

ANNA WIŚNICKA

## SCANDINAVIAN APPROACH TO MULTISENSORY DESIGN

### INTRODUCTION

The sensorial approach is inseparably linked with the realm of industrial design. Every single prototype and/or object which comes into production is meant to be seen and touched, in some instances also heard and smelled. Referring to Schifferstein's study, it has been underlined that "the MSD [multi sensory design] approach is unique in that perceptual knowledge obtained through exploration of all sensory modalities is explicitly orated in the design process. The ultimate design challenge is to develop a product that provides users with an interesting, rich experience, and is nevertheless perceived as a coherent whole."<sup>1</sup> This statement provides a very broad definition of design, opening it even further in terms of multisensorial approach. Regarding the matter, it should be highlighted that the multisensory approach is based on providing users with experiences which can be obtained through visual attractiveness, total immersion, mimicking feelings by using well-known associations, etc. All of them contribute to the idea of using visual, tactual, auditory, and olfactory properties in product design. Taking the broad multisensory design attitude as a starting point, the text aims to investigate methods and techniques introduced by Scandinavian designers which contribute to the overall sensorial aspect of their work. To

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<sup>1</sup> Hendrik N. J. SCHIFFERSTEIN, "Multi Sensory Design," *Proceedings of the Second Conference on Creativity and Innovation in Design (DESIRE '11)*. Association for Computing Machinery (2011): 361–62, <https://doi.org/10.1145/2079216.2079270>.

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emphasise the wide spectrum of the subject, various materials are to be taken into consideration—wood, glass, metal, textiles, and plastic. Moreover, the cultural connotation of Scandinavian design, its relations to nature, and the true-to-material attitude can serve as a legitimate representation of its multisensorial properties.

## METHODS

Given the specific type of projects represented by the globally understood Scandinavian design,<sup>2</sup> it can serve as a coherent test group to investigate various methods of applying multisensorial ideas in product design. Its uniqueness in terms of the use of material, inspiration drawn from nature and specific techniques applied to manufacturing process creates an image worth investigating. The selected research method involves both theoretical analysis and literature studies in the field of Scandinavian design and multisensorial design practice in order to present the current state of knowledge. Subsequently, it allows to single out the appropriate material for further investigation. The main goal of this step is to present a broad variety of examples illustrating the principal thesis and applying the typology based on the primary material of the project, such as wood, glass, metal, fabric, etc. It is equally important to indicate that the text does not intend to touch upon the question of design dedicated to users with special needs or disabilities as it is an entirely separate category based on the specific physical or mental requirements<sup>3</sup> as well as on the matter of co-design,<sup>4</sup> being a subject of in-depth studies.<sup>5</sup> Thanks to the analysis of selected case studies, it is possible to showcase the main ideas of how the multisensorial design practices have been implemented within the realm of Scandinavian design, with the focus put on the matter of diversification of examples. The

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<sup>2</sup> The term ‘Scandinavian’ is used following the cultural and artistic discourse which prioritizes certain broad similarities and historic connection between Scandinavian countries and Finland, including the latter as part of the discourse, an example being Charlotte FIELL and Peter FIELL, *Scandinavian design* (Köln: Taschen, 2002).

<sup>3</sup> Deana MCDONAGH and Thomas JOYCE, “Disability + Relevant Design: Empathic Design Strategies Supporting More Effective New Product Design Outcomes,” *The Design Journal* 13 (2010): 180–98, <https://doi.org/10.2752/175470710X12735884220899>.

<sup>4</sup> Martha Patricia SARMIENTO-PELAYO, “Co-Design: A Central Approach to the Inclusion of People with Disabilities,” *Revista de la Facultad de Medicina* 63 (2015): 149–54, <https://doi.org/10.15446/revfacmed.v63n3sup.49345>.

<sup>5</sup> Graham PULLIN, *Design Meets Disability* (Cambridge, MA: MIT Press, 2009).

methodology applied uses the analysis method of design history combined with the perspective provided by cultural studies and their analysis of the broad context. To enrich the latter, also certain cultural associations will be considered.

#### CORE VALUES AND POPULARITY OF SCANDINAVIAN DESIGN

The universe of Scandinavian design, which at its core is based on tradition and deeply rooted in locality, is also keen to adopt new technologies and aesthetics providing an innovative user experience. The available natural resources had a tremendous impact on the main materials used then and now, which constitute its honest approach to production, often engaging craftsmanship. While discussing the nature of Scandinavian design, it is necessary to briefly signalise its relationship with major artistic movements in Europe—namely, German modernism developed by the Bauhaus and the Italian approach starting with the Novecento and later popularised through the radical design and postmodernism, being the two opposite attitudes towards design. The widespread acclaim of modernism has influenced the Nordic way of design, mainly in terms of functionalism and (if only declaratively) egalitarian approach to product design. The Nordic interpretation and *domestication* of the model, resulted in creating a design formula specifically tailored to the needs of the users, whose background and environment substantially differ from the Bauhaus projects and their target audience. The influence of German modernism on Nordic designers has recently become a point of interest in emerging studies on the topic.<sup>6</sup> One of the aspects that differentiate the German and Nordic approach is the line of cross-inspirations and collaborations, which have been developing under the umbrella term “Scandinavian design”.<sup>7</sup> Despite the unquestionable impact of modernism, Scandinavian design appears not to have shared its faith critically summarised by Jeffery Keedy: “when modernism was young, it was a radical idea that positioned itself in opposition to a more conservative traditionalism. As time went on, the modernist ideology spread into all areas of cultural production, eventually becoming the dominant aesthetic

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<sup>6</sup> Tobias HOFFMANN, ed., *Nordic Design: The Response to the Bauhaus / Die Antwort auf Bauhaus* (Berlin-Stuttgart: Bröhan Museum & Arnoldsche, 2019).

