self-report the nuanced emotions that they are experiencing	Utilises biometric sensors; Eye Tracking, Electrodermal Activity, Galvanic Skin Response, Electroencephalography, Electromyography, and Electrocardiography hardware and associated software.
Advantages	- Simple for consumer and researcher to use. - Comprehensive - Developed from Emotional Design research.	Does not rely on consumer knowledge and interpretation of emotions.
Disadvantages	Relies on consumer knowledge and interpretation of emotions.	Impacts upon natural consumer experience.

Table 2.3 Examples of self-report and physiological assessment tools for measuring emotion.

As mentioned previously, this chapter touches only briefly on tools which allow for the reporting and monitoring of emotions, as this study does not aim to produce a tool of this type. More in-depth analysis of existing tools to measure and report emotions can be found in the appendix 1.

2.5.8   Literature Review Part 4 Summary

Exploring and analysing the existing tools tailored for designers considering emotions in their work, alongside broader tools aimed at identifying and reporting consumer emotions, has offered valuable insights for the development of the tool in this study. Existing education and inspiration tools, offer valuable resources for understanding emotions, mood states, and some design strategies. Despite their limitations, these tools provide designers and students with insights into nuanced emotions and practical advice on Emotional Design strategies. However, it was evident that none of the discussed tools specifically targeted furniture design strategies, revealing a gap that the new tool being developed in this research study seeks to address. Furthermore, tools for recognising, reporting and measuring emotions, both through self-report and physiological monitoring provide another potential tool for designers, albeit limited, not including strategies for application. These insights contribute towards the creation of the brief and specification for the tool, ensuring it addresses the identified gaps and applies the best practice highlighted through the analysis of existing tools. The key insight developed, that is appropriate to the development of the tool is highlighted in Table 2.4.

Analysis of Existing Tools	
Topic	**Detail**
Awareness & Discovery **Publication**	• The tool should be easily accessible to designers and design students outside of academia. • Consider the tool being 'free for non-commercial use' alongside a paid version for commercial use. • The format of the tool should consider, and avoid potential obsolescence of digital platforms.
Accessibility	• Ensure the tool is accessible in language and style. • Users of the tool should not require any existing knowledge of other specialisms e.g., psychology or data analysis. • The tool should avoid the use of specialist hardware or software outside that typically used by designers and design students.
Use & Structure	• Ensure the tool is intuitive and easy-to-use without having to read extensive instructions, considering familiarity, or expected conventions. • The tool should have a flexibility in terms of use, allowing designers to apply it in their own way.
Content	• Ensure strategies can be clearly applied to the design process and more than just information. • Relevant product-based examples of how strategies can be applied should be included. • Ensure the focus is on furniture.
Design	• The tool should be visually appealing, using colour, graphic design, typography, images and/or icons to communicate strategies. • Maximise the use of images and icons to aid communication.

Table 2.4 Insights drawn from the analysis of existing tools to support the formation of the specification for the tool being developed.

3 Methodology

3.1 Introduction

This chapter presents the research methodology employed, detailing data collection methods and analysis techniques. It examines the ethical considerations, rigour and validity of the research, along with the design, development, testing, and refinement of the tool.

3.2 Schematic Research Framework

The research study follows three key phases as outlined in the Schematic Research Framework (Fig. 3.1). Phase 1 addresses Research Objectives one, two and three, utilising surveys, semi-structured interviews, trend data and literature reviews to establish key insight for Phase 2 and 3 of the research study. Phase 2 synthesises the findings of Phase 1 to develop a detailed design brief and specification for the tool. Phase 3 focuses on building and testing the design tool utilising creative workshops, a conference presentation and a stage of refinements to deliver the final version of the Emotional Design Tool.
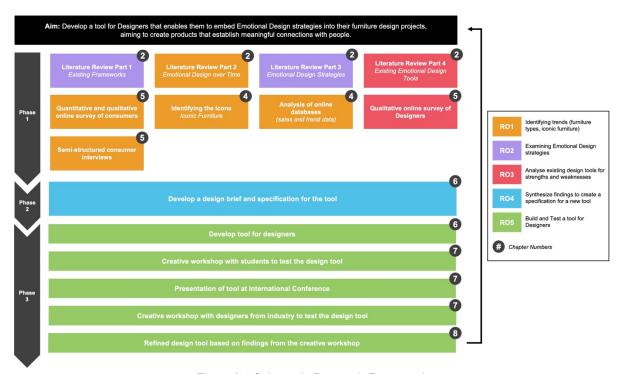
Figure 3.1 Schematic Research Framework.

3.3 Structure of Thesis

Chapter 1. Introduction

Chapter One introduces the context of Emotional Design and explains how this research contributes new knowledge to the field. It presents the Research Aim, Question and Objectives to establish the research framework.

Chapter 2. Literature Review

Chapter Two consists of a four-part thematic literature review, each part supporting a research objective by examining and reflecting on existing Emotional Design frameworks, strategies and tools to inform the development of the new tool.

Chapter 3. Methodology

Chapter Three outlines the research methodology, including data collection and analysis methods such as surveys, interviews and workshops. It discusses the ethics, rigour and validity of the research, as well as the testing and refinement of the tool.

Chapter 4. Identifying Iconic Furniture & Trend Data

Chapter 4 explores two sources of research, including an examination of iconic furniture and an analysis of trend reports focusing on furniture design. A methodology was developed to identify iconic furniture, resulting in a poster showcasing 27 key pieces. Additionally, ten key themes from design trend reports are analysed, emphasising their relevance to the study and the tool being developed.

Chapter 5. Consumer and Designer Research

Chapter 5 presents research findings from consumers and design professionals, discussing thematic analysis and strategy groups. It includes theme mapping and anecdotes about beloved furniture. The chapter explores data informing the new tool's strategies, with insights from design professionals shaping its development, setting the stage for the creation of the Emotional Design Deck in the following chapter.

Chapter 6. Designing the Tool & Discussion

Chapter 6 details the design process of the Emotional Design Deck, from consolidating research findings to crafting the overarching structure and detailed card designs. It explores strategy refinement and application, as well as considerations for gameplay concepts and usage scenarios. The chapter showcases the design and development of the cards, including layout, typeface and imagery implementation.

Chapter 7. Testing and Refinements

Chapter 7 examines the three essential phases of testing the Emotional Design Deck, including feedback from design students and professionals. It explains how these experiences shape key refinements to the tool, also incorporating insights from conference delegates.

Chapter 8. Presenting the Tool

Chapter 8 introduces the Emotional Design Deck, outlining its structure and alignment with the study's objectives. It organises the cards into thematic groups, discussing their origins and context. The chapter also explores the tool's usage and accessibility, and its place within the Emotional Design domain.

Chapter 9. Conclusion

The concluding chapter discusses the study's contributions to knowledge, highlights its limitations and identifies opportunities for future research.

3.4 Theoretical Perspective and Research Philosophy

This study employs pragmatism through a mixed-methods empirical research approach in order to respond to the Research Question and achieve the Research Aim (developing a tool for Designers.) The research approach is both inductive and abductive, generating new knowledge about Emotional Design in the furniture industry while building on and modifying existing general Emotional Design research. Saunders et al., (2012) propose that philosophy should be seen as a multidimensional continuum, allowing for the use of multiple methods within a single study, which can often be highly appropriate. Utilising multiple methods in this study facilitates comprehensive data collection of various types that complement and validate each other, providing distinct insights necessary for the development of the tool. Additionally, the benefits of a multi-method approach include greater rigour and a deeper understanding of the research topic, yielding a more varied data set compared to using a single method (Bell et al., 2009). Mixed data collection methods research involves the researcher collecting and analysing both qualitative and quantitative data, drawing inferences using approaches or methods in a single study or program of study (Bell et al., 2009). A mixed data collection method, or multi-strategy, research design that combines both quantitative and qualitative methods is well suited to this study. For instance, consumer research activities use quantitative survey questions to initially identify types of furniture, followed by qualitative questions and interviews to gain rich key insights.

Robson (2011) highlights a pivotal moment when both practicing researchers and methodologists recognised that pragmatism provided a highly compatible theoretical foundation for combining quantitative and qualitative methods within a single project. As a designer, it was crucial to adopt a research philosophy that supported a practical focus on the research question and the aim of developing a tool. Grbich (2013) explains that a key advantage of pragmatism is its emphasis on the research question, treating methods as the best tools to provide the most comprehensive answers. Denscombe (2014) also discusses how 'Pragmatism is generally regarded as the philosophical partner for the mixed methods approach'. Saunders et al (2012) discuss how 'for pragmatists, the importance of the meaning of an idea (or a research finding) are its practical consequences.' This aligns closely with the research aim to develop a tool for practical application by designers. It is important that the outcome of this research is led by the findings of the consumer and designer surveys, interviews and literature reviews, not by looking through the lens of a research philosophy that may skew the content of the tool to be developed. Robson (2011) discusses how 'Pragmatism endorses a strong and practical empiricism as the path to determine what works.' Empirical enquiry, through the use of surveys, interviews and design workshops are a key methodological approach of this research study, sitting alongside literature reviews and trend data.

Cross-sectional studies, examining consumer data at set times including the consumer survey and consumer interviews are used in this research study. Pragmatism supports using cross-sectional studies to capture data at a particular point, acknowledging that knowledge is provisional and 'can never be absolute or perfect because it is inevitably a product of the historical era and cultural context

within which it is produced' (Denscombe, 2014). Literature Review Part 2 and the Review of Iconic Furniture in this study examine past design movements and furniture now considered iconic. This historical reflection, combined with current cross-sectional consumer research, ensures that the design tool addresses today's consumer needs while also considering the longevity of new products.

3.5 Position Statement

This thesis argues that Emotional Design strategies can be presented to designers in an accessible tool, and that these strategies can support designers to create new furniture items that aim to connect emotionally with the consumer. As a designer, my work is inherently grounded in problem-solving, iteration, and the creation of meaningful solutions, an approach that that closely aligns with my epistemological position as a pragmatist. Cross (2006) argued how design is not just a profession or a set of skills, but a distinct mode of inquiry and knowledge production. Cross (2006) coined the term 'designerly ways of knowing' after studying how designers navigate problems and often do not follow formal methodologies, instead relying on intuition, pattern recognition, and immediate action. The application of these 'designerly ways of knowing' was fundamental to the development of the Emotional Design Deck. Reflecting the instinctive, solution-focused nature of design practice, the challenge of presenting a diverse range of strategies to designers was approached through the development of a clear design brief and specification. Informed by insights from the primary research, this process presented the problem as a set of specification points for an actionable solution, aligning with the designer's tendency to move from understanding to creation.

3.6 Quantitative vs Qualitative Paradigms

At its height in the 1980's, a debate about quantitative and qualitative research became known as 'the paradigm wars' Bryman (2006), with purists believing that 'quantitative and qualitative methods stem from different ontologic, epistemologic and axiologic assumptions about the nature of research' Onwuegbuzie et al., (2005). Sale et al., (2002) suggest that 'some people would say that we are beyond the debate and can now freely use mixed data collection method designs to carry out relevant and valuable research' adding that it is important to use multiple methods in a way that complement each other to triangulate research findings for validity.

The use of complimentary quantitative and qualitative approaches in this research reveals a fuller picture than using one method alone. Quantitative data from existing market intelligence surveys and new consumer surveys highlights areas for investigation using qualitative methods. Qualitative interviews then capture insight regarding human experience and views that influence the design of the tool. The use of a mixed-methods research strategy includes the benefit of triangulation and completeness, with quantitative and qualitative data enhancing validity and providing a comprehensive overview of the topic (Robson, 2011). Onwuegbuzie et al., (2005) highlight the advantages of being a pragmatic mixed-methods researcher including the ability to be flexible in the investigative technique, using quantitative data to inform qualitative investigation and vice versa. The authors also liken a

pragmatic researcher to having a bi-focal lens with the ability to zoom in to the specific and back out to the general.

3.7 Project Management & Planning

The Schematic Research Framework of this study, as described earlier in this chapter, served as the roadmap, clearly defining the study's three phases and illustrating how each task contributes to the Research Objectives. Each primary task was broken down into smaller supporting tasks, which were tracked using an online platform called 'TeamGantt.' TeamGantt is a free tool for creating Gantt charts that visually map tasks against dates, enabling the recording and monitoring of progress toward the Research Objectives. By tracking each task and dynamically adjusting the timeline based on progress, workload, and availability, progress was maintained, allowing for the introduction of new, relevant tasks and the removal of less valuable ones. The Gantt chart was never printed, and instead, the online version became the central hub for tracking progress. TeamGantt's collaborative features also made the online Gantt chart accessible to supervisors (see appendix 2 for an extract of the project Gantt chart)

3.8 Literature Reviews

Phase 1 of this study features a four-part literature review, each part connecting with each other whilst identifying, examining and analysing key literature relating to the development of the design tool. The literature reviews serve a number of purposes, firstly sharing the findings of other studies in the area, before identifying and grouping themes, filling gaps and extending prior studies (Creswell 2018). The methodological description of the four parts of the Literature Review are described in the following section, however each part aligns with Creswell's (2018) seven steps including the use of keywords, skimming, literature maps, summaries and thematic grouping. Maxwell (2006) discusses how 'relevance, rather than thoroughness or comprehensiveness, is the essential characteristic of literature reviews'. The four-part literature review of this study ensures triangulation of data with the primary research, supporting the development of the design tool. The Literature Review lays the foundations, and establishes the knowledge base for the study, informing key activities such as the consumer and designer surveys.

Literature Review Part 1: Existing Frameworks

Literature Review Part 1 explores the theories of leading researchers in Emotional Design, highlighting key similarities and differences. This section addresses Research Objective 2 by examining existing studies to identify Emotional Design strategies that designers can use to create furniture that people love. To gain an understanding of the current landscape of Emotional Design Frameworks, this part of the review began by identifying key terms related to Emotional Design and then searching through existing literature, including books, journals, and conference papers. Each source was catalogued and assigned a RAG (Red, Amber, Green) rating based on its relevance to the study. The review discusses each identified Emotional Design Framework, presenting eleven frameworks and their defined experience types as an Emotional Design Framework Map. Created using Adobe Illustrator, the triangular map employs Norman's (2004) Visceral, Behavioural and Reflective levels as its three vertices. The map aims to visually represent complex Emotional Design Frameworks in one diagram, highlighting the similarities and differences among their theories.

Literature Review Part 2: Emotional Design Over Time

Literature Review Part 2 examines the relationship between Emotional Design and the influential design movements of the past two centuries. It also explores how Emotional Design strategies are influenced by the philosophies and key characteristics of these design movements. This section follows a similar methodology to Part 1 but primarily employs books that document and describe design history. To ensure accuracy, multiple sources were utilised to compare accounts of design movements, their guiding philosophies and notable pieces of furniture. This concise review presents the key characteristics of each featured movement and their connection to Emotional Design, forming the basis for the strategies discussed later in the thesis.

Literature Review Part 3: Emotional Design Strategies

Part 3 of the Literature Review explores existing research on strategies developed to strengthen the emotional connection between people and products. While each strategy is examined individually, their interconnections are also discussed. This section draws on a broad selection of academic journals and conference papers to identify Emotional Design strategies relevant to furniture design. It concludes by presenting a variety of strategies for inclusion in the tool being developed, which will be discussed later in the thesis.

Literature Review Part 4: Existing Emotional Design Tools

Literature Review Part 4 examines existing tools and processes designed to assist designers in applying Emotional Design strategies. It also reviews tools for reporting, recognising and measuring emotions that can be utilised by designers. The review concludes with a list of recommendations to guide Phase 2 of the study, which focuses on developing the design brief and specification for the tool. Literature Review Part 4 draws on a diverse range of academic journals, conference papers, books, and online content to explore the tools currently available in the field of Emotional Design.

3.9 Identifying Iconic Furniture

Phase 1 of this study involved examining iconic furniture to address Research Objective 1, which sought to identify trends in the types of furniture that consumers own and cherish, as well as furniture now regarded as 'iconic.'

Iconic furniture has stood the test of time, with enduring affection from long-term owners and continued appeal to new audiences, even when the pieces themselves are older than the consumers discovering them. These designs often possess a strong aesthetic presence that elicits emotional responses, paired with a narrative rooted in the cultural and historical context of their creation. Their visibility in films, television, museums and galleries reinforces their iconic or cult status, deepening public recognition and emotional engagement. Iconic furniture can evoke personal memories, signal aspirations, and convey social status. For these reasons, it was essential to include iconic furniture in the study, to identify emerging Emotional Design themes and to explore how the enduring qualities of such pieces can inform future strategies within the deck.

The findings from this research are detailed in Chapter 4. To objectively identify furniture deemed iconic, a methodology was devised to review relevant books specifically cataloguing iconic products. Books that included examples of iconic furniture but had a different primary focus, such as exploring materials and manufacturing, were excluded from the review, as were those concentrating on a particular designer or design movement. For each book, every piece of furniture was recorded in a spreadsheet, including the item's name, the year it was first sold or exhibited, and its designer or design team. Only individual furniture items were recorded, while broader design movements, such as 'Memphis,' were omitted. Additionally, furniture designed exclusively for a specific location and not made available for wider sale was also omitted. The following seven books (Table. 3.1) were used in this review, resulting in just under 700 furniture entries in the spreadsheet:

FIELL, C. and FIELL, P., 2000. Design of the 20th Century. Taschen.

FIELL, C. and FIELL, P., 2003. Design for the 21st Century. Taschen.

JOENSSON, W., 2020. Iconic product design. New York: Skyhorse Publishing Company, Incorporated.

MCDERMOTT, C. and DESIGN MUSEUM, 1998. The Design Museum Book of the 20th Century.

TERRAGNI, E., 2022. 1000 Design classics. Revised and updated edn. London ; New York, NY: Phaidon Press.

THE DESIGN MUSEUM., 2009. Fifty Chairs That Changed the World: Design Museum Fifty. London: Conran Octopus.

WILKINSON, P., 2019. Great Designs: The World's Best Design Explored and Explained. London: DK.

Table 3.1 Iconic Design books used in the review of iconic furniture.

Eighty-five furniture items appeared multiple times in the review, with some showing up as many as four times, appearing in more than half of the books reviewed. Ten items were featured four times, marking them as the most iconic pieces of furniture in this review. An additional 17 items appeared three times, forming a secondary tier of iconic furniture identified in this study. The newly compiled list of 27 iconic furniture items is presented as a poster in Chapter 4, with the primary and secondary iconic groups arranged in chronological order. Reflections on the shared characteristics of these iconic pieces reveal seven key themes, which are integrated into the strategies within the tool and discussed later in the thesis.

3.10   Trend Reports

Another key research activity within Phase1 of this study includes the analysis of Trend Reports to identify current trends and consumer preferences impacting furniture design. As with the review of Iconic Furniture, this activity addresses Research Objective 1 by highlighting key themes across trend reports.

Fourteen trend reports were examined, collated and analysed to identify headline trends and recurring themes relevant to contemporary furniture design. Eleven of these reports were sourced from WGSN, one from Modsy, one from Mordor, and one from Made. The full titles of the reports are listed in appendix 3.

WGSN publishes reports that analyse shifts in taste, technology and consumer preferences, predicting the direction of various market sectors. These reports are of particular interest when considering the aesthetics of future furniture but also relevant in terms of sustainability, branding and visual merchandising. Modsy, a US-based interior design company and furniture retailer, and MADE, a UK furniture and home accessories retailer, provide trend reports that offer insights into consumer preferences and sales trends within their companies. Finally, Mordor, a market intelligence and advisory company, produce detailed market intelligence reports, and the report examined in this study

is valued for a rigorous connection to sales data. For each report, key headline trends were extracted and recorded in a single table documenting each set of report trends side-by-side. These headline trends are comparable with descriptive codes of thematic analysis. These headline trends, or descriptive codes were then grouped and colour coded to identify ten broader interpretive codes, defined as four primary, and six secondary themes which are explored in Chapter 4. These themes play a part in the consumer survey within Phase 1 of the study, but also the development of the tool brief and specification in Phase 2 of the study

3.11 Surveys

During Phase 1 of the study, two online surveys were conducted, one designed to capture consumer perceptions, and the other focusing on industry designers perspectives. The surveys were hosted online via Qualtrics, and participants accessed them through a provided link. Online surveys are preferred over postal or telephone surveys because they are more cost-effective, quicker to administer, and include integrated reporting features that output data in useful formats (Denscombe 2014).

Denscombe (2014) identifies five key factors that researchers should consider when designing surveys to minimize non-responses. These factors include the characteristics of respondents, the research subject, the researcher's identity, the method of contact, and the prevailing social climate (Denscombe 2014). Each of these considerations was addressed in the design of both the consumer and industry designer surveys. Stopher (2012) highlights the critical role of pilot surveys and pre-tests before launching a full survey, noting that significant revisions are often made, which enhance both the survey and its outcomes. It is also important to pilot the survey with respondents who closely resemble the target population, and to debrief these respondents afterward to gather insights for potential improvements (Stopher 2012). Both surveys in this study were piloted with a small group of respondents who closely resembled the target audience of the main surveys. The methodological approach for both the surveys and their pilots is detailed in the following section.

3.11.1 Consumer Survey Pilot (7th April 2021 – 29th April 2021)

A pilot survey was conducted with a small group (15 respondents) to test the questions, assess the quality of the data collected, and gather feedback from the respondents. Several participants in the pilot survey were drawn from the same population as the main survey, as recommended in the literature (Stopher 2012, Adams et al. 2014). The following section discusses the feedback from respondents who completed the survey and outlines the revisions made to the survey before its final release as the comprehensive consumer survey. This section does not offer a detailed overview of the survey or its individual questions, as this will be covered in the subsequent section on the full consumer survey. A copy of the complete pilot survey is available in appendix 4.

The pilot survey allowed respondents to enter their email address to state an interest in being involved in future research, including the semi-structured one-one-one consumer interviews. For the main consumer survey, this feature was removed and replaced with the researcher's contact information, as collecting personal data could have compromised the anonymity of the survey responses.

Ethical Considerations

The pilot survey featured two concluding questions aimed at identifying any potential ethical concerns related to the survey or its questions. The questions were:

> 'Finally, do you think there are any ethical issues with this survey? Or any questions that made you feel uncomfortable?'

> 'Please can you describe the questions that made you feel uncomfortable, or any ethical issues with this survey.'

14 of the 15 respondents (93%) answered 'no' to the first question, while one respondent answered 'yes' and noted that they found the question about marital or civil partnership status somewhat intrusive. As over 92% of respondents did not feel that this question was inappropriate, it was retained for the main consumer survey.

Modifications from Pilot

A key finding from the pilot survey was that approximately 50% of respondents chose not to complete the open-text questions. While it is common for respondents to skip these sections in an effort to complete surveys quickly, this results in a lack of detailed responses. To address this issue in the main survey, the 'Force Response' feature in Qualtrics was implemented, making it mandatory to complete the open-text questions. Feedback from respondents who completed the main survey included positive remarks, noting that being required to reflect on why they love their furniture made the survey an enjoyable experience.

Upon reviewing the data from the pilot survey, it became evident that some multiple-choice questions did not offer enough choices aligned with the findings from the literature review. For example, in the question about how respondents acquired their favourite furniture item, an answer choice of 'I got it via Freecycle or similar' was added. This addition reflects trends in upcycling, sustainability, and the significance of meaning in the acquisition process. The pilot survey revealed that a multiple-choice question about meaningful connections was missing an important answer choice. To address this, the option 'Do you associate the item with another person?' was added to the main consumer survey. This addition is valuable for considering personal connections in meaning attributes.

Pilot Survey Data Analysis

The pilot survey served as a crucial research tool, not only for testing the questions and structure of the main survey but also for evaluating the analysis techniques to be employed afterwards. The data gathered during the pilot survey mirrored the types of quantitative and qualitative data anticipated from the main consumer survey, making it suitable for testing analysis tools and techniques. Built-in analysis and reporting features within the Qualtrics survey platform were used to display and export quantitative results as charts and graphs, ensuring the results were easy to interpret. Additionally, NVivo word frequency queries were tested on the qualitative data to identify repeated words and key themes in respondents' comments. The initial NVivo queries yielded mixed results, with some frequently repeated words being irrelevant for gaining insights. However, by adjusting the settings, such as adding stem words and blocking irrelevant ones, the NVivo word frequency queries proved to be a valuable tool for quickly identifying and exporting meaningful data. These analysis tools and techniques are explored in more detail later in this chapter.

Consumer Survey (16th May 2021 – 15th June 2021)

Following the completion of the pilot survey, and testing of the analysis techniques, the survey was amended as described in the previous section before being released. The sampling strategy is described later in this chapter. The following section details the structure and question of the Consumer Survey. A copy of the complete survey can be found in appendix 5.

Main Questions

The structure and design of the online consumer survey is influenced by the four-part Literature Review, aiming to identify the types of furniture people love by exploring consumer feelings about the things they currently own. Table 3.2 provides an outline structure of the survey, and the following section describes the questions that are included in the survey.

Stage	Focus
1	Validation Question
2	Home Position: Furniture Location Focal Point
3	Categorising Furniture Type
4	Narrative: Length of Ownership Acquisition Irreplaceability Condition
5	Source of Love
6	Aesthetics
7	Functionality
8	Meaning

Table 3.2 Outline structure of Consumer Survey.

The first question asked respondents whether they have a favourite piece of furniture in their home, with the survey ending immediately for those who answer 'no.' While this approach limited the amount of data collected, it ensured that the data gathered is relevant and effective in addressing the research question. To aid in developing the tool for designers, the main section of the survey first asked respondents to identify the category of their most loved furniture item. The survey's display logic function then allowed respondents to narrow down their selection within the chosen category. Understanding which types of furniture people cherish most provides opportunities to explore the emotional connections between individuals and their belongings.

After the initial questions identifying trends in the types of most-loved furniture, the survey explored the product's narrative in the respondent's life. It asked respondents about how long they have owned the item, how they acquired it, its irreplaceability, and whether it has any damage. Each of these questions connects to existing research discussed in the literature review. For example, the question regarding acquisition relates to themes of heirlooms, referencing Forlano's (2018) work and Schifferstein et al.'s (2008) research on gifting. The question about condition connects to Aftab et al.'s (2017) research on the Japanese philosophy of Wabi Sabi and other studies on patina and material aging.

The next stage of the survey was structured around three key themes identified in the literature review, particularly drawing from Norman's (2004) work, focusing on aesthetics, functionality and meaning. Questions related to each of these themes were designed to determine which area offers the greatest potential for applying Emotional Design strategies. To gather important qualitative data, these sections used the 'force response' feature, requiring respondents to provide explanations in the free-text entry space. The questions in the aesthetics section examine the item's decorative qualities and materials, aiming to determine whether the most cherished items tend to be more ornate or simple. Respondents were asked whether they love the appearance of their cherished item and to explain why or why not. Similar questions in the Functionality and Meaning sections of the survey further explored these aspects of their attachment to the item.

The functionality section of the consumer survey aimed to determine whether items are typically multi-functional or serve a single purpose. It also asked respondents to consider if their furniture has any special features, such as hidden compartments or adjustable sections. These questions were informed by significant literature that advocates for incorporating surprise as a design strategy, including the works of Ludden et al. (2008) and Rodríguez Ramírez et al. (2014).

The final part of the key theme survey section centred on meaning, asking respondents if they associate their most cherished item with a particular place, event, or person. These questions are based on, and informed by, existing research highlighted in the literature review, which underscores

the importance of meaning in the relationship between people and their products, as discussed by Jordan (2000), Norman (2004), Hekkert (2006, 2007), and Desmet (2012).

Demographic Questions

The final section of the survey gathered demographic information from respondents. This data was collected to ensure that the survey captured responses from a diverse range of ages and genders. Additionally, it was crucial to include a substantial group of respondents identified in a market intelligence report as those most likely to purchase furniture in the near future (Living and Dining Room Furniture: Inc Impact of COVID-19 - UK, Lightspeed and Mintel, 2020). Other demographic questions were included to generate potential insights into how demographic factors influence the relationship between individuals and furniture. The following paragraphs detail the methodology behind the decisions made regarding these questions. It is important to note that the demographic data collected confirmed that the survey gathered responses from a diverse range of participants, however, no further analysis of this data was conducted. The study's aim was not to explore nuanced relationships between demographic groups and their cherished furniture but rather to develop a tool with broadly applicable strategies.

Gender

When asking respondents about their gender, it was essential to ensure that the multiple-choice options were inclusive of all gender identities. The question regarding gender was developed with guidance from the White Paper, 'Help Shape Our Future: The 2021 Census of Population and Housing in England and Wales.' This resource was utilised to incorporate recent multiple-choice options and to benefit from the extensive research conducted prior to the publication of the White Paper.

The white paper's research and testing plan 'was designed to clarify the way the concepts around sex, gender and transgender are to be expressed and can be measured' to ensure the options were publicly acceptable, readily understood, and capable of providing good-quality data. The ONS worked with stakeholders including Stonewall and the LGBT Foundation.

The gender options used in both the census and this consumer survey were 'Male', 'Female', 'Non-binary / Third gender' and 'prefer not to say'.

Age

The age bands, or strata used in this consumer survey (Table 3.3) mirror those used in a recent market intelligence survey entitled 'Living and Dining Room Furniture: Inc Impact of COVID-19 - UK -

October 2020' by Lightspeed and Mintel. The survey took place in August 2020 and was completed by 2000 internet users aged 16 and over. By using the same age groups as the Mintel Survey, there was an opportunity to compare and triangulate data where valuable.

16-24	25-34	35-44	45-54	55-64	65+	Prefer not to say

Table 3.3 Age bands used in the Consumer Survey.

Household income

Household income data was collected to provide data for analysis to understand how income relates to the relationship people have with furniture. Bands were developed to offer a good degree of accuracy, with 10 options available, plus a 'prefer not to say' option.

Estimates from the Office for National Statistics (ONS) Household Finances Survey showed that in financial year ending in 2020, the median household income in the UK was £29,900. £29,900 falls in the third band of options in the household income question of the consumer survey, allowing analysis to be carried out to identify if respondents generally had a household income higher or lower than the national average.

Marital Status and Children

Respondents were asked about their marital status and whether they have children to generate data for analysing how family dynamics influence the relationship with furniture. Similar to the gender question, the 2021 Census was referenced to develop the options for marital status. Respondents were given the opportunity to select from ten statements that best reflect their marital or civil partnership status, including an option for 'prefer not to say.' For the question regarding children, respondents could indicate whether they have children, with options of 'no,' '1-3,' '4+,' and 'prefer not to say.'

Ethnic group, national identity and religion

Questions regarding a respondent's Ethnic group, national identity and religion were omitted from the demographic questions of the consumer survey as this research study does not focus on connections between an individual's cultural identity and furniture design.

Consumer Survey Analysis

The Consumer Survey was designed as a research tool to support the study's aim of developing a tool that can be applied by designers. The analysis therefore focused on building knowledge of consumer preferences and beliefs to influence the development of the brief for the tool to be developed. In addition to this, the analysis of the data also supports the development of the purposive sampling criteria for the consumer interviews. Consumer survey analysis makes use of charts, graphs, word frequency queries and individual qualitative responses.

Spelling, grammatical and punctuation errors made by survey respondents have been corrected for clarity in the analysis of the consumer survey.

3.11.2 Industry Survey Pilot (17th October 2022 – 26th October 2022)

As with the consumer survey, the survey targeting designers in industry was initially piloted with a small group of five respondents. This pilot aimed to test the questions, evaluate the quality of the data collected, and gather feedback from participants. As with the consumer survey pilot, these respondents were selected from the same population as the main survey. The survey is organised into four stages, which include:

1. Existing Tools and their usage
2. Existing Tools identified by respondents
3. Awareness of Emotional Design, specific tools and appetite
4. Format of potential tool

The following section discusses the feedback received from those who completed the survey and outlines the revisions made before its final release. This section does not provide a detailed overview of the survey or its individual questions, as that is covered in the subsequent section on the full designer survey. A copy of the complete pilot survey is available in appendix 6.

Stage 1 of the survey functioned effectively, with respondents successfully reporting their awareness of each tool and the potential benefits associated with them. The display logic functionality also worked correctly, ensuring that respondents did not answer questions about tools they were unfamiliar with. The results from Stage 1 of the pilot survey generally aligned with expectations, indicating good awareness of general design tools, particularly the more straightforward ones, with awareness declining for more specialised Emotional Design tools. The main survey further explored this theory by reaching a larger and more diverse segment of the design industry, both geographically and demographically, compared to the pilot survey.

During the data analysis of the pilot survey and following feedback from one respondent, it became evident that the survey experience and the richness of the data could be enhanced by expanding the choices in multiple-choice questions. This change is especially important when asking respondents about their awareness of, and perceived benefits from the tools. As a result, the binary 'yes/no' options were broadened to allow for more nuanced responses that more accurately capture respondents' views.

Stage 2 of the survey worked effectively, with one respondent providing information about an additional tool that had not been considered at this stage. No questions in stage 2 were amended prior to the main survey being released.

Stage 3 of the pilot survey effectively measured the respondent's awareness of Emotional Design, as well their appetite for new tools, both generally and specifically in the context of furniture design. After

analysing the results, it became evident that, similar to Stage 1, allowing respondents to give more nuanced answers would be advantageous. Consequently, the binary 'yes' or 'no' options were expanded to gather richer data for analysis in the main survey.

Stage 4 of the survey, which used a 'rank order' question to identify respondents' preferred formats for tools, worked effectively and revealed clear format preferences. However, the follow-up qualitative question asking respondents to explain their choices did not yield any data. To address this, a 'force response' function was added to this question in the main survey to ensure respondents provide explanations for their selections.

The pilot survey was a crucial development phase for testing the designer survey before its full release. Amendments made at this stage greatly increased both the quantity and the quality of the data collected.

3.11.3   Industry Survey (11th November 2022 – 22nd December 2022)

After completing the industry pilot survey, it was revised as described earlier before being officially released. The sampling strategy is outlined later in this chapter, while the following section provides details on the structure and questions of the Industry Survey. The survey was conducted online using Qualtrics, with respondents accessing it through a provided link. The survey targeted industry professionals to assess the strengths of design tools currently available to the design community. Insights gained from the survey were instrumental in developing a new design brief and specification for the tool under development. While other research activities, such as the Consumer Survey, Consumer Interviews, and Literature Review, focused on identifying the content for the tool, the Industry Survey concentrated on understanding the preferred format, style, complexity and level of detail for the tool. To obtain this critical information, respondents were asked about their experiences with existing design tools and were shown examples of tools to provide feedback.

Context of Existing Tools

After reviewing existing Emotional Design Tools in Part 4 of the Literature Review, a brief review was conducted to identify some of the most well-known and widely publicised general design tools. These tools were then grouped thematically, with one representative tool from each group selected for inclusion in the survey. By carefully choosing and reducing the number of tools, the survey's overall length was minimised, increasing the likelihood of respondents completing it and reducing the risk of survey abandonment. The four thematic groups of tools include Card Sets, Acronyms, Frameworks and Specialist Emotional Design Tools. To ensure valuable feedback, the general design tools selected were those most recognised and frequently referenced in design education. Additionally, one Specialist Emotional Design Tool was chosen based on its availability. The four tools selected for inclusion in the survey were:

- The Design Council's framework for Innovation (The Double Diamond.) Design Council, (2004)

- The MAYA Principle (Most Advanced, Yet Acceptable.) Raymond Loewy

- IDEO Method Cards. IDEO, (2003)

- Design for Happiness Deck. Delft Institute of Positive Design (Pohlmeyer, Yoon and Desmet.) (2017)

The following section provides further information about the four tools identified and a rationale for their inclusion in the survey.

The Design Council's framework for Innovation (The Double Diamond.) Design Council, (2004)

The Design Council's framework for Innovation, also known as the Double Diamond (Fig. 3.2), is a framework that aims to structure the thinking and process of designers and non-designers when tackling a problem. Based in part on the divergence-convergence model by the Hungarian-American linguist Béla H. Bánáthy (1996), the framework visually represents the process of exploring a problem in a broad sense, using divergent thinking, before focusing in on the possible solutions and making decisions using convergent thinking.
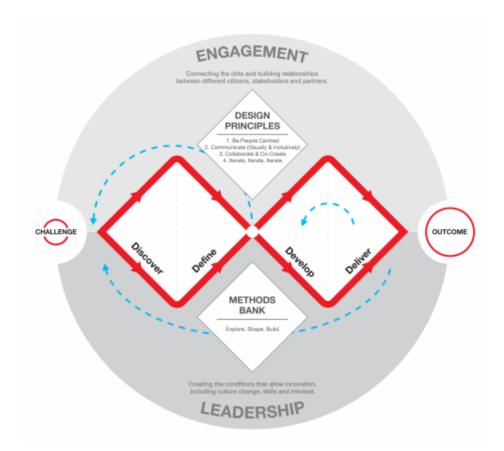
Figure 3.2 The Design Council's framework for Innovation (The Double Diamond.) Design Council, (2004).

The framework consists of four key stages: Discover, Define, Develop, and Deliver, which guide users from the initial challenge to the final outcome. In 2019, fifteen years after its introduction, the Double Diamond was updated with more detailed guidance, principles and a methods bank, and it now better reflects the non-linear nature of design, where iterative loops are common.

As one of the most recognised and widely used design tools, including the Double Diamond in the survey was essential.

The MAYA Principle (Most Advanced, Yet Acceptable.) Raymond Loewy

The MAYA Principle (Fig. 3.3), which stands for 'Most Advanced, Yet Acceptable,' was introduced by Raymond Loewy in his 1951 autobiography 'Never Leave Well Enough Alone'. Loewy, often hailed as the father of modern industrial design, described the theory behind the MAYA principle, stating that 'The adult public's taste is not necessarily ready to accept the logical solutions to their requirements if the solution implies too vast a departure from what they have been conditioned into accepting as the norm.' This principle is widely recognised by designers, who often find that consumers prefer products that are more evolutionary than revolutionary. This trend is also evident in music and film, where successful works often share familiar characteristics with their predecessors.

Although the MAYA Principle doesn't provide a structured framework, it serves as a valuable reminder when developing or updating products. Including it in the survey was important for gauging the desired complexity of the tool being developed in this study.

Figure 3.3 The MAYA Principle (Most Advanced, Yet Acceptable.) Raymond Loewy.

IDEO Method Cards. IDEO, (2003)

IDEO Method Cards (Fig. 3.4), launched in 2003 by the global design agency IDEO, consists of 51 cards designed to inspire designers and emphasise a human-centred approach to the design process. Each card introduces a specific design method and provides an example of how and when to apply it. For instance, one card details the method of 'Quick and Dirty Prototyping,' where basic materials are used to rapidly create a model that conveys the concept's form or interaction. IDEO emphasise how the tool is not a 'how to' guide and that the Method Cards are designed to 'explore new approaches … gain a new perspective, inspire a team, turn a corner, or try a new approach.' IDEO (2022).

Figure 3.4 IDEO Method Cards. IDEO, (2003).

The IDEO Method Cards were included in the survey of industry designers because they are among the most recognised toolsets in the design industry. Compared to the simpler MAYA Principle or Double Diamond framework, the Method Cards offer a higher level of complexity, providing a broader range of insights for designers to evaluate.

Design for Happiness Deck. Delft Institute of Positive Design (Pohlmeyer, Yoon and Desmet.) (2017)

The Design for Happiness Deck (Fig. 3.5), created by the Delft Institute of Positive Design in 2017, is a free downloadable card set based on the Positive Design framework developed by Pieter Desmet and Anna Pohlmeyer (2013, 2017). The tool includes 72 cards divided into three sets, each focusing on different aspects of designing for happiness, including Pleasure, Personal Significance, and Virtue. Each set highlights 24 nuanced emotions relevant to designing for happiness, such as 'Enchantment,' illustrated by a drawing of people watching a sunset.

Like the IDEO Method Cards, the Design for Happiness Deck is not intended as a step-by-step guide. Instead, it allows designers the flexibility to choose how and when to use it, whether that be to inspire, inform, or justify design decisions.

Figure 3.5 Design for Happiness Deck. Delft Institute of Positive Design (Pohlmeyer, Yoon and Desmet.) (2017).

The Design for Happiness Deck was selected for inclusion in the industry survey for several reasons. Firstly, it represents a unique design tool in the Emotional Design field, unlike the other tools selected for the survey. Secondly, unlike many Emotional Design tools that are confined to academic research, the deck is freely available online. Finally, it is perhaps the most complex tool in the survey, not only due to its size but also because it addresses nuanced emotions rather than specific design methods or strategies.

Figure 3.6 illustrates the complexity levels of the four tools which were selected for inclusion in the industry survey. Gathering feedback from designers on these varied tools provided valuable insights, helping the new tool benefit from the strengths of existing tools and the experiences designers had using them.

Simple → Complex

- Memorable
- Little Detail
- No specific methods / strategies

- Memorable shape
- Levels of detail
- General / broad methods / strategies

- Strong Visual Design
- Tactile
- Lots of detail
- Specific methods / strategies

- Strong Visual Design
- Tactile
- High level of detail
- No Specific methods / strategies
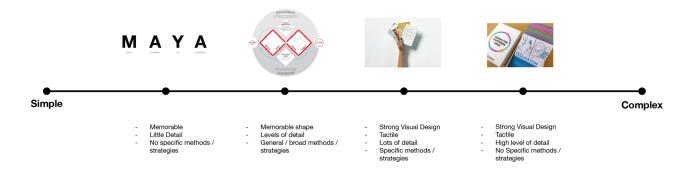
Figure 3.6 Four selected tools and their complexity level.

Structure of the Industry Survey

As discussed in the explanation of the Industry Survey Pilot, the structure of the survey of industry professionals follows four key stages that move from prior experience through to new concepts. The four stages are listed below and a full copy of the survey can be found in the appendix 7.

1. Existing Tools and their usage
2. Existing Tools identified by respondents
3. Awareness of Emotional Design, specific tools and appetite
4. Format of potential tool

In Stage 1 of the survey, the titles and images of the four tools discussed previously were presented, and respondents were asked to comment on their individual awareness, use and experience with each tool through a series of quantitative and qualitative questions. By utilising display logic functionality within the Qualtrics software, respondents who lacked awareness of specific tools skipped the questions related to their usage experience, as this would not yield useful data. To gather rich insights from the respondents, the survey also explored how each tool benefited the design process and how it was used.

Stage 2 consisted of a brief set of questions designed to gather information from respondents about any other tools that they were aware of, or used in the design process. This information was used to identify additional tools that should be considered in the study and could potentially inform the development of the design brief and the specification of the new tool.

In Stage 3, respondents were presented with questions about Emotional Design. The aim was first to assess each respondent's awareness of Emotional Design, before investigating their appetite for new tools, both in a broader sense, and specifically for furniture design

In Stage 4 of the survey, tool formats were examined, and respondents were given the chance to reorder a set of format options according to their preferences. They were then asked to provide qualitative information explaining the reasons behind their choices.

The results of the Industry Survey are discussed in Chapter 5 which explores the qualitative and qualitative results.

3.12   Qualtrics Survey Platform

All online surveys for this study were created and completed using Qualtrics. Qualtrics is an online survey tool accessible to all University of Staffordshire staff and students. It can be used to conduct surveys that are publicly available or to provide specific users with access.

The benefits of using Qualtrics include its wide range of question types and the ability to customise both question formats and survey styles. It also offers valuable functionalities utilised in both the consumer and industry professional surveys, such as 'force response' to ensure participants complete certain questions, and 'display logic' to tailor the survey journey based on participant responses.

Qualtrics features built-in analysis and reporting tools that can display and export results in various formats, including charts and graphs.

Heat map questions were included in the evaluation surveys completed by both students and designers at the conclusion of their respective testing workshops. These questions were designed to gather feedback on images, with participants shown an image of the front and back of a single card. Respondents were asked to click anywhere on the image to indicate their feedback. The results were visualised, with the most frequently selected areas highlighted in red, and less commonly selected areas shown in amber and green.

3.13   Interviews

In Phase 1 of this study, qualitative interviews played a crucial role, complementing the consumer survey by exploring in greater depth the reasons behind consumers' attachment to their favourite furniture. A total of 12 one-to-one interviews were conducted, each lasting around 45 minutes. As Tracy (2013) explains, qualitative interviews provide opportunities for mutual discovery, understanding, reflection, and explanation via a path that is organic, adaptive and oftentimes energising. The following sections provide a more detailed exploration of the methodology used for the one-to-one consumer interviews.

Denscombe (2014) outlines seven different types of interviews including structured, semi-structured, unstructured, one-to-one, group, focus group and internet interviews. Tightly controlled, structured interviews do not allow conversations to develop in a way which encourages respondents to expand on ideas, memories or stories related to their experiences, meaning this type of interview was not suitable for this study. Semi-structured one-to-one interviews were used in this study, providing a framework of topics and questions, whilst allowing participants to expand on answers and develop their own thoughts. One-to-one consumer interviews have a number of advantages over group interviews, including simpler scheduling, control of the conversation, and transcription (Denscombe 2014).

The Interviewer Effect

Denscombe (2014) highlights how the interviewer's identity can have a bearing on the amount of information people are willing to divulge and their honesty about what they reveal. Given that the interviewer for this research study is a University Academic, a stance of deliberate naivety (Kvale, 1996; Tracy, 2013) was adopted. This approach involves withholding existing findings and, apart from providing basic information about the research and interview logistics, remaining open and receptive to new insights throughout the conversation.

Denscombe (2014) recognises that 'our sex, our age, our ethnic origin, our accent, even our occupational status, all are aspects of our 'self' which, for practical purposes, cannot be changed' may affect the answers interviewees provide, meaning the interviewer should therefore focus on being polite, punctual, receptive and neutral, so that participants feel comfortable in the interview and happily provide rich qualitative data.

Denscombe (2014) highlights key skills for effective face-to-face interviewing which were applied in this research study. These include staying focused without being distracted by note-taking, being observant to capture non-verbal cues, and showing sensitivity to the interviewee's emotions. Empathy helps create a comfortable environment, encouraging more detailed responses, and skilled interviewers tolerate silences, allowing interviewees time to reflect, and use prompts to guide the conversation. Periodic checks ensure the interviewee's points are accurately captured, while a non-

judgmental approach avoids revealing personal reactions through body language or facial expressions.

Silverman (2013) emphasizes that the order and style of questions in qualitative interviews can impact responses. Follow-up questions also affect depth and direction; for example, 'Can you tell me more about that?' elicits different responses than 'So you like it because of the aesthetics?'. To ensure consistency, this study uses a core set of questions with non-leading follow-ups, allowing participants to expand their answers without bias. The interview structure is described later in this section.

Interview Recording

Dawson (2009) examines the pros and cons of various interview recording methods, including audio and visual recordings, note-taking and checklists. In this study's semi-structured one-to-one consumer interviews, a combination of these methods were employed. Interviews were recorded as audio files using the Otter.ai app on a smartphone, while the interviewer also took notes. Combining notes with audio recordings allows participants to elaborate on their thoughts more freely, as the researcher's note-taking and occasional breaks in eye contact can reduce pressure and encourage more detailed qualitative responses. The Otter.ai app was used to record the interviews as audio files and provided real-time transcription, which saved time and eliminated the need for manual transcription following the interviews.

Interview Guide and Structure

Patton (2015) identifies six types of interview questions, each designed to elicit different kinds of information from the interviewee. Although the distinctions between these question types can overlap, they are helpful for considering the range of information that can be gathered. The six types include background questions, experience/behaviour questions, opinion/value questions, feeling questions, knowledge questions and sensory questions. These question types connect with how researchers have structured existing Emotional Design theories and frameworks, especially those centred on behaviour, values, feelings and sensory elements.

For this reason, the interview structure was designed to align with the key Emotional Design levels outlined by Norman (2004) while also considering the types of questions within each level. This approach guides consumers through their thoughts, feelings and experiences with their most cherished furniture, providing key points while allowing flexibility to explore specific areas further.

In the final stage of the semi-structured consumer interviews, participants were asked to rank 8 values in terms of their importance when considering furniture, followed by ranking 8 images of furniture items based on their preferences. These 8 values and images were created based on the trend data and reports analysed in Chapter 4. Chapter 5 discusses the results and analysis of this ranking task and explain how it influenced the development of the new tool.

A simplified version of the interview structure is shown in Table 3.4 and the full version can be found in the appendix 8.

Stage	Focus
1	Identifying the Item Location/Environment Function
2	Aesthetics
3	Narrative Meaning
4	Story Place/World
5	Ranking Task

Table 3.4 Simplified Interview Structure Overview.

Pilot Interview

Before conducting the twelve one-to-one consumer interviews, a pilot interview was carried out with a participant from the same target population. The pilot tested the interview structure, recording equipment and software, transcription accuracy, interview room suitability, and analysis method. The participant also completed a feedback form to assess their comfort level, the process, interview length and style, as well as the clarity of the consent form.

Interview Information Sheet and Interview Consent Form

The participant in Pilot Interview 1 felt that the Interview Information Sheet (Appendix 9) provided sufficient detail, clearly explained the voluntary nature of participation, and outlined the expected process. They were comfortable signing the Interview Consent Form (Appendix 10) before taking part.

Timing and Structure

The interview was scheduled to last around 45 minutes. The timing and pace were effective, with Stages 1 to 4 completed in about 30 minutes and the remaining stages taking around 10 minutes. The sequence of questions worked well, gradually exploring the emotions and feelings associated with the interviewee's favourite piece of furniture. Initial questions about the item's basic details and its location in the home helped the interviewee ease into the conversation before Stages 3 and 4 addressed the emotional connections with the object.

Question Changes

During discussions about ownership in Stage 3, it became apparent that additional questions were needed to address the experiences related to the construction of furniture (especially flatpack) and the process of disassembly and reassembly when moving. As a result, new questions focusing on these aspects were incorporated into the semi-structured interview, to be included based on responses to earlier questions.

Furthermore, it became evident that the interviewee's connection to their favourite piece of furniture was also influenced by the purchase experience, including factors such as the store environment, visual merchandising and presentation in-store. Consequently, a new question about the purchase environment was added to the acquisition section of Stage 3.

Sensitive Questions

As anticipated, exploring the relationships people have with the furniture they love can sometimes lead to discussions about personal issues, including relationships with others, memories, and private or potentially intimate experiences. The pilot interview revealed the importance of carefully considering the phrasing and appropriateness of certain questions and adjusting them as needed to ensure the interviewee feels comfortable.

Thematic Ranking Task

Stage 5 of the pilot interview, which involved ranking key values and furniture images, was successful and well-received by the interviewee. However, the pilot highlighted the need to adjust this stage for better analysis. Initially, 10 images were included to represent 8 key themes identified through trend analysis, however including all 10 images made comparison less effective. Therefore, the images for the more specific themes, 'Indoors Outdoors' and 'Working from Home,' were removed from the final set used in the consumer interviews.

Recording and Transcription Software

The Otter.ai mobile app was used to record and live transcribe the pilot interview. Names were initially assigned to the first few sentences, and AI then applied these names to the rest of the transcription. The recording and transcription quality were excellent, with files downloadable in various formats, such as .txt and MP3. The app features robust editing, playback, and keyword summary tools. Its effectiveness led to its use for all subsequent consumer interviews.

3.14 Sampling Strategy

Different types of non-probability sampling strategies were used in this research study including convenience sampling and purposive sampling, each benefitting from the use of snowball sampling as part of their methodology.

Convenience sampling

Convenience sampling, with additional snowball sampling, was used for the consumer survey to gather data from respondents with varied age, gender and demographics. As Tracy (2013) noted, convenience or opportunistic samples are often utilised because they are accessible and relatively inexpensive. Snowball sampling involved asking respondents to forward the survey link to friends, family and colleagues, thereby expanding the sample size. Although snowball sampling can sometimes skew toward a particular group or demographic, it was deemed that the risk for the consumer survey was relatively low due to the diversity of the initial sample. Working at a university provided access to a large network of colleagues who could distribute the survey further among their friends and family.

Purposive sampling

Purposive sampling is typically used in small, in-depth studies that aim to explore human experiences and perceptions (Matthews et al., 2012). This method does not aim to achieve statistical representation of the broader population; rather, participants are selected based on their experience, profession, or specific circumstances to help address the research question. Both the semi-structured consumer interviews and the survey of professional designers employed purposive sampling to select respondents, as detailed in the following sections.

Consumer Survey Sampling Strategy

The Consumer Survey used a convenience sampling method, supplemented by snowball sampling, to collect data from respondents across a range of ages, genders and demographics. A survey link was initially distributed to a large network known to the researcher, including colleagues, friends, family and professional contacts. These participants then shared the link further, including via Social Media, broadening the reach. The survey received 275 completions, which, at a 95% confidence level, results in a 6% margin of error.

Literature offers limited guidance on determining sample size, with most researchers agreeing it depends on the research study, objectives and study type. For example, if studying a single organisation, probability sampling might be used since the population is defined. However, since this research focuses on mass-produced products with a potentially global market, convenience sampling was suitable for the consumer survey. As Tracy (2013) highlights, while sample size is crucial for

researchers aiming for statistical generalisation, in qualitative research, the quality of data takes precedence. The survey design, including the use of 'force response' functionality, ensured the collection of rich qualitative data in each response, providing valuable insights for analysis.

Semi-Structured Consumer Interview Sampling Strategy

Purposive sampling was employed for the semi-structured one-to-one interviews with consumers, with participants selected based on specific criteria. These criteria were developed through an analysis of the consumer survey results and market intelligence data on consumer preferences and buying habits. The survey analysis identified the types of furniture that consumers most frequently cherish, which directly informed the sampling criteria. Additionally, variations in the length of furniture ownership highlighted in the survey also influenced the selection process. Insights from a Mintel market intelligence report ('Living and Dining Room Furniture: Inc Impact of COVID-19 - UK - October 2020' by Lightspeed and Mintel) further shaped the criteria by considering age groups most likely to purchase living or dining room furniture within the next twelve months.

Criterion 1

A Mintel market intelligence report ('Living and Dining Room Furniture: Inc Impact of COVID-19 - UK - October 2020' by Lightspeed and Mintel) indicated that individuals aged 16-44 were twice as likely to purchase furniture in the next 12 months compared to those aged 45 and over. Consequently, the first criterion in the purposive sampling frame for the semi-structured interviews was age, with twice as many participants aged 16-44 as those aged 45 and above (8 interviewees aged 16-44, and 4 interviewees aged 45+).

Criterion 2

The second criterion focused on furniture type, based on findings from the consumer survey. The survey listed four furniture categories, including Chairs and Seating, Storage, Desks and Tables, and Beds. According to the survey analysis, nearly half of the respondents (42%) identified their favourite furniture as a type of Chair or Seating, followed by 23% choosing Storage, 21% opting for Desks and Tables, and 14% selecting Beds. These proportions were reflected in the sampling strategy for the semi-structured interviews, with 5 interviewees focusing on chairs or seating, 3 on storage, 2 on desks and tables, and 2 on beds.

Criterion 3

The third and final criterion focused on the length of ownership of the interviewees' favourite furniture. In the consumer survey, 64% of respondents reported owning their favourite item for more than 3 years, while 36% had owned theirs for less than 3 years. Although initially, the intention was to replicate this ratio in the sampling criteria, doing so would have imposed overly restrictive

requirements on participant selection. Therefore, the sampling included a mix of interviewees who had owned their furniture for over 3 years as well as those who had owned it for less than 3 years.

Table 3.5 provides an overview of the Criterion Purposive Sampling described above with each coloured cell representing an individual interviewee.

Semi-Structured Interview Criterion Purposive Sampling			
Your favourite furniture item is a **chair or seating**	Your favourite furniture item is a **storage solution**	Your favourite furniture item is a **desk or table**	Your favourite furniture item is a **bed**
1	6	9	11
2	7	10	12
3	8		
4			
5			

Table 3.5 Criterion Purposive Sampling for Consumer Interviews.

Semi-Structured Consumer Interview Sample Size

The literature provides limited guidance on determining the sample size for qualitative interviews, with most researchers agreeing that it largely depends on the specific research project, objectives, and study type. The key is to conduct enough interviews to achieve saturation. Bell et al. (2009) describe saturation as the 'point in data collection when no new or relevant information emerges with respect to the newly constructed theory'.

Guest et al (2006) investigated qualitative interview saturation and made evidence-based recommendations regarding non-probability sample sizes for interviews, finding that 'saturation occurred within the first twelve interviews, although basic elements for meta-themes were present as early as six interviews.' Similarly, Martins (2008) interviewed 15 participants but believed she reached saturation after 12 interviews and Galvin (2015) suggested that in qualitative research, 12 interviews are sufficient to reach saturation point.

Tracy (2013) estimates that each one-hour interview requires about 15 total research hours, accounting for time spent on planning, arranging, transcribing, and analysing data. In phase one of this research study, 12 qualitative semi-structured consumer interviews, each lasting 45 minutes, were conducted.

Industry Survey Sampling Strategy

Purposive sampling was also used for the industry designer survey where professionals working in the design industry were asked to provide qualitative data regarding their experience using design tools

and processes. Each respondent is selected because of their experience. Snowball sampling is used in order to reach a greater number of designers in industry.

The purposive sampling criteria for the industry survey were straightforward, requiring only that respondents work within the Design Industry. Although the tool being developed is centred on furniture design, its content and structure have broader relevance, so it was not necessary to restrict respondents to those specialising in furniture. Additionally, the tenure of the professionals was not a factor, as the tool is intended for all levels of creatives, from new students to senior Design Directors. To reach designers in the industry, existing professional networks were leveraged to distribute the survey, and internet searches were conducted to compile a contact database of design businesses for distribution. Social Media was used to share the link to the survey, and colleagues in Higher Education institutes also shared the survey. The survey received 54 responses with detailed qualitative insights. The findings of the Industry Survey are discussed in Chapter 5, including the impact on the design and development of the new tool.

3.15   Analysis Strategies

Quantitative and Qualitative Analysis of Consumer Survey Data

The online consumer survey, completed by 275 respondents, included both quantitative and qualitative questions. The survey was conducted using the Qualtrics platform, which was used to generate a report featuring graphs to visualise quantitative data and tables to capture all qualitative responses. NVivo word frequency queries were used to identify commonly repeated words and stemmed words longer than three letters in the qualitative data, and word frequency tables were then created to display the most frequently mentioned words or stems. Chapter 5 presents and discusses the findings from both quantitative and qualitative questions, including illustrative examples of qualitative responses to enrich the analysis.

Thematic Analysis of Semi-Structured 1-1 Consumer Interviews

After conducting the qualitative one-to-one consumer interviews, thematic analysis was performed to identify key trends and themes in the participants' shared experiences. Bell et al. (2009) emphasise that data analysis is 'an integral part of qualitative research and constitutes an essential stepping-stone toward both gathering data and linking one's findings with higher order concepts.' Thematic analysis is particularly beneficial for this research study due to its flexibility, which enables the capture of data most relevant to the study's objectives (Braun et al., 2006).

The thematic analysis conducted after the interviews allowed themes to be guided by the insights rather than being predetermined or pre-assigned. This approach ensured that the analysis is inductive, and driven by the content of the transcripts, aiming to uncover new insights rather than simply aligning

with existing themes identified through other research activity, including the survey data and literature reviews.

The thematic analysis of the interview transcripts applied advice from King et al. (2019) who emphasise the need to balance within-case and cross-case analysis. While within-case analysis focused on understanding each individual's personal experience, cross-case analysis was essential for identifying common themes across cases, aiding in the process of addressing the research question.

In order to support progress towards answering the research question, clear and distinct themes were identified following the qualitative interviews. Codes were developed that refer to concepts through clear criteria (Bell et al 2009). A three-stage coding approach was used to identify these themes as described by King et al (2019). Each of the three stages are revisited and themes fine-tuned, similarly to the process of Template Analysis (Crabtree and Miller 1992). The three stages of the coding approach involve descriptive coding, interpretive coding and the defining of overarching themes (King et al 2019). These stages are presented in Chapter 5, within a set of hierarchy charts with overarching themes at the top, feeding down the interpretive codes and then descriptive codes. This thematic analysis and coding method was well-suited for this research study as it allowed the opinions and experiences of interviewees to be captured across three levels. It ensured that key overarching themes guided the study while still preserving individual participant insights without them becoming diluted. As advised by King et al (2019), the findings from the thematic analysis are presented by describing and discussing each overarching theme, supported by example quotes from the interviews to illustrate the themes. Longer quotations are displayed as separate indented paragraphs, while shorter quotes, if less than a line in length, are integrated into the main text with quotation marks.

Table 3.6 outlines the thematic analysis process described, with stages 1-5 detailing how the analysis of interview transcripts resulted in eight overarching themes, along with interpretive and descriptive codes. Stages 6-10 describe the subsequent process of revisiting and refining the codes and themes to develop a final framework, represented as a four-circle Venn diagram. The thematic analysis hierarchy charts and the final framework are discussed in Chapter 5.

Stage	Process	Illustration
1	Interview transcriptions were analysed to identify specific points of consumer insight.	*'but I just think it brings an element of simplicity and a sense of warmth'*
2	Descriptive codes were formulated that simplified the transcription comments to reduce in-depth specificity that could not be applied broadly to different furniture types.	simple / no decoration / uncomplicated } Item is simple with little/no decoration
3	Descriptive codes (blue) were grouped into broader interpretive codes (red), omitting data with little frequency.	Item used to support professional life / Consumer achievement of building/adapting item / Achievement of furnishing own home } Personal Achievement
4	Connected interpretative codes (red) were captured within overarching themes (green).	Relaxation / Warmth / Calmness / Safety } Comfort
5	8 overarching themes were defined and mapped with their associated interpretive and descriptive codes.	
6	All interpretive codes were detached from the 8 overarching themes due to concern of thematic analysis bias, influenced by the interview structure.	
7	The detached interpretive codes were clustered or positioned in proximity to others with relevant connections; for instance, 'multi-function' was positioned near 'positive user experience' to highlight their correlation.	
8	New overarching themes were defined that aimed to represent new groupings of interpretive codes, namely Design Character, Feeling, User Experience, Ownership, Personal, and Destination.	
9	The new themes and existing interpretive codes were tested in different configurations e.g. circumplex model, to develop a clear overarching framework.	
10	A final framework was devised, enabling interpretive codes to be positioned between themes, facilitating connections with multiple themes. The ultimate framework is illustrated as a 4-circle Venn diagram, featuring the overarching themes of Narrative, Consumer Curator, User Experience and Destination.	

Table 3.6 Thematic Analysis Process.

Quantitative and Qualitative Analysis of Designer Survey Data

Similar to the online consumer survey, the survey of industry designers also included both quantitative and qualitative questions. A total of 54 respondents participated in the survey, conducted using the Qualtrics platform, which generated a report with graphs to visualise quantitative data and tables to present all qualitative responses. The qualitative responses were then analysed using a simplified thematic analysis compared to the method applied to the consumer interviews. Responses were grouped to highlight common opinions and experiences among respondents. Due to the relatively small number of qualitative responses, detailed coding was not necessary. Chapter 5 presents and discusses the findings from both the quantitative and qualitative questions, with examples of qualitative responses provided to enhance the analysis.

3.16 Building The Design Brief and Specification

Before the tool could be developed, a detailed brief and specification was needed, to ensure it met its objectives and incorporated key insights from both the primary and secondary research conducted in the study. The following section outlines the process leading to the creation of the design brief and specification, with Chapter 6 providing an in-depth exploration of this process.

3.16.1 Phase 1: Collating Findings and Strategies

In order to build the first draft of the tool for testing, a design brief and specification was developed that brought together the findings from each research collection activity, including the literature reviews, analysis of sales data and trend reports, consumer survey, semi-structured consumer interviews and the designer survey. In Phase 1, a table was used to simply collate the findings from each source into one document. This represented a significant stage in which conclusions from extensive research came together, including the rich insight of almost 300 consumers and more than 50 designers, along with reviews of prior work in the Emotional Design field, and a detailed look into iconic furniture and trends.

3.16.2 Phase 2: Consolidating and Categorising Findings and Strategies

In Phase 2, a new table was created that consolidated the comprehensive findings gathered in Phase 1, organising them into specific areas of focus for tool development. This table categorised the data from the Phase 1 table into the following areas:

- Format, Design & Accessibility
- Content & Structure
- Publishing
- Strategies

3.16.3   Phase 3: Defining the Tool Structure and Aligning Strategies

In Phase 3, attention was focused on the overall structure of the tool and how themes could be developed to ensure Designers were provided with a clear and intuitive tool applicable to their work. The overarching themes derived from the findings of the 1-1 Semi-Structured Consumer Interviews were considered for use as the main thematic categories within the tool. These four key themes are Narrative, Consumer Curator, Destination and User Experience. The design strategies identified from the literature review, sales data analysis, trend reports, consumer survey and semi-structured consumer interviews were categorised under the four key themes that emerged from the 1-1 Semi-Structured Consumer Interviews. However, many of these strategies overlapped across multiple themes, often fitting into at least two, if not three categories. As a result, despite the appeal of the four themes (Narrative, Consumer Curator, Destination, User Experience), using them to structure the design tool would be impractical, as it would force strategies into single categories despite their relevance to others. Disregarding these carefully developed themes would undermine valuable consumer insights, so a plan was developed to represent the themes as badges or similar markers within the card set.

Re-evaluating the overarching themes and revisiting earlier research, including the structure of the consumer survey, consumer interviews, and prior studies referenced in the literature review, the strategies identified were grouped into three primary themes of Aesthetics, Function and Meaning. This process revealed a clear alignment of each strategy with one of these three themes, while also ensuring a fairly even distribution of strategies across them. At this stage, each of the three themes contained 14-16 design strategies, ranging from specific design techniques to broader design philosophies. However, some strategies identified from the consumer survey were not reinforced by other research sources and were therefore excluded from the list of strategies included in version 1 of the design tool.

Although some strategies were omitted, the results from the ranking and calibration stage of the semi-structured consumer interviews were aligned with the remaining strategies. The five most important themes identified during this stage, in order of priority, were Togetherness, Comfort, Natural Influence, Adaptability and Minimalism. Strategies incorporating Togetherness and Adaptability were already present, so these themes were emphasised by adopting them as strategy titles. However, no strategies explicitly addressed Comfort, Natural Influence and Minimalism, so new strategies were introduced to incorporate these themes in the development of version 1 of the tool.

This phase of refining the strategies for inclusion in the tool ensured that key strategies identified through the research were retained, while excluding those that were less relevant or unsuitable for furniture design. No further refinement to the list of strategies was made prior to the development and initial testing of the tool.

3.16.4 Phase 4: Presentation of Strategies

In Phase 4, attention was focused on how strategies would be presented to users of the tool. Analysis of existing design tool card sets revealed that strategies are typically presented as simple definitions, instructional explanations, questions, or a combination of these formats. For the strategies identified in this research study, it became evident that framing them as questions would be particularly effective. Questions promote thought and reflection, and can be applied at any stage of the product design and development process. For instance, the question 'Can the product use recycled materials that retain the imperfections of the reclaimed materials?' is relevant during the ideation stage, when a design is still being conceived, during the development phase, when the design is in progress, and even for existing products undergoing updates and revisions.

Earlier criticism of tools that failed to communicate the application of strategies highlighted the need for the new tool to provide not only guidance but also examples of successful strategy implementation. This phase included the development of the accompanying guidance points and product-based examples for each strategy.

The analysis of existing design tool card sets revealed some effective use of colour, leading to the decision to employ colours to represent themes in the new tool. Additionally, using colour improves the visibility of the cards on a table full of papers and helps keep users' attention focused on them.

The use of photography, images, and illustrations in existing tools varied widely. Given that designers work in a highly visual field and often communicate through images and drawings, it was essential for the new tool to incorporate some form of images. Different image styles offer various benefits and drawbacks, but maintaining consistency is essential. Custom illustrations are tailored but time-consuming, while stock photography is quicker to obtain but may face licensing and consistency issues. To expedite the development for the initial testing event, the decision was made to use stock photography from Unsplash, a website offering over 3 million free high-resolution images for both commercial and non-commercial use without requiring permission. Feedback from initial testing was then used to refine the style of images or illustrations for version 2 of the tool.

Alongside colour and images, some existing tools also use icons to convey themes, connections between themes, or relevant applications of strategies. Although the main themes of the tool differ from those developed in the 1-1 semi-structured consumer interviews, it was decided that creating icons for these themes and applying them as badges to each card provides users with an extra layer of detail. The cards in version 1 of the tool incorporated these themed badges for testing purposes.

3.16.5 Building The Design Brief & Specification Summary

Phases 1-4 of developing the design brief and specification established the overarching structure of the tool and identified the key strategies at its centre. Strategies were collated, consolidated and

categorised to align with the tool's three overarching themes. Each strategy was enhanced with supporting guidance, a product-based example and a strategy title. The application of colour, images and icons was also defined based on earlier research conducted in the study. The finalised Design Brief and Specification for the tool was then applied in the design and development of the Emotional Design Deck.

3.17   Building the Tool

With the detailed Design Brief and Specification created, the process of producing the cards could begin. This process involved several key activities, which are further explored in Chapter 6. The design and development tasks included:

- Development of Colour Palette
- Sourcing of 48 stock images from Unsplash.com
- Colour grading of each stock image
- Development of Hierarchy of Information specification
- Typeface selection
- Design and Production of 48 original product-based example illustrations
- Design and Production of 4 insight badge icons
- Design of card layout template
- Production of 48 strategy cards using layout template
- Production of 4 supplementary guidance and detail cards

The design and development of the cards primarily utilised three key programmes from the Adobe Creative Cloud, including Photoshop, Illustrator and InDesign. Adobe Photoshop was used for the colour grading of the stock images using a gradient map process. Adobe Photoshop is best suited to image editing and the images created have a vibrant stylised appearance which appeal to creatives. Adobe Illustrator was used for a range of tasks including the production of the product-based example illustrations, insight badges and the card layout template. As a vector-based program, Illustrator allows graphics to be resized infinitely without losing quality, making it ideal for designs intended for print or various display sizes. Illustrator tools for drawing lines, shapes and combining elements also make it well-suited for creating detailed illustrations and icons. Finally, Adobe InDesign was utilised for its multi-page functionality, enabling the production of all 52 cards from a single template and editing within one file. This approach ensured consistency and allowed the entire deck to be viewed collectively.

Once the cards had been produced digitally, they were printed on cardstock for use in the testing workshops and for delegates to explore at the conference. Chapter 7 details the testing process and the refinements made to the card design. The refinements made to the cards utilised the same Adobe software as described above.

3.18   Testing The Tool

Phase 3 of this study included the critical stage of testing the Emotional Design Deck to verify that it met the Research Aim. The testing process was organised into three key phases, with refinements made between the second and third phases. Table 3.7 outlines these three testing stages, which are explored in detail in Chapter 7.

Phase 1	Student Workshop and Evaluation	Friday 3rd March 2023, *University of Staffordshire Creative Lab*
Phase 2	Conference Presentation and Feedback	Wednesday 30th March 2023, *Seventeenth International Conference on Design Principles & Practices* *Polytechnic Institute of Lisbon*
	Tool refined using insights obtained from Phase 1 and 2	
Phase 3	Designer Workshop and Evaluation	Friday 14th July 2023, *University of Staffordshire Creative Lab*

Table 3.7 Three Testing Phases of the Emotional Design Deck.

Each test phase was devised to collect both quantitative data and qualitative insights from a diverse group of participants, including design students, industry professionals, and conference delegates comprising academics and practicing designers from around the world. The Student Workshop and Designer Workshop were carefully designed to introduce the tool to participants with minimal preliminary information. Creative Workshops or Charrettes have been frequently used in Emotional Design research including that of Ozkaramanli et al., (2012),(2013), Pedgley et al., (2018), Grosse-Hering et al., (2013), and Fokkinga et al., (2013). Participants were given the opportunity to independently explore, apply and test the tool without any input from the tool's creator. This approach was essential to eliminate any researcher bias that could influence participants' understanding or experience with the tool. Allowing participants to engage with the tool on their own, ensured unbiased feedback and a genuine assessment of its effectiveness and usability.

3.18.1   Student Workshop

The student workshop was promoted to undergraduate design students at University of Staffordshire in February 2023 through posters (Fig. 3.7), displayed in design studios and emails sent to students. This outreach led to 17 students expressing their interest by completing an online form via Qualtrics. Ultimately, 12 students attended the workshop, which was held in March 2023. Students worked collaboratively before sharing their experience of the workshop, and the Emotional Design Deck via an evaluation survey hosted on Qualtrics.

Figure 3.7 Emotional Design Student Workshop Poster.

Table 3.8 outlines the structure of the workshop, which lasted just over 2 hours. The following paragraphs describe the activities conducted during the workshop and explain their purpose in supporting the testing process.

Stage	Duration (minutes)	Activity
1		Welcome and Refreshments
2	15	Brief introduction to the purpose of the workshop
3		Students provided with pens, papers and markers
4	30	In pairs, or small groups, students collaborate to respond to the brief without using the new tool
5	5	Students to stick sketches on boards positioned in the room
6	15	Break
7	30	In the same pairs, or small groups students collaborate to respond to the brief using the Emotional Design Deck
8	5	Students to stick sketches on boards positioned in the room
9	15	Students invited to present their sketches to the whole group, describing the concept origin and any relevant detail
10	15	Students provided with the link to the online evaluation form and given time to complete

Table 3.8 Emotional Design Student Workshop Structure.

Stages 1-3 began with a general welcome and a brief overview of the workshop's purpose. Students were deliberately given minimal information about the Emotional Design Deck, only being informed that it is a card set they would interact with during the latter part of the session. They were reminded that participation in the workshop was entirely optional, that they could leave at any time, and that it had no connection to their modules or any form of assessment. The students were introduced to one another and asked to form small groups or pairs.

In Stage 4 students were given thirty minutes to respond to a design brief without using the Emotional Design Deck. Students worked collaboratively in their pairs or small groups to respond to the design brief shown below.

> ***Design a new piece of furniture for the UK market place.***
> - *This may include furniture like chairs and seating, storage furniture, beds, desks and tables.*
> - *The furniture will be mass-produced, or manufactured in fairly large batches, the item cannot be a one-off, bespoke item.*
> - *You can decide on the approximate price point of your item, designing furniture for the entry level, or the high-end.*

Students collaborated to generate new concepts and sketch their ideas without input from the researcher. Students were told when the thirty minutes had ended and were asked to stop sketching. In Stages 5 and 6 students stuck up their sketches on boards situated in the room before stopping for a short break. In Stage 7 each pair or group of students were given a full set of the Emotional Design Deck cards. The only information and guidance provided was to read the instructional card at the top of the deck to familiarise themselves with it. The students then had 30 minutes to respond to the same brief as before, applying the strategies from the Emotional Design Deck in the same pairs or small groups. As in Stage 4, they collaborated to generate new concepts and sketch their ideas without researcher input. Once the 30 minutes had elapsed, students were asked to stop sketching and display their sketches (Stage 8.) It was essential that Stages 4 and 7 were controlled similarly to accurately compare the experience of developing new products with and without the Emotional Design Deck. The duration, design brief, materials, group size and overall guidance were kept consistent across both stages, with the only variable being the use of the tool. In Stage 9, students were invited to present the concepts they had developed in their pairs or small groups, and to explain the thought process behind these concepts. They discussed designs created both with and without the tool, referencing the strategies from the Emotional Design Deck in their explanations. At this stage, the researcher only listened to the presentations without commenting or probing further into differences related to the use of the tool. Positive feedback was consistently given to commend students on their design work and sketches, regardless of whether the concepts were developed using the tool or not. It was crucial to avoid any researcher bias that could influence the students' reflections before moving to the evaluation phase. Stage 10 marked the final part of the workshop, where students individually completed an

online evaluation form using the Qualtrics platform. The form included both quantitative and qualitative questions about their experience of the workshop and the Emotional Design Deck. Two students left after Stage 9 and did unfortunately not complete the evaluation form following the workshop, while one student did not complete it fully. Consequently, 9 out of the 12 students completed the evaluation, resulting in a 75% completion rate.

The student workshop marked the first external release of the tool, immediately following its design and development. The version of the Emotional Design Deck used in this workshop was Version 1, which was later refined based partly on feedback from the students. Details of the student evaluation findings, photographs from the event, and information on the subsequent refinements to the tool are discussed in Chapter 7.

3.18.2 Conference Presentation

Phase 2 of testing for the Emotional Design Deck included presenting the tool and related research activities at the Seventeenth International Conference on Design Principles & Practices. The conference was held over three days in March 2023 at the Polytechnic Institute of Lisbon in Portugal. The twenty-minute presentation was given to an audience of approximately 25 designers, academics, and researchers from various countries. During the session, attendees were invited to explore the Emotional Design Deck, with cards distributed around the room. The presentation was organised as follows, guiding the audience through the origins and development of the Emotional Design Deck:

- Background: Introduction to existing design tools, including Emotional Design tools.
- Research: A brief overview of the primary and secondary research activities that informed the tool's structure and strategies.
- Design: Explanation of the card design, including layout, use of images, colour, illustrations and icons.
- Workshop: Insights from Test Phase 1, detailing the Student Workshop and key findings.
- Feedback: An opportunity for delegates to explore the cards further, with a request for feedback via a QR code linking to a Padlet board.
- Q&A: Opportunity for the audience to ask questions, or comment on the presentation.

The evaluation for this test phase used a Padlet board, enabling delegates to easily provide digital feedback from their own devices. Padlet is a simple, user-friendly platform that allows users to add 'posts' in the form of tiles or notes, which others can view, comment on, or contribute to in real time. This platform was chosen for its ease of use and quick setup, as the conference presentation was part of a series of four, making rapid feedback essential. Delegates shared eight feedback posts on the Padlet board, along with several insightful comments made during the Q&A session. All feedback is analysed in Chapter 7, where the impact of these comments on the tool's refinements is also discussed

3.18.3 Designer Workshop

The final testing phase of this study focused on evaluating Version 2 of the Emotional Design Deck with industry professionals. The Designer Emotional Design Workshop was held in July 2023 at the University of Staffordshire Creative Lab in Stoke-on-Trent. Designers who had participated in the initial survey, along with others recruited through professional networks, were invited to attend. A total of 12 designers voluntarily participated in the workshop, receiving lunch and refreshments, though they were not compensated for their time or travel expenses.

The session followed the same structure as the student workshop, with participants working in pairs or small groups to address the same brief, first without the tool, and then with it. The structure is outlined in Table 3.9 below.

Stage	Duration (minutes)	Activity
1		Welcome and Refreshments
2	15	Brief introduction to the purpose of the workshop
3		Participants provided with pens, papers and markers
4	30	In pairs, or small groups, participants collaborate to respond to the brief without using the new tool
5	5	Participants to stick sketches on boards positioned in the room
6	45	Lunch
7	30	In the same pairs, or small groups participants collaborate to respond to the brief using the Emotional Design Deck
8	5	Participants to stick sketches on boards positioned in the room
9	15	Participants invited to present their sketches to the whole group, describing the concept origin and any relevant detail
10	15	Participants provided with the link to the online evaluation form and given time to complete

Table 3.9 Emotional Design Designer Workshop Structure.

The design workshop was deliberately structured to mirror the student workshop, allowing for direct comparison of results. As in the student session, participants received no introduction to the tool, its purpose, or origins, they were simply instructed to read the first guidance card on top of the deck. It was emphasised that participation was entirely voluntary, and attendees were free to leave at any time. More information about the design brief, and each Stage of the workshop can be found earlier in this chapter in reference to the student workshop.

The evaluation form completed by participants at the end of the Designer Emotional Design Workshop again replicated the evaluation form used by students in Phase 1 of testing, with the addition of four new questions. These questions assessed the tool's ability to enhance a designer's vocabulary and its

potential as an analysis tool. They also gathered information on each designer's experience in the industry and the types of companies they had worked for.

The evaluation form, hosted on the Qualtrics platform, received ten responses from the twelve participants. Two participants left the workshop a few minutes early and did not complete the evaluation following the event. This results in a response rate of 83%.

The Designer Emotional Design Workshop assessed Version 2 of the tool, with measures in place to replicate the earlier student workshop. Chapter 7 describes the evaluation findings, includes photographs from the event, and discusses how these findings influenced the tool's development.

3.19   Assessing Quality

To ensure the credibility of the Emotional Design Deck and its contribution to knowledge, as well as to maintain the academic rigour required for a PhD thesis, it was essential to prioritise the quality of the research activities and findings in this study. Birks et al. (2015) present a model that examines three key factors influencing the quality of qualitative research, including researcher expertise, methodological congruence and procedural precision. The following sections outline how the methodology of this research study addresses each of these influencing factors.

Researcher Expertise

Birks et al. (2015) highlight how a researcher's expertise can impact the quality of qualitative research, noting that even novice researchers usually possess essential skills relevant to research, such as scholarly writing, resource access, and project management. With solid experience in both industry and academia, the researcher approached this study with a strong foundation of expertise to build upon. The importance of extensive reading within the area of investigation is emphasised by Birks et al. (2015) to identify the commonly used methodologies, methods, and philosophical stances of established researchers. In line with this, Phase 1 of this study involved a comprehensive four-part literature review, which significantly deepened the researcher's understanding of Emotional Design, as well as the methodologies and philosophical perspectives commonly applied in the field. The researcher's expertise was further developed through learning new research and analysis techniques, such as Thematic Analysis, and gaining proficiency in software like NVivo. Additionally, existing knowledge of platforms like Qualtrics was expanded to incorporate more advanced functionality. The conference presentation and workshops in Phase 3 of the study further enhanced the researcher's expertise and confidence, building on existing skills. Birks et al. (2015) highlight the importance of these transferable activities for researcher development.

Methodological Congruence

Methodological congruence is defined by Birks et al (2015) as when there is accordance between the researcher's personal philosophical position, the stated aims of the research and the methodological approach employed to achieve the aims.

The research aim of 'developing a tool' requires a pragmatic and systematic approach that integrates insights from various sources to design and test the tool. Consequently, a philosophical stance of Pragmatism was adopted, focusing on the practical outcomes of the research.

Pragmatism enables the researcher to incorporate insights from consumers, designers and researchers without being biased by the lens of a different philosophical approach. The research employs a blend of inductive and abductive reasoning, generating new knowledge about Emotional Design in relation to furniture, while also refining and building upon existing general Emotional Design research. This pragmatic approach effectively leverages prior work while producing the new knowledge needed to develop the tool.

To develop the design tool, both quantitative and qualitative data were essential. Quantitative data included the analysis of sales figures, trends related to different types of furniture, and the frequency of use of existing design tools. Meanwhile, qualitative data offered rich, in-depth information, including personal stories and insights about the emotional connections people have with their cherished pieces of furniture. This mixed methods approach strengthens the research by combining the objectivity of quantitative data with the nuanced understanding provided by qualitative insights. By integrating these two forms of data, the research was better equipped to address the complexities of Emotional Design and ensure the tool is both practically relevant and informed by real user experiences.

Cross-sectional studies analyse consumer data at specific points in time, such as through consumer surveys and interviews. From a pragmatic perspective, it is acknowledged that knowledge is never entirely perfect or complete, as it is shaped by cultural, historical and contextual factors. Nonetheless, the tool being developed aims to address the current marketplace, reflecting contemporary lifestyles, tastes and trends. Future research may lead to updates to the tool to accommodate evolving cultural shifts and emerging trends.

Procedural Precision

Birks et al. (2015) propose that procedural precision is achieved by maintaining an audit trail, effectively managing data and resources, and demonstrating procedural logic. The authors emphasise the importance of documenting decisions related to research activities, along with any changes in direction and the rationale behind those choices. Understanding that this study would be completed across a number of years, it was clear that thorough documentation, record keeping, and strategic

planning would be essential. All digital files were stored in a secure OneDrive folder, allowing easy sharing with supervisors. Using the cloud-based OneDrive ensured files were automatically backed up, while additional backups on external hard drives provided extra file protection.

Maintaining an Audit Trail

In this study, all notes, analysis, survey reports, planning documents, databases and supervisor meeting records were stored digitally in the OneDrive folder. Methodological decisions affecting the research activities were documented, and all files were saved with version numbers and dates in their filenames. Microsoft Word, Excel, PowerPoint, and PDF formats were used as appropriate, along with Adobe Photoshop, Illustrator, InDesign, jpeg and png files for image and graphic design content . For the four-part literature review, RefWorks was utilised to track each secondary source. During the initial phase, journal articles were printed for easier reading and organised in ring binders, categorised using a RAG rating system based on relevance to the research: green for 'direct' and highly useful, amber for 'peripheral' but relevant, and red for 'beyond' the immediate scope, indicating limited applicability to the study.

Managing Data and Resources

The Consumer Survey was hosted on Qualtrics, with all data securely password protected and stored in a secure folder once downloaded. Word Frequency Queries were conducted using a password-protected NVivo account, and a survey information statement was provided to ensure ethical compliance.

Semi-Structured Consumer Interviews were organised and scheduled in a password-protected Microsoft Excel document. The Otter.ai app was used to record and transcribe interviews, as well as store images of the sorted visual materials. Recordings, transcriptions, and images were initially stored in a password-protected Otter.ai account before being downloaded and securely saved in a password-protected folder. Ethical compliance was maintained through the use of Interview Information Sheets and Consent Forms.

The Designer Survey was also hosted on Qualtrics, with data protected by passwords and stored securely after download. A survey information statement was provided to ensure ethical standards were met.

Demonstrating Procedural Logic

The Schematic Research Framework utilised in this study, combined with a project management plan in TeamGantt, ensured a logical progression of research activities that not only aligned with the overall aim but also supported each other cohesively.

Pilots were conducted for each primary research activity, including the Consumer Survey, Semi-Structured Consumer Interviews, and Designer Survey, to evaluate functionality, usability and data quality. These pilots played a critical role in identifying key refinements before fully launching the activities.

Each secondary source used in the literature review was initially read through once, followed by a second reading during which key information relevant to the research was annotated and highlighted. This information was then incorporated into the literature review to develop key themes. The literature review was kept as a living document, evolving over time to include new research as it was published.

Triangulation of all insights gathered in Phase 1 of the research was used to develop the design brief and specification for the tool. A master document was created to clearly label and consolidate all identified themes, strategies and insights, which were evaluated both individually and collectively. Following Birks et al. (2015), maintaining procedural logic was crucial, and this involved revisiting the original data to ensure that the conceptual leap to the brief and specification was grounded in the earlier analysis.

The procedure of how the tool was developed, using the design brief and specification can be found earlier in the methodology section. The sequence of design, development, testing and refinements supports procedural logic, and also aligns with design project frameworks, like the Design Council's framework for Innovation (The Double Diamond.) Design Council, (2004).

3.20   Ethics & Validity

The TRUST Consortium developed a Global Code of Conduct for Research in Resource-Poor Settings (GCC), which was adopted by the European Commission in 2018 as a mandatory reference for applicants to Horizon 2020, Europe's largest research fund. The GCC features a 'Values Compass' that outlines four key values to guide decision-making in research (Schroeder et al., 2019). This research study has utilised the GCC to guide community engagement and ensure that participants in all primary research activities, including surveys, interviews and design workshops, are treated with fairness, care, respect and honesty. This research study has had full ethical scrutiny as part of the Ethical Review Policy at University of Staffordshire. The Proportionate Review Form and approval document can be found in appendix 11. As Denscombe (2014) explains, research ethics encompass how individuals are treated throughout data collection, analysis, and dissemination of findings. These aspects were carefully considered in designing the primary research activities for this study. The nature of the study did not involve vulnerable groups or sensitive topics, nor did it intentionally mislead participants or cause psychological stress. The research did not require access to personal records or confidential information. Participation was voluntary, with no coercion involved, and information sheets and consent forms ensured that all participants clearly understood the research and their involvement.

Participants had the option to withdraw from the study at any time. Details on data handling and storage can be found in the Proportionate Review Form in the appendices.

3.21   Conclusion

The research methodology for this study employs pragmatism through a mixed-methods empirical research approach. The mixed-methods, or multi-strategy research design is well suited to this study, combining both quantitative and qualitative methods. The research approach is both inductive and abductive. Cross-sectional studies, examining consumer data at set times, are combined with a review of iconic furniture and historic design movements, taking into account current consumer insight, as well as that from products that have stood the test of time.

The Schematic Research Framework of this study, as described earlier in this chapter, served as the roadmap, clearly defining the study's three phases and illustrating how each task contributes to the Research Objectives of the new tool.

Pilot surveys and interviews ensured the quality of primary research activities, by testing the method, structure, and analysis techniques of each, as well as the quality of the data collected.

A range of software was used in the study. This includes software for the distribution and completion of surveys, recording of interviews, and analysis of data. Software included Qualtrics, Nvivo and Otter.ai, as well as programs within the Microsoft Office and Adobe Creative Suites.

Different types of non-probability sampling strategies were used in this research study including convenience sampling and purposive sampling, each benefitting from the use of snowball sampling as part of their methodology.

Quantitative and qualitative analysis strategies included the use of Thematic Analysis (Bell et al., 2009), NVivo word frequency queries, and the output of reports from Qualtrics featuring graphs, tables and charts. Each analysis strategy was selected to ensure that the research contributed to the relevant research objective.

The research led design process that was undertaken to create the brief and specification for the tool being developed, synthesises the research activity findings. This methodology was familiar to the researcher, utilising and building upon existing expertise in project management.

The testing methodology followed a three-phase approach, including workshops with both students and professional designers, and a presentation at an international conference.

The quality of this research study was assessed and planned in terms of researcher expertise, methodological congruence, and procedural precision. The study has also had full ethical scrutiny as part of the Ethical Review Policy at University of Staffordshire.

The activities outlined in the methodology chapter address each Research Objective. Table 3.10 provides a concise summary of the methods employed to address each Research Objective.

Research Objective	Methodology
1. To identify trends in the types of furniture that consumers own and love, as well as furniture which is now considered 'iconic'.	• Literature Review Part 2 explored Emotional Design over time to identify trends in furniture, establish themes, and highlight iconic pieces of furniture. • A Quantitative and Qualitative Online Survey captured insights into the types of furniture consumers own and cherish, identifying trends and highlighting significant preferences. • The Semi-Structured Consumer Interviews and thematic analysis extend and deepen the findings of the consumer survey, revealing key themes in consumer-furniture relationships. • A Review of Iconic Furniture generated a new list of iconic furniture and presents a set of key themes to be applied to future furniture design projects. • Trends and Sales Data Analysis informed the sampling strategy for other study activities and contributed additional themes essential for the development of design tools.
2. To examine existing research to determine Emotional Design strategies that can be used by designers to create furniture that people love.	• Literature Review Part 1 examines the existing research and theories within the Emotional Design landscape, culminating in the development of an Emotional Design Framework Map. • Literature Review Part 3 identifies a range of Emotional Design strategies in existing research for integration into the Emotional Design Deck.
3. To analyse existing tools that support Designers in their work, focusing on Emotional Design tools, but also other design tools or processes to establish key strengths and weaknesses.	• Literature Review Part 4 examines existing tools and processes designed to assist designers, resulting in a list of recommendations to inform Phase 2 of the study. • A Qualitative online survey of designers further examines the awareness and use of existing tools, as well as their strengths and weaknesses, and appetite for new tools. A further set of recommendations to guide Phase 2 of the study are developed.
4. Synthesise the categories of furniture types, existing Emotional Design strategies, and existing tools to create a specification for a new tool.	• All findings from RO1, RO2 and RO3 are consolidated and organized into four categories covering format, design and accessibility, content and structure, publishing and strategies.
5. Build and Test a tool for Designers that supports them in the design process to create furniture that people love.	• A three-phase process of design, development, testing, and evaluation uses the brief and specification created in RO4 to produce the Emotional Design Deck.

Table 3.10 Methodology summary of the methods employed to address each Research Objective.

4   Identifying Iconic Furniture & Trend Data

4.1 Introduction

Chapter 4 explores two sources of research, including an examination of iconic furniture and an analysis of trend reports focusing on furniture design. An approach was devised to identify iconic furniture from existing literature, leading to the formation of a new and original poster, presenting 27 items of iconic furniture (Fig. 4.1). Furniture from this list is utilised to describe each of the seven themes that emerged through the analysis of the icons, representing shared characteristics of the items. In addition to this, ten key themes, identified through analysis of design trend reports are discussed, highlighting their application within the study, and the tool being developed. Further methodological detail regarding the process of each activity can be found in the methodology chapter. Information regarding the application of the themes can be found in Chapter 6.
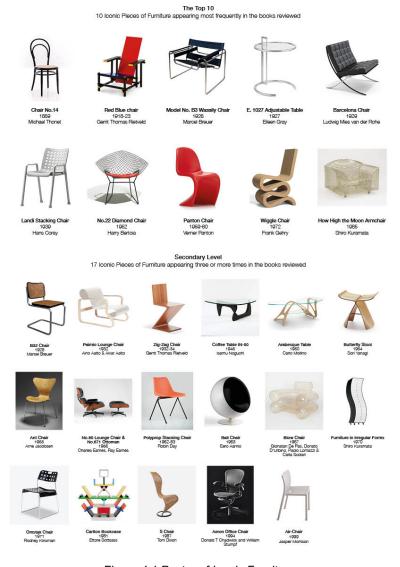
Figure 4.1 Poster of Iconic Furniture

4.2 Identifying Iconic Furniture

Iconic pieces of furniture stand as timeless symbols of creativity, innovation and functionality. They can be found in museums and galleries worldwide, celebrated for their distinctive style and profound influence on the world of design (Design Museum, 2022; Fiell and Fiell, 2012; Newson, Suggett and Sudjic, 2016; Terragni, 2022; Williams, 2006). Owning such pieces of furniture can symbolise status and identity for the consumer who wishes to signal to others that they are part of an exclusive club. Iconic furniture influences the design of new furniture, with repeated form factors, materials and styles providing familiarity for today's consumer.

Marcel Breuer's Model No. B3 Wassily Chair (Fig. 4.2), designed between 1925 and 1927, is widely recognised as one of the most iconic pieces of furniture ever created (DK, 2023; Fiell and Fiell, 2012; The Museum Of Modern Art, [n.d]; Terragni, 2022). The chair takes the visually heavy form of a traditional upholstered club chair and reduces it to a minimal supporting structure that can support a person. One of the first to use a tubular steel construction, based on that of a bicycle, Breuer presented a modern, technical and efficient construction technique that was widely adopted and continues to be used extensively in furniture design today. Edwards (2020, p.171) describes how even though the Model No. B3 Wassily Chair has been compared to an exercise machine, 'it remains a design classic that links the material object to the impalpable ideals of modernism. In this sense, the chair is no longer just a chair, it is a symbolic representation of an idea.'

Figure 4.2 Marcel Breuer's Model No. B3 Wassily Chair, designed between 1925 and 1927.

Furniture possesses the capacity to withstand the test of time, maintaining both its functional utility and aesthetic significance in our homes across generations. Nevertheless, furniture embodies more than mere functional and aesthetic value; it carries meaning and memories, and its tangible presence enables it to be handed down from one generation to the next. Well-designed furniture that connects emotionally to the consumer can become an icon of the future.

Having explored Emotional Design in the context of the instrumental design movements as part of this study, this research activity involved the analysis of existing literature to identify individual iconic

pieces of furniture. The iconic pieces identified, and the stories of their origins presented key themes to be considered in the development of the new Emotional Design tool.

4.3 Iconic Furniture and Connected Themes

The ten pieces of furniture that appeared most frequently in the literature span more than a century, with a remarkable 126 years separating the design of the oldest and newest pieces. It is expected that upcoming publications in the next few years will continue to showcase many of these timeless items, while those from the past four decades may increasingly garner attention. Notably, the secondary group of identified items, do indeed include pieces from the 1990s as well. Among the 27 identified items, it's noteworthy, albeit unsurprising, that the overwhelming majority are chairs, with only three tables, one bookcase and one chest of drawers included. Clear themes become apparent in the items of furniture shown and these sit at the heart of design, they include:

1. Advances in materials and manufacturing techniques that are used to develop new products.
2. Artistic expression of individual designers or groups of designers.
3. A desire to offer something new and unexpected.
4. A source of inspiration.
5. An intention to provide an experience.
6. Simplicity of form without the need for decoration.
7. Honesty to materials and their properties.

The following section discusses each of the emerging themes with reference to the most relevant items of furniture featured in the list of iconic pieces.

4.4 Iconic Themes

4.4.1 Advances in materials and manufacturing techniques that are used to develop new products

It is well documented that designers relish opportunities to develop or apply the use of new materials and manufacturing techniques to their work. New materials or methods of constructing products provide designers the opportunity to create products that look, feel and act differently. New materials and manufacturing techniques can also offer cost reductions, more sustainable production and be used to communicate new meanings. Advances in materials and manufacturing technique have often been developed for other industries or in times of war before being adopted or adapted for use in the furniture design industry.

The development of techniques to produce steam bent wood components, complex bent metal tubing, flowing plywood shapes and plastic mouldings dominate the list of iconic furniture (Fig. 4.1), and have had a huge impact on the design of furniture.

Michael Thonet's Chair No.14, or Model 14 (Fig. 4.3), designed in 1859 used his revolutionary steam bending process and the chairs innovative design to create one single, sinuous curved component that forms both the chair back and rear legs from one single piece of timber. The chair assembly was simpler than those that came before it, fixing components together with screws rather than glue, once again using innovation in materials and manufacturing processes to create a new product. Joensson (2020) describes the production process of Thonet's Chair No.14 and suggests that 'no other product better marks the beginning of industrial design'.

Figure 4.3 Michael Thonet's Chair No.14, designed in 1859.

One hundred years later, in 1959, Verner Panton designed the Panton Chair (Fig. 4.4), developing a beautifully organic, flowing and contemporary piece of furniture. The Panton Chair which remains incredibly popular today was the first chair to be made of one single piece of plastic. Verner Panton adopted a manufacturing technique used to make plastic buckets and helmets after visiting a factory and recognising the opportunity to apply the technique to furniture (Wilkinson, 2019). Folkmann (2011) described the Panton Chair as 'a design object without precedent, the Panton chair set new standards for what design is, and what it can look like.'

Figure 4.4 Panton Chair, designed by Verner Panton in 1959.

By developing new techniques and remaining open to those used in other industries, Thonet and Panton created new products that were fresh, innovative and exciting. Both chairs continue to remain popular and in use today, influencing the work of other designers and new products.

A design strategy that encourages furniture designers to consider the use of new materials, or the adoption of those used in other industries is included in the new tool based upon the number of furniture items in the iconic groups that were often developed, at least in part through the use of new and emerging materials and manufacturing technology. This remains just as relevant today with the development of new sustainable composites, recycled materials and manufacturing methods including the use of 3D printing.

4.4.2   Artistic expression of individual designers or groups of designers

A key theme that emerged from the items of furniture identified in this review is a designer's individual artistic expression or that of a group of designers belonging to a particular movement, brand, or philosophy. Whilst there are clearly highly commercial, mass-produced products identified in the review, there are others that have earnt their place in the list of iconic furniture by presenting an alternative approach to the design of furniture.

Gerrit Rietveld's Red and Blue Chair (Fig. 4.5), designed in 1918 is synonymous of the De Stijl art movement and it's strong horizontal and vertical lines share the characteristics of the movements most celebrated painter Piet Mondrian. Whilst the Red and Blue Chair was never mass-produced, the strength of the aesthetic and artistic expression of its designer supports its iconic status more than one hundred years after its inception.

Figure 4.5 Red and Blue Chair, designed by Gerrit Rietveld in 1918.

Contrasting the linear, architectural style of Rietveld's Red and Blue Chair, Isamu Noguchi's IN-50 Coffee Table (Fig. 4.6), designed in 1945 captures his talent as a sculptor and the organic, biomorphic forms channel the natural world whilst offering a contemporary, modern aesthetic. Noguchi's IN-50 Coffee Table remains popular today and is sold by HermanMiller alongside other iconic furniture identified in this review. Isamu Noguchi's was quoted as saying 'everything is sculpture' and the first catalogue listing described his IN-50 Coffee Table as 'sculpture-for-use' (Watson-Smyth 2013).

Figure 4.6 IN-50 Coffee Table, designed by Isamu Noguchi in 1945.

Whilst the design of new furniture should always consider its target market and the needs of the consumer, there are clearly opportunities for a designer's artistic expression to lead a project. The number of iconic pieces of furniture within this review that have a powerful, artistic led focus demonstrate that a strategy within the tool should remind designers to experiment with shapes and form that express their design preferences or philosophy. The inclusion of this strategy ensures that exciting ideas are not lost, particularly in the fast-paced industry of furniture manufacturers whose focus is often cost and mass appeal.

4.4.3   A desire to offer something new and unexpected

The desire to create something new is inherent within designers, and their ability to develop products that are innovative, either functionally, visually, or both is vital for their own success and the success of the businesses within which they work. Each item of furniture within this review offers a new take on the furniture, often through shape, form and use of material. Some designers also aim to shock, provoke, question trends and experiment.

Ettore Sottsass' Carlton Bookcase (Fig. 4.7), designed in 1981 embodies the style of the 1980's Memphis group that he was part of. The postmodernist style of the Memphis group embraced colour, playfulness and fun, rejecting the modernist ideals of rational, restrained design. The bookcase is as

much a sculptural object as it is a functional piece of furniture and Ettore Sottsass' desire to offer something new and unexpected to the marketplace continues to evoke a reaction from those who see it forty years later.

Figure 4.7 Carlton Bookcase, designed by Ettore Sottsass in 1981.

The Blow Chair (Fig. 4.8), designed by Jonathan De Pas, Donato D'Urbino, Paolo Lomazzi and Carla Scolari in 1967 is playful, fun and represented a casual lifestyle filled with cheap disposable products. Compared to the bulky furniture that preceded it, the Blow Chair was not only visually lighter but also physically lightweight. It could be deflated, rolled up, and easily transported, reflecting a sense of freedom and catering to city dwellers accustomed to frequent moves. Will Newton, assistant curator of furniture, textiles and fashion at the Victoria and Albert Museum in London, described how the chair 'challenges so many ideas of permanence, solidity and value. It was almost a revolutionary act to have one' (Jones 2016).

Figure 4.8 The Blow Chair, designed by Jonathan De Pas, Donato D'Urbino, Paolo Lomazzi and Carla Scolari in 1967.

The Designers of both the Carlton Bookcase and the Blow Chair responded to the time within which they worked, offering a new, fun and unexpected approach to both the bookcase and the chair. The

designs influenced the work of following designers and products that built upon the success of these iconic items of furniture. A strategy to offer something new and unexpected is built into the tool being developed, alongside 'surprise as a design strategy'.

4.4.4   A source of inspiration

The key starting point of a designer's project is often a shape, action, movement, or behaviour of another living being or object that surround us. Many of the items of furniture within this review have, as part of their story, an implicit or explicit source of inspiration that their designers have spoken about. Inspiration often comes in the form of borrowed methods of doing things, including the application of manufacturing techniques not used in the furniture industry at the time, for example the Panton chair discussed previously that adopted a manufacturing technique used previously in the production of plastic helmets and buckets.

When Charles and Ray Eames designed their Lounge Chair and Ottoman in 1956 (Fig. 4.9), the product not only adopted the designer's much loved developing technique of bending plywood into complex shapes, but also a key source of inspiration described by Charles Eames as a 'well used first baseman's mitt'. Charles Eames wanted the Lounge Chair and Ottoman to have an appearance like that of a baseball mitt, communicating a receptive and safe comfortable resting place. The generous size and materials used further communicate its comfort, and the mid-century icon of design continues to sell well today.

Figure 4.9 Lounge Chair and Ottoman, designed by Charles and Ray Eames in 1956.

A visual source of inspiration also led Tom Dixon to design the S Chair in 1987 (Fig. 4.10), beginning with a simple doodle of a chicken. The pure, sculptural form doesn't explicitly emulate the form of a chicken but it's organic curves and comforting natural materials offered something new and original to the marketplace. The product is still manufactured and sold today in a wide range of materials and finishes. Whilst the initial source of inspiration sparked the idea behind the S Chair, it's perhaps important to note that the initial inspiration doesn't necessarily have to be recognised by the audience

to be successful. Tom Dixon described how his 'slightly more successful designs seem to be ones that can be read in different ways, quite opposite to their original intent. If my original departure point for the S-Chair was a chicken, it has often been described by others as a female form' (TomDixon.net 2023).

Figure 4.10 S Chair, designed by Tom Dixon in 1987.

These items of furniture, and many others within this review demonstrate how a source of inspiration, however simple or seemingly mundane, can be the starting point needed to create a new and original product. Considering potential sources of inspiration at the ideation stage of a project is a frequently used technique by designers, however embedding the strategy into the tool being developed is still valuable as the review of iconic furniture demonstrates the power of the method.

4.4.5   An intention to provide an experience

All products offer a consumer an experience, ranging from an immersive escape into the graphics and sound of a VR headset, to the simple everyday task of boiling a kettle. These experiences need to be carefully designed in terms of the way something looks, how it works and its meaning being considered by the designer. A chair can offer an experience which wows the consumer with a stunning sculptural form but is no more comfortable than the floor, or can equally be designed to offer superior comfort, adjustability and ergonomic benefits, but result in a product that looks more at home in a factory than the home.

The items of furniture identified in this review each consider experience, with some prioritising a visual, or meaning based experience, whilst others focus on providing an experience of comfort or convenience. Experience includes the ability to easily stack furniture, keep furniture clean, or adapt furniture, and examples of each within this review include the 1939 Hans Coray Landi Stacking Chair, Michael Thonet's 1859 Model 14 Chair and the 1927 E.1027 Adjustable Table by Eileen Gray.

Two examples of furniture identified in this review that offer different experiences and approaches to sitting include Eero Aarnio's 1963 Ball Chair (Fig. 4.11), and the Aeron Office Chair (Fig. 4.12), designed in 1994 by Donald T Chadwick and William Stumpf.

Eero Aarnio's 1963 Ball Chair has a rich story of product development, with a clear designer vision, new materials, and a desire to create an experience of family togetherness, all on, or in one chair. The Ball chair envelops the user, protecting them and placing them in the centre of a futuristic capsule, tapping into the pop culture and optimism of scientific advances in the 1960's. Much of the story behind Aarnio's Ball Chair sits with his material experimentation and desire to create something that would stop passers-by at its shop window display, however the experience that was created, partly by design and partly by chance in the time it was developed, mean the excitement a user feels entering the sphere remains the same today, 60 years after it was first designed.

Figure 4.11 Ball Chair, designed by Eero Aarnio in 1963.

The Aeron Office Chair, designed in 1994 by Donald Chadwick and William Stumpf was designed to be a next-generation office chair, developed through a function and engineering led design process that prioritised its user experience above all. Through intensive research, including findings from a previous project that Chadwick and Stumpf worked on, the Aeron Office Chair began to take shape, and its form follows function philosophy resulted in a piece of furniture that not only functioned differently but also had a distinct new look. Its innovation in functionality, materials, and new form made it a market disruptor, and the Aeron remains incredibly popular today selling in high volumes. Its style, like many items of furniture discussed in this review has also been a key influencer for office furniture ever since.

Figure 4.12 The Aeron Office Chair, designed by Donald Chadwick and William Stumpf in 1994.

The experiences that the Ball Chair, and the Aeron Office Chair provide are different, but both products were developed with a clear vision and experience in mind. Both items of furniture required significant research, material knowledge, prototyping and designer persistence to bring them to life, but they both made an impact and earnt their place as iconic pieces of furniture. As with some of the previous strategies mentioned in this review, considering the user experience of a product is typically central to the design process however strategies that remind designers to bring the experience back into focus are incredibly valuable and form a vital part of the tool being developed.

4.4.6   Simplicity of form without the need for decoration

Simplicity of form is a characteristic which crosses a range of design movements, although the ways in which the associated designers define and interpret the concept of simplicity varies. The Bauhaus and its enduring philosophy of form follows function perhaps best demonstrates beautiful products without decoration, however many of today's popular products are still designed in this way.

Marcel Breuer's B32 Chair (Fig. 4.13), also known as the Cesca Chair, was designed in 1928 featuring a cantilever design that combines tubular steel, wood and cane to create a lightweight minimal form that meets its functional expectation. Inspired by the bent tubular steel frame of bicycles, Breuer spotted an opportunity to create furniture in the same way. The design of this cantilever chair and others at the time by Breuer and his contemporaries influenced many more, and chairs in this style remain incredibly popular today, often featuring plastic moulded single-piece seats, or upholstered cushions.

Figure 4.13 B32 Chair, designed by Marcel Breuer in 1928.

Jasper Morrisons Air Chair (Fig. 4.14), designed in 1999 is a prime example of furniture that has a simple, unadorned form with no decoration. The Air Chair employs gas injection moulding, a process that creates a hollow core, reducing material use and resulting in a lightweight design, hence its name.

Figure 4.14 Air Chair, designed by Jasper Morrison in 1999.

Morrison, (2006) describes the design process and how 'With each chair designed one gets a better sense of what makes a comfortable seat, and with this one I think we succeeded in delivering a combination of angles and curves which combine to give a high level of comfort to the long-term occupant.' Morrison's focus on the comfort of the seat, and functional value, again demonstrates the

form follows function philosophy, aided by the implementation of new and emerging materials and manufacturing techniques.

The characteristic of simplicity of form without the need for decoration can be seen in many of the pieces in the iconic furniture list and it is important to recognise how central this philosophy is to good design. Whilst the philosophy of form follows function, and less is more, sit within the psyche of most industrial designers, the benefits that these approaches offer mean that strategies to remind designers of them, are embedded within the new Emotional Design tool.

4.4.7   Honesty to materials and their properties

Frank Gehry's Wiggle Chair (Fig. 4.15), designed in 1972 is made almost entirely of cardboard and makes no attempt to hide this. Gehry found that by alternating the direction of the corrugations of the cardboard in each layer, the substrate became strong, with a consistent texture on all sides and edges. The material innovation and honesty to the materials used earn the wiggle chair its place on the list of iconic furniture, despite its fairly limited mass appeal and adoption of the material in wider furniture market.

Figure 4.15 Wiggle Chair, designed by Frank Gehry in 1972.

The Butterfly Stool (Fig. 4.16), designed in 1954 by Sori Yanagi showcases the beauty of moulded plywood in a symmetrical, organic form. Produced in either maple or palisander rosewood, the stool showcases honesty to materials with no painted option disguising the wood grain and unique patternation of the substrate.

Figure 4.16 Butterfly Stool, designed by Sori Yanagi in 1954.

Although using different materials, both products highlight the principle of honesty to materials, retaining and proudly presenting the inherent qualities and characteristics of the cardboard and wood. By not disguising a material, it imbues an aesthetic integrity to the product which can also help communicate meaning and product function. The concept of honesty to materials is applicable not only to natural materials but also to synthetic ones. For instance, when brightly coloured plastics are moulded into intricate shapes, they can be equally captivating for their utilisation of the inherent qualities of the material being employed. Materials and finishes that attempt to mimic another material can be a source of disappointment for some consumers. These false finishes are often described as 'fake wood' or 'metal effect,' which may not meet the expectations of customers.

4.5 The Emerging Themes

A review of iconic furniture in literature has led to a new list, revealing seven key themes (Table 4.1) that offer insights into the characteristics of iconic pieces. These themes inform the strategies used in the tool and guide designers in creating new furniture.

Emerging Themes Design Icons	Advances in materials and manufacturing that are used to develop new products
	A desire to offer something new and unexpected
	An intention to provide an experience
	Honesty to materials and their properties
	Artistic expression of individual designers or groups of designers
	A source of inspiration
	Simplicity of form without the need for decoration

Table 4.1 Key Themes formed through the review of iconic furniture.

By incorporating these themes, designers are empowered to thoughtfully consider, and apply them in the creation of new furniture.

4.6 Trend Reports

Furniture design, like other segments of design, is inherently influenced by trends, encompassing elements such as shape, materials, colour and texture. As outlined in greater depth in the methodology chapter, critical themes were extracted from various trend reports generated by leading trend forecasting and market intelligence services like WGSN (World's Global Style Network). These reports were examined, collated and analysed to determine recurring themes relevant to contemporary furniture design. These themes encapsulate aesthetic values, alongside broader overarching concerns such as sustainability and comfort.

The following section describes the key themes identified which are also integrated into the tool being developed. The themes are important to consider as they highlight the issues that are important to today's consumers, reflecting market shifts influenced by evolving attitudes and responses to the Covid-19 Pandemic.

Four primary themes emerged in over half of the trend reports, namely Sustainability, Comfort, Adaptability, and Working from Home. Additionally, six secondary themes were identified, each carrying significant weight despite being less frequently mentioned.

Primary Theme 1: Sustainability

In various trend reports, terms associated with sustainability, such as 'eco-friendly', 'low-toxicity', 'recycled', 'plant-based', 'biodegradable' and even 'supply chain transparency' are repeatedly explored. These include reports like the 'Morder Intelligence Global Furniture Market Report 2020-2025', 'WGSN Furniture & Lighting: 10 Key Trends for 2021 Report', and the 'WGSN Maison & Objet September 2021: Trend Analysis Report'. The frequency of discussion surrounding this theme underscores a notable trend of manufacturers and designers increasingly attuned to consumer demand for sustainable furniture solutions.

Primary Theme 2: Comfort

Comfort emerges as a recurring theme in trend reports, encompassing associated terms like 'reassurance', 'optimism', 'warmth', 'cosiness' and 'escapism' within furniture design. Notably, the 'WGSN Value Shift' white paper identifies 'Comfort and Reassurance' as a pivotal consumer driver, discussing how the prolonged periods spent at home during the Covid-19 pandemic have heightened consumer appreciation for their living spaces, amplifying the popularity of furniture that delivers a comfortable, secure and warm experience. In line with this trend, the 'WGSN Value Shift' white paper advocates for companies to embrace the 'domestic cosy' aesthetic in their interior offerings.

Primary Theme 3: Adaptability

Adaptable or modular furniture was frequently discussed in trend reports, including furniture that allows consumers to modify the functionality of furniture depending on the activity being facilitated. Furniture that can also be used to define a space for physical and psychological separation is highlighted, linking to the following 'Working from Home' theme and building on a concept of 'broken plan living'.

The adaptability theme also encompasses the growing trend of rental and subscription models for furniture. This indicates a growing consumer desire for the flexibility to exchange furniture according to evolving environments, changing tastes, needs and lifestyle requirements. Trend reports that include discussion of adaptability include the 'WGSN Value shift' white paper, the 'WGSN Furniture & Lighting: 10 Key Trends for 2021 Report' and the 'WGSN Key Trends: The Dynamic Home Office' report.

Primary Theme 4: Working from Home

The fourth primary theme highlighted in trend reports, as seen in sources like the '2021 Modsy Trend Report', 'WGSN Furniture & Lighting: 10 Key Trends for 2021 Report', and 'WGSN Supersalone 2021: Trend Analysis Report', revolves around Working from Home and the Home Office. With the onset of the Covid-19 Pandemic, many individuals shifted to remote work, prompting the transformation of small spaces or entire rooms into primary workspaces. Furniture tailored to support this transition experienced a surge in demand, spanning from budget-friendly laptop desks to expansive modular home office setups. Additionally, terms like 'shoffice' and 'cloffice' emerged, referring to shed-offices and closet-offices respectively, both aimed at creating separate or concealed workspaces within the main living area.

Secondary Theme 1: Digital Inspiration

Trend reports, including the 'WGSN Design Shanghai 2021:Trend Analysis Report', 'WGSN Maison & Objet Digital Days 2021: Trend Analysis Report' and 'WGSN Milan Design Week 2021:Trend Analysis Report' indicate that the digital realm's influence is permeating the physical world, resulting in furniture with a 'digi-real' or hyper-realistic aesthetic. Concurrently, there is a growing trend towards 'soft-industrial' styled furniture, potentially expanding the spectrum of furniture styles desired in homes. The introduction of furniture with a more digital or industrial aesthetic into residential spaces may be influenced by similar high-end furniture seen in commercial offices and workspaces, which are increasingly designed to be open, comfortable and luxurious. This trend gains traction particularly as more individuals transitioned to working from home during and following the Covid-19 pandemic. This secondary theme intersects with and reinforces Primary Theme 4: Working from Home.

Secondary Theme 2: Design Icons

Furniture with a mid-century or classic design was frequently mentioned in trend reports, including the '2021 Modsy Trend Report', Morder Intelligence Global Furniture Market Report 2020-2025' and the 'WGSN Buyers' Briefing 2022: Furniture & Lighting Report'. Within this theme, there's a notable emphasis on redesigned icons, especially those crafted from sustainable materials. Additionally, references to retro and antique styles surface in these reports, indicating a sustained market interest in furniture that evokes nostalgia, heritage and tradition.

Secondary Theme 3: Indoor Outdoor

The third secondary theme acknowledges the growing market for outdoor furniture and the heightened appreciation of gardens and outdoor spaces, likely influenced in part by the Covid-19 pandemic. Trend reports such as the 'WGSN Maison & Objet September 2021: Trend Analysis Report', 'WGSN Design Shanghai 2021: Trend Analysis Report' and the 'WGSN Key Trends: The Dynamic Home Office' report each explore the realm of furniture crafted specifically for outdoor use, highlighting shifting consumer habits, including a preference for working outdoors.

Secondary Theme 4: Plant Life

The incorporation of plants in interior design, aimed at enhancing productivity and fostering well-being, was a recurring theme in trend reports. Notable mentions include the 'Made.com 2021 WFH Interior Trends Report', the 'WGSN Value Shift' white paper, and the 'WGSN Maison & Objet Digital Days 2021: Trend Analysis Report'.

Secondary Theme 5: Minimalism

The enduring popularity of simple, minimalistic designs continues to be a prominent trend in the realm of furniture and interior design, as evidenced by multiple trend reports. Notably, the '2021 Modsy Trend Report', 'WGSN Buyers' Briefing 2022: Furniture & Lighting', and 'WGSN Furniture & Lighting: 10 Key Trends for 2021 Report' all underscore the significance of this aesthetic preference. The appeal of simple, minimalistic designs extends beyond mere aesthetics, also aligning with contemporary lifestyles and increased awareness of well-being, in which uncluttered, tranquil spaces can offer a sense of calm.

Secondary Theme 6: Togetherness

The final secondary theme centres on the notion of togetherness, albeit less overtly discussed in trend reports. However, the 'WGSN Value Shift' white paper delves into this concept in greater detail. Following a period marked by social and physical isolation due to the Covid-19 pandemic, there arises

an opportunity to cultivate furniture concepts that embody togetherness, encompassing both physical and digital realms.

4.7 The Key Themes

The ten themes discussed are depicted in Figure 4.17, encapsulating the key insight gleaned from a range of trend reports. These themes acknowledge not only the significance of aesthetic values and their connection with functionality and meaning, but also encompass broader product experience values such as Comfort, Togetherness and Adaptability.

Primary Themes

| 1: Sustainability | 2: Comfort | 3: Adaptability | 4: Working from Home |

Secondary Themes

| 1: Digital Inspiration | 2: Design Icons | 3: Indoor Outdoor | 4: Plant Life | 5: Minimalism | 6: Togetherness |

Figure 4.17 Ten initial Trend Report Themes.

Upon further reflection on the ten themes outlined above and their implications for other activities within this study, such as the semi-structured interview ranking task, a decision was made to streamline the themes. The rationale for reducing the themes from ten to eight also stems from the need for themes that are applicable across a broad spectrum of furniture types. Secondary themes three and four, which both revolved to some extent around plants and indoor-outdoor living, were found to lack universal and broad applicability across all furniture categories, being overly specific. Consequently, these themes were excluded, resulting in a final selection of eight themes, shown in Figure 4.18 and Table 4.2 utilised in the semi-structured interview ranking task and integrated into the design of the new tool.

Primary Themes

1: Sustainability	2: Comfort	3: Adaptability	4: Working from Home

Secondary Themes

1: Digital Inspiration	2: Design Icons	3: Minimalism	4: Togetherness

Figure 4.18 Eight refined Trend Report Themes.

Emerging Themes Trend Reports	Sustainability
	Comfort
	Adaptability
	Working from Home
	Digital Inspiration
	Design Icons
	Minimalism
	Togetherness

Table 4.2 Eight refined Trend Report Themes.

4.8 Chapter 4 Summary

In this chapter, a total of fifteen emerging themes have been identified, as shown in Table 4.3. The work presented in this chapter represents a significant contribution to new knowledge, with a definitive list of 27 iconic furniture pieces identified through a specially devised analysis method. In addition, the analysis of these pieces has identified key characteristics of iconic furniture that can be considered when designing new furniture. Themes synthesised from the trend reports identify important themes to consumers in a post-pandemic marketplace.

Emerging Themes Design Icons	Advances in materials and manufacturing that are used to develop new products
	A desire to offer something new and unexpected
	An intention to provide and experience
	Honest to materials and their properties
	Artistic expression of individual designers or groups of designers
	A source of inspiration
	Simplicity of form without the need for decoration
Emerging Themes Trend Reports	Sustainability
	Comfort
	Adaptability
	Working from Home
	Digital Inspiration
	Design Icons
	Minimalism
	Togetherness

Table 4.3 Fifteen themes identified through the review of iconic furniture and trend reports.

The seven themes identified through the review of literature encompassing iconic furniture are further examined in Chapter 6, discussing how these themes serve as design strategies to be applied by users of the new tool. The analysis of iconic furniture presented in this chapter constitutes a contribution of new knowledge to the field of design. The methodology devised has facilitated the creation of a new and original poster showcasing iconic furniture pieces, thereby generating new insights and enriching the existing body of knowledge in design.

The eight themes identified through the analysis of trend reports are further explored in Chapter 5, detailing their utilisation in a ranking task within the semi-structured consumer interviews. Additionally, Chapter 6 explores into their application in the development process of the new tool.

5 Consumer and Designer Research

This chapter presents a synthesis of the findings of the research conducted with both consumers and design professionals. A thematic analysis was undertaken which forms a co-narrative, alongside examples of accounts from consumers about the furniture they own and love. Insights and perspectives of design professionals are explored, and their impact on the development of the new tool is described, providing the foundation for the following chapter which focuses on the development of the Emotional Design Deck.

5.1 Consumer Survey Findings

Introduction

Phase 1 of the study involved an online survey of 275 consumers to investigate their relationships with their favourite furniture items, exploring aesthetic, functional and meaning values. The survey's methodology, structure and sampling are detailed in Chapter 3 (pages 57-63), and the complete results are available in appendix 12. Consumer responses and their implications for the tool's development are discussed in subsequent sections, with an overview table summarising emerging specification points and strategies. The findings discussed include the raw data, but also some level of discussion or early interpretation.

Initial Survey Questions: Context

85% of respondents confirmed that they have a favourite piece of furniture in their home, progressing 233 respondents to the main survey questions. To align with Research Objective 1 and pinpoint trends in consumers' ownership and affection towards furniture types, the survey exclusively targeted respondents who love a piece of furniture they own.

It is important to note that undoubtedly, each respondent will inherently interpret this initial question with some variation, and individuals will also demonstrate diverse relationships with their possessions. Some may cherish their belongings while others see them solely as utilitarian tools for daily life. While not necessarily essential, including information for designers that acknowledges these diverse relationships within the tool being developed could be valuable.

As shown in Figure 5.1, the Living Room emerged as the most common space for consumers' beloved furniture, chosen by half of the respondents. This finding presents two potential interpretations: either the living room presents the prime opportunity for furniture design, or furniture designed for other rooms holds greater potential for enhancement. The Bedroom was chosen by 53 respondents (23%), followed by 11% for the Dining Room. Other responses varied across Home Office, Kitchen, Hallway, Garden, Bathroom and Other. These findings imply the necessity of incorporating information into the design tool that considers the probable location of the furniture and how it may influence and be influenced by its surroundings.
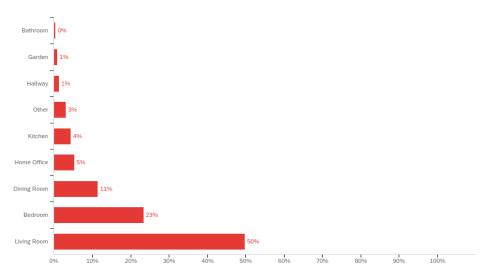
Figure 5.1 Results of Q2: Of all the furniture you own, which room is your favourite piece of furniture situated?.

Semi-structured 1-1 Consumer Interviews, along with subsequent survey questions, further explore the types of furniture found in these spaces and uncover why they are favoured locations for beloved items. The methodology chapter outlines how purposive sampling criteria for the consumer interviews was shaped by these findings, aiming to interview consumers whose favourite furniture aligns proportionally with these results.

When asked about the furniture's place within the room, respondents were split, with 55% stating that the item is the focal point and 45% stating it is not. These results indicate that a section of the design tool that asks designers to explore opportunities surrounding the aesthetics of the furniture could be beneficial, considering whether the piece should be a 'show stealer' or a 'support act'.

As shown in Figure 5.2, survey findings reveal that nearly half of consumers' beloved furniture items (42%) belong to the category of Chairs or Seating. These findings also connect to those of the review of iconic furniture in which 22 of the 27 items were chairs or seating. This is understandable as chairs and seating not only provide physical support but also offer comfort, relaxation and social interaction, enhancing pleasurable experiences. Chairs, in particular, create a strong physical connection between the user and the furniture, likely contributing to attachment. Consumer interviews and subsequent questions further explore these insights. The prevalence of chairs and seating as favourite furniture items can be interpreted in two ways: either they offer ample opportunities for creating beloved furniture, or this category is already well-served in the market.
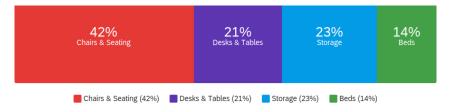
Figure 5.2 Results of Q4: Of all the furniture you own, which category does your favourite piece of furniture fall into?

Around 44% of respondents selected either Storage or Desks and Tables as the category of their favourite furniture. The popularity of Desks and Tables is expected, given their support for various aspects of life, work, and social interactions similar to chairs. However, Storage furniture stands out notably, with more respondents choosing it over Desks and Tables. This preference for Storage furniture may arise from its capacity to store cherished items, display them, or streamline daily organisation. Consumer interviews and subsequent inquiries further investigate these findings.

As with the results regarding the location of consumers favourite furniture, these results influence the purposive sampling criteria for the consumer interviews, with just under half those interviewed being those whose favourite item of furniture falls into the chairs or seating category.

Additional questions examine the specific types of furniture owned by individuals to identify the most beloved items among consumers. The top five most frequently selected items were the sofa, armchair, bed with bedframe, dining table, and display cabinet. Further details on the results of these questions are available in the appendices.

Narrative

The following questions explored the narrative behind consumers' favourite furniture items, determining how they acquired these pieces, their duration of ownership, and their condition and perceived irreplaceability.

When asked about the duration of ownership of their favourite piece of furniture, Figure 5.3 shows that 64% of respondents indicated they had possessed the item for 3 years or longer. The 'More Than 10 Years' category was the most popular choice, selected by 27% of respondents. However, there are still opportunities for new furniture to make a significant impact, as 36% of respondents chose options ranging from 0 to 3 years. These findings also influence the sampling strategy for one-to-one consumer interviews, as outlined in the methodology chapter, ensuring insights are gathered from respondents who have owned their favourite furniture pieces for varying lengths of time.
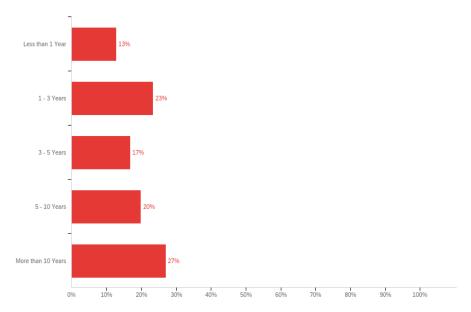
Figure 5.3 Results of Q10: How long have you owned this piece of furniture?

The findings on ownership duration suggest that new furniture should integrate Emotional Design strategies to foster a connection with consumers throughout the purchase process, early ownership, and medium-to-long-term usage. While the findings don't pinpoint a particular Emotional Design strategy, they imply that leveraging other strategies identified in the primary and secondary research of this study could facilitate the formation of emotional connections with new items.

When asked about furniture acquisition, Figure 5.4 shows how nearly three-quarters of respondents (71%) stated they either purchased the item themselves or as a family, suggesting that purchased furniture can be as cherished as those with associated memories, such as gifts or inheritance. However, 10% received their favourite furniture item as a 'hand-me-down', and another 10% inherited theirs, which now holds significant value. This underscores how associated meaning influences furniture affection. These findings suggest the new tool should account for various acquisition methods, reflecting on the impact of inherited items and purchase experiences, whether in-person or online. One-to-one consumer interviews further explore the purchasing experience, considering showrooms, marketing, and location effects.
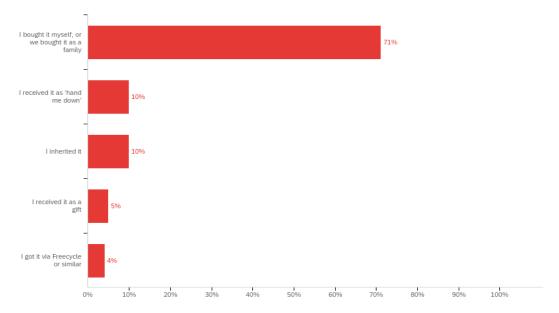
Figure 5.4 Results of Q11: How did you acquire this item?

When asked about the irreplaceability of their favourite furniture, respondents had varying opinions, with a larger proportion (54%) expressing they would never replace their beloved item, highlighting a profound emotional bond. However, 46% indicated they would replace their favourite piece of furniture, suggesting opportunities for new items to become favourites.

When asked about the condition of their favourite furniture item, 62% of respondents stated there was no significant damage or wear, while 38% noted signs of wear or damage. The fact that over a third of respondents' favourite items show wear supports principles like wabi-sabi and patina, suggesting that wear and change over time may not diminish the bond between individuals and their furniture. These findings underscore the importance for the tool to prompt designers to consider strategies related to wabi-sabi, patina, and material choice for aging, enabling consumers to embrace imperfections over time.

In summary, inquiries delving into the narrative of consumers' favourite furniture suggest that these items are more likely to be owned for longer periods and purchased by the consumer themselves. The furniture is also more likely to be undamaged than damaged, and generally, consumers are divided, with just over half suggesting they would never replace their favourite item of furniture.

Source of Love

The next section of the survey explores why the consumers' favourite item of furniture holds such significance to them. The multiple-choice options of this question are linked to the literature review and the three levels defined, and widely recognised by Norman (2004), namely the Visceral, Behavioural, and Reflective. When respondents were asked why they love a particular piece of furniture, the option related to the product's aesthetics was most frequently selected, followed by its functionality and, finally, its meaning, as shown in Figure 5.5. Even at this early stage, the results clearly indicate

opportunities for Emotional Design strategies encompassing each of the three facets, with a slight emphasis on strategies affecting the product's aesthetic attributes.

| 43% | 33% | 24% |
| The way it looks | What it does | What it means to me |

■ The way it looks ■ What it does ■ What it means to me
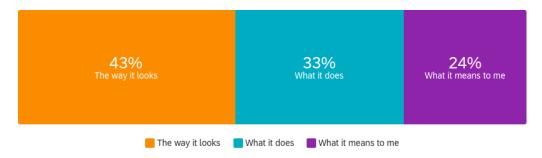
Figure 5.5 Results of Q14: Why is this item your favourite? (you can select more than one)

The following survey sections explore each of the three themes in more detail, utilising open text questions that allow consumers to expand on their choices. The full results can be found in the appendices.

Aesthetics

When respondents were asked if they loved the way their favourite item of furniture looks, only 3% of people said no, with 97% of people selecting 'yes' or 'to some extent'. Once more, this emphasises the significance of aesthetics in furniture design.

The subsequent question aimed to further understand why respondents loved the way their favourite item of furniture looked.

To analyse the responses to this question, an NVivo word frequency query was used to identify all repeated words and stemmed words greater than three letters long. Table 5.1 shows the twenty most frequently used words, or stemmed words mentioned by respondents.

While several of these words, including 'looks', 'design', 'love' and 'piece', are used to structure the respondents' answers, other repeated words highlight the significance of colour, materials and shape. Words in bold have been identified as being more valuable to this study and the development of the tool. Interestingly, the word 'modern' did not feature among the twenty most frequently used words, whereas both 'classic' and 'old' are present in the list.

Why do you love the way it looks?			
Word	**Count**	**Weighted Percentage**	**Similar Words**
looks	31	3.03%	look, looking, looks
design	26	2.54%	design, designed
love	24	2.35%	love, lovely
colour	**19**	**1.86%**	**colour**
piece	19	1.86%	piece, pieces
simple	**14**	**1.37%**	**simple**
wood	**14**	**1.37%**	**wood**
classic	**13**	**1.27%**	**classic, classically**
comfortable	**13**	**1.27%**	**comfort, comfortable, comforting**
furniture	13	1.27%	furniture
made	**13**	**1.27%**	**made**
room	13	1.27%	room, room'
functional	**12**	**1.17%**	**function, functional**
style	12	1.17%	style, styling
chair	11	1.08%	chair, chairs
materials	**11**	**1.08%**	**material, materiality, materials**
old	**11**	**1.08%**	**old**
shape	**11**	**1.08%**	**shape, shapes**
beautiful	10	0.98%	beautiful, beautifully, beauty
like	10	0.98%	like

Table 5.1 Twenty most frequently used words, or stemmed words mentioned by respondents regarding the aesthetic appreciation of their favourite furniture.

Individual consumer responses have also been used in the development of the specification of the design tool. These points are summarised in the table at the end of this section.

Exploring the complete responses provided by consumers reveals rich stories and sheds light on the relationships between individuals and their furniture. The responses vary considerably in length, detail and the descriptions of why consumers love their favourite item of furniture. While all responses can be found in the appendices, below is a snapshot of these responses, each highlighting aesthetic qualities that are central to their affection for the object.

> *'it's handmade from recycled materials and it retains the imperfections of the reclaimed materials.'*

> *'I love the mid-century utilitarian aesthetic. The teak laminate and powder-coated metal reminds me of the 60s built comprehensive school I went to.'*

> *'The chair is a Lloyd Loom and an iconic piece of furniture; the piece still has its original green paint and gold finish. I feel the chair is very symbolic of the*

> *1930's as a piece of design and social history as not only is the chair a piece*
> *of innovative furniture design because the chair is made from rolled paper*
> *the chairs were used by WW2 Pilots to rest before they were called on their*
> *next shout.'*

The following question, exploring the answers of the few consumers who do not love the way their furniture looks, revealed only 'dated' and 'worn' as the two repeated words. These results do however suggest that an item of furniture can remain a consumer's favourite, even if the aesthetic qualities are poorly rated by the consumer.

In the final two questions regarding furniture aesthetics, respondents were asked about the style and materials. A significant majority described their favourite furniture item as either 'very simple with no decoration' (53%) or 'fairly simple with little decoration' (37%) as shown in Figure 5.6. Only 10% described their favourite furniture item as 'fairly decorative' or 'very decorative/ornate', indicating that simpler aesthetics are more likely to resonate with today's consumers and evoke affection. These findings suggest that the tool can include strategies to evoke emotion through both simple and decorative or ornate furniture, but there should be a significant focus on simpler concepts.

Legend:
- The item is very simple with no decoration
- The item is fairly simple with little decoration
- The item is fairly decorative
- The item is very decorative / ornate
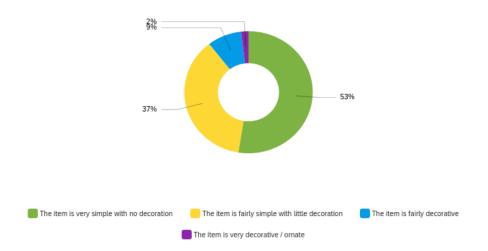
Figure 5.6 Results of Q16: Is the item's design simple, with little decoration, or ornate?

The subsequent question revealed that, unsurprisingly for furniture, wood, fabrics and leather were the most favoured materials, with other materials being less frequently mentioned as shown in Figure 5.7. The use of materials is explored in other sections of this study, including the literature review. This data lacks detail and depth to inform strategies and is therefore omitted from the development of the tool.
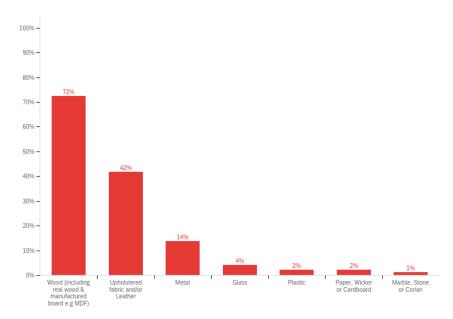
Figure 5.7 Results of Q16: What materials is the item made from? (you can select more than one).

Functionality

The next section of the consumer survey investigated the functional value of the consumers favourite furniture, exploring why consumers loved the functionality of their items, as well as looking in more detail at the type of functionality, including any special functions.

The functionality of consumers' most beloved furniture was highly recognised, with 81% stating they love what it does, while 19% suggesting that they do, to some extent. Only one respondent answered 'no,' underlining the significant importance of functionality to consumers and reinforcing the principle of 'form follows function' to some extent.

Table 5.2 shows the twenty most frequently used words, or stemmed words mentioned by respondents when questioned about functionality.

The term 'comfort' and its variations are the most frequently used words in the consumer responses to the question investigating why the respondents love the functionality of their favourite item.

This underscores the significant role of functionality in fostering attachment and affection for furniture among consumers. The extension of the term 'comfortable' to 'comforting' suggests that respondents value their furniture not only for its functional comfort but also for the emotional comfort it provides. Words such as 'relaxation' and 'sleep' frequently accompany 'comfort', indicating the emotions and states consumers associate with their favourite furniture. Only one respondent elaborated on why they don't love the functionality of their favourite furniture item, mentioning discomfort, further emphasising the importance of ensuring furniture meets expectations of comfort.

The theme of storage is frequently highlighted in responses, suggesting that furniture with storage functionality is often favoured. Additionally, the ability of furniture to display items is also mentioned.

Words relating to 'sitting' were also frequently mentioned, again suggesting how popular chairs and seating are in the consumer survey. The question aiming to identify why people love their favourite items of furniture highlights the strength of feeling towards comfort and relaxation, as well as the functional characteristics associated with storing and displaying possessions.

Why do you love what it does?			
Word	**Count**	**Weighted Percentage**	**Similar Words**
comfortable	56	6.08%	comfort, comfortable, comforted, comforting
stores	23	2.50%	store, stores, storing
functions	19	2.06%	function, functional, functionality, functions
sit	16	1.74%	sit, sits, sitting
use	14	1.52%	use, used, useful, uses
relax	13	1.41%	relax, relaxation, relaxed, relaxes, relaxing
room	13	1.41%	room, rooms
bed	10	1.09%	bed
looks	10	1.09%	look, looks
table	9	0.98%	table
feel	9	0.98%	feel, feels
sleep	8	0.87%	sleep
space	8	0.87%	space
works	8	0.87%	work, working, works
allows	7	0.76%	allow, allowing, allows
display	7	0.76%	display, displays
makes	7	0.76%	make, makes
chair	7	0.76%	chair

Table 5.2 Twenty most frequently used words, or stemmed words mentioned by respondents regarding the functional appreciation of their favourite furniture.

As previously discussed in relation to responses regarding aesthetics, the responses provided by consumers regarding functionality also offer insight into how the relationships between individuals and their furniture are influenced by functional value. Once more, the responses vary in length, detail and content. All responses can be found in the appendices, and below are some examples of these responses, each illustrating how functional values can influence consumer emotions and mood states.

'It envelops me and allows true relaxation'

*'It stores inherited glasses which we use regularly - so it's like the protector
of the memories. And my fish tank and decanters sit on it'*

*'It has reclining and extendable leg rests which take away the constant pain I
suffer from a spinal and pelvic injury.'*

'Why sit still when you've got a swivel chair :-)'

To explore the concept of surprise as a design strategy and multifunctionality, respondents were queried regarding whether their favourite furniture item serves solely one function or multiple functions. 63% indicated that their favourite item serves only one function, while 37% reported it serves multiple functions. Additionally, respondents were asked if there is anything distinctive about the way the item functions. Just over a quarter (28%) noted something special about its function, while 72% did not. These findings indicate opportunities for creating beloved furniture by considering multiple or special functions, as well as excelling at a single function.

Meaning

The final key theme explored the significance of meaning associated with cherished furniture among consumers. 83% of respondents expressed either love or partial love for what their favourite furniture item symbolises to them, with only 17% stating they do not love the associated meaning. This indicates that meaning can foster affection between individuals and their furniture, suggesting opportunities to design new furniture that either embodies existing meaning or has the potential to accrue meaning over time. Furthermore, the findings suggest that, similar to functional value, consumers can still hold affection for a favourite furniture piece even if they do not love its associated meaning. This implies that love for function or aesthetics alone may suffice without necessarily requiring an attachment to associated meaning.

Table 5.3 shows the twenty most frequently used words, or stemmed words mentioned by respondents when questioned about meaning. A full list can be found in the appendices.

When questioned about why they love the associated meaning of their favourite piece of furniture, the term 'made' emerged as the most frequently used word by respondents, underscoring the significance of the item's construction. Respondents mentioned the word 'made' in various contexts, with a notable emphasis on items being 'made by hand', whether personally or by others.

Another significant theme that emerged from the responses to the question regarding meaning is that of memories. The theme extends to several other key terms, including 'family', 'first house', 'reminds', 'mother', 'father' and 'childhood'. Additionally, the word 'gift' and its variations, as well as 'bought' and

'given', are connected to the theme of memories, with respondents recalling who gave them their favourite piece of furniture or where they bought an item and who they were with at the time.

Respondents who articulated why they don't love the meaning of their favourite piece of furniture often used the word 'just', indicating that they perceive the item as primarily functional, merely fulfilling its task. Further examination suggests that reasons for this perception include the furniture being relatively new, with little time to develop attachment or associated memories.

Why do you love what the item means to you?

Word	Count	Weighted Percentage	Similar Words
made	**15**	**1.88%**	**made**
memories	**13**	**1.63%**	**memories, memory**
piece	12	1.50%	piece, pieces
bought	**12**	**1.50%**	**bought**
family	**12**	**1.50%**	**family**
first	**12**	**1.50%**	**first**
house	**12**	**1.50%**	**house**
lovely	12	1.50%	love, loved, lovely, loves
time	**11**	**1.38%**	**time, times**
furniture	11	1.37%	furniture
reminds	**11**	**1.37%**	**remind, reminder, reminds**
chair	10	1.25%	chair, chairs
item	9	1.12%	item, items
used	**9**	**1.12%**	**use, used, useful, using**
mother	**8**	**1.00%**	**mother**
father	**7**	**0.87%**	**father, fathers**
gift	**6**	**0.75%**	**gift, gifted**
means	6	0.75%	meaning, means
childhood	**6**	**0.75%**	**childhood**
given	**6**	**0.75%**	**given**
hand	**6**	**0.75%**	**hand, handed**

Table 5.3 Twenty most frequently used words, or stemmed words mentioned by respondents discussing the meaning of their favourite furniture.

All consumer responses are available in full in the appendices. However the following excerpts offer insight into some of the descriptions provided by the respondents regarding their affection for the associated meaning of their favourite item of furniture.

> *'It was hand made by me and it reminds me I can achieve anything I put my mind to. It also acts as a reminder no mattered how badly damaged or*

old/dirty something is, with a little bit of effort it can be reused and made into something useful or decorative.'

'Brings us all together at the end of the day - sometimes the only opportunity and time to be together as a family'.

'as it has been handed down through three generations of my family on my father's side. The piece itself was a wedding gift to my great grandfather and so has much history, I feel like a custodian of its future and hope my family will continue to appreciate it as a functional yet decorative item in the future.'

'Reminds me of my holiday to Lake Como'.

'It was the first piece of furniture we choose and bought after we were married, that was not bought in a second-hand shop or a cast off from relatives.'

5.2 Design Tool Strategies: Consumer Survey Findings

The consumer survey, serving as the initial phase of primary research, complemented the literature review by reinforcing its findings. These survey results were pivotal in developing a tool for designers, highlighting common attributes of cherished furniture. Table 5.4 summarises specification points and individual strategies derived from consumer responses, encompassing broad principles like integrating Emotional Design strategies focusing on aesthetic, functional and meaning values, as well as specific design strategies such as furniture with a geographical link. Column 1 indicates the questions within the survey, or survey section, while column 2 describes the specification point or strategy, informed by the insight of respondents.

Quantitative & Qualitative Consumer Survey

Closed Questions	Design Tool Specification Point / Strategies
Do you have a favourite piece of furniture in your home?	Describe how some people form stronger relationships with objects than others.
Of all the furniture you own, which room is your favourite piece of furniture situated?	Consider the furniture items 'likely location'.
Is your favourite piece of furniture the focal point of your room?	Consider if the item of furniture should 'whisper or shout'. ('show stealer vs support act'.)
How long have you owned this piece of furniture?	Use Emotional Design strategies to facilitate the formation of emotional connections with new items during purchase, early ownership and medium-to-long-term ownership stages.
How did you acquire this item?	Consider the ability for the item of furniture to be given as a gift, a 'hand-me-down' or through inheritance.
	Consider the purchase experience, both digitally and physically.
Is the item in any way damaged, broken or worn?	Include strategies like Wabi-Sabi, Patina and material choice for aging to embrace imperfections.
Why is this item your favourite?	Embed Emotional Design strategies that focus on aesthetic, functional and meaning values.
Is the item's design simple, with little decoration, or ornate?	Include strategies to evoke emotion through both simple, and decorative, or ornate furniture, however a significant focus on simple concepts should be considered. (90% of findings support simple).

Open Questions	Design Tool Specification Point / Strategies
Aesthetics	Form Follows Function, for aesthetics linked to function
	Crafted detail
	Simple, classic styling for a sense of timelessness
	Recycled materials, retaining the imperfections of the reclaimed ingredients
	Patina and a materials ability to age and wear
	Symbolic of its time through its materials and colours
	A sculptural piece in its own right
	The ability for the item to collect memories, including opportunities for customisation or decoration
	Channel a past design movement in a contemporary way
	Consider the use of colour, particularly in terms of supporting interior trends
Function	Ensure ergonomic performance and comfort of furniture being developed is high
	Store, display or protect other possessions
	Multiple functions or uses.
	Envelop the consumer and make them feel safe
	Secret features or functions
	Hide clutter or 'ugly' items
	Support injury recovery or help with long-term health conditions
	Multi-use surface e.g., a dining table, worksurface and ironing board
	A conversation starter
	Adapt by season (Summer/Winter, inside/outside functions)
	Foster social interaction
	Fun
	Extend and expand
Meaning	A 'building' experience, perhaps developing flatpack narrative or the requirement for some tools
	Bring a family together
	Suitable for handing down, or a future heirloom (custodian quality)
	Materials that represent the time
	Use materials that represent values
	A geographical link
	Reminiscent of a book, film or TV show
	A commissioned quality

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Suitable for being given as a gift	
Link to an occupation, or interest.	
Link to family history	

Table 5.4 Specification points and strategies derived from the consumer survey findings.

5.3 Consumer Interview Findings

Following the consumer survey, semi-structured one-to-one interviews were carried out with consumers to further explore their relationships with their favourite furniture and identify key themes to embed within the structure, content and strategies of the tool being developed. Detail about the interview method, sampling strategy and thematic analysis process can be found in the Methodology chapter.

Multiple stages of analysis resulted in a final framework (Fig. 5.8), presented as a Venn diagram, capturing four overarching and interconnecting themes of Narrative, Consumer Curator, User Experience, and Destination, mapping 38 interpretive codes that each touch on one or more of the themes.
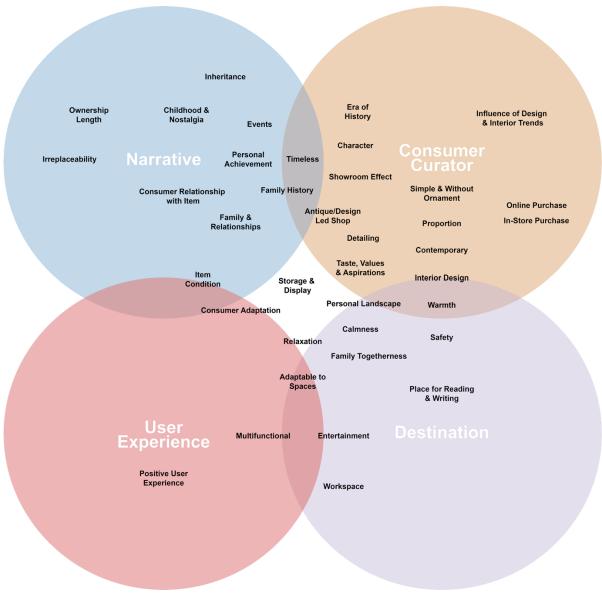
Figure 5.8 Thematic Analysis Framework.

5.4 Consumer Interviews Thematic Analysis Phases

The thematic analysis of the semi-structured consumer interviews initially revealed eight primary overarching themes, derived from the descriptive and interpretative codes of consumer insight (Table 5.5). The following section will explore these eight overarching themes and their corresponding interpretive codes.

1	Function	**5**	Acquisition
2	Aesthetics	**6**	Comfort
3	Meaning	**7**	Item Creates a World
4	Narrative	**8**	Consumer as Curator

Table 5.5 Overarching Themes formed through thematic analysis of the semi-structured consumer interviews.

There are important connections between a number of the overarching themes with connecting descriptive and interpretive codes across themes. To provide context to the descriptions of the eight themes, excerpts from the interview transcriptions have been incorporated. Spelling, punctuation and grammar have been refined, with certain hesitations removed to enhance readability. There have been no alterations made to the content or emphasis. The thematic analysis diagrams of each over-arching theme are included and initial references to each interpretive code are shown in bold in the following section to highlight each code.

1. Function
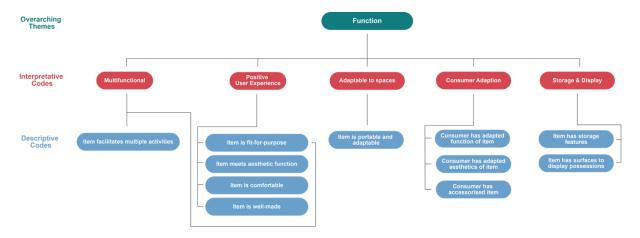
Figure 5.9 Function Overarching Theme Diagram.

The first of the eight overarching themes is Function (Fig. 5.9), with all interviewees agreeing that their favorite furniture item was functionally effective, providing a positive user experience. This aspect significantly influenced their positive feelings towards the item, often being the main reason for their attachment. Interpretive codes within the Function theme encompass Multifunctionality, Positive User Experience, Space Adaptability, Consumer Adjustment and Storage and Display.

Consumers discussed how their favourite item of furniture is **multifunctional** and able to adapt, facilitating a range of activities that are important to them. Interviewee 7 shared insights regarding the multifuncationality of their furniture;

> *'We usually sit there to watch TV, or lie down to read a book or sleep sometimes. We sit together with the kids, which is nice because they can watch TV and they can lie down with their feet in the air'*

Consumers frequently highlighted the **positive user experience** of their item, often emphasising its comfort and effectiveness. The Positive User Experience interpretative code, also recognises consumers' appreciation for the item's aesthetic value. For instance, Interviewee 6 noted that while their item serves a functional purpose, it primarily functions as a decorative piece, suggesting that aesthetic appeal can be a significant aspect of furniture function.

A recurring theme in the interviews was furniture that is **adaptable to spaces**, as well as allowing **consumer adaptation**. The codes span multiple themes, with consumers often modifying their favourite furniture to enhance functionality or aesthetics. While most made minor changes, Interviewee 2 undertook significant alterations, converting a custom dining table into a versatile workbench;

> *'It's got considerably higher now. Because it weighed so much, I built a tray, probably about half a metre off the floor at the bottom to store off-cuts of wood and stuff. I've also put it on heavy duty casters, so it's now more movable.'*

The final interpretive code in the Function theme is **storage and display**, where consumers recognise their furniture's ability to display or store items, even if not originally intended for storage purposes. Interviewee 8 illustrated this by mentioning how their sofa, while not explicitly designed with storage functionality, serves exactly that purpose due to a protruding section.

This theme highlights the essential role of furniture meeting functional needs for consumers and its adaptability in usage and space. The interpretive codes also reveal consumer interest in storage functionality and customisation options.

2. Aesthetics
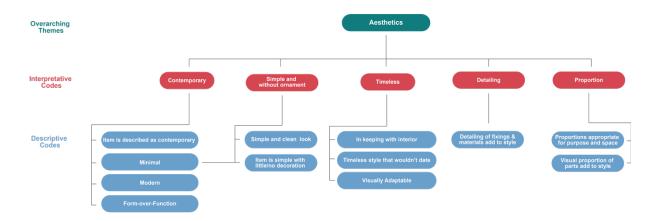
Figure 5.10 Aesthetics Overarching Theme Diagram.

Aesthetics (Fig. 5.10), as expected holds significant importance in shaping consumers' relationships with their favourite items. With the exception of one interviewee, who owned a fairly intricate and decorative item of furniture, all items of furniture were described as being fairly simple and without ornament or decoration. The Interpretive codes developed include Contemporary, Simple and without ornament, Timeless, Detailing, and Proportion.

Nearly all consumers described their favourite furniture pieces as **contemporary**, even for older items. This trend may be attributed to newer items on the market revisiting traditional manufacturing techniques or replicating them in modern materials. Interviewee 10 highlighted this when comparing their older furniture piece to current market offerings, noting its enduring contemporary style;

> *'I think it still looks fairly contemporary, if you think about the John Lewis woven garden furniture, … that's very much around at the moment. It is a similar kind of thing.'*

Consumers discussed how their favourite item of furniture has a **timeless design**, being **simple and without ornament,** for example, Interviewee 11 described the moment they first saw the item of furniture and how the attraction was immediate, with the item appearing to be *'well designed, and without ornament.'* Likewise, Interviewee 6 described how the items; timelessness seamlessly adapts to different spaces, stating that it *'doesn't interrupt, and doesn't interfere.'*

Design **detailing** and **proportion** were highlighted by consumers interviewed, who noted how their furniture items were well-proportioned, fitting seamlessly into their space. They appreciated high-quality detailing, especially in the fixings and construction method. For instance, Interviewee 3 praised *'the detailing of the buttons which makes the leather pull in, it's a really nice part.'*

The aesthetics theme and its interpretive codes reaffirm the significance of visual appeal to consumers. They demonstrate consumers' awareness of the appealing aspects of their furniture items, including proportions and detailing, contributing to the overall aesthetic. Terms like timeless, contemporary and simple are repeated by consumers, mirroring the findings of the consumer survey and highlighting their preferences in aesthetics.

3. **Meaning**
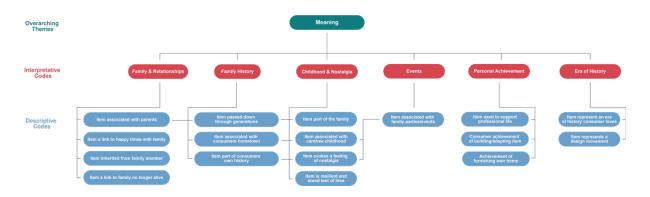
Figure 5.11 Meaning Overarching Theme Diagram.

Meaning emerged as the third overarching theme (Fig. 5.11), signifying its profound influence on individuals' connections with their cherished furniture. Interpretive codes within the Meaning theme encompass Family and Relationships, Family History, Childhood and Nostalgia, Events, Personal Achievement, and Era of History. Associations among these codes, especially those related to family and memories, are shown by connecting lines in figure 5.11.

The connection between the consumers furniture, and their **Family and Relationships, Family History,** and **Childhood and Nostalgia** were frequently discussed and the interpretative codes are

intrinsically linked to each other. Parents were repeatedly mentioned, with furniture items often serving as enduring connections to loved ones who have passed away. Some pieces were inherited, evoking a sense of pride in the owners. Interviewee 10 highlighted how their favourite furniture item offers a tangible link to cherished memories;

> *'… it's a link to happy times, shared with my mum, and it's kind of a part of me, a part of my story. So I suppose I think objects can kind of absorb memories and sounds… so that's quite a nice thing.'*

Several consumers discussed how the furniture item is intertwined with their **Family History** and **Childhood and Nostalgia**, recalling memories of the item in previous family homes, either using it themselves as children or witnessing their own children grow up with it. Interviewee 3 owns a piece of furniture that has been in the family for over sixty years and reflects on its significance;

> *'… you think of the conversations, the chats that you've had on there and the kids playing on it when they were little, sitting on it really carefully without shoes … But it sort of sucks up that family history.'*

Consumers often associate significant life events with their favourite furniture items, including holidays like Christmas, birthdays, and milestones in their children's lives. Sometimes, these items are linked to less joyful memories, such as the illness of parents. Interviewee 11 reflected on shared interests with their parents and how the furniture item represents happy times spent together;

> *'it reminds me of my parents, their later years, and our shared, much longer period of visiting museums, galleries, cathedrals, buildings, the serpentine pavilion, are sort of condensed into the stylishness of that object.'*

Consumers discussed **Personal Achievement**, expressing pride and satisfaction in owning, making, or constructing their favourite furniture. For Interviewee 5, their favourite piece of furniture, prominently displayed in their home office, symbolises achievement and pride as they reflect on their journey towards homeownership and having a dedicated workspace.

The last interpretive code in the Meaning theme is **Era of History,** with consumers recognising the connection between their favourite furniture item and the historical period it represents. Interviewee 6 described their furniture item and expressed their appreciation for the chic, timeless design with simple Art Deco detailing. Interviewee 10 delves even deeper into their love of a particular era when describing their love for their favourite item of furniture;

'… it's a type of furniture that, Virginia Woolf, Rosamond Lehmann, which are two of the authors that my dissertation focused on, could have possibly owned. There's a kind of symbiosis there. It's quite interesting.'

The Meaning theme captures a significant aspect of the relationship between interviewees and their possessions. Among the eight initial themes, Meaning stands out with its descriptive codes, showcasing the diverse array of meaning-based connections explored by interviewees. Emotional bonds to family, occupation, personal achievement and historical periods all contribute to the associated meanings, reinforcing the findings of the consumer survey.

4. Narrative
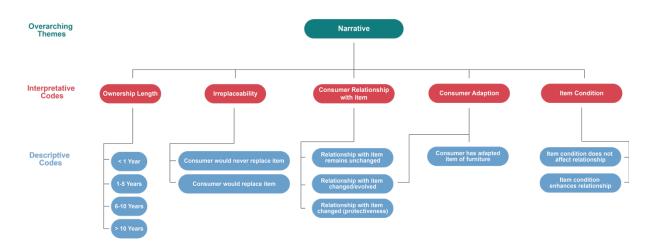
Figure 5.12 Narrative Overarching Theme Diagram.

Narrative emerged as the fourth initial overarching theme (Fig. 12), interlinking with other themes such as meaning, function, and aesthetics. It includes interpretive codes of Ownership Length, Irreplaceability, Consumer Relationship with Item, Consumer Adaption, and Item Condition.

Consumers discussing the **Ownership length** of their favourite furniture revealed that new pieces have the potential to become favourites. Those who have owned furniture for over 20 years praised its enduring design, with Interviewee 1 describing their item, held for more than 25 years, as a classic, with a timeless style, expressing how it seamlessly integrates into the space and becomes part of the family.

Consumer responses interlink **Irreplaceability** and **Item Condition** codes, revealing intriguing findings. Among interviewees, opinions were evenly split, with half indicating that they would replace the item if damaged or worn, while the other half resolute in never replacing it, instead considering redeployment or functional adaptation within their home.

Interviewee 6 adamantly expressed their stance on never replacing their item, viewing its imperfect condition as enhancing its charm, likening scratches to 'face wrinkles.' In contrast, Interviewee 4 stated they would willingly replace the item if damaged, emphasising their 'house proud' preference for maintaining a pristine appearance despite appreciating items with a story.

The fact that many people's favourite furniture item is not deemed irreplaceable suggests that there are opportunities for new furniture items to become the 'most loved', but also highlights the varying levels of attachment consumers have with their furniture.

When discussing the evolving **consumer relationship with their item**, consumers were divided, with some expressing that their feelings towards their favourite furniture item remained unchanged over the period of ownership, while others felt that their relationship had evolved over time. One significant aspect of evolving relationships involved the transition period experienced as part of the inheritance process.

Consumer Adaptation, previously discussed in the function theme, also strongly connects to narrative, with many consumers adapting their favourite furniture to fit their lifestyle, requirements and taste. This was observed with both old furniture, owned for over 20 years, and customisation of brand-new items that didn't quite fit consumers' homes as expected.

The Narrative theme highlights both the potential for new furniture to become beloved favourites and the enduring affection consumers hold for their favourite pieces, even in imperfect conditions. These findings resonate with the consumer survey, indicating consumers' willingness to modify or adapt items to better suit their needs and taste.

5. Acquisition
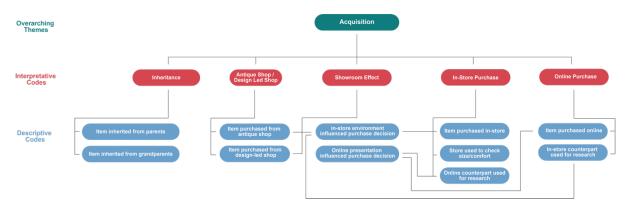
Figure 5.13 Acquisition Overarching Theme Diagram.

Linking with Meaning and Narrative, Acquisition (Fig. 5.13), is another initial theme that influences consumers' relationships with their favourite furniture items. It comprises five interpretive codes:

Inheritance, Antique and/or Design-Led Shop, Showroom Effect, In-store Purchase, and Online Purchase.

Twenty-five percent of consumers interviewed had **inherited** their favourite furniture item, significantly influencing their bond with it. Interviewee 3, for instance, inherited their cherished piece from their grandparents, describing its reliable role in the family for over 60 years.

Some consumers bought their favourite furniture item from an **antique or design-led shop**, noting how the atmosphere influenced their purchase decision and strengthened their bond with the item. Interviewee 10 described the antique shop where they made their purchase as a *'real Aladdin's cave,'* highlighting the thrill of discovering the item.

The **showroom effect** code, linking In-Store Purchase and Online Purchase codes, was evident from the interviews. Many consumers utilised a blended approach to buying their furniture, often researching the item online or in-store before purchase. Presentation whether online or in-store, significantly influenced most consumers' decision-making, and Interviewee 7 explained how they alternated between online and in-store experiences before deciding to order the item.

The manner and experience of acquiring a furniture item can significantly influence the consumer's relationship with it. Within the Acquisition theme, the influence of product display, whether **online or in-person**, was discussed along with the connections between these settings. In addition to the experience involved with purchasing an item, the experience of inheriting an item of furniture was also explored.

The acquisition process greatly impacts the consumer's bond with a furniture item. Within the Acquisition theme, the influence of product display, online or in-person, was noted, along with the link between these settings. Additionally, the experience of inheriting furniture and how this impacts the consumer was clear.

6. Comfort
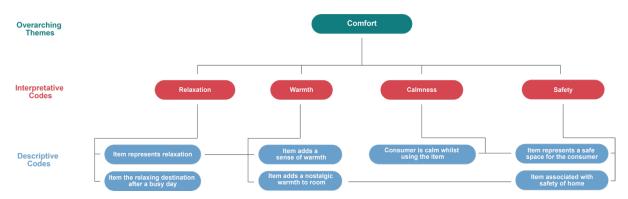
Figure 5.14 Comfort Overarching Theme Diagram.

Comfort (Fig. 5.14), the sixth overarching theme identified, encompasses both functional, ergonomic, and more significantly, the emotional comfort and inherent safety provided by the item. Interpretive codes of Relaxation, Warmth, Calmness, and Safety are strongly interconnected within the Comfort theme.

Consumers described how their favourite furniture item represents **relaxation**, serving for some as a boundary between work and home life, while for others, it offers a relaxing space even during work. Interviewee 8 emphasised its dependability and solace after a workday;

> *'… it does help me relax. I suppose in the evening, I tend to get back quite late from work. So, it is where I spend a lot of time when I'm at home. … It has a lot of meaning in this sense, I'm making it sound like a person now! … it will be there, and I know I can relax.'*

Consumers also highlighted how their favourite furniture item brings a sense of **warmth** or nostalgia to a room, enhancing the comfort of their space. Interviewee 6 described the warmth it adds, suggesting it stems from the item's inherent history and meaning, stating, *'It brings... a sense of warmth. And I think the warmth maybe it's because I know the emotional ties that link to it.'*

Consumers also expressed a sense of **calm** when discussing their favourite furniture item, seeing it as a space for recharging or working in a different way. Interviewee 4 described feeling less stressed while working from their favourite furniture, attributing it to the environment the piece helps create.

Safety, the final interpretive code within the Comfort theme, was highlighted by several consumers who described feeling safe with their favourite furniture, considering it a vital part of their home's safe space. Interviewee 3 expressed feeling *'just sort of safe'* with their favourite furniture, emphasising the importance of feeling secure at home.

Expanding on the Function and Meaning themes, which cover physical and emotional comfort, the broader Comfort theme encapsulates feelings of relaxation and personal safety that underpin the affection consumers feel towards their favourite furniture item.

7. Item Creates a World
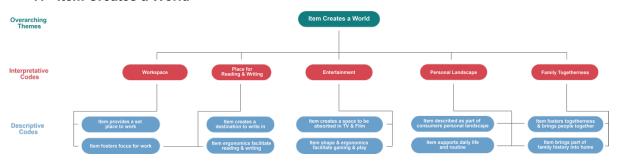
Figure 5.15 Item Creates a World Overarching Theme Diagram.

The recognition of how the consumer's favourite furniture enriches their world at home emerged as another theme (Fig. 5.15), with the item playing a pivotal role in their personal landscape. Consumers highlighted how the item supported their personal or professional lives and enhanced their enjoyment of hobbies. Interpretive codes within the theme include Workspace, Place for Reading and Writing, Entertainment, Personal Landscape, and Family.

Some consumers noted their furniture item creates a dedicated **workspace**, either due to its ergonomic design or its strategic location within the home. Interviewee 3 described the multifunctionality of the piece and its ability to become a place to work, explaining, *'I use it in loads of ways, that's the thing. I'd say it's definitely my workspace. I do that quite deliberately.'*

Other consumers noted how their favourite furniture item facilitates **reading and writing activities**, often due to its functional capabilities and storage features. They suggested that without the item, these pastimes would be less frequent or enjoyable. Interviewee 5 described how they enjoy keeping journals, and the furniture item enhances their enjoyment of this activity, explaining, *'I use it to do journaling … it kind of gives me that space just to write.'*

Roughly half of the consumers highlighted their favourite furniture's crucial role in watching television and films, enabling them to immerse themselves in another world. A smaller group also noted its contribution to their enjoyment of playing games, contributing to the development of the **entertainment** interpretive code. Interviewee 8 described how their furniture plays a pivotal role in their free time, *'transporting'* them to a world away from work.

Consumers frequently highlighted the consistency and reliability of their furniture, noting its support in daily life. The **Personal Landscape** code captures how furniture seamlessly integrates into consumers' lives, sometimes taken for granted. Interviewee 1 referred to their furniture as *'ubiquitous,'* while Interviewee 10 reflected on its importance in their home, despite not actively using it, explaining:

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'*it's part of my personal landscape, within a very personal space of a bedroom. But I'd never get rid of it because of what it is, and what it represents for me.*'

The final interpretive code within the theme is **Family Togetherness**, reflecting the role of interviewees' furniture in their family life at home. They discussed how their items have become intertwined with family memories and how inherited items also serve as a link to family history. Interviewee 2 described their furniture as representing a particular phase of life, describing how it brought people together and symbolised the start of a new journey. Interviewee 12 shared how their favourite furniture item takes centre stage in spending time with family and friends, saying, '*I like to entertain family and friends. So that's what it's used for.*'

This overarching theme intersects with others, notably Comfort and Meaning, embodying the sentiment expressed by interviewees about their favourite furniture item's role in shaping their personal landscape and daily life at home. They acknowledged their furniture's ability to create spaces for relaxation, togetherness, solitude, work, and play.

8. Consumer as Curator
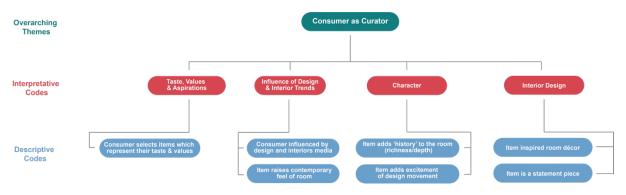
Figure 5.16 Consumer as Curator Overarching Theme Diagram.

The final overarching theme is Consumer as Curator (Fig. 5.16), acknowledging consumers' desire to choose items that align with their home and lifestyle. Interpretive codes include Taste, Values and Aspirations, Influence of Design and Interior Trends, Character, and Interior Design.

The interpretive code concerning **Taste, Values, and Aspirations** captures consumers' comments on selecting their furniture, sometimes against the advice of family members. Interviewee 1 described choosing their favourite furniture item despite its high cost, valuing its quality and style;

'*I know it's got this kind of historic provenance, and it's got some kind of meaning. And it aesthetically fits, all the things I kind of buy into…quite based on aspiration.*'

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The **Influence of Design and Interior Trends** on Consumers, along with the item's role in their **Interior Design**, emerged as key codes, with interviewees mentioning contemporary design and trend influences shaping purchase decisions. Interviewee 2 discussed media's influence on design trends, saying, *'I came up with an idea after seeing pictures in magazines, and I quite like watching interior design programmes on television.'* Consumers described their item as either a statement piece in a room, or the inspiration for the room's design. Interviewee 3 explained how their furniture influenced the entire room, becoming central to the interior design scheme, describing how; *'I actually redecorated last year … the starting point was this item.'*

Consumers frequently mentioned the **character** of their favourite furniture, especially in older or inherited pieces. Character often stemmed from an item's history, family associations, or a specific design movement or era. Interviewee 12 cherished their item, saved from disposal, explaining how it adds character to the room and becomes a talking point with visitors, particularly those who have not seen it before.

The theme of Consumer as Curator acknowledges furniture's impact on interior design schemes and how consumer choices are shaped by interior design trends. It also highlights how a piece's character can solidify its place in homes, either by making a statement or serving as a central element in a curated aesthetic. Additionally, it emphasises how consumer taste, values, and aspirations influence furniture purchases, spanning attributes such as price, brand, colour, materials and sustainability.

5.5 Consumer Interview Thematic Framework

As detailed in the Methodology chapter, the eight initial overarching themes discussed underwent additional refinement stages to consolidate and simplify eight distinct hierarchy charts into one final framework. Researcher concern regarding a thematic analysis bias, influenced by the interview structure, prompted a reassessment of the overarching themes and interpretative codes to create the final framework (Fig. 5.17).
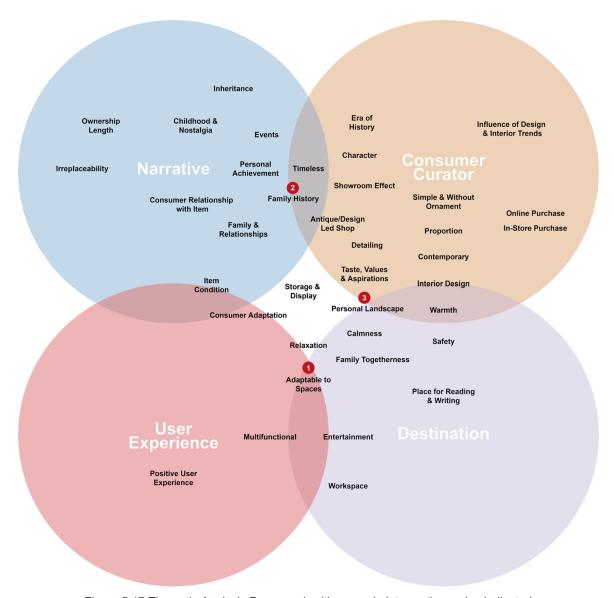
Figure 5.17 Thematic Analysis Framework with example interpretive codes indicated.

The Consumer Interview Thematic Framework plots interpretive codes, shown in black text, across four overarching themes, highlighting connections with multiple themes. The framework is illustrated as a 4-circle Venn diagram, featuring the four overarching themes of Narrative, Consumer Curator, User Experience, and Destination.

The framework illustrates how the consumers discussed the positive user experience of furniture, however conversations relating to the narrative of the item and its place within their home revealed more detail about the connections and affection that consumers had with their items. In the consumer survey, the aesthetics and functionality of the item were frequently mentioned, whilst the one-to-one interviews provided an opportunity for interviewees to expand on their emotional connection to their favourite item of furniture, revealing more detail about the narrative and personal links to the item.

To help explain the Venn diagram, the positioning of three interpretive codes are pinpointed on Figure 5.17, and described, detailing how their position indicates connections to one or more of the overarching themes within the framework;

1. The **Adaptable to Spaces** interpretative code is positioned midway between the User Experience and Destination themes, describing how an adaptable item of furniture can provide a positive user experience because of its versatility, but also how this adaptability can create destinations within the home.

2. The **Family History** interpretative code is positioned midway between the Narrative and Consumer Curator themes, signifying how furniture associated with family history intersects with the narrative of a consumer's life, reflecting meaningful connections to their family. Additionally, it underscores the physical value of the object to the consumer curating a home that represents their personal history, values, and taste.

3. The **Personal Landscape** interpretative code is placed fairly centrally on the framework, slightly skewed towards the Destination and Consumer Curator themes. This placement indicates how furniture contributes to forming a destination for relaxation, work, socialising and play, but also how consumers curate their personal landscape to create an atmosphere for themselves and their family, while presenting their values, status, aspirations and taste to others. The Personal Landscape interpretative code is also within reach of the User Experience and Narrative themes underscoring how the personal landscape of furniture of furniture provides an experiential backdrop for living, while establishing connections to both the narrative of both the consumer's and the furniture's life.

The framework indicates that strategies to design furniture that consumers will love, need to not only ensure the basic expectation of high-quality user experience, but also consider how narrative, destination and the consumer desire to curate their space can be represented in new products.

5.6 Consumer Interview Theme Ranking Exercise

During the semi-structured interviews, each consumer also engaged in a brief exercise to explore their important furniture-related themes, as detailed in the methodology chapter. Participants ranked eight key themes, derived from trend report analysis. The top four themes identified by consumers were Togetherness, Comfort, Natural Influence, and Adaptability, all of which are incorporated into Table 5.6 in the subsequent section, for inclusion in the development of the new tool.

5.7 Design Tool Strategies: Consumer Interview Thematic Analysis

Table 5.6 outlines the themes, and interpretive codes for the tool's development that have emerged from the thematic analysis of the one-to-one semi-structured consumer interviews. The table below lists the four overarching themes and 38 interpretive codes. The final section of this chapter explores the analysis and findings of the survey of professional designers, further introducing the final specification points and strategies for the development of the tool. Chapter 6 discusses the process of synthesising insights from both consumer and designer research to formulate a refined brief and specification for the tool.

1-1 Semi-Structured Consumer Interviews	
Main Themes	
Narrative (incorporating initial themes of Meaning, Acquisition and Narrative)	
Consumer Curator (incorporating initial themes of Function and Comfort)	
User Experience (incorporating initial themes of Aesthetics and Consumer as Curator)	
Destination (replacing theme of Item Creates a World)	
Interpretive Codes / Strategies	
Multifunctional	Antique Shop / Design Led Shop
Positive User Experience	Showroom Effect
Adaptable to spaces	In-Store Purchase
Consumer Adaption	Online Purchase
Storage & Display	Relaxation
Contemporary	Warmth
Simple and without ornament	Calmness
Timeless	Safety
Detailing	Workspace
Proportion	Place for Reading & Writing
Family & Relationships	Entertainment
Family History	Personal Landscape
Childhood & Nostalgia	Family
Events	Taste Values & Aspirations
Personal Achievement	Influence of Design & Interior Trends
Era of History	Character
Ownership Length	Interior Design
Irreplaceability	Togetherness (ranking task theme)
Consumer Relationship with item	Comfort (ranking task theme)
Item Condition	Natural Influence (ranking task theme)
Inheritance	Adaptability (ranking task theme)

Table 5.6 Refined themes and interpretive codes formed through thematic analysis of the one-to-one semi-structured consumer interviews.

5.8 Designer Survey Findings

Phase 1 of this study included a qualitative online survey of designers working in industry to understand their awareness and utilisation of existing design tools and frameworks. Additionally, the survey aimed to explore designer awareness of Emotional Design and appetite for new tools centred around this concept. A description of the survey design, structure and sampling strategy can be found in the methodology chapter (page 64-70). The full survey results can be found in appendix 13.

The following sections discuss the findings of the survey, and Table 5.13 at the end of this section lists resulting specification points for the tool being developed.

Stage 1 of the survey presents the titles and images of the four tools described in the methodology (page 66-69), and asks respondents to comment on their individual awareness, use and experience of each tool through a series of quantitative and qualitative questions. The four tools are:

1. The Design Council's framework for Innovation (The Double Diamond), Design Council, 2004.
2. The MAYA Principle (Most Advanced, Yet Acceptable) Raymond Loewy.
3. IDEO Method Cards, IDEO, 2003.
4. Design for Happiness Deck, Delft Institute of Positive Design, Pohlmeyer, Yoon and Desmet, 2017.

Stage 2 of the Designer Survey explored any other design tools that respondents may use in their design process, before exploring their awareness of Emotional Design, and appetite for new tools in that area.

Awareness & Discovery

The initial questions explored the Designer's familiarity with each tool and is depicted in Table 5.7. Perhaps unsurprisingly, the Design Council's Framework for Innovation and IDEO Method Cards were the most recognised tools, likely due to their association with well-established organisations or companies.

	Design Council's framework for Innovation (The Double Diamond)	The MAYA Principle (Most Advanced, Yet Acceptable)	IDEO Method Cards	Design for Happiness Deck
Percentage of Designers who have heard of the tool (54 Responses)	44%	20%	44%	9%

Table 5.7 Designer's familiarity with existing design tools.

While these two tools garnered the highest awareness among designers, the results reveal that this still represents less than half of the respondents. This result is perhaps linked to the fact that many undergraduate or postgraduate design programmes prioritise real-life projects over teaching process frameworks. Additionally, designers often adopt the established culture of their workplaces, each with its own project management and communication methods.

The lower respondent awareness of the Design for Happiness Deck and MAYA Principle is again unsurprising. The former was released primarily in an academic setting, while the latter is only occasionally discussed in design circles and lacks a clear framework for application.

For respondents familiar with each tool, they were asked where they first encountered it. The resulting data is presented in Table 5.8. The figures shown in bold depict the primary discovery method for each tool. Notably, for all tools, designers most commonly encountered them during their education or through their own research and reading. The findings suggest that the time-sensitive nature of industry settings, or a reluctance to adopt new tools may have contributed to the results relating to discovery of the tools within industry. The findings suggest that while designers have various opportunities to discover tools, it's more likely to occur during their education or through related design literature, whether in print or online, and this may influence the publication of the new tool.

	Design Council's framework for Innovation (The Double Diamond) (24 Responses)	The MAYA Principle (Most Advanced, Yet Acceptable) (11 Responses)	IDEO Method Cards (24 Responses)	Design for Happiness Deck (5 Responses)
Whilst at University, or in education	**63%**	27%	**42%**	0%
Whilst working in the Design Industry	17%	18%	17%	20%
In my own research/reading	17%	**55%**	33%	**80%**
Other	4%	0%	8%	0%

Table 5.8 Designer's discovery method of existing design tools.

Application

The subsequent questions explored how designers use the tools discussed. Respondents provided feedback on tool usage only if they had previously confirmed awareness of the tool. The findings (Table 5.9) reveal that, aside from the Design Council's framework for Innovation, tool usage was relatively low among designers, despite their awareness of them. Several factors may contribute to the lower uptake of the three tools, which may include a perceived lack of detail and structure, concerns about excessive complexity indicating a time-consuming process, and the accessibility of tools in terms of cost and availability. The higher usage of the Design Council's framework for Innovation is perhaps explained by its accessibility, simple framework and association with the well-established organisation.

	Design Council's framework for Innovation (The Double Diamond) (24 Responses)	The MAYA Principle (Most Advanced, Yet Acceptable) (11 Responses)	IDEO Method Cards (24 Responses)	Design for Happiness Deck (5 Responses)
Percentage of Designers who have used the tool, either whilst in education, or professionally	88%	45%	33%	0%

Table 5.9 Designer's usage of existing design tools.

The results of the following question (Table. 5.10) indicate that among designers who have utilised the discussed tools, the Design Council's framework for Innovation stood out as the tool revisited most frequently. Specifically, 81% of designers who have employed this tool returned to it seven or more times. The utilisation of the MAYA Principle and IDEO Method Cards among designers is notably limited, with only 5 and 8 designers using them respectively. Furthermore, the frequency of return visits to these tools varies, indicating that some designers recognise tangible benefits, while others only experimented with them briefly. The simplicity and effectiveness of the Design Council's Innovation framework likely contribute to its repeated use by designers, whereas the more complex IDEO Method Cards demand a greater time investment, which designers often lack. The MAYA Principle, with its straightforward and memorable acronym, serves more as an overarching philosophy than a practical tool, which may also reduce the likelihood of designers revisiting it.

	Design Council's framework for Innovation (The Double Diamond) (21 Responses)	The MAYA Principle (Most Advanced, Yet Acceptable) (5 Responses)	IDEO Method Cards (8 Responses)	Design for Happiness Deck (0 Responses)
1-3 times	14%	60%	50%	N/A
4-6 times	5%	0%	13%	N/A
7 or more times	81%	40%	38%	N/A

Table 5.10 Results detailing how frequently Designers have revisited existing design tools.

Value and Benefits

Among the respondents who utilised the tools highlighted in this survey, the results shown in Table 5.11 demonstrate unanimous agreement that the tools they employed were indeed beneficial to the design process. The findings also indicate that designers perceive value in tools presented in various

formats, including simple acronyms, visual frameworks, and card sets. The results also imply that when designers discover and employ a new tool, they tend to find it beneficial.

	Design Council's framework for Innovation (The Double Diamond) (21 Responses)	The MAYA Principle (Most Advanced, Yet Acceptable) (5 Responses)	IDEO Method Cards (8 Responses)	Design for Happiness Deck (0 Responses)
Percentage of Designers who agree the tool is beneficial.	100%	100%	100%	N/A

Table 5.11 Results detailing Designer's views regarding the benefits of existing tools.

The subsequent question further surveyed respondents to explore the perceived benefits of using each tool. Because of the relatively high level of usage among the respondents, the most extensive data was collected regarding the Design Council's framework for Innovation, including detailed comments from the designers.

The respondent comments that explored how the Design Council's framework for Innovation supports the design process can be summarised into the following three key themes:

Communication: Respondents noted the tool's value as a communication aid for both designers and non-designers. They discussed its benefit in sharing with project clients, with one respondent emphasising its role in fostering trust and transparency in designer-client partnerships, stating, *'Both the designer and client are on the same wavelength and [it] creates a sense of trust and transparency between two parties.'*

Process Explanation: Respondents explained how the tool breaks down the process into clear stages, prompting critical thinking. One respondent highlighted its emphasis on both divergent and convergent thinking, saying it *'Breaks down the design process and helps look at the full scope before really nailing down in a specific area.'*

Structure for Action: Many respondents noted the tool's provision of a clear structure for the design process, emphasising the importance of ideation not only at the project's outset but also at later stages. They discussed how it aids decision-making by outlining clear milestones and helps define design problems. One respondent summarised these benefits, noting how the tool *'allows for expansive thinking and ideation in both the research and design phases of a project. While also keeping the project focused with the problem definition in the middle.'*

When examining responses to the question investigating how the MAYA Principle aids the design process, it is not possible to identify key emerging themes due to the small number of respondents. However, akin to observations with The Design Council's framework for Innovation, comments about

the MAYA Principle did touch upon themes of informing business decisions and achieving optimal product outcomes tailored to the market. Similarly, responses about the IDEO Method Cards lacked sufficient data to develop themes, but noteworthy responses highlighted how the tool emphasises human-centred design, encourages team collaboration, fosters lateral thinking and ideation and clarifies terminology to enhance communication among stakeholders.

The final question in this survey section examined whether designers revisited the tool or remembered its content without needing to return to it. The results show (Table 5.12), that among the three tools used by designers, the Design Council's framework for Innovation is the most memorable, allowing designers to utilise it from memory. It's simple shape and name make it easy to recall and sketch quickly on paper during client interactions. The findings regarding the MAYA Principle and IDEO Method Cards are somewhat unexpected. It would be assumed that designers would not need to revisit the straightforward MAYA Principle, while they might need to return to the intricate IDEO Method Cards. However, the results indicate a split among respondents for both tools. Due to the relatively small number of respondents, especially for the MAYA Principle and IDEO Method Cards, no definitive conclusions can be drawn. It is possible that respondents' interpretation of the question influenced the results. Additionally, it is plausible that respondents remember some strategies from the IDEO Method Cards for example, and therefore don't feel the need to return to them entirely.

	Design Council's framework for Innovation (The Double Diamond) (21 Responses)	The MAYA Principle (Most Advanced, Yet Acceptable) (5 Responses)	IDEO Method Cards (8 Responses)	Design for Happiness Deck (0 Responses)
I remember it's content without needing to return to the tool.	71%	60%	50%	N/A

Table 5.12 Results detailing Designer's views regarding the benefits of existing tools.

Other Tools Highlighted by Respondents

Out of the 54 respondents, 37% (20 individuals) indicated that they use other tools, processes, or frameworks not previously discussed. These varied from intricate design management models to fundamental core skills inherent to designers. Additionally, respondents highlighted valuable books they utilise in their design practice or that offer suggested design methodologies.

The only tool mentioned multiple times in respondent comments was 'Lean,' which encompasses processes like Lean Product Development (LPD) and Lean Project Management, employing Lean thinking with various process diagrams and frameworks existing. They vary significantly and can be complex, potentially hindering designers from easily experimenting with the tool. Lean focuses on key principles rather than specific design techniques and can be most closely compared to the Design Council's framework for Innovation, as both illustrate and describe the project journey.

The remaining responses to the question investigating other tools, processes or frameworks, were mentioned only once and can be found in the appendices. The variety of tools mentioned demonstrates the diverse backgrounds of the participating designers, and highlights their readiness to experiment with, and incorporate tools they deem beneficial to their design process. Many respondents mentioned using multiple tools in addition to those previously discussed, emphasising designers' willingness to adopting various methods. These findings offer reassurance that new tools will be considered, adopted and used by designers if they have clear perceived benefits.

Emotional Design Awareness and Appetite for New Tools

The remaining questions of the survey focused on the respondent awareness of Emotional Design, and relevant tools, processes and frameworks, before exploring designer appetite for new tools.

87% of respondents expressed definite awareness or some level of familiarity with Emotional Design. This level of awareness is promising for the potential adoption of a new tool, as designers may be more inclined to embrace a tool in a field they are at least somewhat familiar with. None of the respondents reported never having heard of Emotional Design, and only 13% expressed uncertainty about their familiarity with it. For those uncertain about Emotional Design, this question marked the end of the survey, and they were not included in the analysis of the subsequent three questions.

41% of respondents had employed an Emotional Design tool, while the remaining 59% had not. It is somewhat surprising that almost half of the respondents claim to have used an Emotional Design tool, process, or framework in their work, given the responses to earlier questions, including the exploration of the Design for Happiness Deck and other tools highlighted by the respondents themselves.

The results of this question, along with the previous one may be influenced by the fluid and interpretative nature of the definition of Emotional Design. Some respondents may associate Emotional Design with Don Norman's seminal book 'Emotional Design' (2004), which delves into the visceral, behavioural, and reflective aspects of product design. Others may view Emotional Design more simply, perhaps as products with dynamic and exciting forms, particularly in the realm of car design. When respondents discussed their awareness of Emotional Design and the tools they use to apply it, they likely did so based on their own understanding of the concept. Therefore, it is reasonable to assume a general awareness of Emotional Design in the design community, while acknowledging individual interpretations. Consequently, the new tool should offer flexibility in its use and be designed to accommodate varying levels of existing knowledge.

In the last two questions of the Designer Survey, respondents were asked if they believed a tool to aid in considering Emotional Design in their process and specifically for furniture could be beneficial. The results were overwhelmingly positive, with 92% of respondents indicating that such a tool would

definitely be useful or be useful to some extent. Only 4 out of 46 respondents expressed scepticism, with 2 selecting the 'definitely not' option.

Interestingly, upon comparing the results of the two final questions, it's evident that the interest in a tool tailored for the furniture design process was more appealing to respondents. A larger proportion of respondents leaned towards selecting the 'yes definitely' option in response to the question about the usefulness of a tool for considering Emotional Design in furniture design.

The results of the last two questions reinforce the need for a tool that aids in applying Emotional Design strategies, especially in furniture design. They show that there is already awareness of Emotional Design among designers and a willingness to adopt new tools to improve the design process.

5.9 Summary of Designer Survey

The industry survey among designers presents a mixed scenario regarding awareness and utilisation of existing tools but underscores an interest in new tools, particularly in Emotional Design. Designers are more aware of easily accessible tools, especially those endorsed by recognised organisations like the Design Council. Additionally, they often discover new tools through personal research or reading, with exposure during higher education also playing a significant role.

The findings suggest that designers are willing to experiment with, and revisit tools when they are accessible and their application is clear. Despite nearly half of the respondents being aware of the IDEO Method Cards (IDEO, 2003), only a third of them had actually used the tool, possibly due to associated costs.

Among the surveyed tools, findings suggest that a certain level of complexity is required to justify their usage. While simpler tools like the MAYA acronym may be acknowledged, they're often not implemented to the same extent as other tools discussed. Respondent insights regarding these tools emphasised their practical strategies, behavioural influence, and facilitation of communication by providing a common vocabulary for designers. Additionally some tools, like the Design Council's framework for Innovation, were recognised for their role in structuring the design process.

Results suggest that designers often recall the format and content of tools without needing to revisit them for application. However, some respondents mentioned returning to tools for application, with varying results depending on the tool. It was therefore important to design the overall structure of the new tool in a way that would be memorable, while integrating deeper, more engaging strategies to promote return visits and encourage further exploration.

The diversity of tools used by designers underscores their willingness to embrace and utilise new tools that offer clear benefits. The survey reveals a strong interest among designers in exploring and applying new tools, especially in the realm of Emotional Design for Furniture Design. 92% of respondents were very positive about the prospect of a new tool which focuses on Emotional Design for the furniture industry.

Table 5.13 presents specification points for the new tool, which emerged from the designer responses to the questions in the survey.

Survey of Industry Designers	
Topic	**Detail**
Awareness & Discovery **Publication**	• For the new tool to be widely discovered and applied by the Design community, consideration should be given to the role of large design organisations in the publication and advertising of the tool. • Consideration should be given to where the tool can be published and discussed in order to allow the design community to discover it in their own reading and research. • Consideration should be given to how the tool can be provided to universities for use in the curriculum. • Guidance could be provided alongside the tool to demonstrate how the tool can be used as part of a design curriculum.
Accessibility	• The tool must be easily, and reliably accessible to the design community. • For maximum exposure and application, the tool should be free to use, however consideration could be given to opportunities for advanced versions, or line extensions that are paid products.
Use & Structure	• The tool should have a level of complexity beyond that of a simple acronym. • The tool should consider how it can be used to change behaviour. • The tool should consider how it can support communication, presenting a vocabulary for designers to use. • The tool should consider the process of its use and how it can structure a designer's thinking.
Content	• The tool should have a simple and memorable framework with rich and detailed strategies that encourage return visits and deeper exploration.

Table 5.13 Specification points developed through the analysis of the designer survey results.

5.10   Chapter Summary

As outlined in the chapter introduction, the research activities conducted with consumers and design professionals significantly contribute to achieving the research aim, particularly in addressing Research Objectives 1 and 3.

Consumer research activities, conducted through surveys and interviews, complemented the findings of the literature review by highlighting characteristics of cherished furniture, mirroring those discussed in the review of Iconic Furniture. Consumer interviews further elaborated on the survey findings, providing detailed insights into the rich stories behind people's connections with their furniture. Thematic analysis of the interview data generated the broad overarching themes of Narrative, Consumer Curator, User Experience, and Destination, as well as interpretive codes that translate into design strategies. These themes and codes form the basis of a Thematic Framework influencing the design, structure and content of the tool.

The survey of designers working in industry sheds light on the awareness and use of existing tools in industry, developing key specification points for the tool development including accessibility, structure and content. The survey of designers also confirmed an appetite for new Emotional Design tools, particularly for furniture design.

Chapter 6 addresses Research Objective 4 by synthesizing consumer and designer insights explored within this chapter, along with findings from other research activities, to introduce the Emotional Design Deck. The chapter discusses each specification point formed through Phase 1 of the study which included a range of primary and secondary research activities. These specification points shape the design of the new tool, including its format as a card set, split into key themes.

6 Designing the Tool & Discussion

6.1 Introduction

Chapter 6 explores the design process of the Emotional Design Deck, synthesising research findings to form a design brief and specification for the tool. The design and development of the cards is also described in this chapter.

6.2 Collating the Findings

The findings tables and diagrams from Chapters 2, 4 and 5 (Table 2.1, 2.2, 2.4, 4.1, 5.4, 5.6 and 5.13. Figure 2.1, 2.2, 4.1 and 5.8) collectively contribute to the formulation of the brief and specification for the tool under development, as well as shaping the individual strategies that will comprise its content.

Figure 6.1 outlines the initial findings gathered from each research activity. The orange elements depict the findings extracted from the four parts of the literature review, encompassing existing Emotional Design research, tools and design movements over time. Research involving consumers is represented by the green circles, while that involving designers is indicated by the purple circle. Lastly, the blue section signifies the findings from the review of iconic furniture.
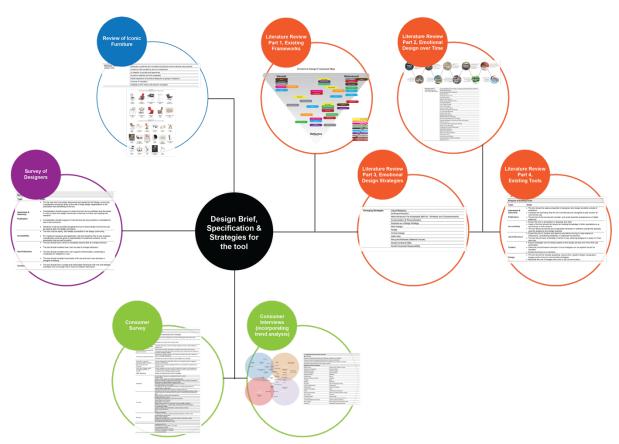
Figure 6.1 Overview of insights gathered from research activities conducted during Phase 1 of the study.

Within Figure 6.1, a thumbnail image represents each set of findings listed in Table 6.1.

Literature Review Part 1	Emotional Design Framework Map, plotting more than 10 existing frameworks developed by researchers in the Emotional Design field (Figure 2.1)
Literature Review Part 2	30 Emerging Themes from analysis of Emotional Design over Time through exploration of key Design Movements (Table 2.1 and Figure 2.2)
Literature Review Part 3	12 Emotional Design Strategies identified in existing research (Table 2.2)
Literature Review Part 4	13 Specification Points from analysis of existing Emotional Design tools, covering issues relating to Awareness & Discovery, Publication, Accessibility, Use & Structure, Content, and Design (Table 2.4)
Consumer Survey	43 Design Strategies and Tool Specification Points from the analysis of Consumer Survey data (Table 5.4)
Consumer Interviews	4 Overarching Themes and 42 Interpretive Codes / Strategies from the analysis of Consumer Interview data (Table 5.6 and Figure 5.8)
Designer Survey	11 Specification Points from analysis of the Designer Survey, relating to existing Design tools, covering issues relating to Awareness & Discovery, Publication, Accessibility, Use & Structure, and Content (Table 5.13)
Review of Iconic Furniture	7 Themes/Design Strategies formed through the analysis of Iconic Furniture and the Iconic Furniture Poster (Table 4.1 and Figure 4.1)

Table 6.1 Resulting outcomes from each research activity conducted in Phase 1 of the study.

The following sections of this chapter synthesise and triangulate findings from Phase 1 of this study, grouping specification points and strategies thematically to allow for clear presentation and exploration. The findings from the research activities listed above broadly fit into one of the following categories:

Format, Design & Accessibility

Specification points related to the presentation or delivery method of the tool, such as a framework, card set, or acronym, as well as considerations regarding accessibility, including availability, language and style. Specification points regarding the visual design of the tool, taking into account its functionality, aesthetics, user experience, and style.

Content & Structure

Specification points relating to the content, organisation and structure of the tool to maximise functionality.

Publishing

Specification points concerning the release of the tool, potential access models, platforms and dissemination to intended audience.

Strategies

Individual strategies to be considered for inclusion in the tool, both broad and specific to be presented to the users of the tool.

The following section explores each of the four categories of findings described above, detailing the source of the insight, and its influence on the design of the tool.

6.2.1   Format, Design and Accessibility

Key insight presented in Table 6.2 concerning the Format, Design & Accessibility of the tool was collected from Part 4 of the Literature Review, which analysed existing Emotional Design tools, and the Survey of Designers who responded to questions regarding their awareness and use of such tools.

Format, Design and Accessibility	
Specification Point	**Source**
1. The format of the tool should consider, and avoid potential obsolescence of digital platforms.	Literature Review Part 4, Existing Tools
2. The tool should avoid the use of specialist hardware or software outside that typically used by designers and design students.	
3. The tool should be visually appealing, using colour, graphic design, typography, images and/or icons to communicate strategies.	
4. Maximise the use of images and icons to aid communication.	
5. Ensure the tool is accessible in language and style.	
6. Users of the tool should not require an existing knowledge of other specialisms e.g., psychology or data analysis.	
7. The tool must be easily, and reliably accessible to the design community.	Survey of Designers
8. Guidance could be provided alongside the tool to demonstrate how the tool can be used as part of a design curriculum.	

Table 6.2 Specification Points relating to Format, Design and Accessibility.

Specification Points 1 and 2 highlight the importance of ensuring the tool's appeal and longevity. To achieve this, it must avoid over reliance on digital platforms prone to inactivity or obsolescence. Additionally, it should avoid the need for specialist hardware or software that can create barriers to designers' accessing to the tool. Points 3 and 4 emphasise the necessity for the new tool to captivate designers through its design, seamlessly blending images, text and colour to present strategies in an appealing manner. Points 5 and 6 emphasise the critical aspect of the tool's accessibility in both language and style, catering to the needs of both experienced designers and students, with no expected knowledge of other specialist disciplines. Point 7, based on feedback from designers, reiterated the need for the design community, encompassing industry professionals, students, and academics, to have convenient and reliable access to the tool. Building on the theme of students and academia, Point 8 reflects the analysis of the designer survey concerning the discovery methods of

new tools. It highlights the significance of integrating tools into student curricula, as these individuals represent the future generation of designers who may adopt and subsequently introduce tools to others upon entering the industry.

Considering these points and contemplating the breadth of strategies and depth of information to be encompassed within the tool, a deck of cards emerged as a highly appropriate format for its presentation.

A physical deck of cards offers durability and longevity, avoiding obsolescence. Additionally, the cards can be easily digitised for presentation purposes and reproduced without requiring specialist software. The versatility of card sets allows for a range of sizes, styles and colours, presenting opportunities for the tool to employ graphic design effectively in showcasing strategies in an engaging way. Card sets offer the advantage of ample content space, akin to a book. However, each individual card can be viewed in isolation, presenting a smaller, more manageable amount of information to the reader without overwhelming them. Card sets offer an element of serendipity and play in their usage, as there is no predetermined route through the set. Their tactile nature makes them ideal for collaborative activities, allowing multiple individuals to gather around a table and interact with the cards collectively. These tactile and playful characteristics also make card sets appealing for educational purposes, seamlessly integrating into curricula and introducing the tool to students. Finally, the handheld size of cards presents both a challenge and an opportunity to convey strategies concisely, ensuring each fits onto its own card using accessible and straightforward language.

The breadth of strategies and depth of information to be included in the tool made other formats unsuitable. Acronyms like the MAYA Principle (Raymond Loewy), and Process Diagrams like the Design Council's Framework for Innovation (Design Council, 2004) can only present small amounts for information to the designer and were therefore not appropriate. Similarly, a tool delivered via a website or app faces risks of obsolescence or reduced availability, potentially jeopardising ongoing access for the design community.

As outlined in Part 4 of the Literature Review, several existing card sets are available within the Emotional Design domain and the broader fields of design and creative thinking. Each set has its own unique style and level of complexity but offers similar benefits. This study analysed these card sets to identify their strengths and weaknesses, which subsequently informed the development of the Emotional Design Deck. The card sets examined include the IDEO Method Cards (IDEO, 2003), Positive Emotional Granularity Cards (Yoon et al., 2015), Design for Happiness Deck (Delft Institute of Positive Design, Pohlmeyer et al., 2017), Emotional Durability Design Nine (Haines-Gadd et al., 2018), and the Negative Emotion Typology along with the Rich Experience Quality Cards (Fokkinga, 2019). This chapter further discusses the specification points that guided the tool's development, such as the inclusion of product-based examples (Specification Point 17). The analysis of existing tools revealed that the absence of features like these can make it challenging for designers to apply strategies,

guidance, or themes effectively. By evaluating these tools through the literature review and a survey of industry designers, the card set developed in this study incorporates both best practices and addresses gaps found in existing resources.

6.2.2 Content and Structure

The insight presented in Table 6.3 regarding the Content and Structure of the tool was gathered from Parts 1 and 4 of the Literature Review, which analysed existing frameworks, and Emotional Design tools, and the Survey of Designers who responded to questions regarding their awareness and use of such tools.

Content and Structure	
Specification Point	**Source**
9. Ensure the focus is on furniture.	Literature Review Part 4, Existing Tools
10. Ensure the tool is intuitive and easy-to-use without having to read extensive instructions, considering familiarity, or expected conventions.	Literature Review Part 4, Existing Tools
11. The tool should consider the use of existing Emotional Design terms or frameworks.	Literature Review Part 1, Existing Frameworks
12. The tool should consider how it can support communication, presenting a vocabulary for designers to use.	Survey of Designers
13. The tool should have a level of complexity beyond that of a simple acronym.	Survey of Designers
14. The tool should have a simple and memorable framework with rich and detailed strategies that encourage return visits and deeper exploration.	Survey of Designers
15. The tool should have a flexibility in terms of use, allowing designers to apply it in their own way.	Literature Review Part 4, Existing Tools
16. Ensure strategies can be clearly applied to the design process and more than just information.	Literature Review Part 4, Existing Tools
17. Relevant product-based examples of how strategies can be applied should be included.	Literature Review Part 4, Existing Tools
18. The tool should consider the process of its use and how it can structure a designer's thinking.	Survey of Designers
19. The tool should consider how it can be used to change behaviour.	Survey of Designers

Table 6.3 Specification Points relating to Content and Structure.

Specification Point 9, arising from the review of existing tools, emphasises the importance of maintaining the focus on furniture, particularly given the gap in current research and tools. This encompasses references to examples, case-studies and images within the tool. Point 10 echoes some of the accessibility themes in the previous table, emphasizing the significance of ensuring the tool is user-friendly and intuitive for both experienced designers and students, including the language employed. Point 11 acknowledges the extensive scope and depth of existing Emotional Design frameworks and terminology, suggesting potential advantages in incorporating some of these into the

new tool. Point 12 reflects the new tool's potential to not only facilitate communication among designers, but also to expand their vocabulary of Emotional Design terms. The complexity, framework and flexibility of the new tool are discussed in Points 13-16, based on feedback from designers, and a review of existing tools. The specification points for the new tool suggest that it should have a memorable overarching structure or framework, but with detail and depth that can be applied flexibly by designers in a non-linear way. Point 17 stresses the need to include product-based examples in the new tool, addressing a common weakness observed in existing tools that hinder designers' ability to translate strategies into action. Through the survey of designers, Points 18 and 19 suggest the new tool's capacity to structure designers' thinking and potentially alter their behaviour. Designers acknowledged qualities in existing tools that either offer a structured thinking process or challenge their preconceptions, prompting them to adopt a fresh perspective on their usual ideas.

Each specification point informs the design and development of the tool, as detailed later in this chapter. The emphasis on furniture and the accessible style of the tool is guided by the review of existing tools and designer feedback, alongside the aim for the tool to structure thinking and enrich the designer vocabulary. Furthermore, the overall structure, complexity, flexibility and detail of the tool are shaped by the findings, ensuring the Emotional Design strategies are presented in an appealing and effective manner. These specification points regarding the content and structure of the tool establish the framework within which all other elements sit.

6.2.3 Publishing

During the review of existing tools, the publishing and accessibility of tools emerged as a crucial point of analysis, bolstered by feedback from designers in the survey regarding cost and access barriers associated with certain tools. Consequently, a set of specification points were developed to address the publishing of the new tool, outlined in Table 6.4.

Publishing	
Specification Point	**Source**
20. The tool should be easily accessible to designers and design students outside of academia.	Literature Review Part 4 – Existing Tools
21. Consider the tool being 'free for non-commercial use' alongside a paid version for commercial use.	Literature Review Part 4 – Existing Tools
22. For maximum exposure and application, the tool should be free to use, however consideration could be given to opportunities for advanced versions, or line extensions that are paid products.	Survey of Designers
23. For the new tool to be widely discovered and applied by the Design community, consideration should be given to the role of large design organisations in the publication and advertising of the tool.	Survey of Designers
24. Consideration should be given to where the tool can be published and discussed in order to allow the design community to discover it in their own reading and research.	Survey of Designers
25. Consideration should be given to how the tool can be provided to universities for use in the curriculum.	Survey of Designers

Table 6.4 Specification Points relating to Publishing.

Specification Points 20 to 22 emphasise the necessity of accessibility for the tool, while acknowledging the cost barrier. Further exploration of the cost to use the tool can be found in Chapter 8. Point 23 considers the potential involvement of a major design organisation in the publishing and promotion of the new tool. While no external organisations have contributed to the tool's development thus far, the Chartered Society of Designers has assisted with primary research through its extensive network of designers. It is expected that this organisation will aid in disseminating and advertising the tool once it is ready for publication. Point 24 also concerns the dissemination of the tool upon its readiness for publication. Clear opportunities for dissemination exist through conferences and connections with online design networks and platforms such as Dezeen and Core77. Social Media networks will also play a part in promoting the new tool. Point 25 centres on the integration of the tool within undergraduate and postgraduate design curricula. It is anticipated that the channels mentioned earlier in this paragraph will aid in raising awareness of the tool among academics globally. Additionally, providing guidance on how to incorporate the tool into teaching and learning environments could accompany its distribution.

These specification points outline the publishing and dissemination strategy for the tool, ensuring its accessibility and discoverability within the target community.

6.2.4   Strategies

The remaining points identified through the initial research activities outlined in this chapter encompass broad design themes, overarching strategies and specific methods aimed at evoking emotion in design. All points are summarised in Table 6.5, with the source of each strategy indicated in the right-hand column, encompassing the Literature Review, Review of Iconic Furniture, and Consumer Survey and Interviews.

Exploration of these strategies and themes, and how they influenced the overarching structure, and individual card strategies can be found later in this chapter.

	Specification Point	Source
Strategies	Connected Meaning of the object, it's Quality and Manufacturing Conditions	Literature Review Part 2: Emotional Design Over Time
	Handcrafted Elements	
	Locally Manufactured components	
	Natural Influence	
	Sculptural Sinuous Lines	
	Fascinating Forms	
	Glamour and Optimism	
	Simple, Strong, Geometric Forms	
	Contrasting Materials	
	Form Follows Function	
	Free from Decoration	
	Strong and Light Products	
	Surprise and Excite the Consumers	
	Fun and Playful Meanings	
	Express Artistic Style	
	Wrapped Flowing Forms	
	Most Advanced Yet Acceptable	
	Embrace New Materials and Technology	
	Products and Spaces in harmony with their surroundings	
	Reflecting Nature	
	Curving smooth forms with natural materials	
	Simple, Less is More Style	
	Familiarity and Functional Minimalism	
	Utilise Mass Production	
	Bright, Colourful and Fun	
	Whimsical, Joyful Experiences	
	Cartoon-like Forms	
	Vibrant Colour and Pattern	
	Visual Metaphor and Anthropomorphism	
	Geometric Forms	
	Visual Metaphor	Literature Review Part 3: Emotional Design Strategies
	Anthropomorphism	
	Most Advanced Yet Acceptable (MAYA) / Similarity and Complementarity	
	Customisation & Personalisation	
	Surprise as a Design Strategy	
	Slow Design	
	Nudge	
	Critical Design	
	Wabi Sabi	
	Recycled Materials (Material Values)	
	Social Context & Gifts	
	Social Corporate Responsibility	
	Advances in materials and manufacturing that are used to develop new products	Review of Iconic Furniture
	A desire to offer something new and unexpected	
	An intention to provide an experience	
	Honesty to materials and their properties	
	Artistic expression of individual designers or groups of designers	
	A source of inspiration	
	Simplicity of form without the need for decoration	
General	Describe how some people form stronger relationships with objects than others	Consumer Survey Insight
	Consider the furniture items 'likely location'	
	Consider if the item of furniture should 'whisper or shout'. ('show stealer vs support act')	
	Use Emotional Design strategies to facilitate the formation of emotional connections with new items during purchase, early ownership, and medium-to-long-term ownership stages	
	Consider the ability for the item of furniture to be given as a gift, a 'hand-me-down' or through inheritance	
	Consider the purchase experience, both digitally and physically	

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	Include strategies like Wabi-Sabi, Patina, and material choice for aging to embrace imperfections	
	Embed Emotional Design strategies that focus on aesthetic, functional, and meaning values	
	Include strategies to evoke emotion through both simple, and decorative, or ornate furniture, however a significant focus on simple concepts should be considered. (90% of findings support simple)	
Aesthetic	Form Follows Function, for aesthetics linked to function	
	Crafted detail	
	Simple, classic styling for a sense of timelessness	
	Recycled materials, retaining the imperfections of the reclaimed ingredients	
	Patina and a materials ability to age and wear	
	Symbolic of its time through its materials and colours	
	A sculptural piece in its own right	
	The ability for the item to collect memories, including opportunities for customisation or decoration	
	Channel a past design movement in a contemporary way	
	Consider the use of colour, particularly in terms of supporting interior trends	
Function	Ensure ergonomic performance and comfort of furniture being developed is high	
	Store, display or protect other possessions	
	Multiple functions or uses	
	Envelop the consumer and make them feel safe	
	Secret features or functions	
	Hide clutter or 'ugly' items	
	Support injury recovery or help with long-term health conditions	
	Multi-use surface e.g., a dining table, worksurface and ironing board	
	A conversation starter	
	Adapt by season (Summer/Winter, inside/outside functions)	
	Foster social interaction	
	Fun	
	Extend and expand	
Meaning	A 'building' experience, perhaps developing flatpack narrative or the requirement for some tools	
	Bring a family together	
	Suitable for handing down, or a future heirloom (custodian quality)	
	Materials that represent the time	
	Use materials that represent values	
	A geographical link	
	Reminiscent of a book, film or TV show	
	A commissioned quality	
	Suitable for being given as a gift	
	Link to an occupation, or interest	
	Link to family history	
Overarching Themes	Narrative (incorporating initial themes of Meaning, Acquisition and Narrative)	Consumer Interview Insight
	Consumer Curator (incorporating initial themes of Function and Comfort)	
	User Experience (incorporating initial themes of Aesthetics and Consumer as Curator)	
	Destination (replacing theme of 'Item Creates a World')	
Interpretive Codes	Multifunctional	Consumer Interview Insight
	Positive User Experience	
	Adaptable to spaces	
	Consumer Adaption	
	Storage & Display	
	Contemporary	
	Simple and without ornament	
	Timeless	
	Detailing	
	Proportion	

Family & Relationships	
Family History	
Childhood & Nostalgia	
Events	
Personal Achievement	
Era of History	
Ownership Length	
Irreplaceability	
Consumer Relationship with item	
Item Condition	
Inheritance	
Antique Shop / Design Led Shop	
Showroom Effect	
In-Store Purchase	
Online Purchase	
Relaxation	
Warmth	
Calmness	
Safety	
Workspace	
Place for Reading & Writing	
Entertainment	
Personal Landscape	
Family	
Taste Values & Aspirations	
Influence of Design & Interior Trends	
Character	
Interior Design	
Togetherness (ranking task theme)	
Comfort (ranking task theme)	
Natural Influence (ranking task theme)	
Adaptability (ranking task theme)	

Table 6.5 Design themes, overarching strategies, and specific methods identified through the research activities of Phase 1 of this study.

6.3 Forming an Overarching Structure

With the conclusion of research activities and the establishment of the design brief and specifications outlined in points 1-25, the development of an overarching structure could begin. Given the multitude of strategies identified in Table 6.5 from the Literature Review, Review of Iconic Furniture, Consumer Survey, and Consumer Interviews, it became evident that a thematic grouping was necessary to organise these strategies into manageable sets. This approach is akin to the four suits of playing cards in a traditional deck, creating collections and also presenting opportunities for different use, or gameplay methods. Thematically grouping strategies also aligned with specification points within the Content & Structure category, ensuring the tool has a memorable overarching structure, but with depth and detail to explore.

Narrative, Consumer Curator, Destination, and User Experience, emerged as four key overarching themes developed from the consumer research, described in Chapter 5 and presented in the Venn Diagram; 'Consumer Interview Thematic Framework' (Fig. 5.8). While these four themes effectively capture the insights gleaned from consumer interviews regarding their connections with favourite

furniture items, it is important to acknowledge their limitations. These themes are derived solely from the consumer interview research activity and do not encompass the broader findings from the Consumer Survey or the Review of Literature and Iconic Furniture.

To evaluate the applicability of the four themes mentioned earlier, each design strategy identified through the research activities of this study was tagged under one of the four themes. This process began to establish potential groups or sets of cards based on thematic alignment. Many strategies were associated with multiple themes. For instance, Slow Design intersects with three themes, influencing the User Experience of a piece of furniture and contributing to the Narrative of an item, while also shaping the Destination it creates. It was therefore not possible to develop distinct thematic groups of strategies using the four overarching themes of Narrative, Consumer Curator, Destination, and User Experience as strategies would be forced into one single theme, overlooking their broader connections.

Revisiting the strategies and grouping them thematically alongside each other began to present a new set of themes, aligning with categories explored in the results of the consumer survey and literature review. These themes are Aesthetics, Experience and Meaning, relating to how an item of furniture looks, what it does, and what it means to the consumer. These three simple themes are accessible, easily understood and memorable, aligning well with the points of the tools specification relating to Format, Design & Accessibility, as well as Content and Structure. The three themes also align with existing Emotional Design frameworks and models discussed within Part 1 of the Literature Review, most notably, the Visceral, Behavioural and Reflective levels defined by Norman (2004). The Aesthetic impressions, Semantic interpretations, and Symbolic associations defined by Crilly et al., (2004) and six sources of emotions defined by Desmet (2012) closely relate to the three themes identified for the tool. While other existing frameworks and models can be aligned with these themes, each offers its own nuances and classifications. More information about the process of defining, reevaluating and redefining themes can be found in the methodology chapter.

The following sections of this chapter will further explore how the three themes are presented within the tool, including the use of distinct colours to differentiate cards within each set. This visual approach aims to effectively communicate the type of strategy to the designer at a glance.

After thorough exploration of themes and the organisation of strategies, as well as triangulation with the Literature Review, the three overarching themes that shape the Emotional Design Deck are Aesthetics, Experience and Meaning, as shown in Table 6.6

Aesthetics	Experience	Meaning

Table 6.6 Three overarching themes of the Emotional Design Deck.

6.4 Refining Strategies

Reviewing all the strategies shown in Table 6.5 highlighted a number of repeated strategies, stemming from more than one research activity, for example the theme of togetherness, repeated in both consumer interviews and the consumer survey. Repeated or similar strategies were consolidated and refined, their repetition reinforcing their significance and justification for inclusion within the tool. Strategies which were not repeated or reiterated were omitted, particularly in findings from the consumer survey where perhaps just one respondent had highlighted an interesting connection.

Table 6.7 presents the 48 strategies identified for inclusion in the tool, organised within each thematic set. Each strategy is described in its concise, undeveloped form. Further elaboration on the development of these themes and how they are translated into practical strategies for the deck can be found in the subsequent sections of this chapter.

Aesthetics	Experience	Meaning
Visual Metaphor	Consider the experience that the item provides	Design for a specific nuanced emotion
Anthropomorphism	Most Advanced Yet Acceptable (MAYA)	Customisation & Personalisation
Wabi Sabi, Patina & Signs of Wear	Surprise as a Design Strategy	Slow Design
Artistic expression of individual designers or groups of designers	A desire to offer something new and unexpected	Nudge
Consider the furniture items 'likely location'	Patina and a materials ability to age and wear	Social Corporate Responsibility
Consider if the item of furniture should 'whisper or shout'	Store, display or protect other possessions	Symbolic of its time through its materials and colours
Consider the purchase experience, both digitally and physically	Multiple functions or uses	A conversation starter
Crafted detail	Envelop the consumer and make them feel safe	Inherited, suitable for handing down, or a future heirloom (custodian quality)
Simple, classic styling for a sense of timelessness	Secret features or functions	Use materials that represent values
Recycled materials, retaining the imperfections of the reclaimed materials	Hide clutter or 'ugly' items	A geographical link
Channel a past design movement in a contemporary way	Adapt by season (Summer/Winter, inside/outside functions)	Suitable for being given as a gift
Consider the use of colour, particularly in terms of supporting interior trends	Foster social interaction	Link to an occupation, or interest
A commissioned quality	Fun Furniture	Link to family history
Reflecting nature	Extend and expand	Togetherness
Minimalist, Less is More Style	A 'building' experience, developing narrative	
Honest to materials and their properties	Comfort, either physically, psychologically, or both	
Advances in materials and manufacturing for new products.		
A sculptural piece in its own right		

Table 6.7 Forty-eight Strategies of the Emotional Design Deck.

6.5 Presentation of Strategies on Cards

The specification points and strategies discussed earlier in this chapter define the overarching framework, themes, and fundamental content of the tool. These elements emerged from research activities involving literature reviews, analysis of iconic furniture, and consumer and designer insight through surveys and interviews.

Each of the 48 strategy cards required a presentation format that effectively conveyed the strategies to designers with clarity. Specification points 3 and 4 highlighted the need for the tool to be visually appealing, using images and icons alongside text. Point 5 defined the requirement for accessible

language, while Point 17 emphasised the necessity for product-based examples, informed by analysis of existing tools that lacked this aspect. Considering these requirements, defined through detailed analysis of existing tools and insights from industry designers, each card was crafted to incorporate the following elements:

- Strategy Description / Question
- Strategy Titles
- Further Information and Guidance for Application of Strategy
- Product-Based example of strategy application
- Illustration/Icon of Product-Based example
- Image for reverse of card
- Theme Category Indicator (Aesthetics/Experience/Meaning)
- Insight Badge Icon/s

Each element is shown on the wireframe of a card (Fig. 6.2), indicating the positioning and basic layout.
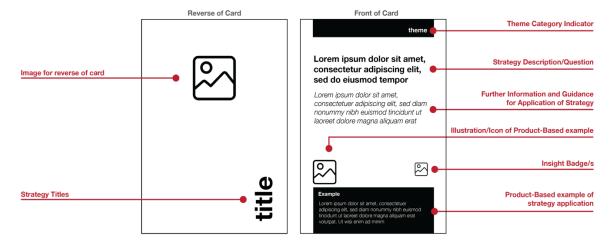
Figure 6.2 Card Wireframe.

The following section describes the intended purpose of each element, supported by findings of research activities within this study.

Strategy Description/Question

The strategy description, or question stands out as a highly important element of each card, derived from extensive research involving consumer insights, literature reviews and examination of iconic furniture. Each of the 48 strategies outlined earlier in this section addresses distinct considerations related to aesthetics, experience or meaning that designers can apply to their work. These descriptions are succinct, often posed as questions, typically comprising just 10 to 15 words. For

example, the experience based strategy of 'Surprise as a Design Strategy' is encapsulated as 'Can the item surprise the consumer with materials or features?', offering a concise overview, with some contextual guidance. This core component of the card serves as the designer's initial point of contact for exploring the strategies encompassed within the tool. Whilst it is arguably the most important element of each card, the research in this study outlines how strategies can still be hard for designers to translate into action, reiterating the need for the following elements.

Strategy Titles

The reverse side of each card showcases a succinct strategy title, providing a subtle hint of the corresponding strategy depicted on the front. This title supports different applications, promoting various usage or gameplay methods, as designers, clients, or even consumers may choose cards based solely on their title. Initially, titles were crafted to succinctly describe each strategy, aiming to encapsulate complex concepts in just a few words. Subsequently, they underwent revision to incorporate playful and emotive language, aligning with the Emotional Design emphasis of the tool. This adjustment aimed to enhance user engagement by fostering a more enjoyable and memorable experience with the tool. Table 6.8 illustrates an example of a strategy, showcasing its original title and its revised emotive title, aiming to captivate designers' interest and evoke curiosity about the strategy.

Strategy Description/Question	Initial Title	Emotive Title
Can Anthropomorphic forms be used to create characterful connections?	Anthropomorphism	Characterful Connections

Table 6.8 Example of a strategy, its original title and its revised emotive title.

Further Information and Guidance for Application of Strategy

An integral aspect of the tool's functionality lies in its effectiveness as an educational resource, enhancing the knowledge and understanding of Emotional Design for those who use it. While the Strategy Description aims to offer a concise introduction, often posed as a question, the Further Information section shown on Figure 6.2, offers additional insights, theory, or contextual information about the strategy. The example shown in Table 6.9 indicates how the Strategy Description, posed as a question introduces the strategy, while the Further Information section provides further guidance and typical characteristics associated with the strategy.

Strategy Description	Further Information and Guidance for Application of Strategy
How can the furniture be fun?	Furniture in bright colours and unusual forms can inject a sense of fun to a room, as well as furniture that encourages play or alternative uses.

Table 6.9 Example of a strategy description and the corresponding Further Information section.

Product-Based example of strategy application

Specification Points 16 and 17, derived from the literature review, particularly emphasise the necessity for product-based examples illustrating the practical application of strategies. This critical insight arose from analysis of existing Emotional Design tools, many of which lack this element. Without these examples, research insights or strategies can be abstract, and difficult for designers to translate into actionable steps. By showcasing how previous designers have implemented specific strategies or clarifying their potential impact, designers are more likely to embrace and apply the strategies within the deck. Table 6.10 illustrates one Product-Based example, alongside the strategy description and further information, demonstrating how an example can help bring a strategy to life.

Strategy Description	Further Information and Guidance for Application of Strategy	Product-Based example of strategy application
Can the furniture envelop it's owner and make them feel safe?	Furniture that we sit, or lie on naturally offers us comfort, but how can other items of furniture make us feel safe?	Eero Aarnio's Ball Chair envelops the user in a pod-like environment, providing a sense of protection within a robust shell. With its cushioned and upholstered surfaces, the chair offers a comforting and warm experience.

Table 6.10 Example of a Product-Based example, alongside the strategy description and further information content.

Illustration/Icon of Product-Based example

To further enhance the visual appeal and animate strategies, each product-based example is accompanied by a simple illustration or icon. This aligns with the tool's intention to prioritise visual engagement through the use of images and icons, as specified in points 3 and 4. Furthermore, these illustrations or icons contribute to the tool's intuitive design, leveraging familiar and recognisable iconic furniture pieces, often identifiable by just their silhouette. The design style of this element is discussed later in the chapter.

Image for reverse of card

In order to create visually captivating and appealing cards, contextual images were incorporated onto the reverse side of each card. These images correspond to the emotive titles, occasionally in subtle ways and at other times more explicitly. Sourced from unsplash.com, which offers over 3 million high-resolution images for both commercial and non-commercial use. Not exclusively furniture-based, these images serve to establish the character of the strategy. For instance, Fig 6.3 is utilised for the 'Making it your own' strategy, which centres on consumer customisation and personalisation. It portrays an Apple MacBook adorned with stickers, reflecting the owner's individuality and interests.

Figure 6.3 Apple MacBook adorned with stickers.

Theme Category Indicator (Aesthetics/Experience/Meaning)

The top right corner of each card (shown on Figure 6.2) features an indicator for the overarching theme associated with the strategy. This theme suit, or set, signifies whether the strategy aims to foster an emotional connection related to aesthetics, experience or meaning. Designers can tactically apply different types of strategies based on their intended consumer connection or when addressing perceived deficiencies in emotional engagement, such as at the meaning level. This feature addresses specification point 11, by linking in part to research of existing Emotional Design frameworks, applying aligned themes to the set. It also responds to points 14 and 15 by supporting the formation of a simple and memorable framework that allows flexibility in use, allowing designers to access key strategies tailored to the specific project they are undertaking. Additionally, this feature, in conjunction with others mentioned earlier, contributes to addressing points 18 and 19 by structuring designers' thought processes and potentially influencing their behaviour. It encourages designers to adopt a more strategic approach, prompting them to consider how their products can establish emotional connections with consumers.

Insight Badges

The final layer, or element of content featured on the cards, consists of the four insight badges, which connect to the thematic analysis derived from in-depth consumer interviews. The four insight badges represent the four themes of Consumer Curator, User Experience, Narrative, and Destination, as shown on Figure 5.8, the Consumer Interview Thematic Framework, and discussed in depth in Chapter 5.

The insight badges provide further richness to the tool, and it's use, extending its application for more experienced users of the tool, or for those aiming to target particular product values for the consumer. When incorporating multiple strategies into a design brief or project, designers could 'collect' or align badges with particular concepts, aiming to forge emotional connections with consumers at various

levels. The insight badges also address specification points 4 and 13-15, which emphasise the effectiveness of icons in facilitating communication and the importance of creating a memorable framework for the tool, which offers both complexity and flexibility in its application. The graphic design of the badges is explored later in this chapter and a description of the four badges can be found below, in Table 6.11.

Insight Badge	Description
User Experience	Strategies with the User Experience badge relate to a products function, and how it makes you feel.
Narrative	The Narrative badge links to strategies that can create meaning and stories for emotional connections.
Destination	Strategies with the Destination badge focus on creating a place, atmosphere, or mood through furniture.
Consumer Curator	The Consumer Curator badge links to the consumer desire to curate their space at home and select items that represent themselves.

Table 6.11 Description of each of the four insight badges.

6.6 Use Method Gameplay

Exploration of the way in which the tool is used, and potential gameplay methods respond to specification point 10 which highlights how the tool must be intuitive and easy-to-use without extensive instructions, considering familiarity, or expected conventions. Given the set's 48 strategy cards, it may initially overwhelm new users. Thus, incorporating simple introductory instructions offers an initial pathway to navigate the strategies. However, the instructions do include a note reminding users that this suggested process is just one approach, and they are encouraged to utilise the tool in a way that best suits them and their practice, aligning with specification point 15.

Various methods for usage and gameplay were explored, including techniques to randomly select cards such as using dice or a spinner, similar to those found in board games. These methods are intended to infuse a sense of fun and enjoyment, for designers, whether working independently or collaboratively. However, while the inclusion of additional gameplay elements like dice and spinners may increase engagement, there's a risk that the primary focus of promoting Emotional Design strategies could be diluted by the gameplay aspect, altering the users perception of the tool. Additionally, it could limit the tool's flexibility of use, as users may assume it requires these additional game elements. Therefore, a method that allows for serendipitous card selection, without the need for additional components was ultimately developed.

A simple set of instructions, consisting of just five steps is included on a guidance card and described in Table 6.12. The suggested use method swiftly familiarises the designer with the set and introduces the three overarching themes of Aesthetics, Experience and Meaning. It adds an element of

serendipity and fun before progressing to a more investigative and learning phase of reviewing the selected strategies. Lastly, designers engage in a reflective and analytical stage to assess strategy alignment with the project brief before beginning ideation.

1	Randomly select 3 cards of each set.
2	Take a few minutes to review the selected cards.
3	Decide if there are any cards that you are particularly drawn to.
4	Determine if the selected cards align with the brief, or if you wish to exchange some.
5	Start brainstorming ideas that address the brief by utilising the strategies outlined on your cards.

Table 6.12 The steps outlined in the introductory usage method as detailed on one of the guidance cards.

6.7 Graphic Design & Development

With the key specification points, strategies and card wireframe finalised, the process of creating the cards could begin, using graphic design software, including Adobe Illustrator, InDesign and Photoshop. Emphasis was placed on maximising the utilisation of space on each card while ensuring adequate white space to avoid overwhelming the user with information. A clear hierarchy of information was established, utilising varied typeface weights and styles to effectively communicate with the user.

Colour Story

To meet the requirement for the tool to be visually appealing, a carefully curated colour palette consisting of three vibrant and contrasting colours was chosen for the deck. These colours were specifically applied to correspond with the three overarching themes of Aesthetics, Experience and Meaning, ensuring clarity and distinction between each set. The three colours and their corresponding CMYK profiles are shown on Figure 6.4.

Aesthetics	C 79%
	M 46%
	Y 0%
	K 0%

Experience	C 12%
	M 88%
	Y 24%
	K 2%

Meaning	C 57%
	M 0%
	Y 76%
	K 0%

Figure 6.4 Emotional Design Deck colour palette.

The colour palette is prominently showcased in three primary areas of each card, as depicted in figure 6.5, including the theme category indicator, the product-based example zone, and the full-bleed image on the reverse side. This use of colour fosters a visually dynamic and easily discernible layout, with distinct separation between sections on the front of the card, and a captivating full image on the reverse side.
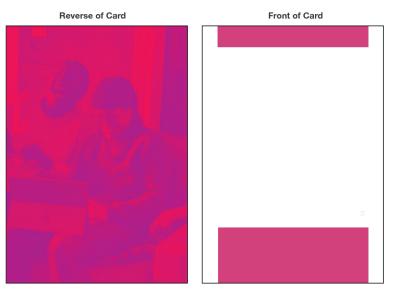
Figure 6.5 Use of colour on cards.

The colour utilised for the theme category indicator and product-based example zones is presented in a flat style, preserving a clean and contemporary aesthetic. Conversely, on the reverse side of the card, each full-bleed image undergoes colour grading using a gradient map, which applies the relevant colour corresponding to the card's theme. Figure 6.6 illustrates an original photograph alongside the outcome of colour grading using a gradient map in Adobe Photoshop. This stylistic technique not only hints at the strategy featured on the card and serves as a decorative element but more significantly, communicates the theme of the strategy through impactful colour application.
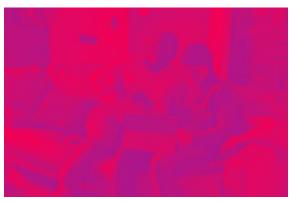
Figure 6.6 Example of image and colour graded version.

The vibrant and dynamic colours of the cards are a defining characteristic of the Emotional Design Deck, designed to evoke emotions among designers using the deck. The curated colour palette, comprising three vibrant hues alongside black and white, aims to inspire feelings of energy, excitement and positivity, while also stimulating creativity.

Hierarchy of Information and Typeface

Figure 6.7 (not to scale) illustrates the variety of typeface sizes ranging from 14pt to 70pt used on the cards, distinguishing between the text on the reverse and front of the cards. All text featured on the cards utilises the Helvetica Neue typeface in bold and light weights. The deliberate choice to use a single, simple sans serif typeface, albeit in varying weights, ensures the cards maintain a clean and legible appearance.

On the front of the card, considering the hierarchy of information, the strategy description takes precedence as the most crucial element. It is presented in bold and large text, akin to the headline of a newspaper, intending to immediately capture users' attention and draw them to this focal point. Two additional elements of bold text denote the theme category and title the zone for the product-based example. The remaining supporting content on the front face of the card utilises the light font of the typeface, distinguishing it from the primary content and introducing visual variety to the card. On the reverse face of the card, a simple large title hints at the strategy shown on the card, utilising the bold font of the typeface, entirely in lowercase letters for a contemporary feel.

Reverse of Card

Strategy Title

Front of Card

Strategy Description

Further Information and Guidance for Application of Strategy

Theme Category Indicator

Product-Based Example of Strategy Application Title

Product-Based Example of Strategy Application

Figure 6.7 Hierarchy of Information Typeface Sizing.

Illustration & Icons

The last two graphic design elements to appear on the cards are the illustrations accompanying the product-based examples and the insight badges. These visuals aim to engage designers using the cards, ensuring that the front face does not consist solely of text. These elements are shown on Figure 6.8; in this example, a chesterfield sofa and three insight badges representing Destination, Narrative, and User Experience that link to the strategy regarding a products use in a social context.

Reverse of Card

Front of Card

Experience

How will the product be used in a social context?

Furniture can offer a space to come together, connect, talk, dine and play. Can the item support socialising?

a social platform

Example
Large sofas enable people to share a space and be close, while other concepts like see-saw seats require two individuals for their functionality,

Figure 6.8 Card Illustrations and Icons.

Product-Based Example Illustrations

To ensure consistency and ease of use, it was decided to restrict the angles at which the product examples are depicted. Source images are available in various views, showcasing the product from a wide range of angles, however, by limiting product views to either the front or three-quarter view, the most suitable angle could be selected to effectively communicate the object's form. For instance, some iconic furniture items have recognisable silhouettes when viewed from the front, while others, which may be less familiar, are better represented from a three-quarter angle.

Consideration was given to the colour scheme for the example illustrations. However, opting for black with white negative space and white lines to emphasise essential details offered a clean and uniform style that could be applied consistently across all cards. This style also aligns with current trends favouring flatter and simpler aesthetics. The production timescales linked to the production of the cards for testing, also influenced the decision to focus on this style, creating 48 bespoke illustrations.

Figure 6.9 displays a source image featuring furniture designed by Studio IaVina and Varvara Lazareva, along with the initial version of the example illustration created using the Adobe Illustrator image trace tool, and the final version produced using the pen tool. While the image trace tool offers rapid results that can accurately represent iconic silhouettes, it yields less effective outcomes for certain products, such as this example, with confusing shadows and missing surfaces. By utilising the pen tool, the core silhouette can be defined, and white lines can be incorporated to convey separate components, edges, and texture more precisely.

Figure 6.9 Product-Based Example Illustration style and development.

Figure 6.10 displays four different furniture examples, showcasing both their source image and final illustration. This comparison highlights how some examples can effectively rely on a simple silhouette with negative space in white, while others benefit from additional white lines to define edges, surfaces, and texture.

Figure 6.10 Product-Based Example Illustration Refinement.

This is further demonstrated in Figure 6.11 below with a chair, presented with and without white lines, highlighting their necessity in defining the illustration.

Figure 6.11 Product-Based Example Illustration detail lines.

Insight Badge Icons

The second illustrated element is the icons crafted for the insight badges. In Figure 6.12, the original design for the insight badges, which included written labels, is depicted alongside the final design featuring new or updated icons and the removal of written labels. Additionally, the final badges have been shaped to resemble a typical badge, with a wavy edge circle or rosette.
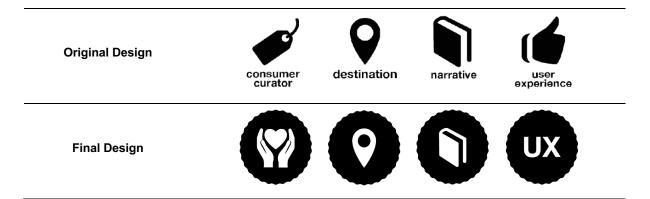
Figure 6.12 Insight Badge Icon Style and Development.

The icons chosen to represent each insight theme also aim to more effectively convey the meaning of the theme. Initially, the icons were sourced from the Entypo+ icon set, a collection of free open-source icons. While the icons for destination and narrative were kept unchanged, those for consumer curator and user experience were revised, with new icons specifically developed for this study.

The initial concept for the Consumer Curator badge aimed to depict a tag, hinting at consumers selecting and curating items, akin to an exhibition or gallery curator. However, the conveyed message resembled more of a price tag in a shop. Therefore, the revised and final icon represents love of particular items, with hands symbolising consumers embracing such items.

The user experience badge transitioned from the thumbs-up hand to the simple 'UX' initialism, which is familiar to designers. The thumbs-up hand has become widely recognised, particularly on digital interfaces, as a symbol for 'liking' anything positive, not exclusively related to user experience. Switching to the 'UX' initialism recentres the focus on the user experience itself.

The product-based example illustrations and insight badge icons enrich the depth and detail of the deck. The illustrations visually represent the example products, and help bring the strategies to life, while the insight badges offer additional depth for more experienced users of the tool, or for those aiming to target specific product values for the consumer.

6.8 Conclusion

This chapter synthesises the findings from both primary and secondary research activities of this study to define the specifications and design brief for the tool. Subsequently, it explores the graphic design and development of the tool, considering the specification points discussed.

A set of 25 specification points was formulated to outline the design, format, and accessibility requirements of the tool. These points were derived from the research activities conducted in this study, which included the Literature Review and Survey of Designers working in the industry.

Over one hundred strategies or thematic elements, derived from the Literature Review, Review of Iconic Furniture, Consumer Survey, and Consumer Interviews, were synthesised to establish a comprehensive framework comprising three overarching themes, and 48 individual design strategies.

The layout and graphic design of the cards was developed, encompassing considerations such as colour scheme, typeface selection, imagery, icons, illustration style and hierarchy of information.

Chapter 7 explores the testing and refinements made to the tool, leading to a full presentation of the tool in Chapter 8.

7 Testing and Refinements

7.1 Introduction

This chapter explores the three essential phases of testing, and the refinements that shaped the Emotional Design Deck. The tool was tested with undergraduate and postgraduate design students, at an international conference, and with experienced design professionals working in industry. Analysing the feedback from these testing phases reveals how user experience and research insights influenced the tool's refinements. The research activities outlined in this study determined the tool's content, structure and key themes as discussed in earlier chapters. Additionally, surveying design professionals provided insights into how designers use existing tools, and best practices were incorporated into the Emotional Design Deck's design. Testing the tool with three distinct audiences was essential for validating the concept and identifying specific areas for improvement.

The three key phases of testing are shown in Table 7.1. The table also details the point at which the tool was refined, moving from version 1, to version 2 of the tool.

Phase 1	Student Workshop and Evaluation	Undergraduate and Postgraduate Design students studying at University of Staffordshire took part in a Creative Workshop to test version 1 of the tool. Students completed a detailed evaluation survey at the end of the workshop.
Phase 2	Conference Presentation and Feedback	The Emotional Design Deck, and preceding research was presented at the Seventeenth International Conference on Design Principles & Practices. Delegates who attended the presentation had an opportunity to provide short feedback both digitally, and verbally in the room.
	Tool refined using insights obtained from Phase 1 and 2	
Phase 3	Designer Workshop and Evaluation	Experienced Designers from Industry attended University of Staffordshire to take part in a Creative Workshop to test version 2 of the tool. Participants completed a detailed evaluation survey at the end of the workshop.

Table 7.1 Three Phases of Testing of the Emotional Design Deck.

7.2 Phase 1 Testing

Student Workshop and Evaluation

Friday 3rd March 2023, University of Staffordshire Creative Lab

The initial testing phase involved a student workshop in which participants collaborated and worked individually to design new pieces of furniture using the tool (Fig. 7.1, 7.3). Participants were welcomed and introduced to each other before forming pairs or small groups. They then worked collaboratively to design a new piece of furniture without using the Emotional Design Deck. After a short break, participants utilised the Emotional Design Deck to tackle the same design brief, still within their original groups. It is important to note that participants were not provided with a detailed introduction to the tool, as this would not replicate the real user experience of the tool, in which the creator would not be present for new users of the tool. Participants were simply advised to look at the guidance cards at the front of the deck before exploring the strategy cards. After the participants had completed both design phases of the workshop, they shared their ideas before completing an evaluation survey reflecting on their experience using the tool. The evaluation survey encompassed a range of questions employing multiple-choice, text entry and a graphical heat map. More detailed information about graphical heat map questions, and the activities that formed the creative workshop with students can be found in the Methodology chapter. The following section explores the results and findings of the survey, defining a series of development points for the tool.
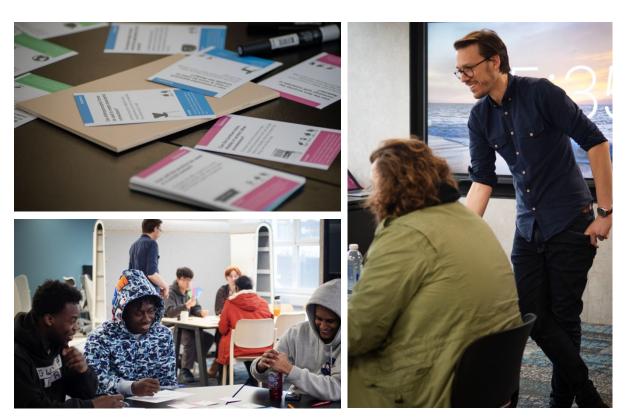
Figure 7.1 Emotional Design Student Workshop, Friday 3rd March 2023, University of Staffordshire.

Reflective Questions

The first question, 'Did you enjoy using the Emotional Design Deck?' aimed to assess students' experiences with the tool, and the results were overwhelmingly positive, with 100% of the students (9 individuals) indicating that they enjoyed using the tool. This feedback holds significant importance as a key intention whilst developing the tool, was that it's format and presentation should create a positive user experience that is engaging and fun. The use of colour, images, icons and small blocks of text aim to introduce strategies in bitesize chunks, and the fun 'pick a card' process of using the tool introduces serendipity and chance in the first part of the card experience.

Students elaborated on their responses regarding the enjoyment of using the tool in question two. The word cloud (Fig. 7.2) indicates the most frequently occurring words in their responses, with the four largest words representing those mentioned most often. While all responses are detailed in appendix 14, the subsequent section highlights and examines key responses. To ensure clarity in the analysis, any spelling, grammatical and punctuation errors made by survey respondents have been corrected.

Figure 7.2 Word cloud indicating student responses elaborating on why they enjoyed using the tool.

The responses from the participants can be grouped into three key themes, defined through thematic analysis, that capture why the students enjoyed using the tool. These three themes are Education, Stretch, and Challenge.

The first theme emerging from the student comments reflects on the educational function of the cards and how they help designers integrate Emotional Design strategies into their work. One student's remark highlights the positive aspect of the tool's aim to empower designers to adapt strategies according to their own methods, rather than providing a rigid 'how-to' or 'step-by-step' manual;

'It is very inspiring learning to understand how Emotional Design can be integrated into my design work, and being able work in teams really helps bounce ideas off of each other.'

The response also touches upon the collaborative function of the tool, which was also clear when observed by the researcher during the workshop. The stage in which the students used the cards was much louder, with interesting conversations about potential designs, in contrast to the quieter and more individual design process when the students were not using the cards.

The second theme captures how the tool stretches the designer to consider solutions that they would not normally consider, indicating that the strategies broaden their thinking beyond their usual path or design style. This feedback is particularly positive, as designers frequently encounter creative blocks akin to writer's block. This comment from one respondent implies that the tool offers inspiration and strategies to generate a more diverse array of concepts;

'It pushed me to consider areas of design that I would normally not consider and allowed a more diverse option of potential products to consider.'

The third key theme emerging from the question highlights how the tool prompts designers to reassess their ideas and approaches throughout the design process, aligning with its fundamental objective of applying Emotional Design strategies, typically lesser known by designers and design students. The latter part of this feedback provides strong endorsement for the tool, indicating that its utilisation resulted in an enhanced quality of the designer's output;

'The cards made me reconsider my ideas and methods, and I believe that I created a better item of furniture than I did without the use of the cards.'

Figure 7.3 Students applying the Emotional Design Deck to their work.

Student Reflections: Resulting Designs

The next section of the student evaluation explored the resulting designs after using the tool, as well as the feelings students had about those resulting designs.

When asked if the tool aided in developing new concepts linked to Emotional Design strategies, all nine students responded positively, with none indicating that the tool fell short of its objective. This highlights the tool's effectiveness in integrating Emotional Design strategies into designers' work, while also showcasing students' ability to interpret and apply the strategies without direct instruction from the tool's creator.

When asked 'How do you feel about your design that resulted from using the tool?' students provided a range of responses, as shown in Table 7.2, perhaps interpreting and responding to the question in different ways.

How do you feel about your design that resulted from using the tool?	
Participant	**Response**
1	This is because this is a huge area of interest to me. Using the cards in a group versus independently, I may have a different response
2	It really help have some base ideas to spark from
3	It felt more inspired, and had a higher reasoning to its design rather than using what was on the top of my head it allowed to me think more clearly about what i was doing and what was going into the product. Compared to not using the tool, my work looked more focused and intentional rather than guessing what i was doing as i was working.
4	I don't think we used the full potential of this tool. By picking them randomly we did not exploit the target ability of this tool.

5	Good
6	I feel very satisfied with my product using the tool
7	I feel the design I made from using the tool is something that I normally would not have thought of.
8	I really liked some of the designs and they are design that I would not have designed otherwise
9	I like thinking about the user I have to design for and be considerate to them.

Table 7.2 Student responses when asked how they felt about the designs that resulted from using the tool.

Five out of the nine student responses (participants 2, 5, 6, 7, and 8) provide broad yet positive feedback on their designs and the tool's role in their development. They reflect on how the tool sparks ideas, enabling them to create products they would not have conceived otherwise. For instance, participants 7 and 8 specifically mentioned that the Emotional Design Deck helped them think differently, allowing them to generate concepts outside their usual creative process. The feedback highlights the tool's effectiveness in fostering innovative thinking, offering new perspectives and pathways for creativity. This feedback underscores the tool's value in an educational setting, demonstrating its potential to enhance design thinking and expand creative horizons for students.

One student (participant 1) explained their interest in Emotional Design and considered differences of using the tool individually or collaboratively, stating *'… this is a huge area of interest to me. Using the cards in a group versus independently, I may have a different response.'*

Two students (participants 3 and 9) provided evaluation responses discussing their thought processes and the influence of the tool on their design concepts. One student described feeling more inspired while using the tool, noting how it helped them think more clearly about the product being designed. The other student emphasised how the tool encouraged them to be considerate towards their target consumer, considering user needs. These insights are valuable, suggesting that the tool places people at the centre of the design process. When observing the students working with, and without the tool, it was clear that the resulting designs were richer when using the tool, with more thought about the connection with the people and experience, rather than a focus on simply creating a stylish object.

One student (participant 4) remarked that randomly selecting cards during the workshop didn't fully explore the tool's potential. This emphasises the aim to offer suggested usage methods while also emphasising the tool's flexibility for designers to explore it in their preferred manner.

Reflecting on the nine responses from the students, it was clear that using the tool offered them a source of inspiration and a structure to support their process, whilst also placing the consumer at the heart of the design solutions. It also highlighted the potential of the tool and further work to explore its use individually as well as in groups.

Student Reflections: Using the Tool

The following two questions simply asked students what they liked about the tool and what they thought could be improved about the tool. Responses were generally broad, occasionally echoing previous comments, particularly regarding idea expansion.

One student described the tool as 'innovative' whilst another stated that it can be used in a range of different scenarios, both suggesting that there was a clear appreciation of the benefits of the tool.

Two students commended the visual design of the cards and their effective communication of information, appreciating the digestible chunks of content that allow for deeper exploration of specific topics. However, one of these students noted that certain information, particularly regarding the insight badges, might require further clarification.

Additional student feedback highlighted how the cards facilitate designers in refreshing their thinking, quickly generating ideas, and steering them toward new directions without imposing a fixed path. These remarks underscore the tool's success in achieving its objectives.

Student Feedback: Future Use

The next question asked students if they would consider using the tool, or strategies highlighted in the tool again in the future. All students responded positively, with none indicating a reluctance to revisit the tool. These findings indicate a positive user experience for designers and highlight the tool's efficacy in presenting crucial Emotional Design strategies for integration into future designs.

Student Feedback: Most Appreciated Elements

The final question utilised a heat map format, where students clicked on their favourite part of an image showing both sides of a card. While two students didn't choose a favourite, the responses from the remaining seven displayed varied preferences. However, a slight trend towards the centre and lower section of the front of the card was noticeable (Fig. 7.4), indicating an overall appreciation for the strategy information, examples, and illustrations. This feedback, combined with responses from previous questions, contributed to the ongoing refinement of the cards.

Figure 7.4 Results of heat map question indicating students favourite parts of the cards.

Three participating students offered verbal feedback at the end of the workshop, wanting to discuss the tool further. All three agreed that the duotone images on the reverse of the cards were visually appealing and helped to set the scene. One student expressed a keen interest in the insight badges but suggested the need for more information to grasp and apply them fully. Another participant, an international student, suggested the cards could be improved with simpler terminology, however, it's noted that full comprehension of all terms isn't essential for implementing the tool's strategies effectively. Additionally, students appreciated the small illustrations accompanying the strategy examples, though some clarity improvements were suggested. Overall, the students positively reflected on the card design, particularly highlighting the strategy presentation as questions and the cards' manageable size for easy handling and information retrieval.

The feedback collected from the Student Workshop and Evaluation, representing Phase 1 of Testing, has been translated into key development points for the refinement phase. These points are discussed in conjunction with the findings from Phase 2 testing later in this chapter. Phases 1 and 2 were crucial steps in sharing the Emotional Design Deck with other creatives for both validation and development purposes.

7.3 Phase 2 Testing

Conference Presentation and Feedback

Seventeenth International Conference on Design Principles & Practices
Wednesday 30th March 2023, Polytechnic Institute of Lisbon

After conducting a student workshop to test version 1 of the Emotional Design Deck, further feedback was collected from design researchers at the Seventeenth International Conference on Design Principles & Practices, which took place in Lisbon, Portugal, in March 2023 (Fig. 7.5). Presenting at the conference provided an incredibly valuable opportunity to present the tool to an audience of designers, academics and practice-based researchers from around the world.

Figure 7.5 Dan Lewis and Presentation at the Seventeenth International Conference on Design Principles & Practices, Lisbon, Portugal, March 2023.

A presentation showcasing the research provided an opportunity for Design Researchers to engage directly with the tool, initiating discussions on its strengths and areas for further refinement or development. During the presentation, attendees were directed to a Padlet board, where they could share their thoughts by responding to three key questions:

1. What do you think about the Design of the Emotional Design Deck?
2. How might you use the Emotional Design Deck?
3. Do you have any suggestions for further development of the deck?

Table 7.3 presents the 8 responses to the three questions, highlighting three key areas for improvement, which are shown in bold in the table. The remaining five responses commend the tool and its functionality, while also highlighting additional benefits or use cases.

What do you think about the Design of the Emotional Design Deck?	How might you use the Emotional Design Deck?	Do you have any suggestions for further development of the deck?
• **Italics accessibility: Italics is not ideal for people with dyslexia, regular text is better** • **Text accessibility: The white text on the coloured background boxes in the example section is not great for people with any kind of visual impairments - have a look into AA vs AAA accessibility guidelines** • It's terrific to explicitly provoke students and designers to think about emotions as a driving aspect of furniture design.	• I can imagine using it first with students in a workshop session, then later perhaps in the early phase of a commission. • Really intriguing set of provocations, but I don't necessarily think it's limited to furniture design.	• It would be interesting to use the process as an analytic tool as well—to help students assess and analyse classic examples of design from history. • **The way you question 'Can be…used' is a yes/no question maybe a more active question like How might …**

Table 7.3 Conference delegate feedback posted on a Padlet board regarding the Emotional Design Deck.

The responses are discussed below, as well as comments that were raised verbally in the room as part of the Q&A phase.

Firstly, there are some general comments that commend how the tool meets its aim and has a clear purpose. Despite the limited time available for the audience to familiarise themselves with the tool, it is notable and encouraging that its advantages were acknowledged. The two comments below underscore how audience members perceived the tool's potential applications and its impact on both students and designers.

'It's terrific to explicitly provoke students and designers to think about emotions as a driving aspect of furniture design.'

'I can imagine using it first with students in a workshop session, then later perhaps in the early phase of a commission.'

The next area of discussion, with comments shared via the Padlet board, related to the graphic design of the deck to enhance accessibility. This focuses particularly on the use of text in an italic font and the colours of text and backgrounds, both of which form development points for the refinement phase.

Additional comments concerning the design of the cards explored the example section, revealing a difference of opinion among the delegates. One attendee expressed the view that the examples were

unnecessary, and could potentially impede designers' capacity to conceive ideas markedly different from those presented, while other audience members deemed the examples valuable, offering clarity on how some of the more intricate strategies could be implemented. As discussed in earlier chapters, the examples about how strategies can be applied is a key part of the tools design, informed by the analysis of existing tools. For this reason, the decision to retain the examples was made. In addition to this, a respondent proposed relocating the examples to the back of the cards. However, this suggestion was dismissed because it would compromise the clarity of the rear face of the cards.

Another comment from the Padlet board addressed the formulation of the main strategy questions on the cards and their phrasing. While all the strategies posed a question starting with 'Can the…', an audience member proposed the idea of framing the questions in a more 'active' manner, starting with 'how might…' for example. This suggestion was adopted and forms another development point for the refinement of the cards.

The last topic addressed both within the room, and documented on the Padlet board, centred on the tool's scope, utilisation, and potential future opportunities. Discussions surrounding the tool's application were notably positive, with attendees not only praising its effectiveness in furniture design, but also recognising its broader applicability across various contexts. A comment captured on the Padlet board highlighted the advantages of the tool, while also acknowledging its potential for use in diverse settings, characterising it as possessing a, *'really intriguing set of provocations,'* indicating its versatility beyond furniture design. This opportunity for wider applications in the future forms another key development point.

The discussion within the room also explored various applications of the tool, extending beyond design to encompass communication and analysis. A participant shared their perspective on the Padlet page, suggesting that the tool could be utilised as an analytical tool to aid students in assessing and analysing classic examples of design from history.

7.4 Phase 1 & 2 Findings and Discussion

The findings of Testing Phases 1 and 2 provide validation for the tools proof of concept, with highly positive evaluative feedback from both students and conference delegates. The two different audiences who interacted with the tool both provided comments that highlight its appeal, versatility and ability to present Emotional Design strategies. Importantly, the two test phases also identified key development points to further improve the tool prior to Testing Phase 3. Some Development Points also explore the way in which the tool is described in marketing literature, as well potential for future versions of the tool.

The resulting development points are presented in Table 7.4. The first five points were derived from feedback collected during Testing Phase 1, while the subsequent five points were developed based on the outcomes of Testing Phase 2.

	Development Point
Creative Workshop Testing with Students	1. Ensure that all literature and marketing materials for the tool emphasize the presentation of information in easily digestible, bite-sized chunks.
	2. Ensure that all literature and marketing materials for the tool highlight the tools functionality to educate, challenge and stretch the designer.
	3. Ensure that tool guidance describes the individual and collaborative use methods.
	4. Insight badges should undergo further development and include additional guidance for clarity.
	5. The Illustration style of the example icons must be clearer and consistent across the deck.
Presentation at Seventeenth International Conference on Design Principles & Practices	6. Avoid italic fonts which can negatively impact accessibility, particularly for those with dyslexia.
	7. Consider clarity of background and text colours.
	8. Frame Strategy questions in a more 'active' manner, starting with 'how might…' for example.
	9. Consider wider applications of the tool, or future versions outside of Furniture.
	10. Ensure that all literature and marketing materials for the tool highlight the tools functionality to develop vocabulary, communication and analysis within Emotional Design.

Table 7.4 Development Points formed through Testing Phases 1 and 2.

Each of these development points are discussed and responded to in the following refinement section of this Chapter.

7.5 Refinements

Before beginning Testing Phase 3 with industry designers, a refinement phase was conducted, incorporating development points 1-10 as previously discussed. This refinement phase integrated insights and suggestions from Phases 1 and 2 of testing, which included a creative workshop with students and a conference presentation to designers and academics worldwide. Combined with the initial design phase, which drew on various research activities, this refinement ensured that the Emotional Design Deck underwent a research-led design process to reach its final version.

The following section explores the refinements in response to development points 1-10 with further information also found in Chapter 6, exploring design and development refinements in context to a description of each card element.

Development Points 1, 2, and 10, repeated in Table 7.5 each describe information which should be included in the associated literature and marketing material of the tool. This phase of activity was not essential prior to the testing with designers from industry as they were not given detailed information about the tool when signing up to the workshop, nor during the workshop. These points are therefore discussed later in the Thesis. The decision to not provide detailed information about the tool to participants in advance was intended to replicate the experience of new users. Additionally, the Creative Workshop featured an evaluation phase where participants could offer feedback on their experience. To ensure this feedback was unbiased, it was crucial that participants had no prior knowledge of the tool influencing their opinions.

Development Point	
1	Ensure that all literature and marketing materials for the tool emphasize the presentation of information in easily digestible, bite-sized chunks.
2	Ensure that all literature and marketing materials for the tool highlight the tools functionality to educate, challenge and stretch the designer.
10	Ensure that tool guidance describes the individual and collaborative use methods.

Table 7.5 Development Points relating to associated literature and marketing material of the tool.

Development Point 9 (Table. 7.6) also considered the future life of the Emotional Design deck and therefore did not represent an urgent refinement to be made to the tool prior to testing with designers from industry.

Development Point	
9	Consider wider applications of the tool, or future versions outside of Furniture.

Table 7.6 Development Point 9 relating to future versions of the tool.

The remaining Development Points (3-8) therefore became the focus of refinements to be made prior to Testing Phase 3, and the creative workshop with designers from industry. The development points are shown in Table 7.7 and discussed in the following section.

Development Point	
3	Ensure that tool guidance describes the individual and collaborative use methods.
4	Insight badges should undergo further development and include additional guidance for clarity.
5	The Illustration style of the example icons must be clearer and consistent across the deck.
6	Avoid italic fonts which can negatively impact accessibility, particularly for those with dyslexia.
7	Consider clarity of background and text colours.
8	Frame Strategy questions in a more 'active' manner, starting with 'how might…' for example.

Table 7.7 Development Points 3-8.

Development Point 3: *Ensure that tool guidance describes the individual and collaborative use methods.*

Feedback from both design students and conference delegates highlighted the tool's versatility, showing it can be used in various ways and settings. Consequently, additional guidance was incorporated into one of the instruction cards placed at the front of the deck (Fig. 7.6). This double-sided card suggests three different use cases, detailing one as a step-by-step process. Users can choose to follow this guided process or explore the tool in their own way. More detail about these methods can be found in Chapter 8 which presents the tool in full.
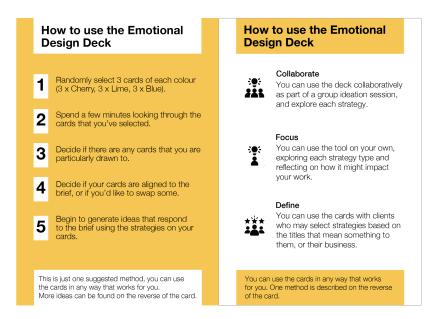
Figure 7.6 Emotional Design Deck instruction cards front and rear face.

Development Point 4: *Insight badges should undergo further development and include additional guidance for clarity.*

During the initial testing phase, students provided feedback on the clarity and meaning of the insight badges and their icons. As detailed in Chapter 6, each badge was redesigned to ensure a consistent size and style (Fig. 6.12). Notably, the Consumer Curator and User Experience badges underwent significant changes, featuring new icons to better represent their themes. To simplify the design of the cards, the text was removed, and additional guidance on the badges was added to the instruction cards.
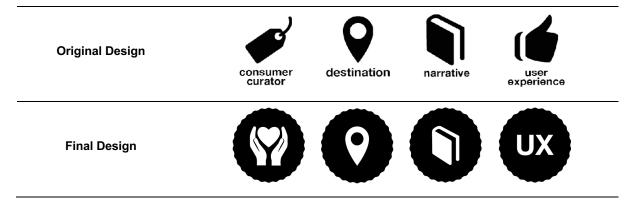
Figure 6.12 Insight Badge Icon Style and Development.

The new instruction card (Fig. 7.7) features a repeat print pattern of the badges on the rear face, and explains the meaning of each insight badge and their connection to the strategies on the front face. These badges provide an additional layer of content, enhancing the strategies for advanced users.

Therefore, detailed instructions on their potential applications were intentionally omitted, allowing users to explore and apply them in ways that best suit their needs.
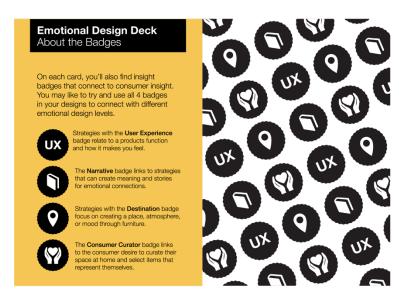
Figure 7.7 Emotional Design Deck Instruction card with repeat print pattern of badges.

Development Point 5: *The Illustration style of the example icons must be clearer and consistent across the deck.*

Another key feedback point from the students in the initial creative workshop to test the tool focused on the clarity of the example illustrations. To address this, each illustration was recreated, as shown in Figure 6.9, with the process detailed fully in Chapter 6. These clearer illustrations effectively communicate the products described in the example sections, and help designers understand how to apply the strategies in their own work.

Figure 6.9 Product-Based Example Illustration style and development.

Development Point 6: *Avoid italic fonts which can negatively impact accessibility, particularly for those with dyslexia.*

The initial design of the cards used italic text in the example section at the bottom of each card. Figures 7.8 and 7.9 illustrate the original design on the left, featuring italic text, and the updated design on the right, with regular non-italic text. While italics were intended to distinguish a separate section of

the card, they can make it harder for dyslexic readers to differentiate between letters and words. This can slow down reading speed and reduce comprehension, thereby worsening the tool's accessibility.

Figure 7.8 Comparison of italic and non-italic text for the product-based example section (whole card).

Figure 7.9 Comparison of italic and non-italic text for the product-based example section (zoomed).

Development Point 7: *Consider clarity of background and text colours.*

Text is overlaid on colours and images in two areas on the cards. Firstly, the rear face of the card features text layered over a photograph that has been colour graded using a gradient map in Adobe Photoshop. Secondly, the front face of the cards includes text on flat coloured backgrounds for the theme category indicator and product-based example section. Following feedback from delegates at the conference, the use of text on coloured backgrounds was revisited, considering alternative options.

The reverse face of the cards (Figure 7.10) feature a photograph that adds context to each strategy card. By colour grading the images using a gradient map, the wide spectrum of colours in the photographs is narrowed to a selection of hues within the same colour, creating a simpler background for the text. A bold font is used to ensure the text stands out against the image. In Figure 7.10, two cards are shown with their colour-graded images next to the original unedited photographs, showing how the text on the colour-graded images is clearer and more easily distinguishable than on the unedited photographs. Although the option to remove the images was considered, this element is a key feature of the tool, contributing to its rich and visually engaging style. Additionally, the colours play an essential role in differentiating each category of cards within the deck, making the colour a functional visual communication tool, not just a stylistic or decorative element.

Figure 7.10 Example of images with and without colour grading.

The second part of the cards that features text over colour includes the theme category indicator and product-based example sections. Figure 7.11 shows the original and final version of the card on the left, next to alternative concepts that were explored following initial testing and the conference presentation. The central card removes all colour and uses simple frame edges to distinguish card sections, while the right-hand card removes all colour and frame edges altogether.

While the card on the right has a minimalist, clean design that would no doubt appeal to many graphic designers, it lacks the vibrancy that is essential to the tool's identity. The colours on the cards not only help them stand out on a cluttered table, but also differentiate each card category. The card in the centre of Figure 7.11 shares the same weaknesses as the one on the right, however the frame edges help distinguish the separate sections more effectively. The lack of frames, or defined areas on the card on the right also results in insight badges that feel detached from the rest of the content, while the frame edges on the left and central cards help anchor the badges in place.
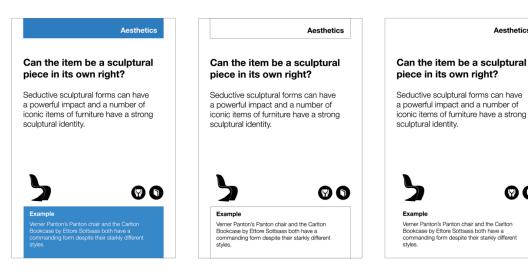
Figure 7.11 Final card design alongside alternative options.

In addition to exploring the use of coloured areas, the hue of each colour was carefully considered. An example of the blue colour testing is shown in Figure 7.12. The right-hand version has the weakest colour contrast between the background and the white text, making it difficult to read. The central version, with the darkest background hue, has strong contrast but lacks the vibrancy needed for the cards. For this reason, the original shade of blue, shown on the left, was retained, providing sufficient contrast for legibility and maintaining the vibrancy essential to the tool's style.

Figure 7.12 Example of final colour hue alongside alternative options.

Development Point 8: *Frame Strategy questions in a more 'active' manner, starting with 'how might…' for example.*

Feedback from delegates at the conference emphasised the potential for framing some of the initial strategy questions in a more active manner, which could stimulate deeper thought among users of the tool. Table 7.8 outlines the subtle adjustments made to the strategy descriptions featured on the cards, notably transitioning from questions starting with 'can' to 'how' or 'how might,' promoting a more proactive approach to problem-solving and decision-making.

Original Strategy Description	New Strategy Description
Can you use a visual metaphor to communicate function, or inject a sense of fun?	How might visual metaphor be used to communicate function, or inject a sense of fun?
Can the furniture be fun?	How can the furniture be fun?
Can the item support customisation, decoration or personalisation?	Can the item be designed to support customisation, decoration or personalisation to build memories and attachment?

Table 7.8 Examples of changes made to strategy descriptions.

The final example in the Table 7.8 shows how some questions have also been slightly extended, adding further guidance to the strategy and its benefits.

Refinement Summary

Each development point, derived from feedback gathered through Testing Phase 1 and 2, contributed to essential refinements in the tool and its design. Some of these points address how the tool is marketed and described to potential users, while others focus on optimising font, colour and language use. Appropriate refinements were implemented across the entire deck before testing with industry designers. The following section explores Testing Phase 3, and the analysis of feedback from designers regarding their experience using the tool.

7.6 Phase 3 Testing

Designer Emotional Design Workshop

Friday 14th July 2023, University of Staffordshire Creative Lab

Testing Phase 3 represented the final testing activity in the development of the Emotional Design Deck, involving a workshop with industry designers (Fig. 7.13). During the workshop, designers collaborated in pairs or small groups, responding to a brief first without the tool, and then with it. Further details about this process are provided in the Methodology chapter. At the end of the workshop, each participant completed an evaluation survey reflecting on their experience with the tool. The survey featured multiple-choice, text entry and graphical heat map questions. Of the 12 designers who participated, 10 completed the survey in full. The following section explores the survey results and findings, identifying key development points for the tool.

Figure 7.13 Emotional Design Workshop with Designers, Friday 14th July 2023, University of Staffordshire.

Reflective Questions

As with the evaluation survey used after the student workshop, the first question for designers explored their experience of using the tool. The results were overwhelmingly positive, with 100% of the designers (10 individuals) indicating that they enjoyed using the Emotional Design Deck. This feedback is highly encouraging, as the testing involved a key target audience for the tool.

In the second question, designers were asked to expand upon their answers to the first question regarding the user experience of the tool. While all responses are included in appendix 15, the

following section presents and discusses some key responses. For clarity in the analysis, spelling, grammatical, and punctuation errors made by survey respondents have been corrected.

The responses given were sorted, and thematic analysis revealed two key themes, which represent 60% of the feedback. These two key themes describe how the tool provides thought provoking prompts, and how it provides a focus for thought and process.

The thought-provoking nature of the tool is the first key theme highlighted by respondents, captured in the comment from one designer;

'It gave me prompts and options to think differently about my approach to the design and gave me very different solutions.'

This response also captures how the tool helps designers generate designs and solutions that differ from their typical work, highlighting its ability to increase divergent thinking. Another comment within this theme discussed how the tool also has the capability to accelerate the ideation period;

'Opened up the possibilities of design, what would usually take a longer period of experimentation was reduced,'

The second theme explores how the tool focuses the designer's thought process during the ideation phase of a project. One respondent reflected on this, stating:

'*The cards helped me clear the 'brain clutter' when looking at a project. Although they have a lot of common sense written on them, they are useful to focus the mind.'*

Despite the wealth of information within the tool, it's noteworthy that the clear structure and visual layout, along with bite-sized pieces of information, effectively guide and focus the designer's attention. A further comment from a designer described how the tool helped provide direction when thinking of ideas, echoing the sentiment of other respondents, and student participants in the first testing workshop.

Two additional comments emphasising strengths of the tool highlight its focus on values and its ability to be used in workshops and team building exercises. The first comment described how it prompted the designer to '*question and think about the values of the design'*, suggesting that the Emotional Design strategies are clearly articulated and encourage reflection. The second comment succinctly stated, '*Interactive, team building workshop,'* indicating the tool's potential for collaborative use.

Of the final two comments, one is ambiguous, while the second suggests that the tool might not be as beneficial for certain projects. The first comment states, *'Not so sure how it works and makes me*

design better,' leaving it unclear whether the designer is expressing scepticism about the tool's effectiveness, or simply stating a lack of understanding about how it works. Their response to the previous question does however suggest that they enjoyed using the tool.

In the second comment, the designer describes how the tool is more useful for certain projects, stating, *'It would be very helpful if I am designing something from nothing. But for some projects, like following brand DNA, the brief itself is so tight that there is very little room for creativity; then I don't think I will use the Emotional Design Deck.'* This comment suggests that the designer believes the tool may not be applicable to projects with tighter, brand-led briefs. However, without testing, this cannot be confirmed. Nevertheless, a significant portion of the strategies within the Emotional Design Deck could be applied across a wide range of briefs, whether they are broad or narrow.

The responses to this question offer a highly positive perspective from the designers who participated in the workshop (Fig. 7.14), revealing two key emerging themes. These themes describe the tools capacity to focus the thinking and processes of designers, while providing thought-provoking strategies to integrate into their work.

Figure 7.14 Designers using Emotional Design Deck and cards spread out on table.

Designer Reflections: Resulting Designs

In the next section of the evaluation, participants considered the designs that resulted from using the tool, along with the feelings experienced regarding those designs.

When asked if the tool helped develop new concepts linked to Emotional Design strategies, all respondents agreed that it did, with none indicating that the tool failed to meet this aim. This overwhelmingly positive response indicates that designers believe the tool effectively facilitated the integration of Emotional Design strategies into their work.

When asked about their feelings regarding the designs resulting from using the tool, designers offered varied responses, potentially interpreting and answering the question in different ways. 50% of the participants discussed specific strategies that they had utilised in the workshop, 30% described the broader impact of the tool, and 20% provided very short responses that suggested the cards had made a positive impact on them. All of the responses are presented in Table 7.9

How do you feel about your design that resulted from using the tool?	
Participant	**Response**
1	I feel it's more considered in terms of materials and appeal.
2	My design were more refine after I used it.
3	I was able to use metaphor effectively in designing the product. Another card I selected was also my default strategy when designing products.
4	It made me consider memories and personal experiences to influence my design.
5	Using the flash cards as prompts.
6	It resulted in a definite 'surprise' in the design that resulted from using the cards.
7	The focus on ergonomics and anthropomorphism then how we can create furniture that was the negative to the muscle and skeletal structure influenced the design.
8	I think it had more direction
9	It allowed me to be more self-indulgent in designing for myself, I used the heirloom thinking
10	Fantastic

Table 7.9 Designer responses when asked how they felt about the designs that resulted from using the tool.

The largest group of participants, representing half of the group (participants 3,4,6,7, and 9) described their experience applying a specific strategy and the emerging solution, for example participant 3, who stated that *'I was able to use metaphor effectively in designing the product'* and participant 6 explaining *'It resulted in a definite 'surprise' in the design that resulted from using the cards,'* each referring to specific strategies of 'metaphorically speaking' and 'surprise!'. These comments suggest that the strategies made an impression on the designers and that they genuinely embedded them in their work. Further comments that refer to specific strategies include participant 4, describing how *'It*

made me consider memories and personal experiences to influence my design' and participant 9 who explained how *'It allowed me to be more self-indulgent in designing for myself, I used the heirloom thinking strategy,'* each describing how the tool encouraged them to reflect on their own experiences, taste and preferences in the design of new furniture.

Around a third of the designers (participants 1, 2, and 8) reflected positively on the tool and described how they believe that their designs were more considered and refined, with greater direction than the designs they produced without using the tool. The comments from the designers include, *'I feel it's more considered in terms of materials and appeal,' (participant 1), 'My designs were more refined after I used it' (participant 2),* and *'I think it had more direction,' (participant 8),* each praising the tool and its functionality.

The final two designers simply commented *'fantastic' (participant 10),* and *'using the flash cards as prompts' (participant 5),* perhaps suggesting that the cards had positively impacted their work.

Designer Reflections: Using the Tool

Strengths and weaknesses of the tool were examined in the subsequent two questions to understand perceived benefits, and identify areas for further development. Responses echoed earlier themes, highlighting the tool's capacity to stimulate thought, provide fresh perspectives for ideation, and focus thoughts.

Comments did however elaborate on these themes, adding more richness to the benefits of the tool. Building on the tools ability to provoke thoughts and focus the mind, one designer commented that *'the cards can help instigate shifts in approach and mindset'* and discussed how;

'I think you will always be able to select a card that mirrors or shifts your emotional state as a designer. Humans are constantly feeling emotions from life and that might not be the relevant emotional state required for design.'

This feedback indicates that beyond considering the emotional response of the consumer at the end of the design process, the tool also affects the emotions of the designer using it, which is a very positive outcome. Similarly, another designer suggested that the tool influences the confidence of the designer, noting how it *'liberates people's creativity and unleashes their inhibitions,'* representing a significant strength of the tool for the designer.

Respondents reiterated how the tool provides prompts to speed up, and combat the difficult initial ideation stage but also discussed how the specific strategies introduce positive restrictions to work within, explaining how the cards *'help focus concept generation using random constraints.*

One designer noted that the tool offers *'a lot of variety in the cards and provided evidence & history to contextualise the themes.'* This suggests that the breadth and contextualisation of the strategies are recognised, reflecting positively on the tool's goal to clearly demonstrate how designers can apply these strategies.

Exploring potential areas for further development of the tool, participants provided a range of responses. Some were unclear and brief, such as *'Icons which relate to keywords,'* *'The title side,'* and *'The cards are well designed, could have more graphics / colours.'* These comments suggest that respondents saw opportunities to add more colour, graphics, or icons to the cards but did not elaborate further.

Two respondents commented on the format of the tool, suggesting that there could be an opportunity for *'an app that randomly picks the cards for you'* and also that the *'the card itself might need a thicker material'.* The idea to introduce an app as part of the tool was considered in the design and development process, however the complexity and costs involved with developing an app, along with the publishing and software update concerns, prevent this being a viable option. The cards tactility is also a key part of the experience that an app would not replicate. Regarding the card thickness, or stock, the final version will be printed on heavier card but those used in this workshop were handmade.

One respondent expressed concern about the tool's size and the number of cards, suggesting they were initially slightly overwhelmed. However, they explained that this feeling dissipated with use, stating, *'It's quite overwhelming at first with all the cards laid out in front of you, but I don't think that's a massive downside as once you got the hang of it, it was fine!'*

One respondent reflected on the tool and considered future versions and evolution, rather than specific areas for improvement, commenting *'Evolution and future revisions as the product landscape evolves. Could there be a transport specific set. What would the 4th colour be?'* These comments suggest that the designer saw opportunities for expansion of the tool, including into other disciplines within design which is very positive.

One respondent mentioned the language used within the tool, suggesting a potential improvement point could be more *'accessible vocabulary,'* but did not provide further details. Efforts have been made to ensure the language in the tool is as accessible as possible, though some technical design terms are necessary. As only one respondent raised this issue, it is not a particularly concerning result in the testing phase.

Designer Reflections: Future Use

When the designers were asked if they would consider using the tool or its strategies again, respondents unanimously agreed that they would, with none indicating that they would not revisit the tool. These results are very positive, suggesting the tool offers a positive user experience while presenting key Emotional Design strategies for future use.

Designer Reflections: Most Appreciated Elements

Further exploring their positivity to the tool, respondents were asked to select their favourite part of the card via a heat map question on the evaluation form shown in Figure 7.15.

Three areas of the card each received one selection from the designers, including the card title, theme indicator, and strategy example. The remaining seven designers selected the main strategy or its additional information, indicating that the sections most directly related to the strategy are the most appealing and useful. While none of the designers selected the images or icons on the cards, this is unsurprising, as these elements primarily aim to add context, richness and visual appeal to the card design.

Figure 7.15 Results of heat map question indicating designers favourite parts of the cards.

Designer Reflections: Extending Use

The next two questions examine the secondary uses or appeal of the tool, focusing on its potential to broaden a designer's vocabulary in Emotional Design and serve as an analysis tool for existing products.

When asked if the tool can expand a designer's vocabulary in Emotional Design for use in presentations and client meetings, respondents unanimously agreed that it can. This is a positive outcome, meeting a secondary aim which emerged during the research, design and development phases of the project.

When questioned about the deck's functionality as an analysis tool, 90% of respondents indicated its potential usefulness in this capacity. This confirmation from designers underscores an opportunity identified during initial testing and the conference presentation, adding a positive layer of value to the tool's versatility.

Designer Context: Careers

In the concluding phase of the evaluation, basic information from the designers regarding their careers was gathered, focusing on their industry experience and the types of companies they've worked for. The results revealed that 70% of the designers have worked in industry for more than 10 years, with 30% working in industry for 3 years or less.

7.7 Phase 3 Testing Conclusion

The feedback collected in the third and final phase of testing conveyed highly positive sentiments about the tool's effectiveness and user experience. Participants unanimously agreed that the tool successfully achieves its aim (shown below) by introducing Emotional Design strategies that can be integrated into their work. Notably, the tool was found to be enjoyable to use, with all participants expressing a willingness to return to it. Designers highlighted the tool's versatility and its ability to provide thought-provoking prompts, focus their thought process, facilitate collaboration and encourage consideration of design values. Additionally, responses reaffirmed earlier indications that the tool can expand designers' Emotional Design vocabulary and be used to analyse existing products. The inclusion of historical and contextual information was praised, and the tool's capacity to impact not only the emotions of the consumer, but also those of the designer was noted. Participants identified opportunities for future revisions and expansion of the tool as well.

> *Develop a tool for Designers that enables them to embed Emotional Design strategies into their furniture design projects, aiming to create products that establish meaningful connections with people.*

The summarised feedback discussed above is translated into a final set development points, listed in Table 7.10. Findings that replicate those of the Student Workshop and Conference Presentation are not repeated in this table.

Creative Workshop Testing with Designers from Industry

Development Point	
1.	Ensure that all literature and marketing materials for the tool highlight the tools thought provoking content and ability to focus, or structure the thought process.
2.	Ensure that all literature and marketing materials for the tool highlight the tools ability to impact the emotions of the designer, in addition to those of the consumer.
3.	Ensure that all literature and marketing materials for the tool highlight how the tool can speed up and enhance the ideation process.
4.	Ensure that all literature and marketing materials for the tool describes the historical and contextual information that is included on the cards.
5.	Ensure that all literature and marketing materials for the tool describes the collaborative benefits and functionality.
6.	Explore potential future opportunities, including new sets and revisions.
7.	Ensure the final print version is produced using durable card stock approx. 300gsm or above.

Table 7.10 Development Points formed through Phase 3 of Testing.

7.8 Conclusion

This chapter outlines the three phase process of testing the tool with three distinct audiences, including students, designers working in industry and academics and researchers at an international design conference. The Development Points identified through feedback support the research led approach taken to develop the Emotional Design Deck. By responding to the development points, the tool has undergone a series of refinements to enhance accessibility, clarity, consistency and visual appeal, as well as the reframing of questions to further provoke thought in the user. The Development Points also highlight how marketing literature and materials to promote the tool should touch upon the varied use cases, benefits and detail of the cards.

The results of the testing demonstrate the appeal and effectiveness of the Emotional Design Deck, with unanimous agreement from students and designers alike regarding the engaging and enjoyable user experience that the tool offers. All students and designers agreed that the tool helped them embed Emotional Design strategies into their work, meeting the key aim of the tool. They also all agreed that they would revisit the tool and use it again.

Participants validated the key functionalities and features of the tool and highlighted additional benefits previously unconsidered by the researcher, such as the tool's ability to impact the designers' emotions.

The following chapter presents the tool in full, detailing the strategies within each card category and linking to the research that informed each strategy.

8   Presenting the Tool

8.1 Introduction & Aims

This chapter presents the final iteration of the Emotional Design Deck, a tool developed for designers. It clarifies the tool's structure and explains how it meets the study objectives. The 48 strategy cards are discussed in thematic groups, with details about their origins and context. The chapter also explores the tool's usage and accessibility, and its place within the Emotional Design domain.

The research aim for this study was:

> ***Develop a tool for Designers that enables them to embed Emotional Design strategies into their furniture design projects, aiming to create products that establish meaningful connections with people.***

To achieve this aim, the following research question was defined:

> *How can Emotional Design strategies, and characteristics found in iconic and cherished furniture be identified and cultivated for application in the creation of new products?*

The broad range of primary and secondary research activities carried out to develop the tool have included the analysis of existing Emotional Design research, sales and trend data, literature regarding iconic furniture, surveys, interviews, conference presentations and creative workshops. Central to the research were interactions with consumers and designers, ensuring the tool incorporates strategies that resonate with consumers, and that the tool offers a positive and effective user experience for designers. These research activities each link to specific elements of the research aim and question. For example, the aspect of the research question concerning the 'characteristics found in iconic and cherished furniture' was addressed using a methodology designed to review literature on iconic furniture. This process resulted in a new and original list, as well as a poster of iconic furniture created specifically for this study.

8.2 Overarching Structure

The final iteration of the Emotional Design Deck consists of 52 cards, made up of 48 strategy cards and 4 guidance and detail cards. The strategy cards are divided into three thematic sets, including Aesthetic strategies, Experience strategies, and Meaning strategies. Table 8.1 lists each card and the colours indicate the thematic set, with Aesthetic in blue, Experience in pink and Meaning in green. Cards 1 - 4 are guidance and detail cards.

1	Front Cover Card / The Cards Explained	2	How to use the Emotional Design Deck
3	About the Badges	4	About the author and Testimonials
5	metaphorically speaking	6	characterful connections
7	perfectly imperfect	8	the perfect habitat
9	show stealer or support act	10	on display
11	god is in the details	12	stop the clock
13	a second life	14	a work of art
15	channelling the past	16	influencing trends
17	bespoke	18	natural influence
19	less is more	20	honesty to materials
21	new production	22	artistic expression
23	an experience	24	a familiar feel
25	a social platform	26	absorbing memories
27	building narratives	28	surprise
29	curated collections	30	adaptability
31	the perfect nest	32	hidden treasures
33	wearing a mask	34	seasonal adaption
35	fun furniture	36	growing furniture
37	comforting experience	38	tales of the unexpected
39	design for emotion	40	making it their own
41	gifted	42	from person to person
43	slow down	44	changing behaviour
45	supporting the community	46	talking point
47	togetherness	48	a product of its time
49	material values	50	linked location
51	profession and pastimes	52	genealogy

Table 8.1 The 52 cards of the Emotional Design Deck.

8.3 Description of cards and strategy origin, thematically grouped.

This section explores the 42 strategy cards (Fig. 8.1) in thematic groups, with details about their origins and context. Whilst there are key connections between cards across the thematic sets, their strategy rationale may be quite different. For this reason individual cards, or groups of cards are discussed within the context of the thematic set, beginning with Aesthetic strategies before discussing Experience and then Meaning strategies. Each card title in the following section is shown in bold to assist communication.

Figure 8.1 Overview of the 42 Emotional Design Deck strategy cards.

8.3.1   Aesthetic Strategy Cards

The Impact of Materials on Aesthetics

The first set of cards (Fig. 8.2), in the Aesthetics thematic group addresses the impact of materials on furniture design. These cards emphasise how material qualities, characteristics and imperfections can add aesthetic value to products. Each card in this set explores this theme in detail.

Figure 8.2 Set of 4 strategy cards relating to The Impact of Materials on Aesthetics.

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The **New Production** card prompts designers to consider the use of innovative materials or manufacturing processes, drawing inspiration from iconic furniture pieces known for their pioneering approaches. This strategy is derived from a prominent theme identified in the Review of Iconic Furniture, exemplified by pieces like Michael Thonet's Chair No.14 (1859) and Verner Panton's Panton Chair (1959), both renowned for their innovative use of materials and manufacturing techniques. To illustrate the strategy's application, Charles and Ray Eames' (1956) iconic Lounge Chair and Ottoman serve as the product-based example on this card. It encourages designers to innovate and introduce new concepts to captivate consumers, evoking emotions of fascination and intrigue.

The **Honesty to Materials** card serves as a reminder to designers of a well-established philosophy, often also referred to as 'truth to materials'. This philosophy, reiterated through the literature review of Emotional Design and the review of iconic furniture, advocates celebrating materials for their inherent characteristics and qualities rather than concealing them. The Butterfly Stool, designed by Sori Yanagi in 1954, is highlighted as the product-based example on this card. It showcases how the unique wood grain and pattern of the material instil each stool with distinctive character. The significance of materials and their character, particularly wood, was reiterated by consumers in both the consumer survey and interviews, emphasising their role in forging emotional connections with consumers.

The final two cards within this group are **A Second Life,** and **Perfectly Imperfect**, both with a focus on material imperfection and connected narrative, hence both cards featuring the insight badge for narrative, indicated by the book icon. The card entitled a second life proposes using recycled or reclaimed materials in furniture production, emphasising retaining their textures and imperfections to visibly communicate their recycled nature to consumers. This strategy, identified in the literature review, acknowledges the appeal of recycled materials as a unique selling point, particularly among environmentally conscious consumers who prioritise sustainability in their purchasing decisions (Kanchanapibul et al., 2014). The 'Perfectly Imperfect card underscores how the natural wear and aging of materials can enhance a product's narrative, introducing designers to the Japanese philosophy of wabi-sabi. This strategy of using materials that will naturally mature and develop patina was highlighted in the literature review within the context of wabi-sabi. Additionally, insights from consumer surveys and Interviews revealed that consumers often cherish imperfect furniture, finding that its imperfections add to its charm and character.

This set of cards encourages designers to thoughtfully consider their material choices and how these choices can connect with consumers on an emotional level. While initially focusing on aesthetics, the cards also explore deeper connections related to narrative, meaning, personal values and memories.

Simplify of Form

The cards entitled **Stop The Clock**, and **Less Is More** (Fig. 8.3), both emphasise strategies for achieving simple and timeless design, as revealed through insights from the literature review, review of iconic furniture, trend data and consumer surveys and interviews. While the research acknowledges opportunities for furniture with decorative or ornate styles, it overwhelmingly highlights the significance of simplicity in both iconic furniture and pieces cherished by consumers involved in this study.

Figure 8.3 Set of 2 strategy cards relating to Simplify of Form.

In the consumer survey, the word 'simple' was consistently highlighted by participants reflecting on their love for cherished furniture, a sentiment echoed in the consumer interviews. The product example featured on the Less is More card showcases Jasper Morrison's Air Chair, designed in 1999, celebrated for its remarkably simple and unadorned aesthetic. These strategies serve to remind designers of the significance of minimalism and urge them to simplify their concepts, resonating with a widespread consumer preference for less complexity and clutter in their homes.

The Lived Environment

This thematic grouping of cards (Fig. 8.4), presents strategies that relate to the furniture's lived environment, whether in a home or showroom setting. It explores how furniture influences its surroundings and, conversely, how the space impacts the furniture.

The first two cards, **Show Stealer or Support Act?** and **The Perfect Habitat** guide Designers in considering furniture within its context, allowing them to define characteristics of the furniture including size, shape, colour and surface pattern. Show Stealer or Support Act? follows consumer findings that split opinion, with around half of the cherished items being the focal point of a room, and half simply supporting an overall aesthetic. The strategy prompts designers to decide if a piece should be the focal point, or complement the room's aesthetic, helping them choose appropriate colours, forms and patterns to evoke emotion in the consumer. Arne Jacobsen's 1958 Egg™ chair serves as the product based example on this card, with its grand and imposing size and bright colours. The Perfect Habitat card encourages designers to consider the type of room a piece will inhabit, affecting decisions about colourways and potential accessories like cushions. The selection of colours, materials and textures can either create a warm, comforting space or introduce a bold, disruptive statement feature, each

evoking emotions within the consumer. Consumer findings of this study found that some consumers used their favourite item of furniture as the central inspiration for the décor of their room.

The **Influencing Trends** card connects to The Perfect Habitat card, by addressing current trends and guiding designers to balance freshness with familiarity for consumers. The consumer survey analysis revealed that 'colour' was one of the most frequently mentioned words, indicating that the colour of furniture significantly influences consumer affection for a piece. Although all designers consider colour an essential part of a design brief, this strategy emphasises its importance and prompts designers to evaluate whether following or rejecting current trends is appropriate for the project.

Figure 8.4 Set of 4 strategy cards relating to The Lived Environment.

Finally, the **On Display** card within this thematic set addresses findings about product presentation, whether sold online or in person. Consumer insights revealed a range of purchase experiences leading to ownership of their favourite furniture, from atmospheric antique shops to basic website purchases. While designers cannot always influence how their products are retailed, they sometimes can. This strategy provides product-based examples of the shopping experience, such as IKEA's room sets and Apple stores where consumers can interact with products. Designers considering the presentation of their products can also include in-store POS displays, tags to highlight features or material credentials, or renderings and photoshoots to present an aspirational lifestyle.

This thematic set, influenced by the review of iconic furniture, consumer insights, and trend reports, also reminds Designers that they are not just designing an object to sit in isolation, but something that will be part of a bigger picture.

Expressive Furniture

The two linked cards within this thematic set (Fig. 8.5), emphasise that furniture can transcend its functional role, highlighting opportunities for art, expression and sculpture. **The Artistic Expression** card introduces an emerging theme from the Review of Iconic Furniture, identifying how many pieces now considered iconic represent the personal artistic style of their designers. Gerrit Rietveld's Red and Blue Chair, designed in 1918, epitomizes this aesthetic choice, prioritising artistic expression over comfort. Likewise, the **A Work of Art** card references findings from the consumer insight and the

review of iconic furniture, noting that cherished items and iconic pieces often feature seductive sculptural forms admired by their owners and visitors alike. Verner Panton's iconic Panton Chair serves as the product-based example on this card, showcasing how its flowing sculptural form is both functional and a work of art for the home.

Figure 8.5 Set of 2 strategy cards relating to Expressive Furniture.

These aesthetic strategy cards serve as a reminder to designers that concepts can embody their personal style and artistic expression. They contrast with other design tools that emphasise engineering solutions through complex layers of design attribute analysis.

Visual Metaphor

The **Metaphorically Speaking** card (Fig. 8.6), while interconnected with other cards in the set, such as the Characterful Connections card that uses anthropomorphism, also stands alone in its versatility. Visual metaphors can inject a sense of fun into a product, provide familiarity, and even communicate function by demonstrating how a product is used. This strategy aligns with existing research highlighted in the literature review, including work by Hekkert et al. (2015) and Cupchik (2003), who explore how designers and consumers effectively communicate and interpret metaphorical meanings through products.

Figure 8.6 Metaphorically Speaking strategy card.

Influencing Factors

Key findings from the review of iconic furniture, literature review, trend reports, consumer survey and interviews revealed that beloved and admired furniture often draws inspiration from nature, culture, history and society. These influences can help create new furniture pieces with familiar features and rich characterful connections. The three cards in this set each relate to this theme, offering valuable starting points for ideation (Fig. 8.7).

Figure 8.7 Set of 3 strategy cards relating to Influencing Factors.

The **Natural Influence** card suggests considering taking inspiration from forms, materials and finishes seen in the natural world. This strategy aligns with themes identified in the literature review, particularly those related to the Art Nouveau, Arts and Crafts and Organic Design movements, which remain admired today. Analysis of trend reports and subsequent consumer interviews highlighted a strong preference for furniture with a natural aesthetic. The Narrative Insight Badge on the card further emphasises how natural influences can shape the story of a product, connecting with consumers through familiar forms, materials and textures.

Anthropomorphism emerged a key potential Emotional Design strategy through the literature review, with existing research from Disalvo et al (2003), Miesler (2011) and Magli (2011) exploring this area. This concept was further supported by the review of iconic furniture, where several items were noted for their anthropomorphic qualities. The **Characterful Connections** card encapsulates this strategy, encouraging designers to reflect human forms, including faces and bodies in their work. The product-based examples on this card include Arne Jacobsen's Series 7 Chair, with its seductive flowing forms and pinched waistline, illustrating how mimicking human shapes can tap into our inherent connection to people.

The final card in this thematic set, entitled **Channelling The Past** encourages designers to harness familiarity in new designs by reimagining characteristics of past design movements in a contemporary way. This strategy emerged primarily through consumer surveys and interviews, highlighting an enduring love of furniture with forms, materials and detailing that reference past design movements such as Art Deco. The card, along with its product-based example, references reinterpreting the essence of design movements, such as the glamour of Art Deco and the playful nature of Postmodernism.

Commissioned and Crafted

The consumer surveys and interviews revealed that many cherished items were described as being custom-made or adapted by the consumer or a family member. Respondents emphasised the importance of crafted details and high-quality workmanship, and a hand-crafted aesthetic also emerged as a potential strategy in the literature review. The **Bespoke** and **God is in the Details** cards (Fig. 8.8), encapsulate this theme encouraging designers to incorporate refined details, quality hardware and components with a handmade aesthetic to create admired elements in new furniture. This theme also connects to customisation strategies within the Meaning set of cards.
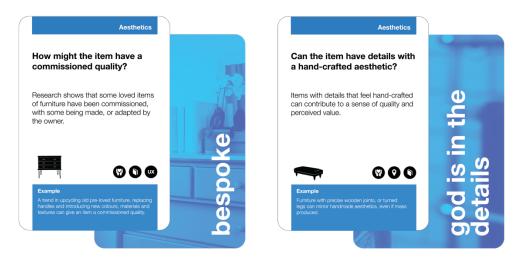
Figure 8.8 Set of 2 strategy cards relating to Commissioned and Crafted.

Aesthetic Strategies Overview

The eighteen Aesthetic strategy cards offer designers thought-provoking methods and prompts to explore how aesthetic decisions can influence consumers' emotions and their relationship with new items of furniture. Strategies focusing on materials, form and detail, including specific techniques like visual metaphor, have been developed to connect aesthetics to narrative and meaning. Each strategy is rooted in earlier research from the study, encompassing consumer insights gathered from surveys and interviews, literature reviews, trend reports and the review of iconic furniture. The Aesthetic cards align with, and recognise the significance of key concepts within established Emotional Design frameworks, including Norman's (2004) Visceral level, Hekkert's (2006) Aesthetic Experience and Crilly et al.'s (2004) Aesthetic Impression. The role of aesthetics is further emphasised in frameworks by Kamp et al. (2015) and Chitturi (2009), who describe aesthetics as Hedonic Benefits.

8.3.2   Experience Strategy Cards

Surprise and Delight

The cards in this Experience thematic group (Fig. 8.9), explore how using surprise as a design strategy can evoke consumer emotion through unexpected experiences, materials and features. The benefits of incorporating surprise in Emotional Design were highlighted in the literature review, referencing the work of Rodriguez Ramirez et al. (2014), Ludden et al. (2008) and Lacey (2009). These studies discuss how visual-tactual incongruities or interactive experiences can evoke emotions of fascination and joy in consumers. The **Surprise** card in this set encourages designers to go beyond typical and expected materials, functionality, textures and colours to create memorable moments.

Figure 8.9 Set of 3 strategy cards relating to Surprise and Delight.

The **Tales Of The Unexpected** card connects to the Surprise card, but focuses specifically on the experience and interaction elements, including the use of movement and mechanisms. The literature review highlighted research by Ludden et al., (2012), which found that surprise can occur repeatedly with the same product, even during subsequent encounters. This insight presents opportunities for

designing products with unexpected features, such as push-to-open doors and drawers that open in unconventional ways and directions, continuously surprising both the consumer and new users.

The final card in this thematic set is the **Hidden Treasures** card, which integrates findings from the consumer survey and interviews. This research found that many cherished items feature secret or hidden functionalities that are not immediately visible. Furniture with hidden compartments, for example, can create a special bond between the item and its owner, nurturing a relationship that is hinged on a secret. The product-based examples on this card include secret compartment furniture and Japanese puzzle boxes, both of which offer an element of play in addition to their functionality, thereby creating memorable moments for the consumer.

Material Memories

The **Absorbing Memories** card (Fig. 8.10) connects with Aesthetic strategy cards relating to material imperfection, particularly Perfectly Imperfect and A Second Life. Building on philosophies like wabi-sabi discussed in the literature review, this strategy card also incorporates insights from consumer surveys and interviews, revealing that consumers often love items despite, or even because of their imperfections. It encourages designers to consider materials that might be seen as vulnerable, such as ceramics. The product-based example highlights patina and the role of repair in fostering pride in ownership, demonstrating how embracing imperfection can create deeper emotional connections with products.

Figure 8.10 Absorbing Memories strategy card.

Comfort and Safety

The theme of comfort, both physical and psychological emerged as a crucial element in the relationship between consumers and their cherished items of furniture. Consumers expressed in both surveys and interviews that their favourite pieces of furniture provide a space to relax and feel safe. This theme is further supported by analysis of trend reports and literature review, highlighting the significance of comfort in creating meaningful connections with furniture. The **Comforting Experience**

strategy card (Fig. 8.11), encapsulates this theme, encouraging designers to consider how their designs can provide comfort. A deep, plush sofa is used as the product based example on this card, demonstrating how size, materials and texture can create a product that tempts use with a promise of comfort. The second card in this thematic set is **The Perfect Nest**, which further builds on the comfort theme. It poses the question of whether the item of furniture can envelop its owner, much like Eero Aarnio's Ball Chair, which is featured as the product-based example on the card. Through consumer surveys and interviews, participants shared how their beds, sofas, and chairs were cherished for their ability to provide comfort. This close physical connection between people and furniture is epitomised in these strategy cards.

Figure 8.11 Set of 2 strategy cards relating to Comfort and Safety.

Offering an Experience

The importance of experience was emphasised through the literature review, analysis of iconic furniture, and consumer surveys and interviews. The functionality and experience offered by a piece of furniture are critical priorities in creating a product that consumers can love and cherish. This experience value aligns with various aspects of existing Emotional Design models. Notably, it resonates with the Behavioural Level described by Norman (2004), the Physio-pleasure, Socio-pleasure, and Psycho-pleasure outlined by Jordan (2000), and the types of experiences defined by Hekkert (2006) in his 'set of effects' framework, which include Aesthetic Experience, Experience of Meaning and Emotional Experience. Additionally, other Emotional Design frameworks highlight the significance of 'interaction' and 'experiential' values in fostering consumer affection for products.

While all sixteen cards in the Experience Set represent experiential-based strategies, the four cards in this thematic set (Fig. 8.12), address experience in the most direct manner. The **An Experience** card functions as a primary experience card, reminding designers to return to the brief and consider the type of experience the item should offer. Although some types of experience are mentioned on the card, designers are encouraged to contemplate whether the experience should be fun, adaptable, or comforting, thereby connecting to the cards in the previous thematic set.

The **Fun Furniture** card, influenced by key design movements and Emotional Design strategies discussed in the literature review, including Postmodernism, Pop Art, Surrealism, and Visual Metaphor, poses the question of whether furniture can be fun to use. The product-based example featured on the card is Thomas Heatherwick's Magis Spun Chair. This chair epitomises fun furniture with its spinning top-like design, allowing users to spin and rock in a full circle, creating an unexpected and fun experience.

Figure 8.12 Set of 4 strategy cards relating to Offering an Experience.

The experience of constructing furniture is explored through the **Building Narratives** card and this responds to consumer insight regarding furniture that consumers loved and cherished that they had personally constructed, or had been built by loved ones. This strategy encourages designers to consider how the consumer construction process, particularly for flatpack furniture, can be designed to create a positive experience. By fostering a sense of pride in completion, this approach aims to build an emotional connection between the consumer and the newly built item.

The final card in this thematic set, **A Social Platform**, recognises the importance of the social context of furniture and its ability to create spaces for conversation, dining and play. Consistent with the broader experience theme, this card explores the social context of products within existing Emotional Design frameworks, including Jordan's (2000) concept of Socio-pleasure, Russo and Hekkert's (2007) idea of Symbolic (social) Meaning, and Franzak et al.'s (2014) Symbolic Design Benefits. The product-based example on this card references furniture in public places that encourages social interaction, prompting designers to consider adopting similar techniques when designing for consumers at home.

Display, Protect and Store

Key insights from the consumer survey and interviews revealed that participants often loved and cherished furniture that enhanced their daily lives through practical functionality. This included the ability to store and protect other possessions and prominently display cherished items for themselves and their families. Additionally, furniture that could discreetly hide functional yet less cherished objects, thereby reducing visual clutter and noise in their spaces, was highly valued.

The cards in this thematic set (Fig. 8.13), promote strategies to embed such functionality into new furniture design projects, even if this functionality is secondary to the furniture's primary purpose. For

instance, the **Wearing a Mask** strategy card highlights audio-visual furniture designed to streamline a home entertainment setup by hiding cables, thereby providing a clean and uncluttered aesthetic.

The **Curated Collections** card focuses on how new furniture pieces can serve as homes for consumers' treasured possessions, whether that be a vinyl collection, as featured on the rear face of the card, action figures, or inherited antiques. Storage furniture ranked highly among the types most frequently loved and cherished by consumers in the survey, demonstrating a love for furniture of this type, and opportunities for Emotional Design strategies to be embedded.
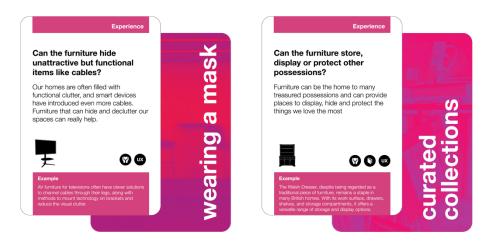
Figure 8.13 Set of 2 strategy cards relating to Display, Protect and Store.

Adaptability

The capacity for furniture to adapt to different spaces, uses, and changes in lifestyle emerged as a key strength of cherished furniture in the consumer survey and interviews. Consumers highlighted the various ways they use their favourite furniture items, noting how these pieces have been repurposed, relocated, or adapted over time to meet evolving needs. The three cards in this thematic set (Fig 8.14), each capture different elements of adaption.

Figure 8.14 Set of 3 strategy cards relating to Adaptability.

The **Adaptability** card prompts designers to consider the appropriateness of incorporating multiple functions into their designs and how this might impact the overall design. The product-based example on this card features a simple dining table that doubles as a surface for dining, play and work. It encourages designers to envision potential multifunctionality from the outset of the design process, offering an opportunity to innovate and create a truly exceptional product that resonates with consumers.

The **Growing Furniture** card offers another strategy for designers to embed adaptability within new products, emphasising the versatility of modular or extendable furniture which can be expanded, reduced, or reconfigured over time, depending on the consumers lifestyle, home size and needs. Moreover, it promotes sustainability by enabling furniture to be upgraded rather than replaced. Additionally, it creates opportunities for businesses to generate additional sales through modular components or extensions.

The final card in this thematic set is **Seasonal Adaption***, influenced by trend report analysis and consumer insight that considers the adaptability of furniture to be used indoors, outdoors, or even transform throughout the seasons. The product-based example emphasises materials with a versatile indoor/outdoor aesthetic, encouraging designers to explore the potential for creating adaptable furniture suitable for transitional spaces.

Familiarity

Raymond Loewy's 'Most Advanced Yet Acceptable' (MAYA) principle, introduced in the 1950s underpins the final Experience card, **A Familiar Feel** (Fig. 8.15)*, emphasising the importance of familiarity in design. The philosophy, discussed in the literature review can be applied across all sectors of design in which a certain degree of familiarity aids acceptance among consumers and users of new products. While many designers intuitively retain some level of familiarity, not all are familiar with MAYA or have consciously applied this strategy in product development, making this card a valuable reminder. This principle finds support in other Emotional Design frameworks such as those discussing 'typicality and novelty' (Hekkert et al., 2003), 'similarity and complementarity' (Van Gorp, 2010), and 'unity and variety in design' (Hekkert et al., 2016). During the interviews conducted for this study, participants consistently highlighted the presence of typicality or familiarity in their discussions of furniture pieces, such as chairs, beds, or tables.

Figure 8.15 A Familiar Feel strategy card.

Experience Strategies Overview

The sixteen Experience strategy cards provide designers with insightful methods and prompts to explore how the experience offered by new furniture products can influence the consumer's relationship with them, and evoke emotions. Strategies focusing on comfort aim to instil a sense of safety, those emphasising the display of cherished possessions foster pride, and those centred around surprise aim to captivate and intrigue users. These strategies, grounded in consumer and designer research, literature reviews, reviews of iconic furniture and trend analysis, encourage designers to deeply consider the impact of user experience, placing the consumer at the forefront of design decisions. The Experience cards encapsulate themes of interaction, activity and functional benefits as highlighted in existing Emotional Design frameworks. Franzak et al. (2014) and Kumar et al., (2015) define Functional Value aspects within their frameworks, while Russo and Hekkert (2007) and Desmet (2012) identify interaction as a crucial element of the consumer-product relationship. Moreover, the Experience strategy cards extend beyond the Utilitarian Benefits defined by Chitturi (2009), encompassing a wider range of emotional experiences for the consumer.

8.3.3   Meaning Strategy Cards

Influencing Emotions

The cards in this Meaning thematic group (Fig. 8.16), explore how designers can strategically influence consumer emotions and behaviour through meaning. These strategies complement those in the Aesthetic and Experience sets, particularly focusing on strategies like Surprise! and A Social Platform. They draw upon existing Emotional Design methods, psychological theories, trend reports, literature reviews and consumer insights to help designers consider how meaning can impact consumer emotion and behaviour, subsequently impacting their relationship with the furniture pieces.

Figure 8.16 Set of 4 strategy cards relating to Influencing Emotions.

The first strategy card in this set explores the expansive realm of designing for emotion, urging designers to explore how targeting specific or nuanced emotions can profoundly impact their designs. This approach is informed by extensive research by Desmet (2012, 2013), Yoon et al. (2015, 2017), Fokkinga (2015), and Fokkinga and Desmet (2022), which explores emotional granularity and emotion typology. The **Design For Emotion** card encourages designers to reassess the project brief and carefully consider the target market and expectations of the product. It prompts them to identify which emotions they aim to evoke, such as surprise through unexpected materials or features, pride through considered construction processes, or comfort through thoughtful material selection and ergonomic design. This strategic approach empowers designers to create furniture that resonates deeply with users on an emotional level, enhancing their overall experience and satisfaction.

The second card in this set builds upon the Experience strategy of A Social Platform focusing on fostering **Togetherness**, aptly named for its emphasis on communal interaction. This strategy draws insights from trend reports, especially those post-Covid-19 pandemic, and consumer feedback highlighting how cherished furniture pieces facilitate family togetherness. In the design process of new furniture, decisions can significantly impact how groups interact, and this strategy prompts designers to consider these dynamics. The product-based example on this card illustrates bench seating at a dining table where individuals sit closer together on a single, connecting surface, in contrast to the more separate seating arrangement typical of individual chairs. This approach encourages designers to create furniture that enhances social connection and shared experiences, reflecting the evolving needs and desires of contemporary living spaces.

The 'slow' movement, discussed in the literature review, inspired the **Slow Down** strategy card and ties into themes of well-being and mindfulness. The existing use of slow design within the Emotional Design domain is discussed by Grosse-Hering et al (2013), including the development of their Slow Design Book of Inspiration. This strategy prompts designers to consider how furniture can shape consumer behaviour by offering spaces that encourage reflection, reading and tranquillity. Insights from consumer surveys and interviews revealed that furniture is often seen as a place to relax, unwind, read, journal and write. By using the slow down strategy, designers can explore how to incorporate features, functionality, materials and forms that support these calming activities.

The final card in this thematic set explores the use of nudge theory introduced by Thaler et al (2008) and discussed within the literature review. This strategy card, entitled **Changing Behaviour**, encourages designers to consider if the way in which a product is designed can influence how consumers use it. This may impact social interaction, a sitting posture, or maintenance and care of their product. The product-based example on this card describes furniture in public spaces that aim to encourage social interaction through the position and angle of benches.

Consumer Values

This pair of Meaning strategy cards (Fig. 8.17), explore the values and ethical considerations that influence consumer perceptions of certain products, addressing issues such as sustainability and corporate social responsibility. The literature review highlighted how the use of recycled materials can serve as a distinctive selling point in a market with increased consumer awareness of environmental impacts influences purchasing decisions (Kanchanapibul et al., 2014).

Figure 8.17 Set of 2 strategy cards relating to Consumer Values.

The **Material Values** strategy card introduces designers to the use of recycled materials, bio-plastics, and FSC (Forest Stewardship Council) wood. It includes a product-based example made from stinging nettles. Insight badges on this card indicate how the use of sustainable materials can support the development of a compelling narrative and foster pride of ownership, represented by the Consumer Curator badge. Consumers who purchase and cherish products made from such materials are likely to become ambassadors for the product and brand, proudly sharing its sustainable credentials with friends and family.

The **Supporting The Community** strategy card encourages designers to consider critical issues such as production methods, material sourcing, packaging and potential business models like social enterprises. While designers may not always have control over all these aspects, there are situations where they can make a significant impact, such as individual designer-makers producing their own

products or designers working in small businesses. The growing consumer interest and awareness in Corporate Social Responsibility (CSR), as discussed by Thompson (2018) and Luger et al., (2022) in the literature review, underscore the relevance of this strategy. By adopting these considerations, designers can appeal to socially-conscious consumers who prioritise ethical and responsible business practices.

Both strategy cards within this thematic set have the potential to evoke admiration, trust and satisfaction among socially-conscious consumers when new products are designed and marketed in a manner that resonates with their values, ethics and aspirations.

Emotional Associations

This thematic set of Meaning cards (Fig. 8.18) are significantly influenced by the analysis of consumer survey data and consumer interviews, as well to some degree by the review of iconic furniture. There are clear links between the strategy cards in this set that all aim to create meaning through association for the consumer. The first three cards within this set, each aim to capture the rich emotional stories that consumers shared during the surveys and interviews. Participants described how their cherished items of furniture remind them of holidays, their hometown, their parents, professional aspirations and self-identity.

Figure 8.18 Set of 4 strategy cards relating to Emotional Associations.

The **Linked Location** card encourages designers to consider if there is a way that the furniture can represent a location, either through aesthetic details, materials used, or perhaps opportunities for local production or customisation based on the area in which the item is sold, for example a regional version. Using this strategy can help build connected memories and narrative in new products.

Many consumers mentioned inherited furniture, items received as gifts, or pieces that evoke family memories due to the time spent using them. The **Genealogy** card acknowledges the significant emotional associations that furniture can evoke, connecting consumers with their family, culture and childhood memories. This card proposes a strategy that taps into these themes, encouraging designers to consider how new furniture can create similar meaningful connections for consumers.

The **Profession And Pastimes** strategy card captures consumer feedback from the surveys and interviews, highlighting how cherished furniture not only facilitated their ability to work or engage in hobbies but also represented the enjoyment of these activities. Additionally, it embodied the pride and fulfilment associated with their career and professional identity. Consumers explained that without the item and its functional design, their jobs or hobbies would be less productive and enjoyable. This strategy serves as a reminder to consider how form and function can connect to professions and pastimes, particularly when designing items with specific functions, such as a home-office desk, or furniture for the kitchen.

The final card in this thematic set, **A Product Of Its Time** addresses the associations with particular historical periods or design eras. Consumers surveyed and interviewed often described their favourite furniture items with references to specific times or design movements, such as mid-century and Art Deco. These historical references evoked certain feelings in the consumers, with the furniture capturing the mood and essence of those times. Certain items identified in the review of iconic furniture also represent the time in which they were created. For example, the Red Blue Chair by Gerrit Thomas Rietveld not only embodies the aesthetic values of the De Stijl movement but also encapsulates the innovative and forward-thinking spirit of the early 20th century. This strategy encourages designers not to mimic past times or movements, but to consider how they can represent the current point in history through materials, colours, textures, or surface patterns.

Each strategy card within this thematic set acknowledges the emotional associations consumers have with their cherished furniture items. The cards encourage designers to consider how places, people, professions, pastimes, and historical periods can emotionally resonate with consumers.

Conversation Starter

Through the consumer survey and interviews, participants described how their favourite furniture items often serve as central focal points in their rooms, acting as conversation starters and playing significant roles during dinner parties, social gatherings and family game nights. The **Talking Point** card (Fig. 8.19), recognises how furniture pieces often spark conversation due to their distinctive form, functionality, unexpected features and materials. One such example from the review of iconic furniture is the Carlton Bookcase, designed in 1981 by Ettore Sottsass. Known for its bold and playful design, characterised by vibrant colours, the Carlton Bookcase is sure to command attention in any room. This card stands independently within the Meaning set of the Emotional Design Deck, but connects with other cards in other sets, including the Aesthetic strategies of Artistic Expression and a work of art, that each consider how a piece of furniture can be a striking object within a space.

Figure 8.19 Talking Point strategy card.

Personal Connections

This final thematic set of Meaning cards (Fig. 8.20), recognise emotional connections relating to customisation and personalisation, gifts and inherited objects. These strategies were formed through the findings of the literature review and analysis of consumer insight formed through the survey and interviews.

Figure 8.20 Set of 3 strategy cards relating to Personal Connections.

The **Making It Their Own** strategy encourages designers to consider how new furniture can support customisation and personalisation. This approach can help nurture an emotional connection with the item, thereby strengthening attachment. Research discussed in the literature review by Franke et al., (2007) found that the ability to customise a product increases consumers' willingness to purchase, particularly for certain types of products. Mugge et al., (2009) highlighted that the customisation process requires time and effort from the consumer, making them a co-creator to some extent, and building attachment even before purchase. This strategy aligns with the Building Narratives card, which also actively engages the consumer in the product's creation.

Both the literature review, and analysis of the consumer survey and interviews highlighted the potential for emotional connections to be formed when furniture is received as a gift. Some of the cherished items described by consumers were of particular importance to consumers because of who gave the items to them, in some cases parents and family who are no longer alive. Research highlighted in the literature review, including work by Schifferstein et al (2008) discussed how creating products suitable for gift-giving can enhance consumer-product attachment by increasing associated memories. The **Gifted** strategy card features a product-based example that mentions smaller, flatpack furniture which can easily be given as a gift.

The final card in this thematic set, titled **From Person To Person**, recognises the potential for furniture to be handed down from one person to another or inherited by future generations within a family. Well-designed furniture made from quality materials can last for centuries. By considering future users and uses, designers can create pieces that resonate with consumers seeking to invest in 'forever furniture.' This approach not only ensures longevity and sustainability but also fosters a deeper emotional connection, as the furniture becomes a treasured heirloom passed through generations.

Meaning Strategies Overview

The fourteen Meaning strategy cards encourage designers to reflect on how meaning can be embedded in new furniture products. These strategies connect to personal values and self-identity, offering opportunities for customisation and alignment with consumers' ethical and social values. Other strategies focus on how the item is used with others, its role in the consumer's life and its potential to influence behaviour and usage patterns. The furniture's connection to people, places, memories, professions and pastimes is also embedded within the Meaning strategy cards. These connections align closely with the findings from the consumer survey, highlighting the importance of personal associations in Emotional Design. The Meaning strategy cards incorporate Emotional Design elements from existing frameworks, such as Norman's (2004) Reflective level, Desmet's (2012) Meaning value, and Hekkert's (2006) Experience of Meaning. Additionally, these strategies encompass aspects like 'Shared Moral Values' (Russo and Hekkert, 2007), 'Symbolic Association' (Crilly et al., 2004), and 'Social Value' (Kumar et al., 2015).

8.4 How to use the tool

The Emotional Design Deck is incredibly versatile, whether used individually or collaboratively. Comprising 52 cards with 48 unique strategies across 3 themes, it presents a wealth of information in bite-sized, accessible chunks. These can be explored as a whole, in sets, or randomly. Whether used alone or in teams, the cards provide a tactile experience and can be divided, laid out on tables, stuck on walls, or clipped to concepts. This flexibility is a key advantage of the tool being a card set that can spread across a room, unlike a book or app confined to its bound pages or digital device.

As discussed in Chapter 7, the guidance cards (Fig. 8.21), included in the set briefly describe various ways to use the tool, along with one suggested method explained in more detail. This suggested method involves designers, through five stages, randomly selecting cards, reflecting on the strategies, and applying them to their work.
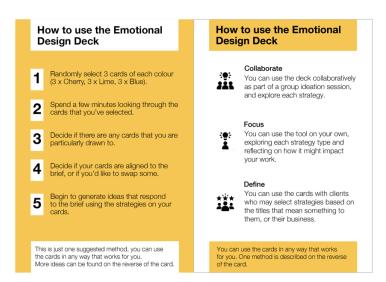
Figure 8.21 Emotional Design Deck Guidance Card.

To demonstrate this suggested method, the following section explores a hypothetical design brief through the five stages. This illustrates how the Emotional Design Deck can support idea generation by embedding Emotional Design strategies into the designer's thought process.

Hypothetical Design Brief

> *Design a piece of furniture, or furniture range for a children's bedroom. The furniture will be mass-produced and positioned as a mid-market product, with a focus on high quality design and materials. The design should cater to the needs and preferences of both children and parents, ensuring it appeals to children while meeting parents' expectations for quality, safety and functionality.*

Stage 1 – Randomly Selecting Cards

In Stage 1 of the suggested method, designers are asked to randomly select three cards from each theme set (Aesthetics, Function and Meaning). This selection process can be tailored to suit the designer or group of designers and may include, for example:

- Holding, or presenting the cards like a magician performing a card trick and selecting three cards from each set in the deck.
- Shuffling the deck and dealing the first three cards of each colour.
- Laying all the cards on the table and selecting three of each colour based purely on their titles, shown on the reverse of the card.

Table 8.2 shows the randomly selected cards in this hypothetical scenario, including three Aesthetic cards, three Function cards and three Meaning cards. The table indicates the theme set each card is taken from, the strategy title, shown on the reverse of the card, and the main strategy question or description shown on the front of the card.

Theme	Strategy Title	Strategy
Aesthetic	a second life	How might recycled materials that retain their imperfections be used?
	natural influence	Can the items form, materials or finish be inspired by nature?
	characterful connections	How might anthropomorphic forms be used to create characterful connections?
Function	a familiar feel	How can the item feel familiar and consider the 'Most Advanced Yet Acceptable' principle?
	curated collections	Can the furniture store, display or protect other possessions?
	building narratives	How can the consumer experience of constructing an item be positive and rich?
Meaning	design for emotion	Is the item designed to evoke a specific nuanced emotion or mixed emotions?
	making it their own	Can the item be designed to support customisation, decoration or personalisation to build memories and attachment?
	slow down	How can Slow Design be used to create a calm, or rich consumer experience.

Table 8.2 Nine randomly selected cards for the hypothetical scenario to illustrate the use of the Emotional Design Deck.

Stage 2 – Reflecting on Cards

The second stage of the suggested process encourages designers to pause and reflect on the cards that have been chosen, exploring the detail of each card, the product-based examples and insight badges. The nine cards randomly selected in this hypothetical scenario are shown in Figure 8.22.

Figure 8.22 Nine cards randomly selected for the hypothetical scenario to illustrate the use of the tool.

Stage 3 – Card Review

In stage three, designers decide if they are drawn to particular cards for the brief they are working on. There is no specific guidance about the quantity of cards designers should use, as it is important that they feel able to apply the tool in the way that best works for them, without multiple, or complicated rules. With nine initial cards, designers may be drawn to one single card, one from each set, or almost all the cards. They may see opportunities for multiple design ideas using different cards, or ideas with crossing strategies.

In this particular scenario, all of the cards shown in Figure 8.22 and their strategies have the potential to be central to the brief of designing furniture for children. The 'characterful connections' card, linked to anthropomorphism can help designers consider how shape can introduce playful forms into furniture, ideal for appealing to children. The 'building narratives' strategy could be used to consider a safe construction method that allows parents to build the piece of furniture with their children, learning about design and making while building memories. The 'slow down' strategy could consider how the furniture encourages 'slow' or analogue activities, including reading and drawing, with special in built features and functionality.

Stage 4 – Strategy Alignment with Brief

At this point, designers make decisions about the alignment of the randomly selected strategies with the brief, and are encouraged to swap cards if there is a lack of alignment or connection between the brief and strategies selected. As mentioned, it is clear that the strategies randomly selected in this hypothetical scenario have potential, and therefore no new strategies are added, or swapped.

Stage 5 – Ideation and Application of Strategies

In the final stage, designers begin ideating by applying the selected strategies to new concepts. To illustrate this stage, Table 8.3 below describes three different concepts linked to five of the selected strategies. Visuals of the three concepts are also shown in Figures 8.23, 8.24 and 8.25.

Concept	Description of Concept	Strategies Employed
1	A children's rocking stool inspired by the organic shape of coral, crafted from an ocean plastic composite. The material offers texture, while the connection between ocean plastics and coral creates a meaningful narrative. (Fig. 8.23)	**a second life** (How might recycled materials that retain their imperfections be used?) **natural influence** (Can the items form, materials or finish be inspired by nature?)
2	A children's bookcase and display unit designed for storing and proudly presenting collectibles, favourite books, and toys. With its limited capacity and intentional negative spaces, it encourages children to focus on quality over quantity, helping them curate their collection of favourite items. (Fig 8.24)	**curated collections** (Can the furniture store, display or protect other possessions?)
3	A children's desk with a slotting construction for easy assembly. Multiple slots allow the desk surface height to grow with the child and be repositioned by the child. Additionally, slot inserts, magnetic components, or stickers can be part of the concept, enabling customisation over time. (Fig 8.25)	**building narratives** (How can the consumer experience of constructing an item be positive and rich?) **making it their own** (Can the item be designed to support customisation, decoration or personalisation to build memories and attachment?)

Table 8.3 Three concepts generated as part of the hypothetical scenario to illustrate the use of the tool.

Concept

A children's rocking stool inspired by the organic shape of coral,
crafted from an ocean plastic composite. The material offers texture,
while the connection between ocean plastics and coral creates a meaningful narrative.

Strategies Employed

- A second life (How might recycled materials that retain their imperfections be used?)
- Natural influence (Can the items form, materials or finish be inspired by nature?)

Figure 8.23 Visual of Concept 1, employing strategies of 'a second life' and 'natural influence'
(Nigel Turner, 2024.)

Figure 8.24 Visual of Concept 2, employing the 'curated collections' strategy
(Richard Gilmartin, 2024.)

*Figure 8.25 Visual of Concept 3, employing strategies of 'building narratives'
and 'making it their own' (Dan Lewis, 2024.)*

The three concepts outlined in Table 8.3 demonstrate how the strategies developed through the research in this study provide inspiring starting points connected to Emotional Design strategies. Alternatively, designers could initiate ideas based solely on the brief, specifications, or budget constraints, and then proceed to integrate strategies from the cards into these existing concepts, to enrich them and explore emotional connections with consumers.

Out of the nine cards randomly selected in this hypothetical scenario, five were ultimately used, including one instance where two cards from different sets were combined. With a total of 48 strategies, the deck offers genuine versatility, in which each strategy can be applied independently or in combination, showcasing the tool's extensive scope and flexibility.

The decision to offer only loose guidance to designers on using the Emotional Design Deck further enhances its versatility, enabling designers and creatives to explore and utilise it in ways that best suit their needs. This approach may also lead to the discovery of new applications for the tool, which can then be shared within the creative community.

8.5 Secondary Benefits and Applications

Throughout the research, development and testing phases of this study, it became evident that the tool offers multiple use cases and ways in which its content can be applied in creative work. These can be considered secondary benefits or applications, complementing the primary use method explored in the previous section. These secondary benefits and alternative applications include:

Vocabulary Development

The Emotional Design Deck, comprising 48 individual strategies, can expand designers' vocabulary and deepen their understanding of Emotional Design techniques. While many strategies might seem familiar or intuitive, the paired strategy titles, descriptions, and product-based examples offer designers emotive language to articulate their concepts to others. The tool also introduces design principles like 'Most Advanced, Yet Acceptable' and 'Wabi-Sabi' in a simple, accessible manner, with product-based examples to bring these philosophies to life.

Analysis Tool

Following the presentation of the Emotional Design Deck at the Seventeenth International Conference on Design Principles & Practices, delegates noted its value as an analytical tool, especially for students. The tool can be used to reflect on existing designs or iconic pieces to analyse their success or identify potential enhancements. By understanding which strategies are already embodied in these designs, or which new strategies could be applied, designers can gain a deeper understanding of Emotional Design techniques before incorporating them into their own work.

Education

The Emotional Design Deck provides insights into design techniques, philosophies, iconic design pieces, and design movements. The product-based examples and illustrations offer users a wealth of information, while the emotive strategy titles serve as shortcuts to more in-depth knowledge. The cards also include references to designers and their work, as well as the social, historical and cultural impact of their designs. A key secondary benefit of the tool is its ability to educate and inspire designers and design students about Emotional Design and the broader context of design.

With Stakeholders

The Emotional Design Deck features simple, accessible language and attractive graphic design, making it user-friendly without requiring training or extensive prior knowledge. Its varying levels of complexity allow users to decide how deeply they want to explore each card. Feedback from designers during the creative workshop indicated the tool's potential for use with other stakeholders, such as clients or consumers. When used with clients, businesses could be asked to select strategies based solely on the titles that resonate with their brand values. For example, a traditional furniture

manufacturer that began as a family business might select strategies such as 'togetherness', 'absorbing memories', and 'hidden treasures'. Designers can then begin to develop concepts linked to the strategies identified by the client, referring back to the emotive titles in meetings and presentations.

8.6 Levels of Complexity

The Emotional Design Deck offers varying levels, or layers of complexity and information within its cards. At the simplest level, users encounter strategy titles and questions. Delving deeper reveals additional information and product-based examples that expand upon these initial elements. At the deepest level, Insight Badges (Fig. 8.26) featured on the cards introduce another dimension for designers to explore, enriching the integration of Emotional Design research into their work. As discussed in Chapter 7, these Insight Badges derive from consumer research and introduce four additional themes for connecting with consumers, complementing the main strategies. Designers may opt to consider the badges after selecting potential strategies or incorporate them from the outset, providing an added layer of detail for application.

Figure 8.26 Insight Badges guidance card.

8.7 The Tool in Context

The Emotional Design Deck was developed in response to a gap in the current landscape of tools for Designers, aiming to provide clear Emotional Design strategies that can be employed by Furniture Designers. Figure A1 positions the Emotional Design Deck alongside other tools associated with Emotional Design, each of which are discussed in the Literature Review. The maps two axes aim to show the relative positioning and landscape in a straightforward, easily interpretable manner.

The X-axis represents the type of tool, ranging from those primarily focused on emotions on the left, to those primarily focused on Emotional Design on the right. Whilst those tools nearer the left of the X-axis have often been developed by researchers involved with design, the tools largely aim to improve understanding of emotions.

The Y-axis addresses a key objective of the Emotional Design Deck, to present Emotional Design strategies to designers which could be applied to their work. The Y-axis therefore positions the tools ability to present strategies to action at the top of the map, and the ability to educate and inspire at the bottom. This distinction does not suggest that a tools ability to educate and inspire is less valuable, it simply differentiates the primary functionality of each tool type.
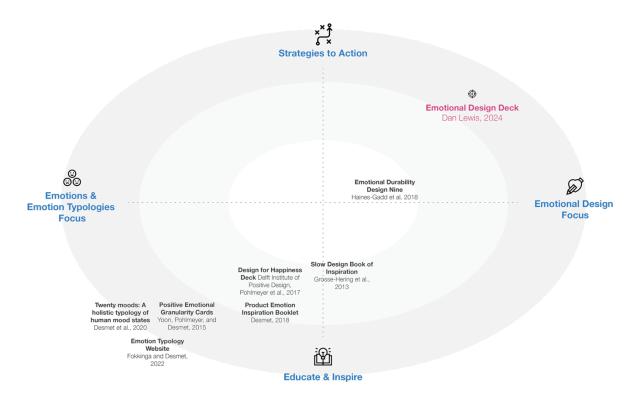
Figure A1 Emotional Design Deck in context, alongside other existing tools.

As shown on the map, as of 2024, there are still very few Emotional Design tools available to designers, and some of the tools included on the map are difficult to access, or in the case of the Emotional Durability Design Nine (Haines-Gadd et al, 2018), found only in a PhD thesis. This tool is however included as it currently stands as the tool most similar to the Emotional Design Deck.

The cluster of three tools towards the bottom left of the map represent those specifically aiming to enhance the understanding of nuanced emotions and mood states in the design industry. These tools include the Positive Emotional Granularity Cards (Yoon et al., 2015), Twenty Moods: A Holistic Typology of Human Mood States (Desmet et al., 2020) and the Emotion Typology Website (Fokkinga and Desmet, 2022). Each tool provides information, examples and images to describe different emotions, thereby educating and inspiring users. Their position on the map, closer to the 'educate and inspire' label on the Y-axis, illustrates their primary function, with no intention of offering actionable strategies for designers. These tools are valuable for designers seeking to build their understanding of nuanced emotions, enabling them to consider targeting specific emotions in their work. However,

translating this understanding into product characteristics or actionable strategies can be challenging. Notably, the Positive Emotional Granularity Cards (Yoon et al., 2015) are presented as a deck of cards, much like the Emotional Design Deck.

The next cluster of three tools, closer to the centre of the map, occupy a space still closer to the emotion focused tools than the Emotional Design focused tools, but they begin to relate emotions to products and product interactions. This cluster of three tools include; Slow Design Book of Inspiration (Grosse-Hering et al., 2013), the Design for Happiness Deck (Delft Institute of Positive Design, Pohlmeyer et al., 2017) and the Product Emotion Inspiration Booklet (Desmet, 2018). While the Design for Happiness Deck (Delft Institute of Positive Design, Pohlmeyer et al., 2017) and the Product Emotion Inspiration Booklet (Desmet, 2018) each present different emotions, and sometimes relate them to products, they do not offer strategies for designers to apply. As with the Positive Emotional Granularity Cards (Yoon et al., 2015), the Design for Happiness Deck (Delft Institute of Positive Design, Pohlmeyer et al., 2017) is also presented as a deck of cards which were sold as a limited edition following their launch. The third tool in this cluster is the Slow Design Book of Inspiration (Grosse-Hering et al., 2013) which focuses specifically on Slow Design, one element of Emotional Design. The downloadable book presents seven key Slow Design principles to inspire designers to apply them in their own work. The principles are presented with examples and images but specific strategies are not included, and for this reason the tool is mapped closer to the educate and inspire label of the Y-axis on the map.

As mentioned earlier in this chapter, the Emotional Durability Design Nine (Haines-Gadd et al, 2018) is currently the tool closest to the Emotional Design Deck, with a focus on simple strategies grounded in Emotional Design research. The strategies however are less detailed and specific than those within the Emotional Design Deck, hence its position on the map, further from the 'strategies to action' label on the Y-axis. As with the Emotional Design Deck, the Emotional Durability Design Nine (Haines-Gadd et al, 2018) is presented as a card set, with each card taking a triangular form in different sizes. This tool does not feature any images or product-based examples, and as mentioned earlier, is only accessible through the PhD thesis, making discovery and application in the design community significantly less likely.

Finally, the position of the Emotional Design Deck, the resulting tool of this study is shown towards the top right of the map. This reflects its clear focus on Emotional Design and its intention to embed actionable strategies that designers can easily translate into their work. Unlike other tools that aim to educate about specific nuanced emotions, the Emotional Design Deck does not focus on this area, as existing tools already serve that purpose. Whilst the Emotional Design Deck is positioned at a distance from the educate and inspire label, it is important to note that the tool does offer this functionality as a secondary benefit. Another unique aspect of the Emotional Design Deck is its focus on furniture design, distinguishing it from other tools on the map that address the broader topic of Emotional Design or emotions and emotion typologies. The map also indicates that there are still gaps for future

tools, particularly in the top left and bottom right areas of the map. It is important to note that the map does not include existing books in the Emotion or Emotional Design domains, nor tools from the broader design discipline, which are considered peripheral to this map.

8.8 Access to the Emotional Design Deck

The Emotional Design Deck is currently undergoing final formatting refinements to ensure high-quality print production. The ambition is for the tool to be sold online, and in-store directly to buyers as a physical card set. Selling the Emotional Design Deck ensures that its quality and consistency can be maintained, while the income generated helps cover costs associated with intellectual property protection, including design registration. Designed for a tactile experience, the Emotional Design Deck is exclusively available as a physical product and is not offered or sold as a digital download.

9 Conclusion

This chapter discusses the study's contributions to knowledge, highlights its limitations, and identifies opportunities for future research.

9.1 Contribution to Knowledge

This thesis, and resulting Emotional Design Deck contributes new knowledge to the field of Emotional Design, expanding upon existing research and delivering a new tool for designers. The following section outlines each new contribution to knowledge in the field of Emotional Design.

Emotional Design Deck

The Emotional Design Deck is a comprehensive tool for furniture designers that synthesises extensive existing Emotional Design research with new consumer insights. Designers previously wishing to apply Emotional Design strategies could research the broader topic by reading existing literature, as well as individual specific strategies. However, no comprehensive, widely accessible tool offered such a variety of strategies in clear, concise language. This tool builds on established Emotional Design frameworks, integrating them with specific strategies and new consumer research.

Literature Review Part 1, Existing Emotional Design Frameworks, including the 'Emotional Design Framework Map'

Part 1 of this study's Literature Review examines the major Emotional Design Frameworks developed over the past twenty-five years. It compares each framework, detailing how different researchers analyse the emotional relationship between consumers and products. The findings are presented in a new, significant contribution to knowledge: the 'Emotional Design Framework Map.'(Fig. 2.1). This map simplifies complex frameworks into a clear visual representation, enabling readers to quickly grasp the differences and similarities between frameworks, with their key concepts visually positioned on the map.

A review of Iconic Furniture, including the poster of Iconic Furniture

A methodology was developed to identify iconic furniture from existing literature, culminating in the creation of a new and original poster featuring 27 iconic furniture pieces (Fig. 4.1). This study involved an extensive review of several books and the compilation of hundreds of entries into a spreadsheet dataset, representing a significant contribution to the field. Unlike posters based on the subjective opinions of design researchers, historians, or publishers, this poster is grounded in a thorough research methodology. The Literature Review also highlights seven key themes identified through the analysis of iconic furniture, showcasing the essential characteristics of furniture now deemed iconic.

Consumer Survey Analysis Insight

The analysis and presentation of the results from the consumer survey contribute to the knowledge in the fields of Emotional Design and Furniture. The analysis illustrates how individuals form emotional attachments to their favourite furniture items, combining quantitative data with rich qualitative insights, including personal stories behind these connections. The findings advance research into Emotional Design frameworks by exploring how aesthetics, functionality, and meaning each influence the consumer's relationship with furniture.

Consumer Interview Thematic Analysis including Venn Diagram Framework, and 8 Thematic Analysis diagrams.

Thematic Analysis of one-to-one semi-structured interviews with consumers presents eight thematic analysis maps, highlighting key overarching themes and specific interpretative codes. This analysis enhances our understanding of the themes influencing consumer relationships with furniture, contributing valuable insights to both the Furniture domain and Emotional Design. Additionally, a comprehensive map presented as a Venn diagram positions 38 interpretive codes around four overarching themes, capturing the key points discussed by consumers during the interviews (Fig. 5.9).

Analysis and findings of Designer Survey regarding existing tools and their application.

The insights gathered from analysing a survey of designers working in the industry offer valuable information regarding design awareness and the utilisation of design tools. This data is valuable to researchers investigating existing design tools or considering the development of new ones. The findings reveal how these tools are used, their benefits, and the pathways through which designers discover them.

9.2 Scope

This research focuses on the domain of Emotional Design, with the development of a tool for designers. The primary and secondary research activities that took place during this study were designed to support the construction of knowledge required to design, develop and test the tool. Although Emotional Design borrows many concepts from different disciplines, including philosophy and psychology, (Demir, 2008) this research study examines the literature through the lens of a Designer, developing a tool for designers.

To achieve the Research Aim, the testing phase evaluates the tool's usability and effectiveness in presenting Emotional Design strategies to designers in an accessible and applicable manner. However, the testing phase does not assess consumers' affinity for furniture created by designers, as

this would involve researching, designing, developing and prototyping the furniture, as well as presenting prototypes to consumers in a way that authentically replicates their typical first interaction with furniture, exceeding the study's scope.

Reviewing existing Emotional Design strategies was a crucial and ongoing phase of this research study, where the researcher's professional expertise played a role. However, the study did not encompass individual strategy testing to avoid duplicating existing efforts. Instead, strategies for the tool were selected based on the researcher's experience, consumer insights, and analysis of iconic furniture and trend data.

This study examines existing Emotional Design tools, uncovering successful practices and identifying a gap in tools tailored for furniture design. Furniture presents a significant opportunity for the application of Emotional Design strategies, thereby increasing the tool's potential for success. By concentrating on furniture, the study's scope became more clearly defined, allowing for more focused and richer consumer research than a broad product design approach, where comparisons between vastly different products, such as smartphones and sofas, would have been necessary.

In addition to Emotional Design tools, this study also reviewed general design tools to understand designers' current practices and perspectives. The review focused on widely recognised and frequently used tools in the Product and Furniture Design industry, deliberately excluding tools from other design disciplines like Architecture, Fashion, and Graphic Design.

An assessment of tools utilised for reporting and measuring emotional responses was part of the study's scope because such tools can play a role in the design of new products. However, the design tool under development does not fall into this category, and therefore these tools were not subjected to an in-depth review or testing as part of this study.

The initial aspiration for this study was to generate new knowledge and create a tool that could be effectively employed over time, rather than serving as a one-time presentation or publication. Drawing from the researchers own experience in the design industry, the goal was to develop a tool that would be valuable for industry professionals and design students alike. This vision shaped the intended audience for the tool and defined the study's scope.

9.3 Limitations of the study

The aim of this study focused on the development of a tool for designers, involving research, analysis and synthesis of its content. Subsequently, the tool was designed, developed and tested with designers. The test results underscore the tool's effectiveness in aiding designers to incorporate Emotional Design strategies into their work, with highly positive feedback received on its usability. It is

important to note that this study does not evaluate the outcomes of designs created by designers using the tool, as this was beyond the scope and timeframe of this study.

With the exception of the presentation at an international conference, all primary research activities undertaken in this study involved participants based in the United Kingdom, both consumers and designers. As such, it is important to clarify that the Emotional Design Deck does not claim to be a universally applicable tool. Cultural differences and preferences in terms of values, aesthetics and emotional triggers may influence how design strategies are perceived and received in different contexts, potentially affecting their efficacy.

Nonetheless, while the primary research has a UK-centric focus, the literature review integrates insights from global research, diverse design philosophies and the work of international practitioners. This broader theoretical grounding contributes to the development of strategies that aim to resonate with a variety of audiences. Future research opportunities relating to cross-cultural validation and user testing could begin to address these limitations, to ensure relevance and adaptability in a wider range of geographic and cultural settings.

9.4 Opportunities for future research

As highlighted in the limitations of this study, there are opportunities to broaden this research in two main areas; first, by testing the designs created by designers with consumers; and second, by expanding the primary research to include consumers outside the United Kingdom.

Testing the designs created by designers with consumers is a substantial project that includes developing and producing concepts into realistic prototypes for testing. However, conducting this type of testing within a study setting may not fully replicate the experience consumers have when purchasing and owning furniture. Nonetheless, it does offer opportunities for future research, such as testing individual Emotional Design strategies rather than the entire deck.

Expanding future research beyond the UK is feasible, especially with online consumer research, eliminating the necessity for international travel. Similarly, testing the Emotional Design Deck with designers in other countries could be facilitated through partnerships or online methods, with the tool being sent physically in advance.

In addition to addressing the limitations of this study in future research, opportunities have emerged during the testing, refinement, and dissemination phases that could further expand the tool and its associated research. These opportunities include:

- Developing new versions of the Emotional Design Deck for fields beyond furniture, such as broader Industrial design.

- Creating new strategy cards tailored to specific disciplines.
- Producing alternative versions aimed at non-designers or community groups.

9.5   Concluding Remarks

The Emotional Design Deck addresses a gap in existing tools while also fulfilling the intention of this study to produce a tangible outcome valuable to both industry and education. My experience in both sectors provided the foundation for developing a tool that is accessible to busy professionals as well as students learning new skills, methods and design principles. Emotional Design is a broad and complex topic that can feel overwhelming to designers, however this tool presents key concepts in small chunks, allowing users to engage with the content in multiple ways.

Designed as a deck of cards, the tool offers various entry points and flexible methods of use, avoiding a rigid, linear structure, encouraging creativity and exploration. Additionally, the tool opens up opportunities for use with other audiences or stakeholders, including consumers, clients and communities.

The tool equips designers with strategies that are easy to interpret and apply in a way that suits their workflow. These strategies, developed through a review of existing research, new consumer insights, designer perspectives and an analysis of iconic furniture, each pose a thought-provoking question to guide the design process. By engaging with these strategies, designers can create furniture that resonates emotionally with consumers.

Designing meaningful products benefits consumers and the industry alike. Products that evoke strong emotional connections are more likely to be cherished and retained, discouraging premature disposal. This, in turn, helps combat the widespread issue of short-lived, disposable furniture. Emotional Design strategies can also foster attachment and pride of ownership, encouraging repair and restoration over replacement.

For businesses, incorporating Emotional Design strategies into the design process can provide a competitive edge. By considering aesthetics, user experience and meaning-based connections, companies can develop products that align with their core values and consumer preferences, ultimately strengthening brand identity and customer loyalty.

Beyond commercial advantages, Emotional Design strategies can shape consumer behaviour, promoting social interaction, mindful use, and safer practices. Thoughtfully designed furniture can foster togetherness, provide comfort and security, or serve as an expression of personal identity. These examples demonstrate how the application of the Emotional Design Deck can positively impact people's lives and contribute to the design domain.

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Appendices

Appendix 1 Existing Tool Analysis

Tool name, Author and Date	What stage of the design process can the tool be applied?	What format does the tool take?	Suitable for Furniture Design?	Is the tool accessible in terms of language and style?	What data, theory, research is used?	Advantages	Disadvantages
Self-Report Assessment Tools							
Self-Assessment Manikin (SAM) Bradley and Lang 1994	• Research *(including competitor product analysis)* • Ideation *(including concept selection)* • Development *(including prototyping)*	Described as a *'picture-oriented instrument'* Interactive program / application and pen and paper version.	Yes, to allow consumers to self-report emotional response to furniture objects and experiences.	Yes (no language barriers)	Based on Semantic Differential Scale (Mehrabian and Russell 1974) *'18 bipolar adjective pairs that are each rated along a 9-point scale.'*	Fairly simple to complete as 'picture based'	Looks dated.
Feeltrace Cowie, Douglas-Cowie, Savvidou, McMahon, Sawey and Schröder 2000	• Research *(including competitor product analysis)* • Ideation *(including concept selection)* • Development *(including prototyping)* •	Computer program that allows participant to self-report their emotion over a period of time, e.g. whilst watching a video.	Yes, to allow consumers to self-report emotional response to furniture objects and experiences.	Yes, the interface is fairly simple and uses a graphic layout.	Circumplex model with active / passive on Y axis and negative / positive on X axis.	Simple to use and measures emotional response over time.	Requires software More time consuming than simpler tools.
Emo Cards Desmet, Overbeeke and Tax 2001	• Research *(including competitor product analysis)* • Ideation *(including concept selection)* • Development *(including prototyping)* •	Emo Cards provide a non-verbal method for users to self-report their emotions. Flash cards or single sheet of a paper.	Yes, to allow consumers to self-report emotional response to furniture objects and experiences.	Yes, simple	Based on work by Desmet, Overbeeke and Tax (2001)	Quick and easy to use.	No longer, available, superseded by PrEmo and other tools by the Delft Institute of Positive Design.
Product Emotion Measuring Instrument (PrEmo) Desmet 2002	• Research *(including competitor product analysis)* • Ideation *(including concept selection)* • Development *(including prototyping)*	Picture and animation based interactive program / application. Card set + A.R app	Yes, to allow consumers to self-report emotional response to furniture objects and experiences.	Yes (no language barriers)	Varying strengths of 14 different emotions	Easy to use, with professional appearance. Well developed, tested and used in industry. Range of blue-chip clients.	
Product Attachment Scale Mugge, Schifferstein, and Schoormans 2004 Schifferstein and Pelgrim 2008	• Research *(including competitor product analysis)* • Development *(including prototyping)* • Commercialisation	Quantitative Method to assess consumer-product attachment	Yes, to understand what existing furniture is retained and why.	Respondent surveys can be simple and accessible. Research analysis very technical, not suitable for most	Quantitative data	Useful to understand attachment. Existing products can be analysed to understand factors that consumers are attached to.	Requires software and statistical analysis. A longer period of time is required than quick self-report methods.

					designers or students.	Prototypes could be given to consumers to identify how attached they become to them over time.	
Geneva Emotion Wheel Scherer 2005	• Research *(including competitor product analysis)* • Ideation *(including concept selection)* • Development *(including prototyping)*	Simple wheel graph can be completed with pen and paper.	Yes, to allow consumers to self-report response to furniture objects and experiences.	Yes (but would need translating for non-English speakers)	*'discrete emotion terms corresponding to emotion families that are systematically aligned in a circle'* Control on the Y axis and Valence on the X axis allow respondent to select strength of emotion.	Simple layout, easy to complete.	No obvious digital version found.
User Compass Chart (UCC) Sperling, Kristav, Olander, Lekeberg, Eriksson 2006	• Research *(including competitor product analysis)* • Ideation *(including concept selection)* • Development *(including prototyping)* •	A simple chart allows consumers to place products based on their opinion.	Yes, to allow consumers to self-report emotional response to furniture objects and experiences.	Yes, simple	Criteria is bespoke depending on project.	Quick and easy to use. Can be designed specifically for project/product.	Measures subjective opinion, largely focusing on aesthetic value.
The Emotion Slider Laurans, Desmet, and Hekkert 2009	• Research *(including competitor product analysis)* • Ideation *(including concept selection)* • Development *(including prototyping)* •	Computer program and physical slider that allows participant to self-report their emotion over a period of time, e.g., watching a video.	Yes, to allow consumers to self-report emotional response to furniture objects and experiences.	Yes, simple to use.	Positive/negative push pull.	Simple to use and measures emotional response over time.	Requires software and hardware. Not commercially available.
LEMtool Huisman, Hout, Dijk, Geest, Heylen 2013	• Research *(including competitor product analysis)* • Ideation *(including concept selection)* • Development *(including prototyping)*	Interactive program that allows users to self-report emotions whilst experiencing a website or other stimuli.	Yes, to allow consumers to self-report emotional response to furniture objects and experiences.	Yes, simple graphic only format with cartoon style illustrations that represent emotions.	4 positive and 4 negative emotions selected from earlier study.	Very accessible and allows quick consumer response	Lack of nuance in emotion selection. Limited to just 8 emotions.
Emotion Capture Cards (ECC) Ozkaramanli, Fokkinga, Desmet, Balkan, and George 2013	• Research *(including competitor product analysis)* • Ideation *(including concept selection)* • Development *(including prototyping)*	*'two-stage experience-sampling tool and relies on assisted self-report'*	Yes, although requires support from researchers. Yes, to allow consumers to self-report emotional response to furniture	Yes, simple pen and paper copies.	Anecdotal feedback from consumers.	Good qualitative feedback and comments leading to insight, over simple emotion reporting	Time consuming and relies on support from researchers

Tool name, Author and Date	What **stage of the design process** can the tool be applied?	What **format** does the tool take?	Suitable for **Furniture Design?**	Is the tool **accessible** in terms of language and style?	What **data, theory, research** is used?	Advantages	Disadvantages
			objects and experiences.				
Pick-A-Mood Desmet, Vastenburg, and Romero 2016	• Research *(including competitor product analysis)* • Ideation *(including concept selection)* • Development *(including prototyping)* •	*'character-based pictorial scale for mood expression and measurement'*	Yes, to allow consumers to self-report emotional response to furniture objects and experiences.	Yes, simple format with cartoon style illustrations that represent emotions.	4 positive and 4 negative emotions selected from earlier study.	Very accessible and allows quick consumer response	Lack of nuance in emotion selection
RCEA: Real-time, Continuous Emotion Annotation for Collecting Precise Mobile Video Ground Truth Labels Zhang, El Ali, Wang, Hanjalic, Cesar 2020	• Research *(including competitor product analysis)* • Ideation *(including concept selection)* • Development *(including prototyping)*	*'real-time, continuous emotion annotation technique for mobile video watching'*	Yes, to allow consumers to self-report emotional response to furniture objects and experiences.	Yes, if used with video.	Positive, negative, valance, arousal.	Ability to measure emotions over period of experience, not just once.	Not widely available for personal / commercial use.

Tool name, Author and Date	What **stage of the design process** can the tool be applied?	What **format** does the tool take?	Suitable for **Furniture Design?**	Is the tool **accessible** in terms of language and style?	What **data, theory, research** is used?	Advantages	Disadvantages
Education / Inspiration Tool							
The [product and emotion] Navigator Desmet 2003 No longer available	• Education • Ideation *(including concept selection)*	Database of case-study examples to illustrate the patterns of eliciting conditions that underly 14 distinct product relevant emotions.	Yes, furniture designers would benefit from a good understanding of how emotions are elicited.	Yes (may need translating for non-English speakers)	Based on work by Desmet et al.	Accessible to designers and students with good practical examples.	No longer available online. Replaced by newer resources.
RealPeople Porter, Chhibber, Porter and Healey 2005	• Research *(including competitor product analysis)* • Ideation *(including concept selection)*	DVD of content that allows designers to select a user group and the view *'statistically validated information concerning particular groups' generic attitudes towards products'*	Unknown, however it's likely that content will be too broad and no specific enough.	Yes, aimed specifically at designers.	Quantitative and qualitative data from interviews with participants.	Good for initial stage of research, possibly providing insight to target market attitudes.	Lack of specificity and time-consuming. Not widely available for personal / commercial use.
Emotion Rainbow Desmet 2013	• Education • Ideation *(including concept selection)*	Online database to explore positive emotions in relation to human-product interactions	Yes, furniture designers would benefit from a good understanding of emotions.	Yes (may need translating for non-English speakers)	Based on work by Desmet (2012) to identify 25 positive emotions in human-product interactions.	Very accessible to designers and students. Fun, interactive online model.	Fun approach can take time to navigate and explore. Limited amount of information.

Slow Design Book of Inspiration Grosse-Hering, Mason, Aliakseyeu, Bakker, Desmet 2013	• Education • Ideation *(including concept selection)*	Free downloadable *'Book of Inspiration can act as a resource for designers who are interested in the Slow Design principles'*	Yes, furniture designers would benefit from a good understanding of slow design.	Yes (may need translating for non-English speakers)	Based on work by Grosse-Hering, Mason, Aliakseyeu, Bakker and Desmet (2013)	Accessible to designers and students with good practical examples. 7 slow design principles explained.	Main case-study examples may be difficulty to translate to own design.
Negative Emotion Typology including the Rich Experience quality cards Fokkinga 2015	• Education • Ideation *(including concept selection)*	Database of 36 negative emotions and suggested 'rich experience qualities'	Yes, furniture designers would benefit from a good understanding of negative emotions.	Yes (may need translating for non-English speakers)	List of words and definitions alongside examples including video clips.	Very accessible to designers and students. Effective design. Useful for both education and design inspiration	Focuses specifically on negative emotions. Many illustrated examples concentrate on interactions that do not focus on a human-product interaction.
Positive Emotional Granularity Cards Yoon, Pohlmeyer, and Desmet 2015	• Education • Ideation *(including concept selection)*	Free downloadable Card-Set with emotion definitions and illustrated examples of experience.	Yes, furniture designers would benefit from a good understanding of emotions.	Yes (may need translating for non-English speakers)	Based on work by Desmet (2012) to identify 25 positive emotions in human-product interactions.	Very accessible to designers and students. Effective graphic design and clear illustrations. Useful for both education and design inspiration	Focuses specifically on positive emotions. Limited amount of information. Many illustrated examples concentrate on interactions that do not focus on a human-product interaction.
EmotionPrism Yoon, Pohlmeyer and Desmet 2017	• Education • Ideation *(including concept selection)*	Online database of video clips showing a human interacting with a cube in 25 different ways, representing 25 different 'interaction qualities' of positive emotions.	Yes, designers could use the tool to consider different positive emotion interactions.	Yes	25 Positive Emotions based on research by Desmet.	Potentially useful to educate and inspire designers and student for nuanced understanding of emotion.	Limited practical application. Difficult to translate into furniture design.
Design for Happiness Deck Delft Institute of Positive Design (Pohlmeyer, Yoon and Desmet.) 2017	• Education • Ideation *(including concept selection)*	Free downloadable set of cards	Yes, furniture designers would benefit from a good understanding of nuanced happiness emotions.	Yes (may need translating for non-English speakers)	Based on the Positive Design framework developed by Pieter Desmet and Anna Pohlmeyer (2013, 2017)	Very accessible to designers and students. Fun, interactive illustrated cards.	Limited amount of information.
Product Emotion Inspiration Booklet Desmet 2018	• Education • Ideation *(including concept selection)*	Downloadable booklet of over 700 examples of human-product interactions that evoke emotion.	Limited use. Only to reflect on range of emotions.	Yes (may need translating for non-English speakers)	Anecdotal data	Simple design and some nice product examples. A basic starting point.	Limited amount of information or suggested strategies.

Tool name, Author and Date	What **stage of the design process** can the tool be applied?	What **format** does the tool take?	Suitable for **Furniture Design?**	Is the tool **accessible** in terms of language and style?	What **data, theory, research** is used?	Advantages	Disadvantages
Emotional Durability Design Nine Haines-Gadd, Chapman, Lloyd, Mason and Aliakseyeu 2018	• Education • Research *(including competitor product analysis)* • Ideation *(including concept selection)* • Development *(including prototyping)*	Card set consisting of nine themes and 38 strategies allowing designers to explore the integration of emotional durability into product development.	Yes, the themes and strategies can be considered in the design of furniture.	Yes	Developed through literature review, including earlier research by Chapman.	Comprehensive overview of emotional design strategies presented in a clear, simple way. Can also be used to justify design decisions / intent.	Designers may require further information to translate the themes and strategies into their own work.
Twenty moods: A holistic typology of human mood states Desmet, Xue, and Fokkinga 2020	• Education • Ideation *(including concept selection)*	Free downloadable booklet that *'offers design professionals with a fine-grained overview, a rich vocabulary, and pictorial descriptions of user mood states.'*	Yes, furniture designers would benefit from a good understanding of mood states.	Yes (may need translating for non-English speakers)	Based on work by Xue, Desmet and Fokkinga (2020)	Very accessible to designers and students. Clear, graphic, illustrated style.	Perhaps more difficult to apply practically.

Tool name, Author and Date	What **stage of the design process** can the tool be applied?	What **format** does the tool take?	Suitable for **Furniture Design?**	Is the tool **accessible** in terms of language and style?	What **data, theory, research** is used?	Advantages	Disadvantages
Non-Verbal Assessment Tool							
EmoTools Bustillo 2007	• Research *(including competitor product analysis)* • Ideation *(including concept selection)* • Development *(including prototyping)* •	Package of modules including eye-tracking and polygraphic data capture.	Yes, if images or video of designs shown on screen.	Yes	Physiological	Doesn't rely on user having to self-report emotions.	Requirement for software, hardware and environment set up.
FaceReader Noldus 2020	• Research *(including competitor product analysis)* • Ideation *(including concept selection)* • Development *(including prototyping)* •	Software that uses a camera to analyse facial expression and emotions.	Yes, if images or video of designs shown on screen.	Yes	Physiological	Doesn't rely on user having to self-report emotions.	Requirement for software, hardware and environment set up. Not commercially available.
Visage Technologies Face Tracking Visage Technologies 2020	• Research *(including competitor product analysis)* • Ideation *(including concept selection)* • Development *(including prototyping)*	Software that uses camera to analyse facial expression and emotions as well as age and gender estimation.	Yes, if images or video of designs shown on screen.	Yes	Physiological	Doesn't rely on user having to self-report emotions.	Requirement for software, hardware and environment set up.
Emotiv Epoc Emotiv 2020	• Research *(including competitor product analysis)*	Hardware (headset) that uses EEG to analyse brain activity and emotions.	Yes, if images or video of designs shown on screen.	Yes	Physiological	Doesn't rely on user having to self-report emotions.	Requirement for software, hardware and environment set up.

	• Ideation *(including concept selection)* • Development *(including prototyping)*						
iMotions Software iMotions 2020	• Research *(including competitor product analysis)* • Ideation *(including concept selection)* • Development *(including prototyping)*	Software which can include integration of Eye Tracking, Facial Expression Analysis, Electrodermal Activity / Galvanic Skin Response, EEG, EMG, and ECG hardware.	Yes, if images or video of designs shown on screen.	Yes	Physiological	Doesn't rely on user having to self-report emotions.	Requirement for software, hardware and environment set up.
Affectiva Human Perception AI Affectiva 2020	• Research *(including competitor product analysis)* • Ideation *(including concept selection)* • Development *(including prototyping)*	Software that uses camera to analyse facial expression and emotions as well as age and gender estimation.	Yes, if images or video of designs shown on screen.	Yes	Physiological	Doesn't rely on user having to self-report emotions.	Requirement for software, hardware and environment set up.
Emotion Research Lab Emotion Research Lab 2020	• Research *(including competitor product analysis)* • Ideation *(including concept selection)* • Development *(including prototyping)*	Software that uses camera to analyse facial expression and emotions as well as age and gender estimation.	Yes, if images or video of designs shown on screen.	Yes	Physiological	Doesn't rely on user having to self-report emotions.	Requirement for software, hardware and environment set up.
Emotion Recognition Software and F.A.C.E API SightCorp 2020	• Research *(including competitor product analysis)* • Ideation *(including concept selection)* • Development *(including prototyping)*	Software that uses camera to analyse facial expression and emotions as well as age and gender estimation.	Yes, if images or video of designs shown on screen.	Yes	Physiological	Doesn't rely on user having to self-report emotions.	Requirement for software, hardware and environment set up.

Appendix 2 PhD Gantt Chart Extract

MPhil/PhD Gantt Chart	start	end	0h	58%
MPhil/PhD Proposal & Literature Review	**21/09/18**	**02/12/19**	**0h**	**100%**
Meeting with DW/DH	21/09	21/09	0	100%
Enrolled onto MPhil/PhD	01/10	01/10	0	100%
Proposal Draft 1	26/10	26/10	0	100%
Meeting with DW/DH	07/12	07/12	0	100%
Proposal Draft 2	25/01	25/01	0	100%
Complete Literature Review	01/03	29/11	0	100%
Writing & Structuring an Effective Thesis (...	14/03	14/03	0	100%
Meeting with DW/DH	11/04	11/04	0	100%
Meeting with DW (Teams)	17/10	17/10	0	100%
Meeting with DW/DH	02/12	02/12	0	100%
Complete ESR	**02/12/19**	**23/10/20**	**0h**	**100%**
Complete ESR Portfolio 1st Draft for DW/DH	02/12	06/03	0	100%
Await feedback on 1st Draft	09/03	16/03	0	100%
Meeting with DW	17/03	17/03	0	100%
Meeting with DH	03/04	03/04	0	100%
Complete ESR Portfolio 2nd Draft for DW/...	18/03	27/05	0	100%
Meeting with DW	28/05	28/05	0	100%
Make further changes & submit ESR Portfol...	28/05	17/06	0	100%
Meeting with DH/DW	04/06	04/06	0	100%
Complete ESR Portfolio V3 for DW/DH	04/06	26/06	0	100%
Schedule and Prepare for ESR Interview	18/06	21/10	0	100%
Complete ESR Interview	23/10	23/10	0	100%
Methodology Section V1	**09/03/21**	**31/08/23**	**0h**	**25%**
Create Visual Framework	09/03	02/04	0	100%
Write Introduction including Visual Framewo...	31/03	30/06	0	100%
Main sections, e.g. survey, ethics, philosop...	31/03	30/06	0	100%
Meeting with JP/DW	07/07	07/07	0	100%
Methodology Version 2 Updates & Additions	08/07	31/08	0	100%
Ongoing Methodology Updates	08/07	31/08	0	0%
RO1 - Identify trends in the types of furnitu...	**17/11/20**	**26/05/22**	**0h**	**99%**
Meeting with DW	17/11	17/11	0	100%
Meeting with DW	16/12	16/12	0	100%
Meeting with JP	15/01	15/01	0	100%
Meeting with DW	25/01	25/01	0	100%
Meeting with JP	09/03	09/03	0	100%
Consumer Survey	**09/03/21**	**02/12/21**	**0h**	**100%**
Plan survey type & delivery method	09/03	19/03	0	100%
Plan and write questions	09/03	05/04	0	100%
Meeting with JP	31/03	31/03	0	100%
Pilot Survey opens/closes	06/04	16/04	0	100%
Plan ethical approval	22/03	30/04	0	100%
Meeting with JP/DW	21/04	21/04	0	100%
Main Survey opens/closes	14/05	10/06	0	100%
Analyse findings	12/07	16/09	0	100%
Analyse male vs female findings	12/07	02/12	0	100%
Write up findings	26/07	02/12	0	100%
• Analysis of online databases including...	**18/10/21**	**02/12/21**	**0h**	**100%**
Analysis of online material to support sur...	18/10	02/12	0	100%
Plan LR1 - Furniture Icons	**27/12/21**	**28/01/22**	**0h**	**86%**
Collate content for LR1	27/12	21/01	0	90%

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Appendix 3 Trend Report Titles

Trend Reports used in the thesis:

1. **MADE.COM:** The 2021 WFH Interior Trends Report.
2. **Modsy:** 2021 Modsy Trend Report
3. **Mordor Intelligence:** Global Furniture Market (2020 - 2025)
4. **WGSN by Ascential:** The Value Shift, The consumer drivers and recession-proof strategies for a post-pandemic world.
5. **WGSN: Buyers' Briefing 2022:** Furniture & Lighting
6. **WGSN:** Design Shanghai 2021:Trend Analysis
7. **WGSN:** Furniture & Lighting: 10 Key Trends for 2021
8. **WGSN:** Intelligence: Sustainable Furniture
9. **WGSN:** Key Trend: Lounging Around
10. **WGSN:** Key Trends: The Dynamic Home Office
11. **WGSN:** Maison & Objet Digital Days 2021: Trend Analysis
12. **WGSN:** Maison & Objet September 2021: Trend Analysis
13. **WGSN:** Milan Design Week 2021: Trend Analysis
14. **WGSN:** Supersalone 2021: Trend Analysis

Appendix 4 Consumer Pilot Survey

Preview   Publish

Furniture Survey - Emotional Design

ExpertReview score   Great

▾   Default Question Block

Q41   •••

Thank you for taking the time to complete this survey. For more information about the purpose of the survey, including how the data will be used and handled, please visit the Survey Information Sheet by clicking this link: https://bit.ly/3dv0pXc

Your responses will be anonymised.

＋ Add page break

Q1

▾   🎛 **Skip to**

End of Survey   if   No   Is Selected

Do you have a favourite piece of furniture in your home?
(this can include things like chairs, tables, desks, storage and bedroom furniture)

◯ Yes

◯ No

------------------------------------- Page Break -------------------------------------

Q2   ✳

▾   🔀 **Display this question**

If   Do you have a favourite piece of furniture in your home? (this can include things like chairs, t...   Yes   Is Selected

Of all the furniture you own, which room is your favourite piece of furniture situated?

◯ Living Room

◯ Dining Room

◯ Home Office

◯ Bedroom

◯ Kitchen

◯ Bathroom

◯ Garden

◯ Hallway

◯ Other

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Q3

Is your favourite piece of furniture the focal point of your room?

○ Yes

○ No

Q4

Of all the furniture you own, which category does your favourite piece of furniture fall into?

○ Chairs & Seating

○ Desks & Tables

○ Storage

○ Beds

Q5

▾ ↪ Display this question

If   Of all the furniture you own, which category does your favourite piece of furniture fall into?   Chairs & Seating   Is Selected

Which of the following categories does your favourite chair or seating fall into?

○ Sofa

○ Armchair

○ Occasional Chair

○ Office Chair

○ Garden Chair

○ Stool

○ Rocking Chair

○ Bench

○ Other

Q6

Which of the following categories does your favourite desk or table fall into?

○ Dining Table

○ Coffee Table

○ Side Table / Bedside Table

○ Console Table

○ Desk

○ Dressing Table

○ Garden / Patio Table

Q7

Which of the following categories does your favourite item of storage furniture fall into?

○ Bookcase

○ Wardrobe

○ Display Cabinet

○ Sideboard

○ Chest of Drawers

○ Filing Cabinet

○ TV Stand or Audio Visual Cabinet

○ Kitchen Larder

○ Shoe Rack and/or Coat/Umbrella Stand

○ Drinks Cabinet / Trolley

○ Other

Q8

Which of the following categories does your favourite bed fall into?

○ Bed with Bedframe

○ Divan Bed

○ Storage Bed

○ Sofa Bed

○ Bunk Bed

○ Other

-- Page Break --

Q40

Narrative

Q10

How long have you owned this piece of furniture?

○ Less than 1 Year

○ 1 - 3 Years

○ 3 - 5 Years

○ 5 - 10 Years

○ More than 10 Years

Q11

 How did you acquire this item?

○ I bought it myself, or we bought it as a family

○ I received it as a gift

○ I received it as 'hand me down'

○ I inherited it

279

Q12

Would you ever replace this item?

○ Yes

○ No

Q13

Is the item in any way damaged, broken or worn?

○ Yes

○ No

-- Page Break --

Q39

Understanding why

Q14

Why is this item your favourite?
(you can select more than one)

☐ The way it looks

☐ What it does

☐ What it means to me

-- Page Break --

Q38

Aesthetics

Q15

Do you love the way it looks?

○ Yes

○ To some extent

○ No

Q42

> **⤷ Display this question**
>
> If   Do you love the way it looks?   Yes   Is Selected

Why do you love the way it looks?

Q43

> **⤷ Display this question**
>
> If   Do you love the way it looks?   No   Is Selected

Why don't you love the way it looks?

Q16

Is the item's design simple, with little decoration, or ornate?

- ○ The item is very simple with no decoration
- ○ The item is fairly simple with little decoration
- ○ The item is fairly decorative
- ○ The item is very decorative / ornate

Q17

What materials is the item made from?
(you can select more than one)

- ☐ Wood (including real wood & manufactured board e.g MDF)
- ☐ Metal
- ☐ Glass
- ☐ Plastic
- ☐ Upholstered fabric and/or Leather
- ☐ Paper, Wicker or Cardboard
- ☐ Marble, Stone or Corian

Q37

Function

Q20

Do you love what it does?

○ Yes

○ To some extent

○ No

Q44

▼ ⤷ Display this question

If   Do you love what it does?   Yes   Is Selected

Why do you love what it does?

Q45

▼ ⤷ Display this question

If   Do you love what it does?   No   Is Selected

Why don't you love what it does?

282

Q21

Does it have one single function, or does it do more than one thing?

○ It has just one function

○ It has more than one function

Q22

Is there anything special about the way the item functions? E.g. hidden compartments, adjustable parts etc?

○ Yes

○ No

---------------------------------- Page Break ----------------------------------

Q36

Meaning

Q49

Do you love what the item means to you?

○ Yes

○ To some extent

○ No

Q46

▼ 🔁 Display this question

If   Do you love what the item means to you?   Yes   Is Selected

Why do you love what the item means to you?

[   ]

Q24

Why don't you love what the item means to you?

Q25

Do you associate the item with a particular place other than your home?

○ Yes

○ No, I only associate this item with my home

Q26

Do you associate the item with a particular event?

○ Yes

○ No

------------------------------- Page Break -------------------------------

Q35

About you

Q27

What is your gender?

○ Male

○ Female

○ Non-binary / third gender

○ Prefer not to say

Q28

How old are you?

○ 16-24

○ 25-34

○ 35-44

○ 45-54

○ 55-64

○ 65+

○ Prefer not to say

Q30

What is your household income?

○ < £15,000

○ £15,000 - £19,999

○ £20,000 - £29,999

○ £30,000 - £39,999

○ £40,000 - £49,999

○ £50,000 - £59,999

○ £60,000 - £69,999

○ £70,000 - £99,999

○ £100,000 - £149,999

○ £150,000 +

○ Prefer not to say

Q31

What is your marital or civil partnership status?

○ Never married and never registered a same-sex civil partnership

○ Married

○ In a registered same-sex civil partnership

○ Separated, but still legally married

○ Separated, but still legally in a same-sex civil partnership

○ Divorced

○ Formerly in a same-sex civil partnership which is now legally dissolved

○ Widowed

○ Surviving partner from a same-sex civil partnership

○ Prefer not to say

Q32

Do you have any children?

○ No

○ Yes 1 -3

○ Yes 4+

○ Prefer not to say

Q47

Finally, do you think there are any ethical issues with this survey? or any questions that made you feel uncomfortable?

○ No

○ Yes

Q48

▾ 🔁 Display this question

If Finally, do you think there are any ethical issues with this survey? or any questions that made y... Yes Is Selected

Please can you describe the questions that made you feel uncomfortable, or any ethical issues with this survey.

📖 Import from library   ➕ Add new question

Add Block

End of Survey

Thank you for taking the time to complete this survey.

For more information about the purpose of the survey, including how

the data will be used and handled, please visit the Survey Information

Sheet by clicking here

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Appendix 5 Consumer Survey

Preview   Publish

Furniture Survey - Emotional Design - DLD 2021

💡 ExpertReview score Great

▾ Default Question Block

Q41 •••

Thank you for taking the time to complete this survey. For more information about the purpose of the survey, including how the data will be used and handled, please visit the Survey Information Sheet by clicking this link: https://bit.ly/3dv0pXc

Your responses will be anonymised.

+ Add page break

Q1

▾ 🎧 Skip to

End of Survey if No Is Selected

Do you have a favourite piece of furniture in your home?
(this can include things like chairs, tables, desks, storage and bedroom furniture)

○ Yes

○ No

-------------------------------- Page Break --------------------------------

Q2 ✳

▾ 🔗 Display this question

If Do you have a favourite piece of furniture in your home? (this can include things like chairs, t... Yes Is Selected

Of all the furniture you own, which room is your favourite piece of furniture situated?

○ Living Room

○ Dining Room

○ Home Office

○ Bedroom

○ Kitchen

○ Bathroom

○ Garden

○ Hallway

○ Other

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Q3

Is your favourite piece of furniture the focal point of your room?

○ Yes

○ No

Q4

Of all the furniture you own, which category does your favourite piece of furniture fall into?

○ Chairs & Seating

○ Desks & Tables

○ Storage

○ Beds

Q5

↳ **Display this question**

If   Of all the furniture you own, which category does your favourite piece of furniture fall into?   Chairs & Seating   Is Selected

Which of the following categories does your favourite chair or seating fall into?

○ Sofa

○ Armchair

○ Occasional Chair

○ Office Chair

○ Garden Chair

○ Stool

○ Rocking Chair

○ Bench

○ Other

Q6

Which of the following categories does your favourite desk or table fall into?

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○ Coffee Table

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○ Console Table

○ Desk

○ Dressing Table

○ Garden / Patio Table

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○ Filing Cabinet

○ TV Stand or Audio Visual Cabinet

○ Kitchen Larder

○ Shoe Rack and/or Coat/Umbrella Stand

○ Drinks Cabinet / Trolley

○ Other

Q8

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○ Bed with Bedframe

○ Divan Bed

○ Storage Bed

○ Sofa Bed

○ Bunk Bed

○ Other

-- Page Break --

Q40

Narrative

Q10

How long have you owned this piece of furniture?

○ Less than 1 Year

○ 1 - 3 Years

○ 3 - 5 Years

○ 5 - 10 Years

○ More than 10 Years

Q11

 How did you acquire this item?

○ I bought it myself, or we bought it as a family

○ I received it as a gift

○ I received it as 'hand me down'

○ I inherited it

○ I got it via Freecycle or similar

Q12

Would you ever replace this item?

○ Yes

○ No

Q13

Is the item in any way damaged, broken or worn?

○ Yes

○ No

------------------------------------ Page Break ------------------------------------

Q39

Understanding why

Q14

Why is this item your favourite?
(you can select more than one)

☐ The way it looks

☐ What it does

☐ What it means to me

------------------------------------ Page Break ------------------------------------

Q38

Aesthetics

Q15

Do you love the way it looks?

○ Yes

○ To some extent

○ No

Q42

Why do you love the way it looks?

Q43

Why don't you love the way it looks?

Q16

Is the item's design simple, with little decoration, or ornate?

○ The item is very simple with no decoration

○ The item is fairly simple with little decoration

○ The item is fairly decorative

○ The item is very decorative / ornate

Q17

What materials is the item made from?
(you can select more than one)

☐ Wood (including real wood & manufactured board e.g MDF)

☐ Metal

☐ Glass

☐ Plastic

☐ Upholstered fabric and/or Leather

☐ Paper, Wicker or Cardboard

☐ Marble, Stone or Corian

Q37

Function

Q20

Do you love what it does?

○ Yes

○ To some extent

○ No

Q44

> **Display this question**
>
> If   Do you love what it does?   Yes   Is Selected

Why do you love what it does?

Q45

> **Display this question**
>
> If   Do you love what it does?   No   Is Selected

Why don't you love what it does?

Q21

Does it have one single function, or does it do more than one thing?

○ It has just one function

○ It has more than one function

Q22

Is there anything special about the way the item functions? E.g. hidden compartments, adjustable parts etc?

○ Yes

○ No

-------------------------------- Page Break --------------------------------

Q36

Meaning

Q49

Do you love what the item means to you?

○ Yes

○ To some extent

○ No

Q46   ·̣· ⭑

▼ ⤷ Display this question

If   Do you love what the item means to you?   Yes   Is Selected

Why do you love what the item means to you?

```



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Q24

Why don't you love what the item means to you?

Q25

Do you associate the item with a particular place other than your home?

○ Yes

○ No, I only associate this item with my home

Q26

Do you associate the item with a particular event?

○ Yes

○ No

Q51

Do you associate the item with another person?

○ Yes

○ No

---------------------------------- Page Break ----------------------------------

Q35

About you

Q27

What is your gender?

○ Male

○ Female

○ Non-binary / third gender

○ Prefer not to say

Q28

How old are you?

○ 16-24

○ 25-34

○ 35-44

○ 45-54

○ 55-64

○ 65+

○ Prefer not to say

Q30

What is your household income?

○ < £15,000

○ £15,000 - £19,999

○ £20,000 - £29,999

○ £30,000 - £39,999

○ £40,000 - £49,999

○ £50,000 - £59,999

○ £60,000 - £69,999

○ £70,000 - £99,999

○ £100,000 - £149,999

○ £150,000 +

○ Prefer not to say

Q31

What is your marital or civil partnership status?

- ○ Never married and never registered a same-sex civil partnership
- ○ Married
- ○ In a registered same-sex civil partnership
- ○ Separated, but still legally married
- ○ Separated, but still legally in a same-sex civil partnership
- ○ Divorced
- ○ Formerly in a same-sex civil partnership which is now legally dissolved
- ○ Widowed
- ○ Surviving partner from a same-sex civil partnership
- ○ Prefer not to say

Q32

Do you have any children?

- ○ No
- ○ Yes 1 -3
- ○ Yes 4+
- ○ Prefer not to say

[Import from library] [+ Add new question]

Add Block

End of Survey

Thank you for taking the time to complete this survey.

For more information about the purpose of the survey, including how

the data will be used and handled, please visit the Survey Information

Sheet by clicking here

Appendix 6 Designer Survey Pilot
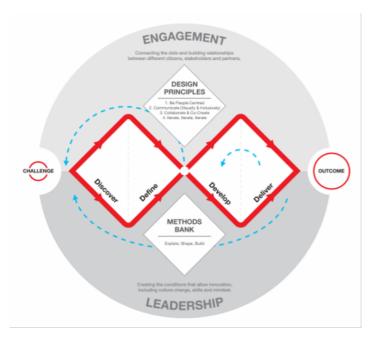
Preview   Publish

Designer Survey - Emotional Design - DLD Autumn 2022

ExpertReview score   Fair

▾   Block 1 - Double Diamond

•••

Thank you for taking the time to complete this survey. For more information about the purpose of the survey, including how the data will be used and handled, please visit the Survey Information Sheet by clicking here

Your responses will be anonymised.

-------------------------------- Page Break --------------------------------

The Design Council's framework for Innovation (The Double Diamond)

Have you heard of the above design tool?

○ Yes
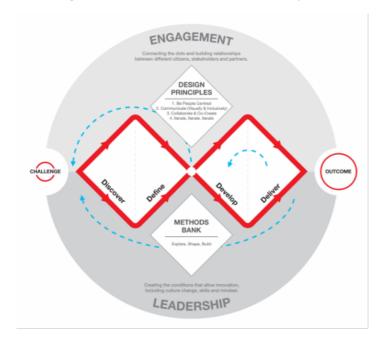
○ No

○ Click to write Choice 3

○ Click to write Choice 4

○ Click to write Choice 5

Q9

The Design Council's framework for Innovation (The Double Diamond)

Have you ever used the tool in your design process, either whilst in education, or professionally?

○ Yes

○ No

Approximately how many times have you used the tool?

○ 1-3 times

○ 4-6 times

○ 7 or more times

Display this question

If   Have you ever used the tool in your design process, either whilst in education, or professionally?   Yes   Is Selected

Do you think it helps with the design process?

○ Yes

○ No

Display this question

If   Do you think it helps with the design process?   Yes   Is Selected

How does the tool help with the design process?

Display this question

If   Do you think it helps with the design process?   No   Is Selected

Why doesn't the tool help with the design process?

Display this question

If   Have you ever used the tool in your design process, either whilst in education, or professionally?   Yes   Is Selected

Do you return to this tool, or remember it's content without the need to return?

○ I return to this tool

○ I remember it's content without the need to return

Import from library   + Add new question

Add Block

Block 2 - MAYA

The MAYA Principle (Most Advanced, Yet Acceptable) Raymond Loewy

M A Y A
MOST   ADVANCED   YET   ACCEPTABLE

Have you heard of the above design tool?

○ Yes

○ No

Display this question

If Have you heard of the above design tool? Yes Is Selected

The MAYA Principle (Most Advanced, Yet Acceptable) Raymond Loewy

M A Y A
MOST   ADVANCED   YET   ACCEPTABLE

Display this question

If Have you heard of the above design tool? Yes Is Selected

Have you ever used the tool in your design process, either whilst in education, or professionally?

○ Yes

○ No

303

Approximately how many times have you used the tool?

○ 1-3 times

○ 4-6 times

○ 7 or more times

Do you think it helps with the design process?

○ Yes

○ No

How does the tool help with the design process?

Why doesn't the tool help with the design process?

304

If   Have you ever used the tool in your design process, either whilst in education, or professionally?   Yes   Is Selected

Do you return to this tool, or remember it's content without the need to return?

◯ I return to this tool

◯ I remember it's content without the need to return

Import from library   + Add new question

Add Block

Block 3 - IDEO Method Cards IDEO (2003)

IDEO Method Cards IDEO (2003)

Have you heard of the above design tool?

◯ Yes

◯ No

IDEO Method Cards IDEO (2003)

Have you ever used the tool in your design process, either whilst in education, or professionally?

○ Yes

○ No

Approximately how many times have you used the tool?

○ 1-3 times

○ 4-6 times

○ 7 or more times

Display this question

If   Have you ever used the tool in your design process, either whilst in education, or professionally?   Yes   Is Selected

Do you think it helps with the design process?

○ Yes

○ No

Display this question

If   Do you think it helps with the design process?   Yes   Is Selected

How does the tool help with the design process?

Display this question

If   Do you think it helps with the design process?   No   Is Selected

Why doesn't the tool help with the design process?

Display this question

If   Have you ever used the tool in your design process, either whilst in education, or professionally?   Yes   Is Selected

Do you return to this tool, or remember it's content without the need to return?

○ I return to this tool

○ I remember it's content without the need to return

Import from library   + Add new question

Add Block

307

Design for Happiness Deck. Delft Institute of Positive Design (Pohlmeyer, Yoon and Desmet.) (2017)

Have you heard of the above design tool?

○ Yes

○ No

If   Have you heard of the above design tool?   Yes   Is Selected

Design for Happiness Deck. Delft Institute of Positive Design (Pohlmeyer, Yoon and Desmet.) (2017)

If   Have you heard of the above design tool?   Yes   Is Selected

Have you ever used the tool in your design process, either whilst in education, or professionally?

○ Yes

○ No

If   Have you ever used the tool in your design process, either whilst in education, or professionally?   Yes   Is Selected

Approximately how many times have you used the tool?

○ 1-3 times

○ 4-6 times

○ 7 or more times

Display this question

If Have you ever used the tool in your design process, either whilst in education, or professionally? Yes Is Selected

Do you think it helps with the design process?

○ Yes

○ No

Display this question

If Do you think it helps with the design process? Yes Is Selected

How does the tool help with the design process?

Display this question

If Do you think it helps with the design process? No Is Selected

Why doesn't the tool help with the design process?

Display this question

If Have you ever used the tool in your design process, either whilst in education, or professionally? Yes Is Selected

Do you return to this tool, or remember it's content without the need to return?

○ I return to this tool

○ I remember it's content without the need to return

[Import from library] [+ Add new question]

Add Block

310

▼ STAGE 2 – RESPONDENT TOOLS

Are there any other tools, processes or frameworks that you use in your design process?

○ Yes

○ No

🔅

▼ ↳ **Display this question**

If   Are there any other tools, processes or frameworks that you use in your design process?   Yes   Is Selected

Please can you provide a little more information about that tool? (name/description)

[text area]

▲   🖥 Import from library   ➕ Add new question

Add Block

▼ STAGE 3 - EMOTIONAL DESIGN TOOLS

Are you aware of Emotional Design?

○ Yes

○ No

▼ ↳ **Display this question**

If   Are you aware of Emotional Design?   Yes   Is Selected

Have you used any tools, processes or frameworks to consider Emotional Design in your design process?

○ Yes

○ No

311

Do you think a tool that helps consider Emotional Design in the Design process could be useful to you?

○ Yes

○ No

Display this question

If   Are you aware of Emotional Design?   Yes   Is Selected

Do you think a tool that helps consider Emotional Design, specifically in the design of Furniture could be useful?

○ Yes

○ No

       Import from library   + Add new question

Add Block

STAGE 4 – FORMAT

Design tools can take many different formats. If you were to use a design tool in your design process, which format would you prefer?

Please re-order the following types of tools with your favourite at the top.

Simple Acronym	1
Card Set (images and words on physical cards, purchased or downloaded and printed)	2
Process Diagram or Flowchart	3
App	4

312

Please can you explain the reason for your choice of favourite format?

Import from library   + Add new question

Add Block

End of Survey

Thank you for taking the time to complete this survey.

For more information about the purpose of the survey, including how

the data will be used and handled, please visit the Survey Information

Sheet by clicking here

Appendix 7 Designer Survey

Preview   Publish

Designer Survey - Emotional Design - DLD Autumn 2022 - MAIN
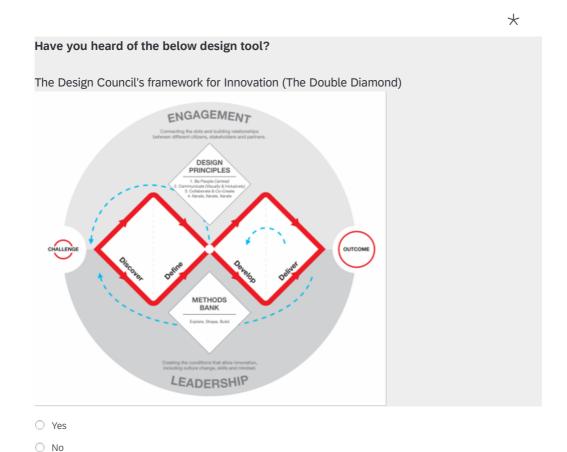
💡 ExpertReview score   Fair

▾   Block 1 - Double Diamond

•••

Thank you for taking the time to complete this survey. For more information about the purpose of the survey, including how the data will be used and handled, please visit the Survey Information Sheet by clicking here

Your responses will be anonymised.

------------------------------ Page Break ------------------------------

✱

Have you heard of the below design tool?

The Design Council's framework for Innovation (The Double Diamond)

○ Yes

○ No

Q46 ✳

Where did you first hear about the Design Council's framework for Innovation (The Double Diamond)

○ Whilst at University, or in education

○ Whilst working in the Design Industry

○ In my own research/reading

○ Other

✳

The Design Council's framework for Innovation (The Double Diamond)

Have you ever used the tool in your design process, either whilst in education, or professionally?

○ Yes

○ No

Display this question

If The Design Council's framework for Innovation (The Double Diamond)   Have you ever used the tool...   Yes   Is Selected

Approximately how many times have you used the tool?

○ 1-3 times

○ 4-6 times

○ 7 or more times

Display this question

If The Design Council's framework for Innovation (The Double Diamond)   Have you ever used the tool...   Yes   Is Selected

Do you think it helps with the design process?

○ Yes

○ No

Display this question

If Do you think it helps with the design process?   Yes   Is Selected

How does the tool help with the design process?

Display this question

If Do you think it helps with the design process?   No   Is Selected

Why doesn't the tool help with the design process?

Display this question

If   The Design Council's framework for Innovation (The Double Diamond)   Have you ever used the tool...   Yes   Is Selected

Do you return to this tool, or remember it's content without the need to return?

○ I return to this tool

○ I remember it's content without the need to return

▢ Import from library   + Add new question

Add Block

Block 2 - MAYA

*

Have you heard of the below design tool?

The MAYA Principle (Most Advanced, Yet Acceptable) Raymond Loewy

M A Y A

MOST   ADVANCED   YET   ACCEPTABLE

○ Yes

○ No

Q47   *

Display this question

If   Have you heard of the below design tool? The MAYA Principle (Most Advanced, Yet Acceptable) Raymo...   Yes   Is Selected

Where did you first hear about the MAYA Principle (Most Advanced, Yet Acceptable)

○ Whilst at University, or in education

○ Whilst working in the Design Industry

○ In my own research/reading

○ Other

The MAYA Principle (Most Advanced, Yet Acceptable) Raymond Loewy

M A Y A

MOST   ADVANCED   YET   ACCEPTABLE

Have you ever used the tool in your design process, either whilst in education, or professionally?

○ Yes

○ No

Approximately how many times have you used the tool?

○ 1-3 times

○ 4-6 times

○ 7 or more times

Do you think it helps with the design process?

○ Yes

○ No

Display this question

If   Do you think it helps with the design process?   Yes   Is Selected

How does the tool help with the design process?

Display this question

If   Do you think it helps with the design process?   No   Is Selected

Why doesn't the tool help with the design process?

Display this question

If   The MAYA Principle (Most Advanced, Yet Acceptable) Raymond Loewy Have you ever used the tool in y...   Yes   Is Selected
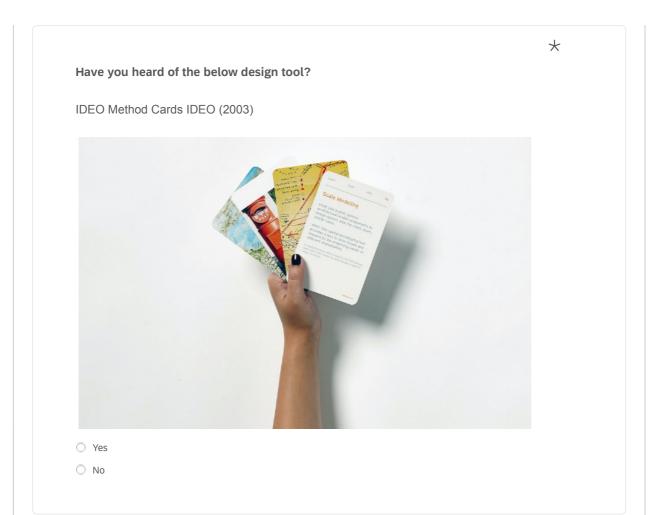
Do you return to this tool, or remember it's content without the need to return?
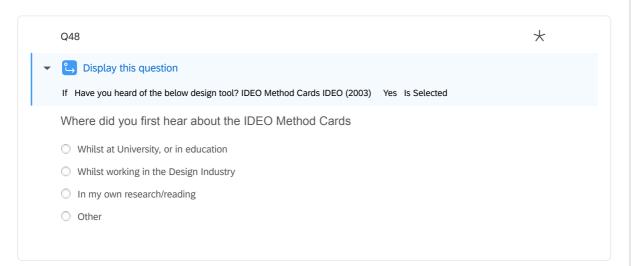
○   I return to this tool

○   I remember it's content without the need to return

Import from library   + Add new question

Add Block

Block 3 - IDEO Method Cards IDEO (2003)

320

Have you heard of the below design tool?

IDEO Method Cards IDEO (2003)

○ Yes

○ No

Q48

▾ ⤷ **Display this question**

If   Have you heard of the below design tool? IDEO Method Cards IDEO (2003)   Yes   Is Selected

Where did you first hear about the IDEO Method Cards

○ Whilst at University, or in education

○ Whilst working in the Design Industry

○ In my own research/reading

○ Other

IDEO Method Cards IDEO (2003)

Have you ever used the tool in your design process, either whilst in education, or professionally?

○ Yes

○ No

Approximately how many times have you used the tool?

○ 1-3 times

○ 4-6 times

○ 7 or more times

Do you think it helps with the design process?

○ Yes

○ No

If   Do you think it helps with the design process?   Yes   Is Selected

How does the tool help with the design process?

If   Do you think it helps with the design process?   No   Is Selected

Why doesn't the tool help with the design process?

If   IDEO Method Cards IDEO (2003) Have you ever used the tool in your design process, either whilst i...   Yes   Is Selected

Do you return to this tool, or remember it's content without the need to return?

- ○ I return to this tool
- ○ I remember it's content without the need to return

Import from library   + Add new question

Add Block

Block 4 - Design for Happiness Deck. Delft Institute of Positive Design (Pohlmeyer, Yoon and Desmet.) (2017)

323

Have you heard of the below design tool?

Design for Happiness Deck. Delft Institute of Positive Design (Pohlmeyer, Yoon and Desmet.) (2017)

○ Yes

○ No

Q49

▼ 🔁 Display this question

If Have you heard of the below design tool? Design for Happiness Deck. Delft Institute of Positive D... Yes Is Selected

Where did you first hear about the Design for Happiness Deck

○ Whilst at University, or in education

○ Whilst working in the Design Industry

○ In my own research/reading

○ Other

Display this question

Design for Happiness Deck. Delft Institute of Positive Design (Pohlmeyer, Yoon and Desmet.) (2017)

Have you ever used the tool in your design process, either whilst in education, or professionally?

○ Yes

○ No

Display this question

Approximately how many times have you used the tool?

○ 1-3 times

○ 4-6 times

○ 7 or more times

Display this question

If Design for Happiness Deck. Delft Institute of Positive Design (Pohlmeyer, Yoon and Desmet.) (2017... Yes Is Selected

Do you think it helps with the design process?

○ Yes

○ No

Display this question

If Do you think it helps with the design process? Yes Is Selected

How does the tool help with the design process?

Display this question

If Do you think it helps with the design process? No Is Selected

Why doesn't the tool help with the design process?

Display this question

If Design for Happiness Deck. Delft Institute of Positive Design (Pohlmeyer, Yoon and Desmet.) (2017... Yes Is Selected

Do you return to this tool, or remember it's content without the need to return?

○ I return to this tool

○ I remember it's content without the need to return

Import from library   + Add new question

Add Block

STAGE 2 – RESPONDENT TOOLS

⁎

Are there any other tools, processes or frameworks that you use in your design process?

○ Yes

○ No

💡 ⁎

▾ ↳ **Display this question**

If   Are there any other tools, processes or frameworks that you use in your design process?   Yes   Is Selected

Please can you provide a little more information about that tool? (name/description)

[ ]

▾   📖 Import from library   + Add new question

Add Block

STAGE 3 - EMOTIONAL DESIGN TOOLS

⁎

▾ 🔀 **Skip to**

Thank you for taking the time to comp...   if   I don't think so   Is Selected

▾ 🔀 **Skip to**

Thank you for taking the time to comp...   if   Definitely not   Is Selected

Are you aware of Emotional Design?

○ Yes, definitely

○ To some extent

○ I don't think so

○ Definitely not

-- Page Break --

327

Have you used any tools, processes or frameworks to consider Emotional Design in your design process?

- ○ Yes
- ○ No

✳

Do you think a tool that helps consider Emotional Design in the Design process could be useful to you?

- ○ Yes, definitely
- ○ To some extent
- ○ I don't think so
- ○ Definitely not

✳

Do you think a tool that helps consider Emotional Design, specifically in the design of Furniture could be useful?

- ○ Yes, definitely
- ○ To some extent
- ○ I don't think so
- ○ Definitely not

------------------------------------ Page Break ------------------------------------

💡

| 🔀 Skip destination | Go to skip origin |
| 🔀 Skip destination | Go to skip origin |

Thank you for taking the time to complete this survey. **If you'd like be kept in the loop about this developing research, or you'd like to be involved in upcoming creative workshops, please enter your email address below.**

[   ]

▲   📖 Import from library   ＋ Add new question

Add Block

End of Survey

Thank you for taking the time to complete this survey.

328

For more information about the purpose of the survey, including how

the data will be used and handled, please visit the Survey Information

Sheet by clicking here

Appendix 8 Semi-structured Consumer Interview Structure

Semi-Structured Consumer Interview Plan

Stage 1

Location/Environment

Can you describe where this item of furniture sits within your home?
- What does it bring to the room?
(This investigates further the show-stealer vs support act concept)

- Has it always been in this room or do you move it around?
(Partly narrative based but relevant in terms of adaptability etc)

Function

- Do you like the way it functions?
(why?)
- Does it have perfect functionality or could it be improved?
- Do you use it in different ways or just one?
- What activities does it facilitate?

Stage 2

Aesthetics

- Do you like the way it looks?
(why?)
- Style
- Decoration
- Materials

Stage 3

Narrative

- How long have you owned the piece of furniture?
- Has your relationship with it changed over time?

- How did you acquire it?
- Does the way you acquired it play a part in your relationship with it?
- *Dependant answer route: Showroom experience?*
- *Dependant answer route: If flatpack did you build yourself*
- *Dependant answer route: Building experience good or bad?*
- *Dependant answer route: Assembly and disassembly when moving?*

- Would you ever replace this item?
(Why? Why not?)

- Is the item in perfect condition or is it at all broken, damaged or worn?
(if broken, damaged or worn – does this change the way you feel about it?)
(if perfect – would you feel differently about it if it was damaged, broken or worn?)

Other furniture you'd be more worried about getting damaged?

Meaning

- What does the item mean to you?
- Can you tell me more about the associations?
- Places
- People
- Events

Stage 4

Story

- Is there a story behind this object?
- Can you tell me more about your connection to it?

Place/World

- How does it make you feel?
- How would you feel if this object wasn't there?
- What world does the object transport you to? Or how does it add to your world at home?

Stage 5

Please order these values in terms of importance to you when thinking about furniture.

- Sustainability (it's important that furniture is made sustainably)
- Comfort (it's important that furniture is comfortable)
- Adaptability (it's important that furniture can adapt to different spaces or uses)
- Iconic (it's important that furniture has an iconic style)
- Minimalism (it's important that furniture is minimal and uncomplicated)
- Togetherness (it's important that furniture fosters social togetherness)
- Natural Influence (it's important that furniture is influenced by nature)
- Digital Influence (it's important that furniture is influenced by the digital world)

Please rate these items of furniture based on your preference, 1 being your favourite.

8 images to represent:

- Sustainability
- Comfort
- Adaptability
- Iconic
- Minimalism
- Togetherness
- Natural Influence
- Digital Influence

Stage 6

- **Any other comments**

- **Thank you for your time**

Appendix 9 Interview Information Sheet

Interview Information Sheet

Research project title: How can Emotional Design be used to create furniture that people love?

Research investigator: Daniel Lewis

What is the purpose of the study?

This study focuses on individual interviews which will explore the reasons that people love particular furniture focusing on three key themes.

The research aim: How can Emotional Design be used to create furniture that people love?

Objectives

1. Identify trends in the types of furniture that consumers own and love, as well as furniture which is now considered 'iconic'.

2. Examine existing research to determine Emotional Design strategies that can be used by designers to create furniture that people love.

3. Analyse existing tools that support Designers in their work, focusing on Emotional Design tools, but also other design tools or processes to establish key strengths and weaknesses.

4. Synthesize findings regarding furniture types, existing Emotional Design strategies, and existing tools to create a specification for a new tool.

5. Build and Test a tool for Designers that supports them in the design process to create furniture that people love.

Why have I been invited to take part?

Several interviews will be conducted to gain an understanding of the types of furniture people love and the associated reasons. It is important that the interviews are completed by a range of people that may purchase furniture. You have indicated that you are willing to share your opinions relevant to this research.

What will happen if I take part in the Interview? What will happen to the results of the study?

The semi-structured interview will take approximately 45 minutes to complete. Interviews will take place at a mutually convenient location at an agreed time.
The interview results will be anonymised before being presented as part of the PhD research, leading to possible publication, the information provided will be combined with other sources of information to assist in the development of a criteria which will be used to inform the development of a model of best practice. The verbal recordings of the transcripts of the interviews will be stored for up to two years for audit purposes and then destroyed.

Do I have to take part in the Interview? What if I change my mind about taking part?

No, Participation is completely voluntary. You should only take part if you want to, and choosing not to take part will not disadvantage you in anyway. Once you have read the information sheet, please contact me if you have any questions that will help you decide about taking part. If you decide to take part, I will ask you to sign a consent form and you will be given a copy of the consent form to keep. If you change your mind about taking part, you are free withdraw from the study at any point and do not have to complete the interview.

What are the possible risks of taking part?

There are no risks in taking part in this interview.

What are the possible benefits of taking part?

There are no specific intended benefits for the participant however people with an interest in design may find the interview interesting.

Data Handling and Confidentiality

Your data will be processed in accordance with the data protection law and will comply with the General Data Protection Regulation 2016 (GDPR).
All participants will be coded in any transcripts for the purpose of anonymity. However, for the purpose of sampling a general reference will be made to your role and unless requested a link to the individuals name in the methodology.
• Data will not be shared outside of the EU.

• Data will only be shared within the research team.

• Data will be anonymised and retained or archived for 2 years after it has been collected.

Your data will be processed in accordance with the General Data Protection Regulation 2016 (GDPR).

The data controller for this project will be Staffordshire University. The university will process your personal data for the purpose of the research outlined above. The legal basis for processing your personal data for research purposes under the GDPR is a 'task in the public interest'. You can provide your consent for the use of your personal data in this study by completing the consent form that has been provided to you.

You have the right to access information held about you. Your right of access can be exercised in accordance with the GDPR. You also have other rights including rights of correction, erasure, objection, and data portability. Questions, comments and requests about your personal data can also be sent to the Staffordshire University Data Protection Officer. If you wish to lodge a complaint with the Information Commissioner's Office, please visit www.ico.org.uk.

Who should I contact for further information?

This research has been reviewed and approved by Staffordshire University Research Ethics Board. If you have any further questions or concerns about this study, please contact:

Daniel Lewis
Staffordshire University,
College Road,
Stoke-on-Trent
Staffordshire
ST4 2DE
UK
01782 295753
dan.lewis@staffs.ac.uk

You can also contact Daniel Lewis's supervisor:
David Webb
Staffordshire University,
College Road,
Stoke-on-Trent
Staffordshire
ST4 2DE
UK
01782 294769
D.A.Webb@staffs.ac.uk

What if I have further questions, or concerns?

If you are worried about this research, or if you are concerned about how it is being conducted, you can contact the Staffordshire University Ethics Committee: ethics@staffs.ac.uk

Thank you for reading this information sheet and for considering taking part in this research.

Appendix 10 Interview Consent Form

Interview Consent Form

Research project title: How can Emotional Design be used to create furniture that people love?

Research investigator: Daniel Lewis

Research Participants name: _____

The interview will take a maximum of 1 hour. We don't anticipate that there are any risks associated with your participation, but you have the right to stop the interview or withdraw from the research at any time.

Thank you for agreeing to be interviewed as part of the above research project. Ethical procedures for academic research undertaken from UK institutions require that interviewees explicitly agree to being interviewed and how the information contained in their interview will be used. This consent form is necessary for us to ensure that you understand the purpose of your involvement and that you agree to the conditions of your participation. Please therefore read the accompanying information sheet and then sign this form to certify that you approve the following:

- the interview will be recorded and a transcript will be produced
- on request, you will be sent the transcript and given the opportunity to correct any factual errors.
- the transcript of the interview will be analysed by Daniel Lewis as research investigator.
- access to the interview transcript will be limited to Daniel Lewis and his supervisors.
- any summary interview content, or direct quotations from the interview, that are made available through academic publication or other academic outlets will be anonymised so that you cannot be identified, and care will be taken to ensure that other information in the interview that could identify yourself is not revealed.
- the actual recording will be kept securely on a password protected computer for 2 years. The recording will be coded for anonymity.
- any variation of the conditions above will only occur with your further explicit approval
- All or part of the content of your interview may be used; In academic papers, policy papers, news articles, websites and in other media that we may produce such as spoken presentations.

By signing this form, I agree that;
1. I am voluntarily taking part in this project. I understand that I don't have to take part, and I can stop the interview at any time;
2. The transcribed interview or extracts from it may be used as described above;
3. I have read the Information sheet;
4. I don't expect to receive any benefit or payment for my participation;
5. I can request a copy of the transcript of my interview and may make edits I feel necessary to ensure the effectiveness of any agreement made about confidentiality;

6. I have been able to ask any questions I might have, and I understand that I am free to contact the researcher with any questions I may have in the future.

Participants Signature _____ **Date**_____

Researchers Signature _____ **Date**_____

Contact Information

This research has been reviewed and approved by Staffordshire University Research Ethics Board. If you have any further questions or concerns about this study, please contact:

Daniel Lewis
Staffordshire University,
College Road,
Stoke-on-Trent
Staffordshire
ST4 2DE
UK
01782 295753
dan.lewis@staffs.ac.uk

You can also contact Daniel Lewis's supervisor:
David Webb
Staffordshire University,
College Road,
Stoke-on-Trent
Staffordshire
ST4 2DE
UK
01782 294769
D.A.Webb@staffs.ac.uk

What if I have concerns about this research?

If you are worried about this research, or if you are concerned about how it is being conducted, you can contact the Staffordshire University Ethics Committee:
ethics@staffs.ac.uk

Appendix 11 Ethical Approval

RESEARCH ETHICS
Proportionate Review Form

The Proportionate Review process may be used where the proposed research raises only minimal ethical risk. This research must: focus on minimally sensitive topics; entail minimal intrusion or disruption to others; and involve participants who would not be considered vulnerable in the context of the research.

PART A: TO BE COMPLETED BY RESEARCHER

Name of Researcher:	Daniel Lewis
School	Digital, Technologies & Arts

Student/Course Details (If Applicable)		
Student ID Number:	17025732	
Name of Supervisor(s)/Module Tutor:	Jess Power / David Webb / David Hawkins	
PhD/MPhil project:	☒	
Taught Postgraduate Project/Assignment:	☐	Award Title:
Undergraduate Project/Assignment:	☐	Module Title:

Project Title:	How can Emotional Design be used to create furniture that people love?
Project Outline:	MPhil/PhD research project that will involve a series of research objectives: 1. Identify trends in the types of furniture that consumers own and love, as well as furniture which is now considered 'iconic'. 2. Examine existing research to determine Emotional Design strategies that can be used by designers to create furniture that people love. 3. Analyse existing tools that support Designers in their work, focusing on Emotional Design tools, but also other design tools or processes to establish key strengths and weaknesses. 4. Synthesize findings regarding furniture types, existing Emotional Design strategies, and existing tools to create a specification for a new tool. 5. Build and Test a tool for Designers that supports them in the design process to create furniture that people love. (Visual Framework outlining 3 phases of the research project is attached)
Give a brief description of participants and procedure (methods, tests etc.)	4 main activities involving participants/respondants will be carried out as part of the research project: 1) Online Consumer Survey (Opens 14/5/21, Closes 31/5/21) Qualtrics online survey for quantitative and qualitative data collection.

	Convenience sample with snowball method with participants identified through existing networks. Pilot survey has been completed by friends and family to identify any possible ethical issues. Additional 'prefer not to say' options have been added. Survey Information sheet is included. 2) 1-1 Semi-structured Consumer Interviews (13/9/21 - 11/11/21) Face-to-face interviews will be arranged through known networks and from Consumer Survey. A combination of methods with be used to record the interviews, including video recordings and note taking. Interview information sheet and consent form are included. 3) Online Designer Survey (Opens 16/5/22, Closes 1/6/22) Qualtrics online survey for quantitative and qualitative data collection. Purposive sample with snowball method with participants identified through existing networks. Survey will include Survey Information Sheet. Pilot survey will be completed to identify any possible ethical issues. 4) Design Event / Charette (5/12/22) In-person Design Event to be held in order to test Design Tool. Purposive sample with snowball method with participants identified through existing networks. Design Event will include Information Sheet and Consent Form. Pilot event with students may be used to develop the days agenda.
Expected Start Date:	14/5/2021 **Expected End Date:** 5/12/2022

Relevant professional body ethical guidelines should be consulted when completing this form.

Please seek guidance from the School Ethics Coordinator if you are uncertain about any ethical issues arising from this application.

There is an obligation on the researcher and supervisor (where applicable) to bring to the attention of the School Ethics Coordinator any issues with ethical implications not identified by this form.

Researcher Declaration

I consider that this project has no significant ethical implications requiring full ethical review	☒

I confirm that:	
1.	The research will **NOT** involve members of vulnerable groups. Vulnerable groups include but are not limited to: children and young people (under 18 years of age), those with a learning disability or cognitive impairment, patients, people in custody, people engaged in illegal activities (e.g. drug taking), or individuals in a dependent or unequal relationship.	☒
2.	The research will **NOT** involve sensitive topics. Sensitive topics include, but are not limited to: participants' sexual behaviour, their illegal or political behaviour, their experience of violence, their abuse or exploitation, their mental health, their gender or ethnic status. The research must not involve groups where permission of a gatekeeper is normally required for initial access to members, for example, ethnic or cultural groups, native peoples or indigenous communities.	☒
3.	The research will **NOT** deliberately mislead participants in any way.	☒
4.	The research will **NOT** involve access to records of personal or confidential information,	☒

	including genetic or other biological information, concerning identifiable individuals.	
5.	The research will **NOT** induce psychological stress, anxiety or humiliation, cause more than minimal pain, or involve intrusive interventions. This includes, but is not limited to: the administration of drugs or other substances, vigorous physical exercise, or techniques such as hypnotherapy which may cause participants to reveal information which could cause concern, in the course of their everyday life.	☒
6.	The research **WILL** be conducted with participants' full and informed consent at the time the study is carried out: • The main procedure will be explained to participants in advance, so that they are informed about what to expect. ☒ • Participants will be told their involvement in the research is voluntary. ☒ • Written consent will be obtained from participants. *(This is not required for self-completion questionnaires as submission of the completed questionnaire implies consent to participate).* ☐ • Participants will be informed about how they may withdraw from the research at any time and for any reason. ☒ • For questionnaires and interviews: Participants will be given the option of omitting questions they do not want to answer. ☒ • Participants will be told that their data will be treated with full confidentiality and that, if published, every effort will be made to ensure it will not be identifiable as theirs. ☒ • Participants will be given the opportunity to be debriefed i.e. to find out more about the study and its results. ☒	YES ☒ N/A ☐
7.	A risk assessment has been completed for this research project	YES ☐ N/A ☒

If you are unable to confirm any of the above statements, please complete a **Full Ethical Review Form**. If the research will include participants that are **patients,** please complete the Independent Peer Review process.

8. Information and Data Please provide answers to the following questions regarding the handling and storage of information and data:
a) How will research data be stored (manually or electronically)? Data will be stored digitally on a password protected computer. For online surveys, Staffordshire University's chosen survey client, Qualtrics will be used. All responses will be protected by the password protected account.
b) How is protection given to the participants (e.g. by being made anonymous through coding and with a participant identifier code being kept separately and securely)? Data will be processed in accoradnce with the data protection law and will comply with the General Data PRotection Regualtion 2016 (GDPR). All participants will be coded for anonymity.

University Research Ethics Committee (February 2018)

c)	What assurance will be given to the participant about the confidentiality of this data and the security of its storage?
	Participants will be given an information sheet that outlines how data will be collected and coded for anonymity.

d)	Is assurance given to the participant that they cannot be identified from any publication or dissemination of the results of the project?
	Yes, Participants will be given an information sheet that outlines how data will be collected and coded for anonymity.

e)	Who will have access to this data, and for what purposes?
	Dan Lewis, lead researcher and supervisory team. DL with analyse the data to identify trends. The supervisory team will have access to the data to check that analysis is accurate.

f)	How will the data be stored, for how long, and how will it be discarded?
	Data will be stored digitally on a password protected computer. For online surveys, Staffordshire University's chosen survey client, Qualtrics will be used. All responses will be protected by the password protected account. Data will be kept for 10 years before being deleted.

Supporting Documentation

All key documents e.g. consent form, information sheet, questionnaire/interview schedule are appended to this application.	☒

Signature of Researcher:	Dan Lewis	Date:	19/4/2021

NB: If the research departs from the protocol which provides the basis for this proportionate review, then further review will be required and the applicant and supervisor(s) should consider whether or not the proportionate review remains appropriate. If it is no longer appropriate a full ethical review form **MUST** be submitted for consideration by the School Ethics Coordinator .

Next Step:

STUDENTS: Please submit this form (and supporting documentation) for consideration by your Supervisor/ Module Tutor.

STAFF: Please submit this form to your Head of Department or a Senior Researcher in your School. Once they have reviewed the form, this should be forwarded to the Research Administrators in RIIS (ethics@staffs.ac.uk) who will arrange for it to be considered by an independent member of the School's College of Reviewers .

PART B: TO BE COMPLETED BY SUPERVISOR/MODULE TUTOR (If student) OR Head of Department/ Senior Researcher (if staff)

I consider that this project has no significant ethical implications requiring full ethical review by the Faculty Research Ethics Committee.	☐
I have checked and approved the key documents required for this proposal (e.g. consent form, information sheet, questionnaire, interview schedule).	☐

University Research Ethics Committee (February 2018)

Signature of Supervisor/ Head of Department/ Senior Researcher:		Date:	

PART C: TO BE COMPLETED BY A MEMBER OF THE SCHOOL'S COLLEGE OF ETHICAL REVIEWERS

This research proposal has been considered using agreed University Procedures and is now approved. **Or** This research proposal has not been approved due to the reasons given below.	☐ ☐
Recommendation (delete as appropriate): Approve/ Amendments required/ Reject	

Name of Reviewer:		Date:	
Signature:			

Signed (School Ethical Coordinator)		Date:	

School of Digital, Technologies and Arts

ETHICAL APPROVAL FEEDBACK

Researcher name:	Daniel Lewis
Title of Study:	SU_20_150 How can Emotional Design be used to create furniture that people love?
Award Pathway:	PhD
Status of approval:	Approved

Your project **_proposal has been approved_** by the Ethics Panel and you may commence the implementation phase of your study. You should note that any divergence from the approved procedures and research method will invalidate any insurance and liability cover from the University. You should, therefore, notify the Panel of any significant divergence from this approved proposal.

You should arrange to meet with your supervisor for support during the process of completing your study and writing your dissertation.

When your study is complete, please send the ethics committee an end of study report. A template can be found on the ethics BlackBoard site.

The Ethics Committee wish you well with your research.

Signed: **Date: 26th April 2021**

Prof. David Webb

Chair of the Creative Arts Ethics Panel
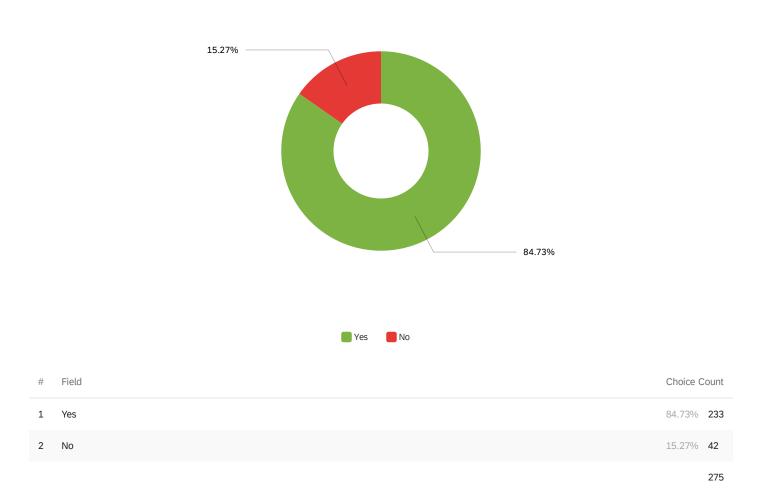
Appendix 12 Consumer Survey Results

Default Report

Furniture Survey - Emotional Design - DLD 2021

July 9, 2021 2:04 PM BST
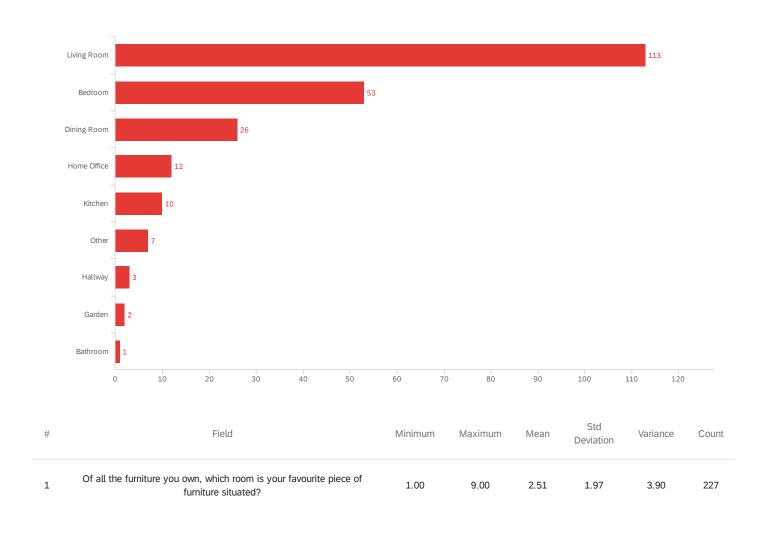
Q1 - Do you have a favourite piece of furniture in your home? (this can include things like

chairs, tables, desks, storage and bedroom furniture)

15.27%

84.73%

■ Yes ■ No

#	Field		Choice Count
1	Yes	84.73%	233
2	No	15.27%	42
			275
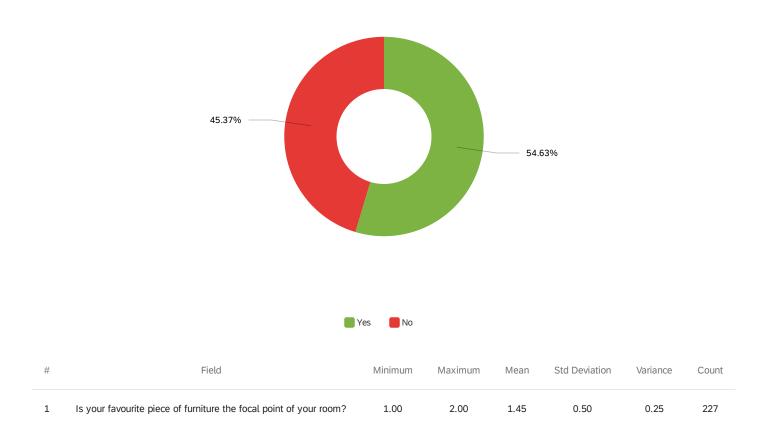
Showing rows 1 - 3 of 3

Q2 - Of all the furniture you own, which room is your favourite piece of furniture situated?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Of all the furniture you own, which room is your favourite piece of furniture situated?	1.00	9.00	2.51	1.97	3.90	227

#	Field		Choice Count
1	Living Room	49.78%	113
4	Bedroom	23.35%	53
2	Dining Room	11.45%	26
3	Home Office	5.29%	12
5	Kitchen	4.41%	10
9	Other	3.08%	7
8	Hallway	1.32%	3
7	Garden	0.88%	2
6	Bathroom	0.44%	1
			227

Q3 - Is your favourite piece of furniture the focal point of your room?

45.37%

54.63%

■ Yes ■ No

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Is your favourite piece of furniture the focal point of your room?	1.00	2.00	1.45	0.50	0.25	227

#	Field	Choice Count	
1	Yes	54.63%	124
2	No	45.37%	103
			227
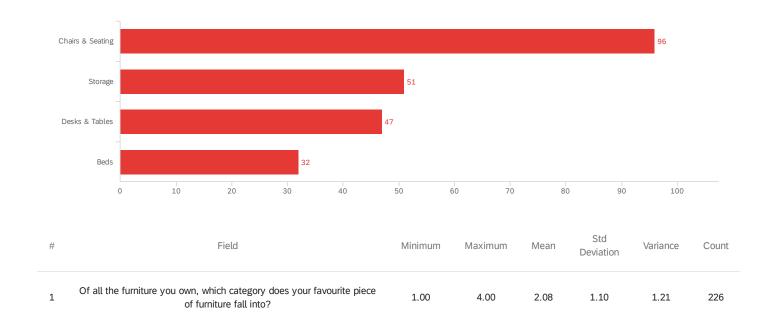
Showing rows 1 - 3 of 3

Q4 - Of all the furniture you own, which category does your favourite piece of furniture fall into?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Of all the furniture you own, which category does your favourite piece of furniture fall into?	1.00	4.00	2.08	1.10	1.21	226
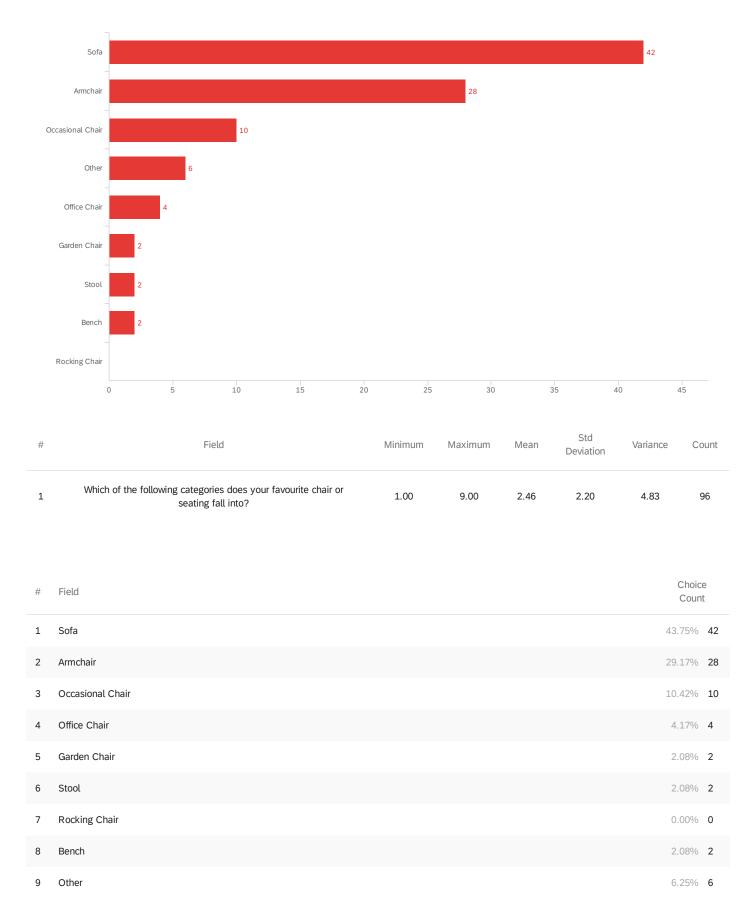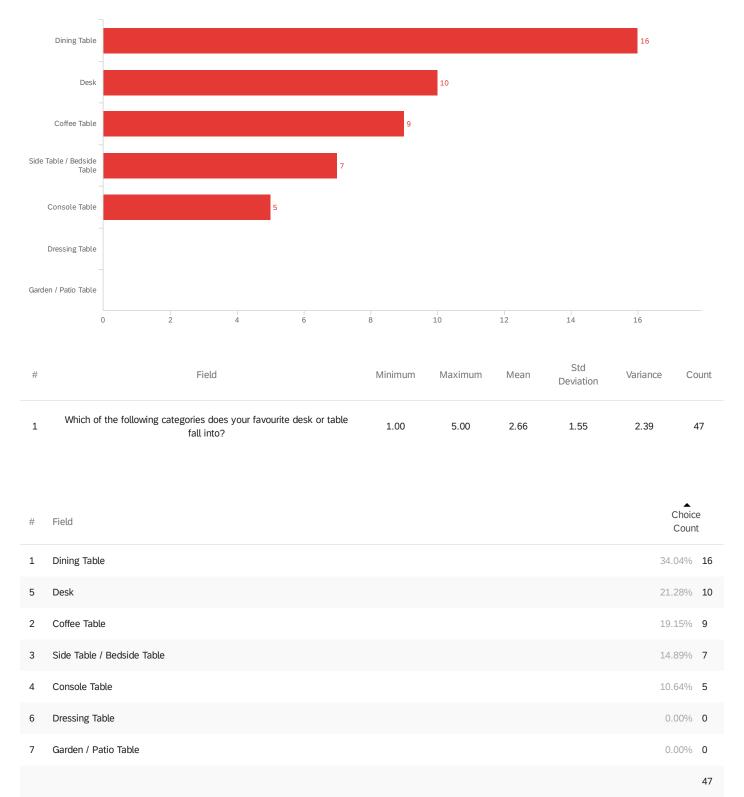
#	Field	Choice Count	
1	Chairs & Seating	42.48%	96
3	Storage	22.57%	51
2	Desks & Tables	20.80%	47
4	Beds	14.16%	32
			226

Showing rows 1 - 5 of 5

Q5 - Which of the following categories does your favourite chair or seating fall into?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Which of the following categories does your favourite chair or seating fall into?	1.00	9.00	2.46	2.20	4.83	96

#	Field	Choice Count	
1	Sofa	43.75%	42
2	Armchair	29.17%	28
3	Occasional Chair	10.42%	10
4	Office Chair	4.17%	4
5	Garden Chair	2.08%	2
6	Stool	2.08%	2
7	Rocking Chair	0.00%	0
8	Bench	2.08%	2
9	Other	6.25%	6

Q6 - Which of the following categories does your favourite desk or table fall into?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Which of the following categories does your favourite desk or table fall into?	1.00	5.00	2.66	1.55	2.39	47

#	Field		Choice Count
1	Dining Table	34.04%	16
5	Desk	21.28%	10
2	Coffee Table	19.15%	9
3	Side Table / Bedside Table	14.89%	7
4	Console Table	10.64%	5
6	Dressing Table	0.00%	0
7	Garden / Patio Table	0.00%	0
			47

Showing rows 1 - 8 of 8

Q7 - Which of the following categories does your favourite item of storage furniture fall into?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Which of the following categories does your favourite item of storage furniture fall into?	1.00	11.00	5.16	2.98	8.88	51

#	Field		Choice Count
3	Display Cabinet	21.57%	11
4	Sideboard	21.57%	11
5	Chest of Drawers	15.69%	8
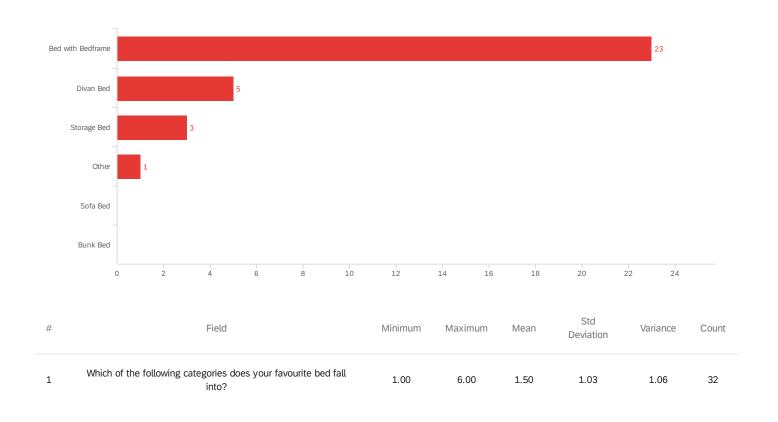
#	Field		Choice Count
11	Other	13.73%	7
7	TV Stand or Audio Visual Cabinet	11.76%	6
1	Bookcase	7.84%	4
2	Wardrobe	3.92%	2
9	Shoe Rack and/or Coat/Umbrella Stand	1.96%	1
10	Drinks Cabinet / Trolley	1.96%	1
6	Filing Cabinet	0.00%	0
8	Kitchen Larder	0.00%	0
			51

Showing rows 1 - 12 of 12
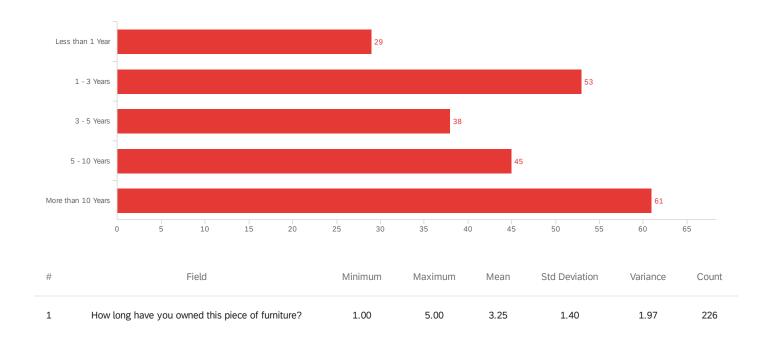
Q8 - Which of the following categories does your favourite bed fall into?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Which of the following categories does your favourite bed fall into?	1.00	6.00	1.50	1.03	1.06	32

#	Field	Choice Count	
1	Bed with Bedframe	71.88%	23
2	Divan Bed	15.63%	5
3	Storage Bed	9.38%	3
6	Other	3.13%	1
4	Sofa Bed	0.00%	0
5	Bunk Bed	0.00%	0
			32

Showing rows 1 - 7 of 7

Q10 - How long have you owned this piece of furniture?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	How long have you owned this piece of furniture?	1.00	5.00	3.25	1.40	1.97	226
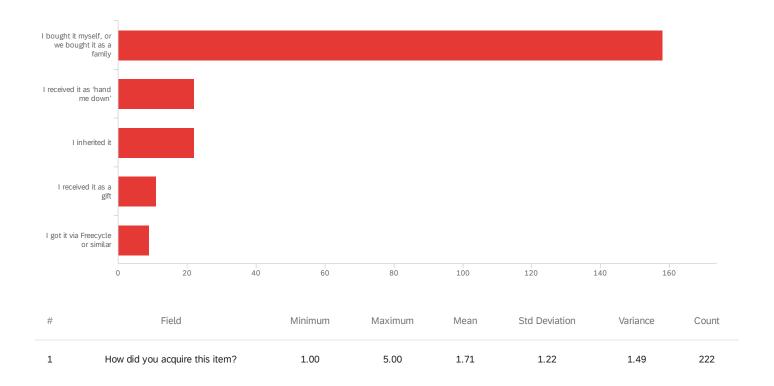
#	Field	Choice Count	
5	More than 10 Years	26.99%	61
2	1 - 3 Years	23.45%	53
4	5 - 10 Years	19.91%	45
3	3 - 5 Years	16.81%	38
1	Less than 1 Year	12.83%	29
			226

Showing rows 1 - 6 of 6

Q11 - How did you acquire this item?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	How did you acquire this item?	1.00	5.00	1.71	1.22	1.49	222
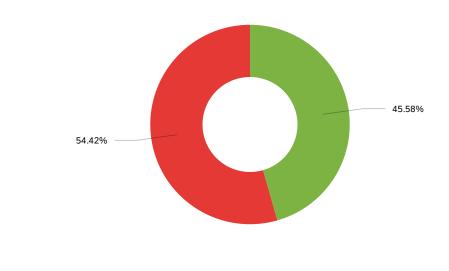
#	Field	Choice Count	
1	I bought it myself, or we bought it as a family	71.17%	158
3	I received it as 'hand me down'	9.91%	22
4	I inherited it	9.91%	22
2	I received it as a gift	4.95%	11
5	I got it via Freecycle or similar	4.05%	9
			222

Showing rows 1 - 6 of 6

Q12 - Would you ever replace this item?

54.42%   45.58%

■ Yes   ■ No
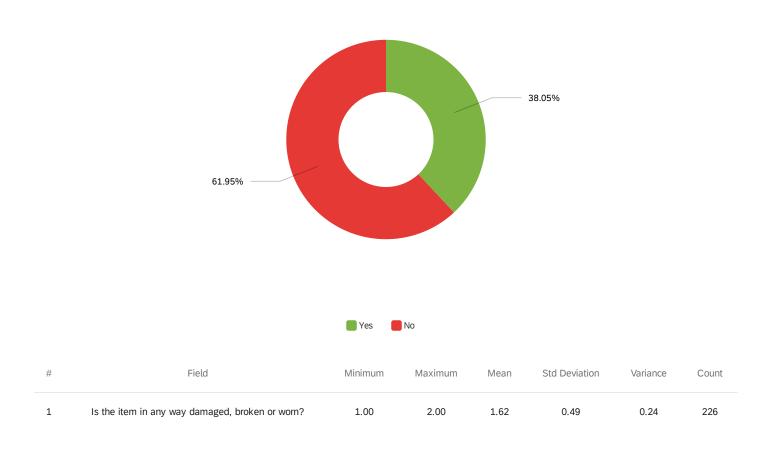
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Would you ever replace this item?	1.00	2.00	1.54	0.50	0.25	226

#	Field		Choice Count
2	No	54.42%	123
1	Yes	45.58%	103
			226

Showing rows 1 - 3 of 3

Q13 - Is the item in any way damaged, broken or worn?

38.05%

61.95%

■ Yes ■ No

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Is the item in any way damaged, broken or worn?	1.00	2.00	1.62	0.49	0.24	226
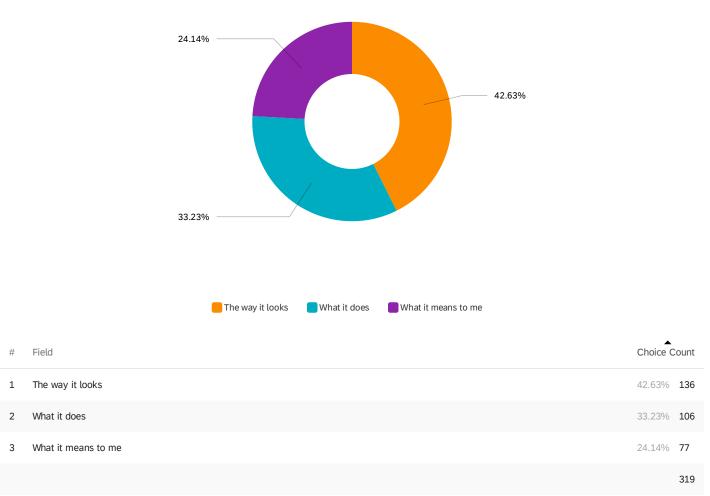
#	Field	Choice Count	
2	No	61.95%	140
1	Yes	38.05%	86
			226
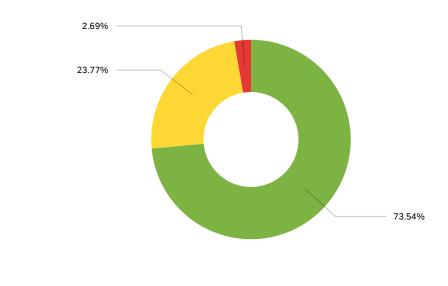
Showing rows 1 - 3 of 3

Q14 - Why is this item your favourite? (you can select more than one)

24.14%

42.63%

33.23%

■ The way it looks   ■ What it does   ■ What it means to me

#	Field		Choice Count
1	The way it looks	42.63%	136
2	What it does	33.23%	106
3	What it means to me	24.14%	77
			319

Showing rows 1 - 4 of 4

362

Q15 - Do you love the way it looks?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Do you love the way it looks?	1.00	3.00	1.29	0.51	0.26	223

#	Field		Choice Count
1	Yes	73.54%	164
2	To some extent	23.77%	53
3	No	2.69%	6
			223

Showing rows 1 - 4 of 4

Q42 - Why do you love the way it looks?

Q43 - Why don't you love the way it looks?

Why don't you love the way it looks?

I say it's my favorite piece of furniture it is the only one that has any real comfort

It is not my favourite colour and is somewhat 80's vibe
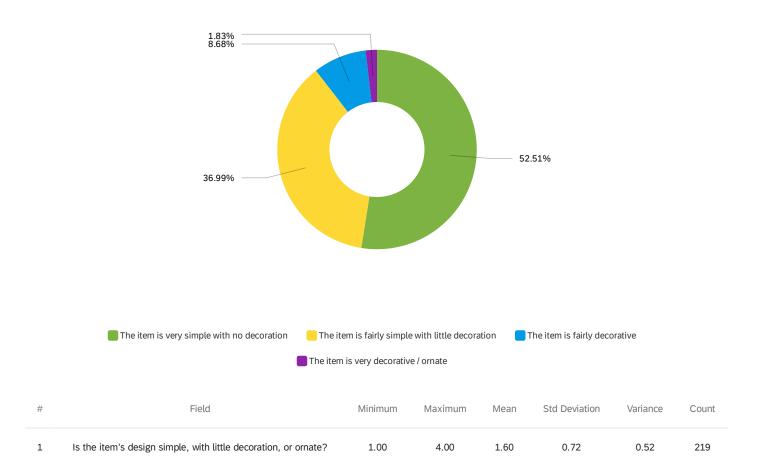
It's not something I would choose based on style and is very worn.

I like it but wouldn't describe that I love the way it looks

Its simple and dated but it was my parents

It is a bit worn now and dated to some extent. It is part of a set of furniture so not ready to replace it just yet

Q16 - Is the item's design simple, with little decoration, or ornate?

- The item is very simple with no decoration
- The item is fairly simple with little decoration
- The item is fairly decorative
- The item is very decorative / ornate

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Is the item's design simple, with little decoration, or ornate?	1.00	4.00	1.60	0.72	0.52	219
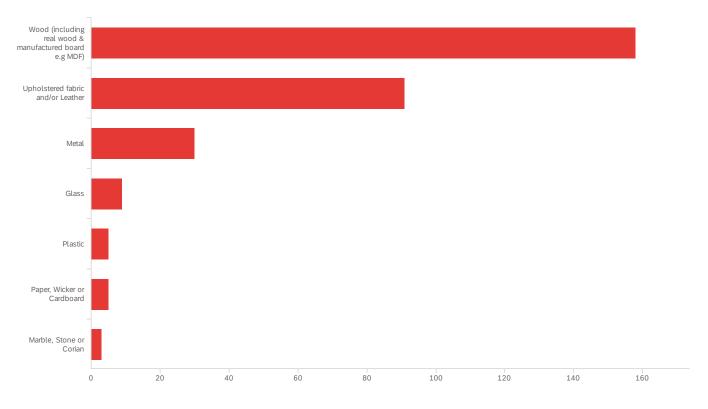
#	Field	Choice Count	
1	The item is very simple with no decoration	52.51%	115
2	The item is fairly simple with little decoration	36.99%	81
3	The item is fairly decorative	8.68%	19
4	The item is very decorative / ornate	1.83%	4
			219

Showing rows 1 - 5 of 5
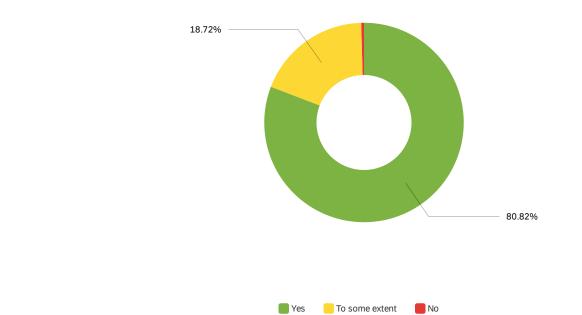
Q17 - What materials is the item made from? (you can select more than one)

#	Field	Choice Count	
1	Wood (including real wood & manufactured board e.g MDF)	52.49%	158
5	Upholstered fabric and/or Leather	30.23%	91
2	Metal	9.97%	30
3	Glass	2.99%	9
4	Plastic	1.66%	5
6	Paper, Wicker or Cardboard	1.66%	5
7	Marble, Stone or Corian	1.00%	3
			301

Showing rows 1 - 8 of 8

Q20 - Do you love what it does?

18.72%

80.82%

■ Yes ■ To some extent ■ No

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Do you love what it does?	1.00	3.00	1.20	0.41	0.17	219

#	Field		Choice Count	
1	Yes	80.82%	177	
2	To some extent	18.72%	41	
3	No	0.46%	1	
			219	

Showing rows 1 - 4 of 4

collection
beautiful extremely hide bring
simple family reading made
big function display ornament
dine memory
relaxation rest fit comfort looks nice
books storeslot comfy feel relaxing
look spacesit item
people comfortable desk
home work large life
practical storage top good
place table bed
serve make room tv loverelax old day
design functional drawers
chair sleep greathouse
sentimental safe stuff easy
kitchen recline things height
hold important
area purpose
friends aesthetic

Q45 - Why don't you love what it does?

Why don't you love what it does?

It isn't that comfortable!

Q21 - Does it have one single function, or does it do more than one thing?

36.87%

63.13%

■ It has just one function   ■ It has more than one function

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Does it have one single function, or does it do more than one thing?	1.00	2.00	1.37	0.48	0.23	217
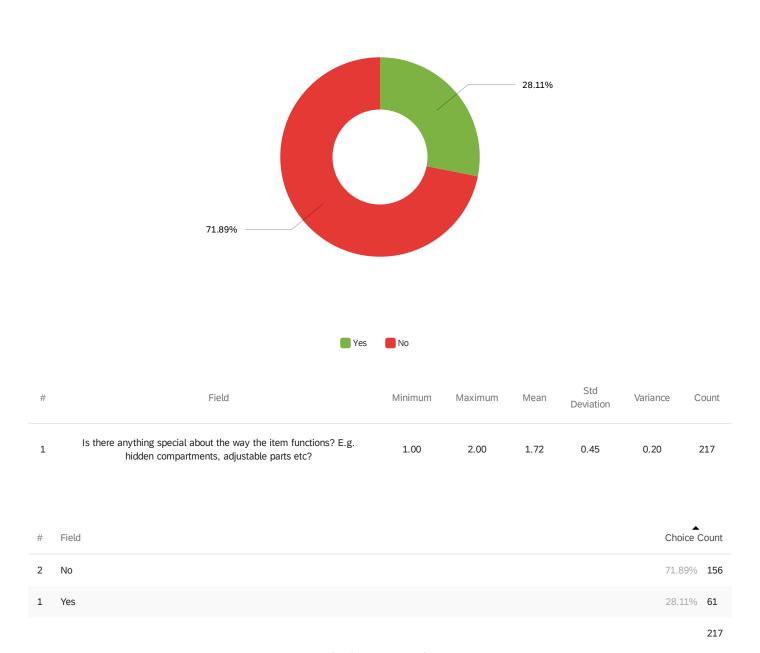
#	Field	Choice Count	
1	It has just one function	63.13%	137
2	It has more than one function	36.87%	80
			217
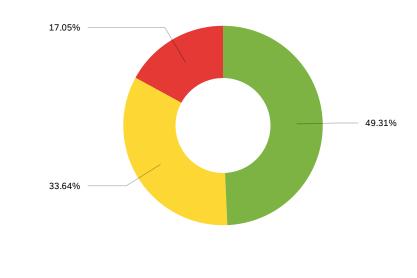
Showing rows 1 - 3 of 3

Q22 - Is there anything special about the way the item functions? E.g. hidden compartments, adjustable parts etc?

28.11%

71.89%

■ Yes ■ No

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Is there anything special about the way the item functions? E.g. hidden compartments, adjustable parts etc?	1.00	2.00	1.72	0.45	0.20	217

#	Field	Choice Count	
2	No	71.89%	156
1	Yes	28.11%	61
			217

Showing rows 1 - 3 of 3

Q49 - Do you love what the item means to you?

Legend: Yes (green), To some extent (yellow), No (red)

Pie chart labels: 17.05%, 49.31%, 33.64%

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Do you love what the item means to you?	1.00	3.00	1.68	0.75	0.56	217

#	Field		Choice Count
1	Yes	49.31%	107
2	To some extent	33.64%	73
3	No	17.05%	37
			217

Showing rows 1 - 4 of 4

373

reminder
safe childhood parent
purchase mother things
inherit family hand save
sleep item memory place
belong life means
long time made sit
father love piece remind good
happy house bought
room chair lot bit
day home gift old
great furniture feel
period history years past
husband style design
grandmother

Q24 - Why don't you love what the item means to you?

Why don't you love what the item means to you?

I bought it, it's got no nostalgia

Its a bed, functionally useful, looks OK

It doesn't really mean anything to me but i love how it looks

Not sure

because it is an ordinary bed with no frills, if I could afford the bed would be more elaborate and playful

No particular emotional attachment

I have no emotional attachment to it, but I love that it helps me relax when I sit on it

It's my favourite furniture due to its utility, so has no emotional significance.

It has no sentimental value

It's a sofa...not something that is sentimental

It's a functional piece. I don't love the item but it serves a purpose which it performs well

in the end its just a table....

It doesn't really mean anything to me. It's just an object.

Its just a table

It's a practical item

It is the design and functionality I like rather than any intrinsic meaning

Apart from Comfort I have no emotional attachment to it- apart from the fact that it signals the first bed we brought together as a couple

It's more of a practical object and could be replaced with a similar object.

I love how it looks, it's function, but there is no connection

It is a functional piece of furniture that keeps the room clutter free and is attractive to look at. I don't have an emotional attachment to it/ it has no special meaning

it doesnt have personal association

It just looks nice

375

It is just an item

It's a practical item no sentiment attached

In a way, it needs to be plain, and unobtrusive. I don't really want anyone to 'see' the bookcase, just the content. In that respect, it's important, but as it's an IKEA commodity, it's relatively easy to replace.

It's just a display unit. No se raiment.

there is no sentimental reason attached to the item.

no

It's functional and nothing more. It's like an old pair of slippers

IT is a functional piece of furniture

I love how the item fits with the overall environment where it is, it nicely complements it and fills the gap as something relaxing, to switch off, have some quiet time, but on its own, its just a piece of furniture.
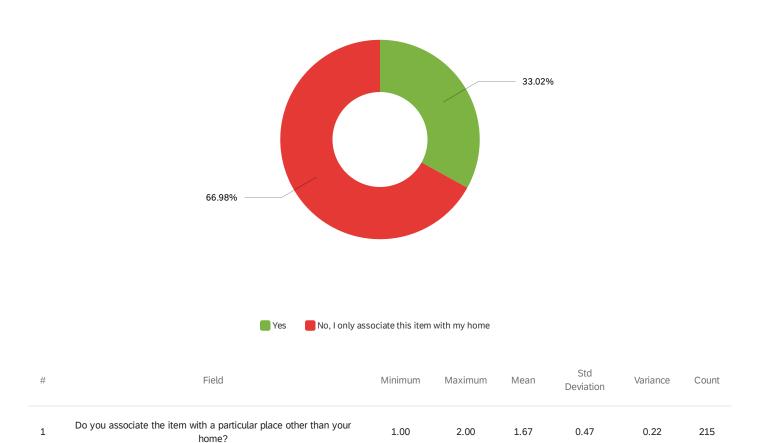
I have no feelings to the item one way or the other

It doesn't really mean anything. It is a nice piece of furniture but I haven't owned it long enough to develop memories.

It a sofa for sitting and room divider

It will take time to love. It represents where it came fom, but as it was new, it has no history....yet.
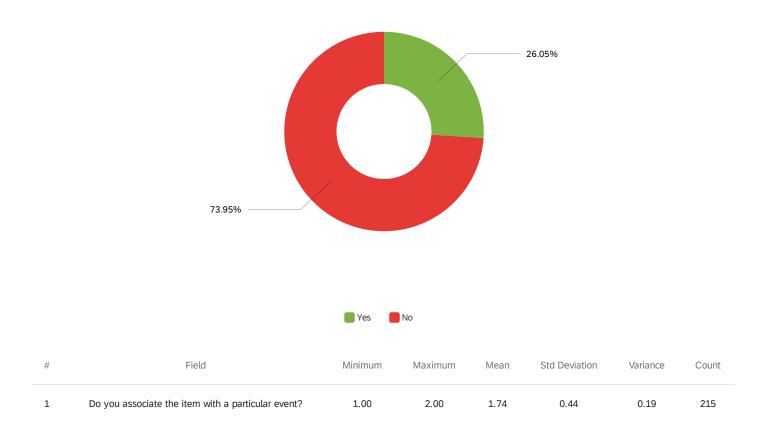
Q25 - Do you associate the item with a particular place other than your home?

33.02%

66.98%

■ Yes ■ No, I only associate this item with my home

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Do you associate the item with a particular place other than your home?	1.00	2.00	1.67	0.47	0.22	215

#	Field		Choice Count
2	No, I only associate this item with my home	66.98%	144
1	Yes	33.02%	71
			215

Showing rows 1 - 3 of 3

377

Q26 - Do you associate the item with a particular event?

26.05%

73.95%

| Yes | No |

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Do you associate the item with a particular event?	1.00	2.00	1.74	0.44	0.19	215
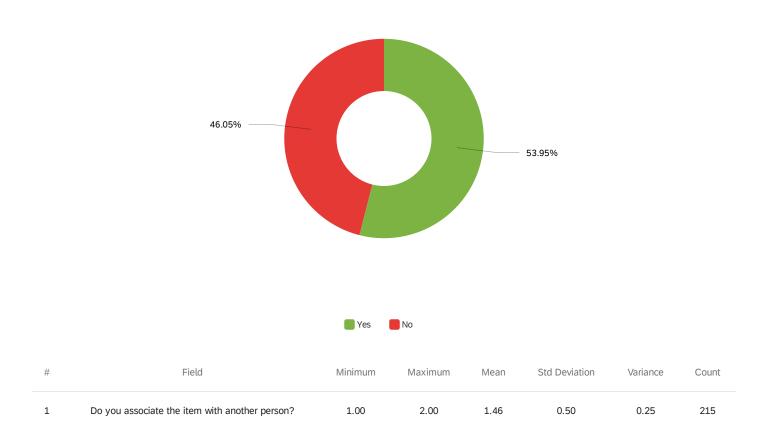
#	Field		Choice Count
2	No	73.95%	159
1	Yes	26.05%	56
			215

Showing rows 1 - 3 of 3

378

Q51 - Do you associate the item with another person?

46.05%

53.95%

■ Yes ■ No

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Do you associate the item with another person?	1.00	2.00	1.46	0.50	0.25	215
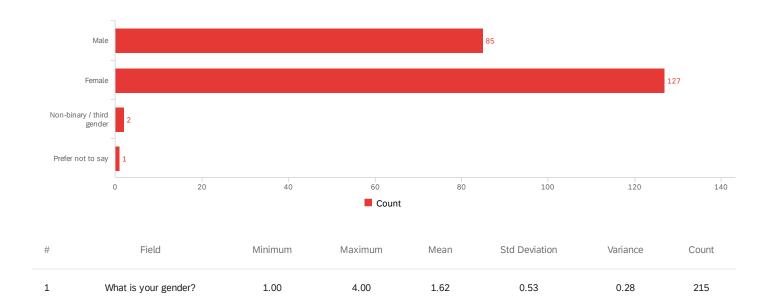
#	Field	Choice Count	
1	Yes	53.95%	116
2	No	46.05%	99
			215

Showing rows 1 - 3 of 3

379

Q27 - What is your gender?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	What is your gender?	1.00	4.00	1.62	0.53	0.28	215
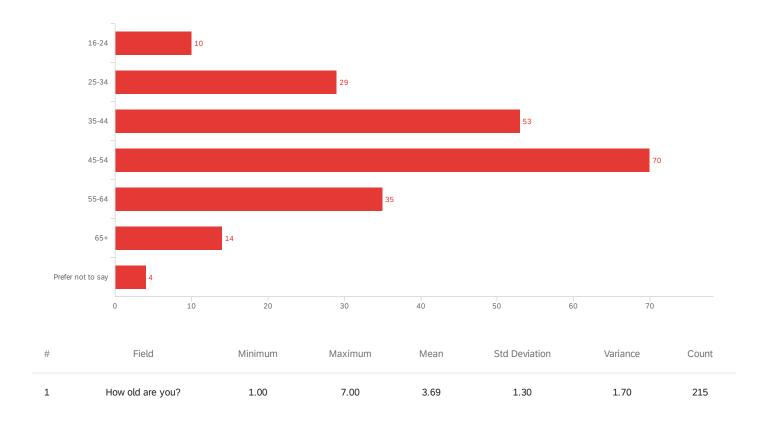
#	Field	Choice Count	
2	Female	59.07%	127
1	Male	39.53%	85
3	Non-binary / third gender	0.93%	2
4	Prefer not to say	0.47%	1
			215

Showing rows 1 - 5 of 5

Q28 - How old are you?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	How old are you?	1.00	7.00	3.69	1.30	1.70	215
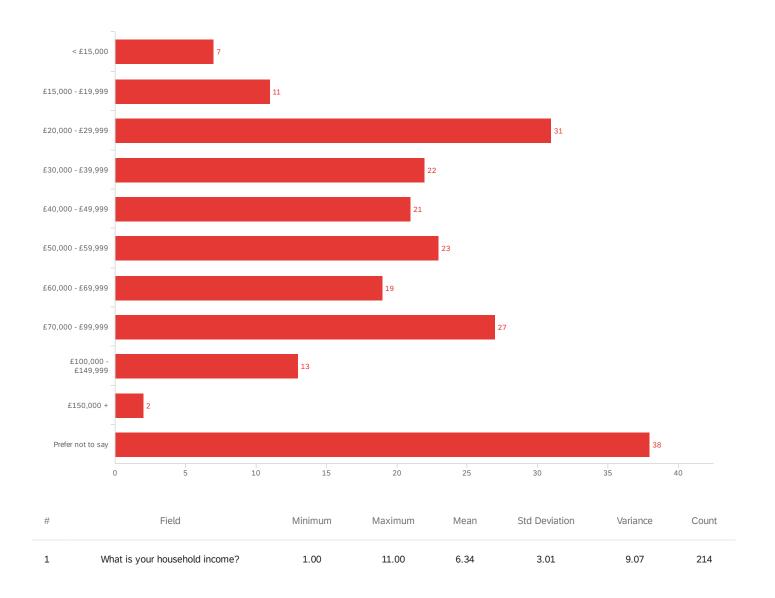
#	Field		Choice Count
4	45-54	32.56%	70
3	35-44	24.65%	53
5	55-64	16.28%	35
2	25-34	13.49%	29
6	65+	6.51%	14
1	16-24	4.65%	10
7	Prefer not to say	1.86%	4
			215

Showing rows 1 - 8 of 8

Q30 - What is your household income?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	What is your household income?	1.00	11.00	6.34	3.01	9.07	214
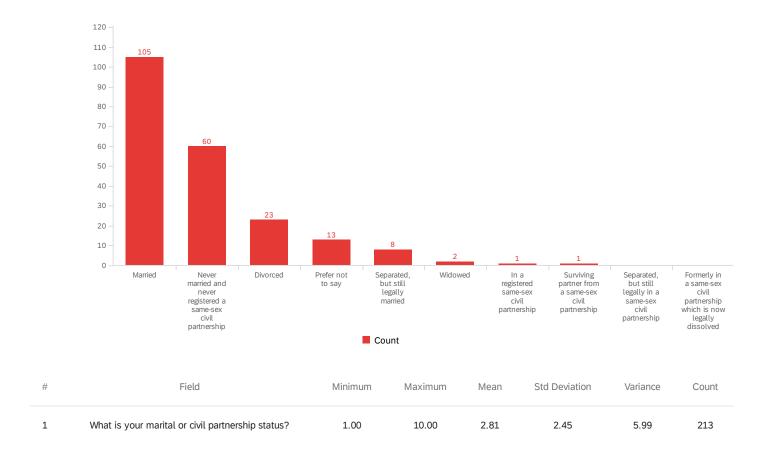
#	Field		Choice Count
1	< £15,000	3.27%	7
2	£15,000 - £19,999	5.14%	11
3	£20,000 - £29,999	14.49%	31
4	£30,000 - £39,999	10.28%	22
5	£40,000 - £49,999	9.81%	21
6	£50,000 - £59,999	10.75%	23
7	£60,000 - £69,999	8.88%	19

#	Field		Choice Count	
8	£70,000 - £99,999		12.62%	27
9	£100,000 - £149,999		6.07%	13
10	£150,000 +		0.93%	2
11	Prefer not to say		17.76%	38
				214
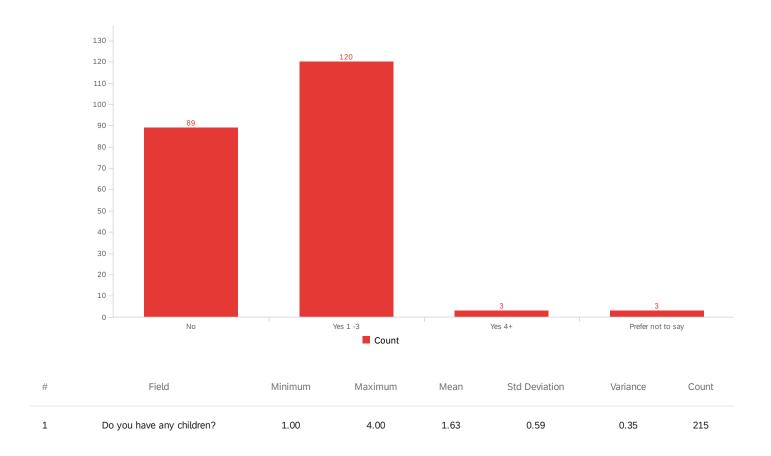
Showing rows 1 - 12 of 12

Q31 - What is your marital or civil partnership status?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	What is your marital or civil partnership status?	1.00	10.00	2.81	2.45	5.99	213

#	Field	Choice Count	
2	Married	49.30%	105
1	Never married and never registered a same-sex civil partnership	28.17%	60
6	Divorced	10.80%	23
10	Prefer not to say	6.10%	13
4	Separated, but still legally married	3.76%	8
8	Widowed	0.94%	2
3	In a registered same-sex civil partnership	0.47%	1
9	Surviving partner from a same-sex civil partnership	0.47%	1
5	Separated, but still legally in a same-sex civil partnership	0.00%	0
7	Formerly in a same-sex civil partnership which is now legally dissolved	0.00%	0
			213

Q32 - Do you have any children?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Do you have any children?	1.00	4.00	1.63	0.59	0.35	215

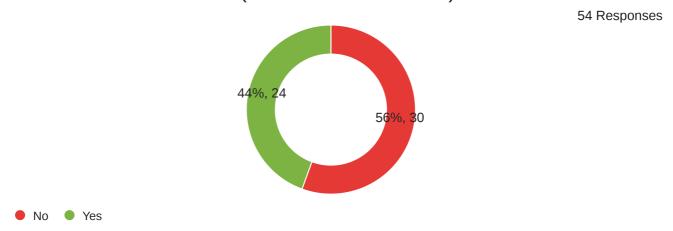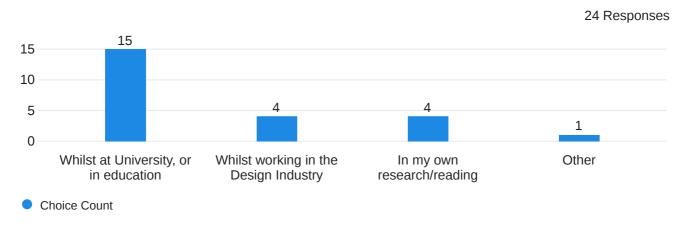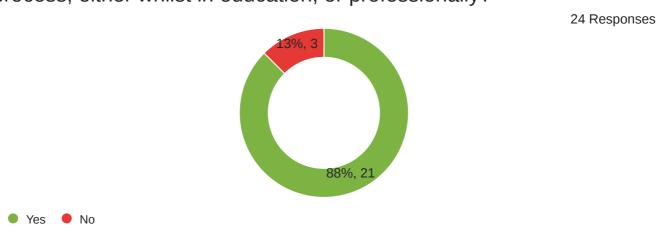| #	Field		Choice Count
1	No	41.40%	89
2	Yes 1 -3	55.81%	120
3	Yes 4+	1.40%	3
4	Prefer not to say	1.40%	3
			215

Showing rows 1 - 5 of 5

End of Report

Appendix 13 Designer Survey Results

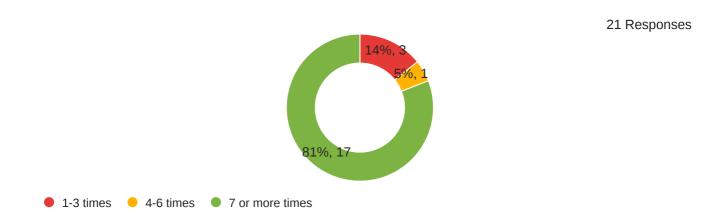## Have you heard of the below design tool? The Design Council's framework for Innovation (The Double Diamond)

54 Responses

44%, 24   56%, 30

● No   ● Yes

Where did you first hear about the Design Council's framework for Innovation

24 Responses

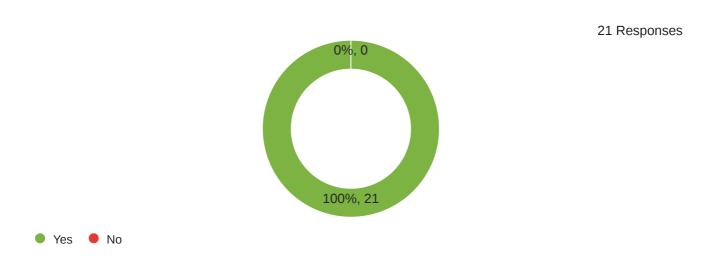| | | | |
15			
10			
5	4	4	
0			1
Whilst at University, or in education	Whilst working in the Design Industry	In my own research/reading	Other

● Choice Count

(The Double Diamond) Have you ever used the tool in your design process, either whilst in education, or professionally?

24 Responses

13%, 3

88%, 21

● Yes   ● No

Approximately how many times have you used the tool? (The Double Diamond)

21 Responses

14%, 3

5%, 1

81%, 17

● 1-3 times   ● 4-6 times   ● 7 or more times

Do you think it helps with the design process? (The Double Diamond)

21 Responses

0%, 0

100%, 21

● Yes   ● No

How does the tool help with the design process? (The Double Diamond)

21 Responses

It is a great communication tool for clients to explain how the process works and what is involved. As a diagram it isn't that educational, but if you know the processes behind the diagram it is great for showing as a quick summary of the design process most companies like to tailor the diagram to their own business and processes, it is always evolving within the industry but it is a good basis that people can build upon. People like IDEO have created their own version and RODD Design have taken it further by adding a sustainability aspect too, but essentially they all follow the same basic principle. The reason I don't return to it is because it doesn't educate or explain the steps or tools, if it did and they were industry leading I would but it doesn't.

It allows for expansive thinking and ideation in both the research and design phases of a project. Whilst also keeping the project focused with the problem definition in the middle

It illustrates the process of recurring research and iteration

We both knowingly and unknowingly use the double-diamond tool day-to-day.

Clients will either come to us with their discoveries and already defined problems, or we'll work together. The design will be developed by producing 3D renders and/or a physical prototype, before refining and delivering a production ready product.

It's great to help you in understanding an issue and defining the design challenge. You develop lots of ideas in finding a resolution to the problem, then delivering the solution.

The process offers a bit of structure to the design process

Breaks down the design process and helps look at the full scope before really nailing down in a specific area

Well its just one of many 'process' tools/frameworks now available. helps to prompt or challenge or reengage thinking

Used on a Daily basis, helps to understand the needs of the user/customer, design test circle back back helps to always show stakeholders the process

It assist design teams in "really" understanding the issue and designing for the end user, it empowers the design team to underpin good design with a sound evidence base. I have also used QFD as part of this as well, this is were I have had teams of stakeholders with completely different expertise, understanding and differences of opinion. it helps to get people on the same page and results in a better solution and design, balancing functionality and aesthetics.

It breaks a project down into logical, manageable chunks and provides up to 8 payment points on a project, reducing our financial risk

It is clear and sets out a detailed objective

Helps filter and clarify ideas

Supports ideation. Helps divergent and convergent thinking. Supports student process and embeds a methodology to their process of problem solving.

It helps define the stages of design development and linked to the Gantt management tool

It streamlines the process of designing a product. Both the designer and client are on the same wavelength and creates a sense of trust and transparency between two parties. The formula can also be tailored or tweaked depending on a clients specific needs or goals.

Provides a structure and foundation to develop new products. A basic overview that allows customisation for specific product sectors. An easy method to explain the process to clients.

The tool is not used directly. It is just a summary of how design thinking works.

It mainly helps as a general understanding of a design phase. You have to understand that you have to go broad to come back into focus, and that you will go off track a couple different ways before heading towards consolidated idea
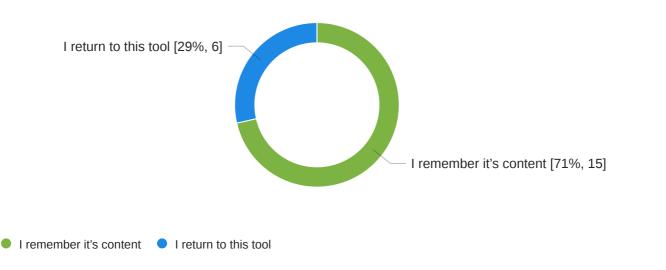
HEPLS DECISION MAKING

How does the tool help with the design process? (The Double Diamond)

21 Responses
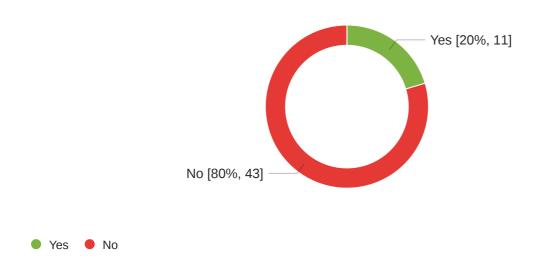

Do you return to this tool, or remember it's content without the need to return? (The Double Diamond)
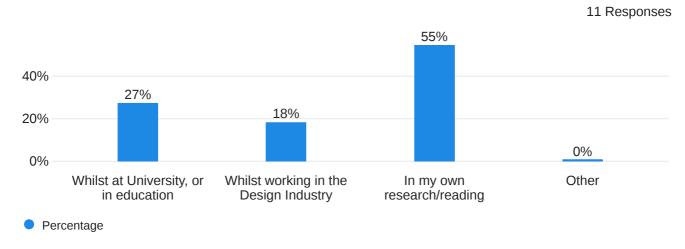
21 Responses

I return to this tool [29%, 6]

I remember it's content [71%, 15]

● I remember it's content   ● I return to this tool

Have you heard of the below design tool? The MAYA Principle (Most Advanced, Yet Acceptable) Raymond Loewy

54 Responses

Yes [20%, 11]

No [80%, 43]

● Yes ● No

Where did you first hear about the MAYA Principle (Most Advanced, Yet Acceptable)

11 Responses

40%

27%

20%

18%

55%

0%

0%

Whilst at University, or in education | Whilst working in the Design Industry | In my own research/reading | Other

● Percentage

Have you ever used the tool in your design process, either whilst in education, or professionally? (The MAYA Principle)

11 Responses

No [55%, 6]
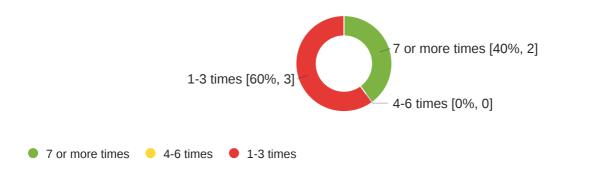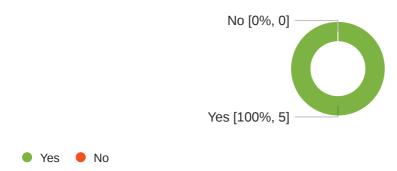
Yes [45%, 5]

● Yes ● No

Approximately how many times have you used the tool? (The MAYA Principle)

5 Responses

7 or more times [40%, 2]

1-3 times [60%, 3]

4-6 times [0%, 0]

● 7 or more times   ● 4-6 times   ● 1-3 times

Do you think it helps with the design process? (The MAYA Principle)

5 Responses

No [0%, 0]

Yes [100%, 5]

● Yes   ● No

How does the tool help with the design process? (The MAYA Principle)

5 Responses

How does the tool help with the design process?

This is a great example where people think that innovation will change the world, but sometimes the world isn't ready for the innovation at that time, sometimes it needs to be paired back slightly to make it acceptable there is another tool called the Gartner's Hype cycle which also loosely links to this but more on a product level where traditionally technologies follow a similar trend, first they are brand new, no relevant industry and once the benefits are seen, people start to adopt the idea, then it reaches the mases and after a while the industry begins to move on.

Better results

Gives Focus to the process/
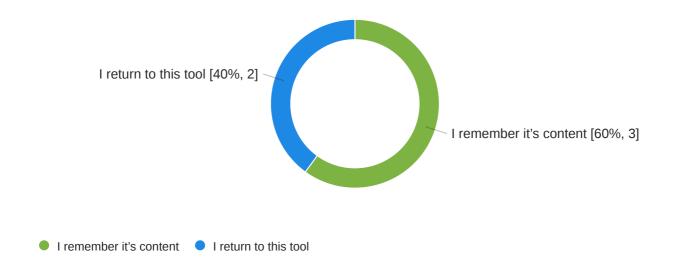
with making good business decisions

It allows you to plan step changes and improvements in product development for a far reaching project while allowing a commercially viable option to develop in the short term.

How does the tool help with the design process? (The MAYA Principle)

5 Responses

technology
step making result
people development
innovation business great ready
relevant idea back acceptable make viable
short follow product good slightly
time isn't call decision
change begin option
move cycle
world links allow brand pair
plan focus reach adopt hype tool
loose better level
term develop benefit gartner trend
industry commercial mase
similar improvement project
traditional process
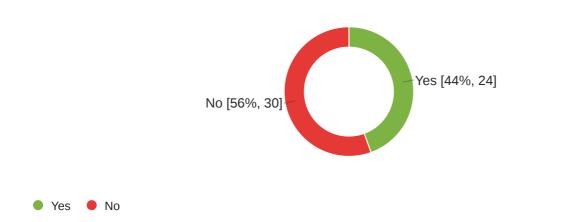
Do you return to this tool, or remember it's content without the need to return? (The MAYA Principle)

5 Responses

I return to this tool [40%, 2]

I remember it's content [60%, 3]

● I remember it's content   ● I return to this tool
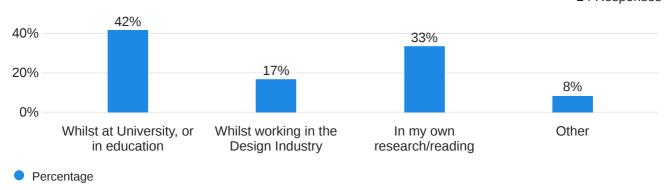
Have you heard of the below design tool? IDEO Method Cards IDEO (2003)

54 Responses
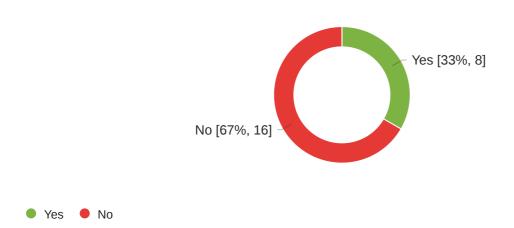
No [56%, 30]
Yes [44%, 24]

● Yes ● No

Where did you first hear about the IDEO Method Cards

24 Responses

42%	17%	33%	8%

Whilst at University, or in education | Whilst working in the Design Industry | In my own research/reading | Other
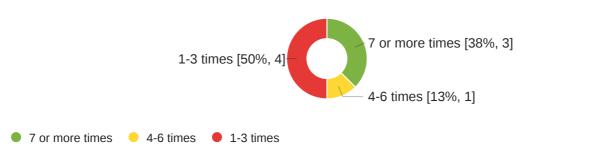
● Percentage

Have you ever used the tool in your design process, either whilst in education, or professionally? (IDEO Method Cards)

24 Responses

Yes [33%, 8]
No [67%, 16]

● Yes ● No

Approximately how many times have you used the tool? (IDEO Method Cards)

8 Responses

7 or more times [38%, 3]

1-3 times [50%, 4]

4-6 times [13%, 1]

● 7 or more times ● 4-6 times ● 1-3 times

Do you think it helps with the design process? (IDEO Method Cards)

8 Responses

100%

100%

50%

0%

0%

No   Yes

How does the tool help with the design process? (IDEO Method Cards)

8 Responses

How does the tool help with the design process?

This is a yes and a no, I think some of the tools IDEO use are great but in reality we don't always have the time or the budget to perform all of these tasks, the tools need to be tailored to the situation and the client, i.e. if you are working with a huge company with big budgets, these tools are great, if you are working with an entrepreneur which is utilising their life savings then their budget needs to be used sparingly.

it gives access to a variety of tools for every stage of the design porcess

I first heard about the IDEO method cards in University. I've since bought something similar - ThinkPak which has been handy.

Unfortunately, professionally we don't always have the luxury of being able to do mass concepts with multiple designs and usually stick it doing two or three distinct concepts. The flash cards are great for "filling" in between concepts, in my opinion.

Makes design more personable - thinking about the user at all stages of design

I like the flexibility of using the IDEO tool to foster collaboration, I have used it in creative and non-creative processes and it works well.

Big differences on the outcome

The process enables for ideas and thinking more laterally.
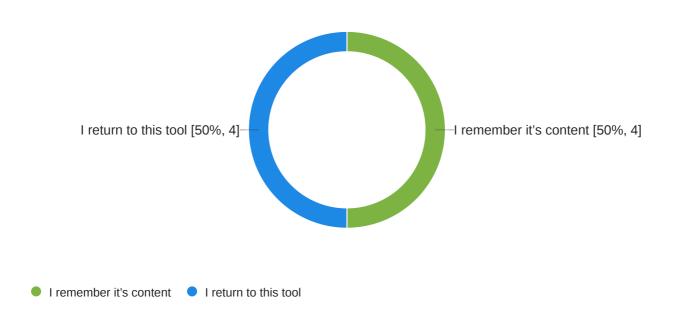
Defines the terminology and expectations

How does the tool help with the design process? (IDEO Method Cards)

8 Responses
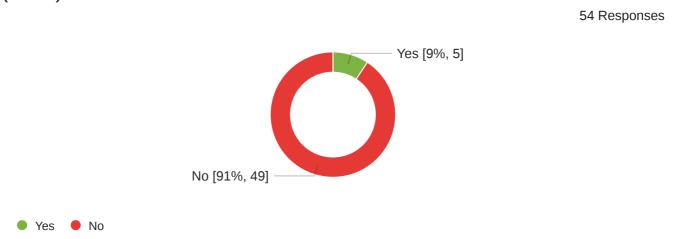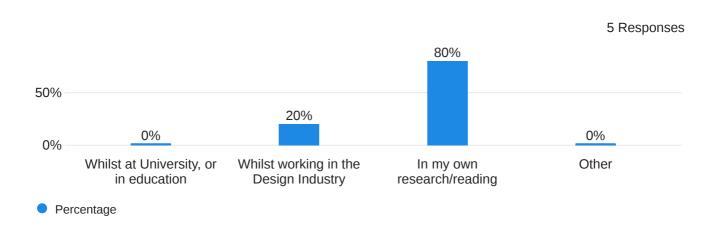

Do you return to this tool, or remember it's content without the need to return? (IDEO Method Cards)
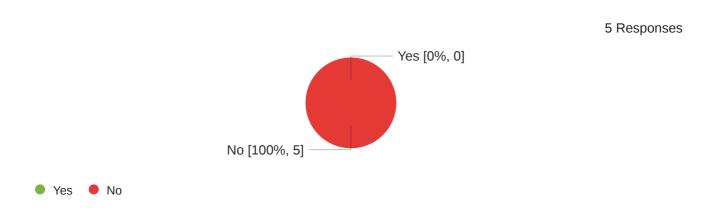
8 Responses

I return to this tool [50%, 4]   I remember it's content [50%, 4]

● I remember it's content   ● I return to this tool

Have you heard of the below design tool? Design for Happiness Deck.
Delft Institute of Positive Design (Pohlmeyer, Yoon and Desmet.)
(2017)

54 Responses

Yes [9%, 5]

No [91%, 49]

● Yes   ● No

Where did you first hear about the Design for Happiness Deck

5 Responses

80%

50%

20%

0%   0%
0%

Whilst at University, or   Whilst working in the   In my own   Other
in education   Design Industry   research/reading

● Percentage

Have you ever used the tool in your design process, either whilst in
education, or professionally? (Design for Happiness Deck)

5 Responses

Yes [0%, 0]

No [100%, 5]

● Yes   ● No

- Are there any other tools, processes or frameworks that you use in your design process?

54 Responses

Yes [37%, 20]

No [63%, 34]

● No   ● Yes

Please can you provide a little more information about that tool?

20 Responses

Please can you provide a little more information about that tool? (name/description)

I have covered a lot here but there is also the circular economy models by the ellen mcarthur foundation and books like cradle to cradle, the design of everyday things, creative confidence, the google sprint methodology, just to name a few others.

Trend websites, design books, pinterest, instagram, client competitor websites, exhibitions.
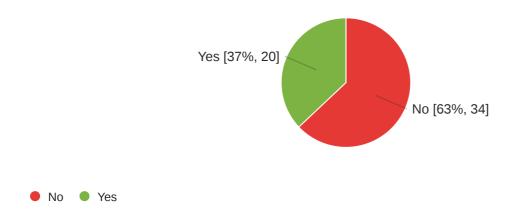
Delft Design guide - it's a comprehensive selection of design methods to support the design process from start to finish

V-model SE
This model uses phases with validation tests that allow you to set clear expectations and identify potential flaws throughout the process without needing a final build e.g. identifying problems with the end user using prototypes of the product.

Agile
Lean

Brainstorming sessions.
Client first UX/UI test scenarios.

Lean Ux
User-centred design process

QFD works well when you need to establish a criteria and balance aesthetics with functionality.

An unguided discussion around the whiteboard is our most effective process.

RIBA Plan of Work: A model for the design and construction process of buildings
The AIA Framework for Design Excellence: It provides principles of good design in the 21st century related to the built environment

Sketch, Model, Design, Test, Refine, Finalise

TRYZ

Process Loops - sketch/ model/ digital model/ render at the same time

There are many techniques I use depending on the piece of work, I do find taking inspiration from Burroughs technique of the cut up and re- collaging often helps me to find new meanings, for a more conceptual approach to creative shape making for fashion.

Biophilic design & Feng Shui - A model called luminous spaces combining ancient feng shui with biophilic principles

Alex F Osbourne approaches to Mind mapping and brainstorming.
Graphic Design Play Book: Sophie Cure & Aurelian Forina

We have developed our own in-house version, based on the double diamond that delves deeper to our specific services and business model.

Stakeholder engagement workshops
Morphological maps
Top-design strategy
Iterative design process

OUR OWN UNIQUE THINKING
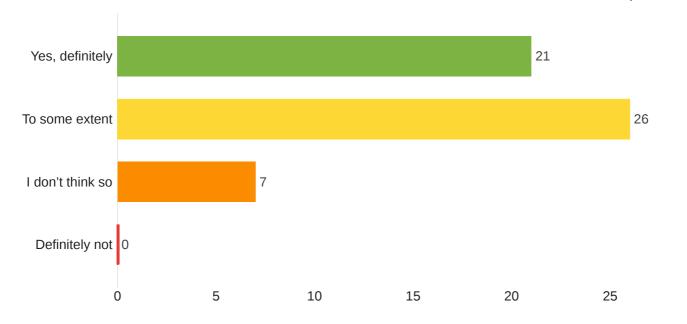
Six hats for difficult groups and tricky questions.

Please can you provide a little more information about that tool?

20 Responses
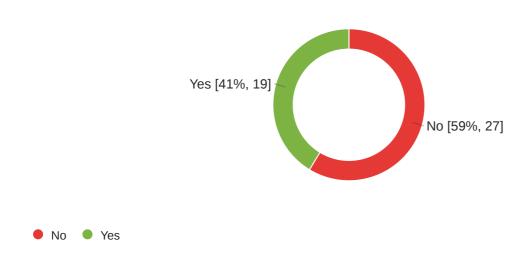
Are you aware of Emotional Design?

Have you used any tools, processes or frameworks to consider Emotional Design in your design process?

400

Do you think a tool that helps consider Emotional Design in the Design process could be useful to you?

46 Responses

Yes, definitely [39%, 18]	To some extent [52%, 24]		

● Yes, definitely [39%, 18]　● To some extent [52%, 24]　● I don't think so [4%, 2]　● Definitely not [4%, 2]

Do you think a tool that helps consider Emotional Design, specifically in the design of Furniture could be useful?

46 Responses

Yes, definitely [46%, 21]	To some extent [46%, 21]		

● Yes, definitely [46%, 21]　● To some extent [46%, 21]　● I don't think so [4%, 2]　● Definitely not [4%, 2]

- Thank you for taking the time to complete this survey. If you'd like be kept in the loop about this developing research, or you'd like to be involved in upcoming creative workshops, please enter your email address below.

14 Responses

names redacted

Appendix 14 Student Workshop Evaluation Results

Q1 - Did you enjoy using the Emotional Design Deck?

0%, 0

33%, 3

67%, 6

● No, not really   ● Definitely, not   ● Yes, to some extent   ● Definitely, yes

Q2 - Please can you explain your answer to question 1.

9 Responses

Please can you explain your answer to question 1.

I found them clearly laid out with a lot of condensed information included

It is very inspiring learning to understand how emotional design could be can be integrated into my design work and able work in teams really help bounce ideas of each other.

It pushed me to consider areas of design that i would normally not consider, and allowed a more diverse option of potential products to consider.

It's relaxing and the activities are enjoyable.

Enjoyable presentation

The cards made me reconsider my ideas and methods, and I believed that I created a better item of furniture than I did without the use of the cards.

The tool encourages quick ideation which was helpful.
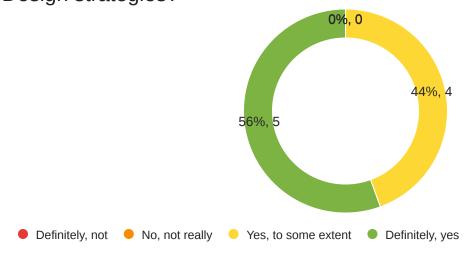
It was helpful in adding guidance to a more open brief

I thought it was a fun experience.

Q2 - Please can you explain your answer to question 1.

presentation
potential included
information emotional option
thought condense believe ideation
pushed found helpful guidance
made better clearly relaxing
team add activity item
tool idea design fun product
area allow lot
furniture enjoyable inspire
work laid method
experience bounce
learning cards create open
reconsider encourage quick
integrated
understand

Q3 - Did the tool help you develop new concepts that linked to Emotional Design strategies?

0%, 0

44%, 4

56%, 5

● Definitely, not   ● No, not really   ● Yes, to some extent   ● Definitely, yes

Q4 - How do you feel about your design that resulted from using the tool?

9 Responses

How do you feel about your design that resulted from using the tool?

This is because this is a huge area of interest to me. Using the cards in a group versus independently, I may have a different response

It really help have some base ideas to spark from

It felt more inspired, and had a higher reasoning to its design rather than using what was on the top of my head it allowed to me think more clearly about what i was doing and what was going into the product. Compared to not using the tool, my work looked more focused and intentional rather than guessing what i was doing as i was working.

I don't think we used the full potential of this tool. By picking them randomly we did not exploit the target ability of this tool.

Good

I feel very satisfied with my product using the tool

I feel the design I made from using the tool is something that I normally would not have thought of.

I really liked some of the designs and they are design that I would not have designed otherwise

I like thinking about the user I have to design for and be considerate to them.

Q4 - How do you feel about your design that resulted from using the tool?

Q5 - What do you think it good about the tool?

9 Responses

What do you think it good about the tool?

Visually satisfying and gets to the point but it may need some extra clarification at some point I love how the information is communicated

I think the ideas able have mini pop of info do take away from a bit research so have a rough idea of how where to start

It provides a variety of areas that dont force the user but push them in a direction and allow them to choose aspects of design that would not have thought of.

It can deal with a lot of different scenario, use it was right then it can help to identify a few crucial bit that need to be included in our project.

Allows you to refresh your design thinking

The tool made me think carefully about my ideas and strategies to design my product, leading to a better product

It encourages quick idea making.

It encourages you to consider aspects of design you normally won't

I thought it was innovative.

Q5 - What do you think it good about the tool?

Q6 - What do you think could be improved about the tool?

What do you think could be improved about the tool?

Rounding the corners, I love the size of the cards, as they're bigger than playing cards

I don't think so it all seem useful

The only thing that i can think of is introducing more of the cards so that i can be introduced to more ideas, maybe through an expansion pack later on

Info graphics

Some of the pictures on the cards are unclear. But the text does help clarify them.
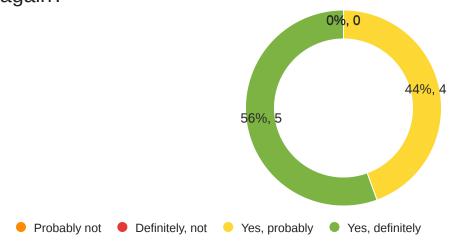
Some cards do not have great relevance to certain briefs

I think the products should be coloured

Q6 - What do you think could be improved about the tool?

relevance
unclear introduce
text expansion love
product don't clarify idea around
corner big briefs info they're
thing
cards
size great coloured play
pack graphics useful
pictures

Q7 - Do you think you would use the tool, or some of the strategies again?

0%, 0

44%, 4

56%, 5

● Probably not   ● Definitely, not   ● Yes, probably   ● Yes, definitely

Q8 - Which is your favourite part of the cards? Click on the area you find most useful or appealing
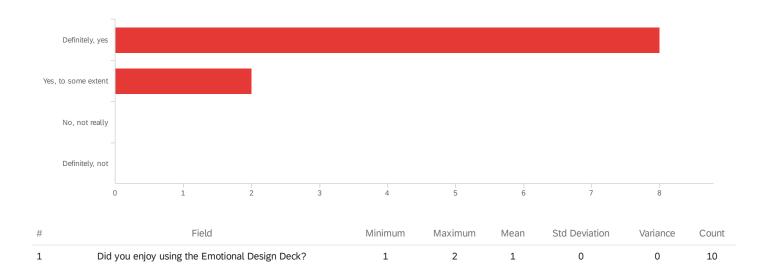
Appendix 15 Designer Workshop Evaluation Results

Default Report

- Did you enjoy using the Emotional Design Deck?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Did you enjoy using the Emotional Design Deck?	1	2	1	0	0	10

#	Field	Choice Count	
1	Definitely, yes	80%	8
2	Yes, to some extent	20%	2
3	No, not really	0%	0
4	Definitely, not	0%	0
			10

Showing rows 1 - 5 of 5

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- Please can you explain your answer to question 1.

Please can you explain your answer to question 1.

Yes, it made me question and think about the values of the design.

It would be very helpful if I am designing some from nothing. But for some project, like following brand DNA, the brief itself is so thigh that there is very little room for creativity; then I don't think I will use the Emotional Design Deck.

It gave me prompts and options to think differently about my approach to the design and gave me very different solutions.

Provided good thought starters to begin the design process from an open brief.

interactive, team building workshop

The cards helped me clear the "brain clutter" when looking at a project. Although they have a lot of common sense written on them, they are useful to focus the mind.
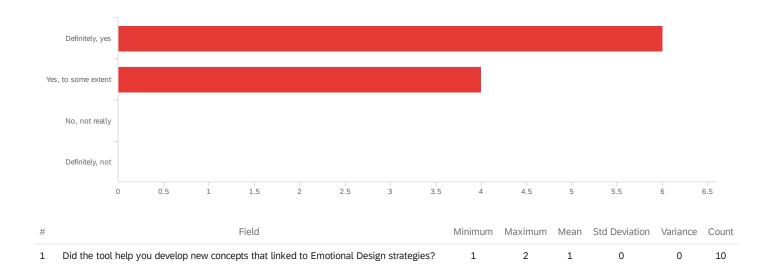
Opened up the possibilities of design. What would usually take a longer period of experimentation was reduced

I found them very useful when thinking of ideas and gave me more direction and had more purpose

Not so sure how it works and makes me design better

Found it thought provoking

- Did the tool help you develop new concepts that linked to Emotional Design strategies?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Did the tool help you develop new concepts that linked to Emotional Design strategies?	1	2	1	0	0	10

#	Field		Choice Count
1	Definitely, yes	60%	6
2	Yes, to some extent	40%	4
3	No, not really	0%	0
4	Definitely, not	0%	0
			10

Showing rows 1 - 5 of 5

- How do you feel about your design that resulted from using the tool?

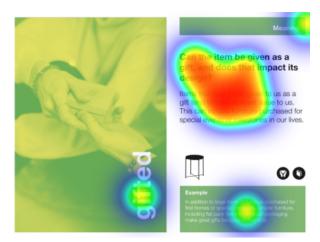How do you feel about your design that resulted from using the tool?

I feel it's more considered in terms of materials and appeal.

My design were more refine after I used it.

I was able to use metaphor effectively in designing the product. Another card I selected was also my default strategy when designing products.

It made me consider memories and personal experiences to influence my design.

Using the flash cards as prompts.

It resulted in a definite 'surprise' in the design that resulted from using the cards.

The focus on ergonomics and anthropomorphism then how we can create furniture that was the negative to the muscle and skeletal structure influenced the design.

I think it had more direction

It allowed me to be more self indulgent in designing for myself, I used the heirloom thinking

Fantastic

- What do you think it good about the tool?

What do you think it good about the tool?

All the different possible scenarios.

It opened my eye to new angel to go with my design.

I think you will always be able to select a card that mirrors or shifts your emotional state as a designer . Humans are constantly feeling emotions from life and that might not be the relevant emotional state required for design, the cards can help instigate shifts in approach and mindset.

Lot of variety in the cards and provided evidence & history to contextualise the themes.

Flash cards, handy size

Used in the way that we did they can introduce restrictions to the design process - but meant in a good way. They help focus conceptualising using random constraints.

A good 'mind map' like tool that can help reduced the research and experimentation phase of design.

Gives you prompts if you're stumped, there's a variety of different topics to choose as well

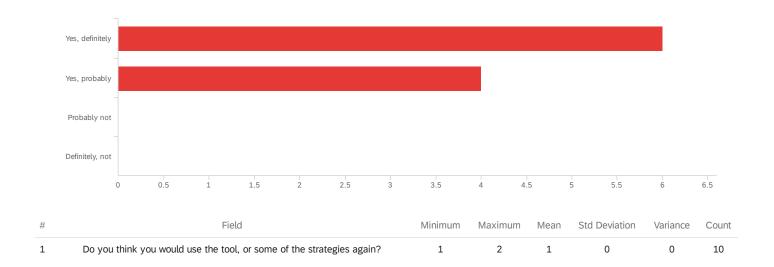It liberated people's creativity and unleashes their inhibitions

Definitely

- Which is your favourite part of the cards? Click on the area you find most useful or

appealing

- What do you think could be improved about the tool?

What do you think could be improved about the tool?

Maybe an app that randomly picks the cards for you.

The design itself is great, but when it is print out, the card itself might need a card materiel.

Evolution and future revisions as the product landscape evolves. Could there be a transport specific set. What would the 4th colour be?

Accessible vocabulary.

Think the cards are well designed, could have more graphics / colours

N/A

Icons which relate to keywords

Quite overwhelming at first with all the cards laid out in front of you but I don't think that's a massive downside as once you got the hang of it it was fine!

The title side

Include an ice breaker to start the brainstorm

- Do you think you would use the tool, or some of the strategies again?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Do you think you would use the tool, or some of the strategies again?	1	2	1	0	0	10

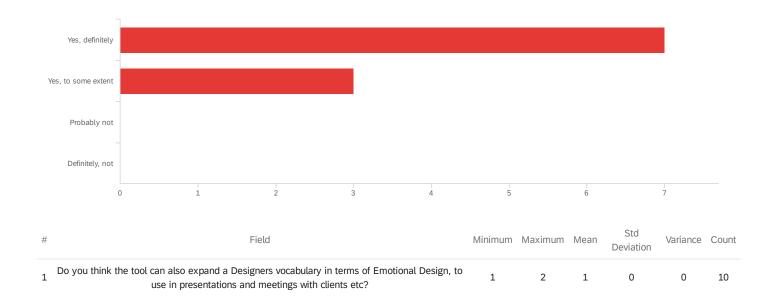| #	Field		Choice Count
1	Yes, definitely	60%	6
2	Yes, probably	40%	4
3	Probably not	0%	0
4	Definitely, not	0%	0
			10

Showing rows 1 - 5 of 5

- Do you think the tool can also expand a Designers vocabulary in terms of Emotional Design, to use in presentations and meetings with clients etc?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Do you think the tool can also expand a Designers vocabulary in terms of Emotional Design, to use in presentations and meetings with clients etc?	1	2	1	0	0	10

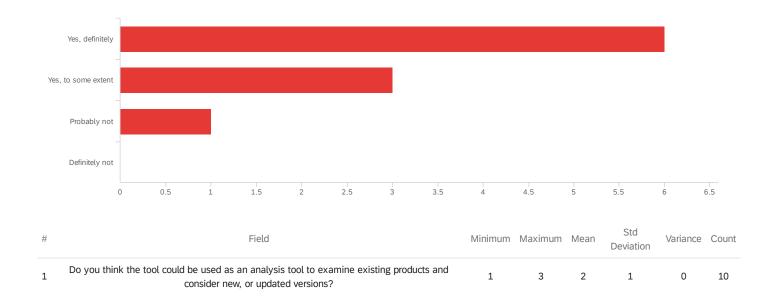| #	Field		Choice Count	
1	Yes, definitely		70%	7
2	Yes, to some extent		30%	3
3	Probably not		0%	0
4	Definitely, not		0%	0
				10

Showing rows 1 - 5 of 5

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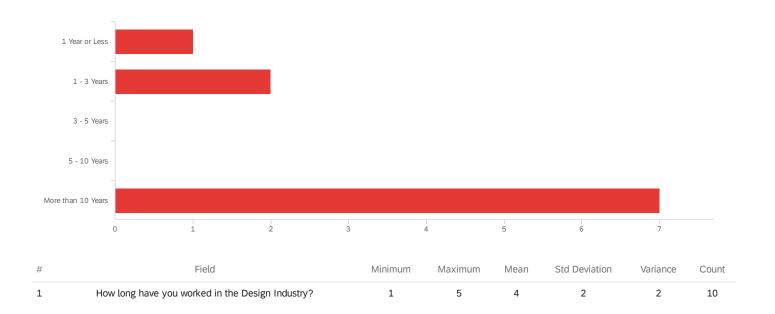- Do you think the tool could be used as an analysis tool to examine existing products and consider new, or updated versions?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Do you think the tool could be used as an analysis tool to examine existing products and consider new, or updated versions?	1	3	2	1	0	10

#	Field		Choice Count
1	Yes, definitely	60%	6
2	Yes, to some extent	30%	3
3	Probably not	10%	1
4	Definitely not	0%	0
			10

Showing rows 1 - 5 of 5

- How long have you worked in the Design Industry?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	How long have you worked in the Design Industry?	1	5	4	2	2	10

#	Field	Choice Count	
1	1 Year or Less	10%	1
2	1 - 3 Years	20%	2
3	3 - 5 Years	0%	0
4	5 - 10 Years	0%	0
5	More than 10 Years	70%	7
			10

Showing rows 1 - 6 of 6

- Which companies have you worked with or designed for?

Which companies have you worked with or designed for?

names redacted

End of Report