<sup>7</sup> Petteri KUMMALA and Joona RANTASALO, “How Nordic Designers Reacted to Bauhaus? ‘Nordic Design: The Response to the Bauhaus’,” *Tahiti* 1 (2021): 113–17.

ideology. Design was an extremely effective tool in converting the masses to modernity; it spread modernism from a few liberal thinkers, to a conservative majority.”<sup>8</sup> The conservative-leaning stagnation seems to have omitted the Scandinavian circle, where design principle has never been as strict, partially because of the self-proclaimed philosophy of slowly-digested *-isms* practiced by subsequent generations of designers.<sup>9</sup> On the other end of the spectrum one can place Italian design which derived from “the spirit of high cultural aspirations”,<sup>10</sup> often applying the principles of craftsmanship related to famous historic centres on the Apennine Peninsula. Moreover, contrary to the Scandinavian approach of domestic use, it “was made for exports and the effects of Italian design have in some ways been felt more abroad than at home”.<sup>11</sup> The stylistic liberation and freedom of expression came with radical design (Superarchitettura, Archizoom Associati) and postmodern tradition (Memphis Milano), but remaining rather an artistic rebellion and exercise in innovation<sup>12</sup> than shaping the spaces of everyday life. The most visible connection linking Scandinavian design with Italian movements can be traced during the period of radical changes of the 1960s when fantasy landscapes became new design language, like in the case of Verner Panton and Joe Colombo.

Historically speaking, the period of substantial growth of the design from the North can be linked to the emergence of modernism. It enabled the implementation of the already existing production practices and adjusting them to the idea of mass production thanks to the shift in overall aesthetics, which became more functional and sparser in terms of ornamentation. For Finland, which regained independence in 1917, this transition was a meaningful way of establishing new visuals for national identity, free from any Swedish or Russian connotations. The role of Scandinavian design and its growing significance at the time can be traced, among other sources, through the lens of the Danish magazine *Kritisk Revy*, which played an im-

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<sup>8</sup> MR. [JEFFERY] KEEDY, “Zombie Modernism. It Lives!” In “The Rebirth of Design,” special issue, *Émigré* 34 (1995): 32–33.

<sup>9</sup> Barbro KULVIK, “Prime Movers of the Year in Design. A Jump from One ‘-ism’ to Another is Not Possible,” *Form Function Finland* 1 (1989): 29–32.

<sup>10</sup> Stina TEILMANN-LOCK, “The Design Approach in a Design Historical Perspective,” in *The EU Design Approach A Global Appraisal*, ed. Jens Schovsbo, Annette Kur, and Marianne Levin (Cheltenham: Edward Elgar Publishing, 2018), 38.

<sup>11</sup> TEILMANN-LOCK, 42.

<sup>12</sup> Judith GURA, *Postmodern Design Complete* (London: Thames & Hudson, 2017), 368–437.

portant role in popularising modernist projects.<sup>13</sup> Moreover, as underlined by Pekka Korvenmaa, “the Nordic concept is important here, for in these countries the agenda and ideology of modernism had a distinct social and reformist tone. Marking architecture, applied art and graphic design since the early 1930s, modernism was part of the process of modernization, with ‘new form’ serving societal, industrial and cultural change.”<sup>14</sup> Further on, Scandinavian design has been popularised through World Fairs (the 1939 New York World’s Fair<sup>15</sup>), exhibitions (i.e., the *Design from Scandinavia* travelling exhibition), and retail expansion abroad, especially in the USA (with the influence of the Design Within Reach shop).<sup>16</sup> Over the course of time, the core values of Scandinavian design have remained constant, prioritizing the same principles of functionalism and simplicity, while being rooted in the field of strong influences coming from nature. It is equally important to mention that treating Scandinavian design as a perfectly coherent universe, without touching upon national distinctions, is a simplification made for the sake of the study, where the main focal point is the matter of multisensorial approach within the entire spectrum of the examples.

The multisensorial aspect of the projects can be seen from different viewpoints including:

- the sense of sight responsible for perceiving the visuals of the projects;
- the sense of touch responsible for experiencing the surface, shape, temperature etc.;
- the sense of smell proving olfactory experience, especially with natural materials;
- the sense of taste bringing gustatory experience, influencing the quality of consumed food;
- the sense of hearing providing an additional layer of experiencing the object in direct contact;

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<sup>13</sup> Torben JELSBÄK, “From Bauhaus to Our House – Kritisk Revy, Popular Culture, and the Roots of ‘Scandinavian Design’,” in *A Cultural History of the Avant-Garde in the Nordic Countries 1925-1950*, ed. Benedikt Hjartarson et al. (Leiden: Brill Rodopi, 2019), 860–78.

<sup>14</sup> Pekka KORVENMAA, *Finnish Design. A Concise History* (Helsinki: Alvar Aalto University Press, 2010), 96.

<sup>15</sup> Malcolm QUANTRILL, *Finnish Architecture and the Modernist Tradition* (London: Taylor & Francis, 1995), 63–80.

<sup>16</sup> Alexandra LANGE and Jane THOMPSON, *Design Research: The Store That Brought Modern Living to American Homes* (San Francisco: Chronicle Books, 2010), 7–115.

– the combination of senses as a mean of evoking memories and/or emotions, often used as a part of a subliminal message in product design.

Taking the chosen material into account, the main line of division between selected examples could have been run either according to the provided experience, or material. Opting for the latter permits a more coherent narration, focused on sensorial potential of the material.<sup>17</sup> Moreover, it can present a wide spectrum of attitudes towards a particular type of substance, often differing in terms of sensorial experience, creative concept, production method, and aesthetic solutions. To deliver an extended view on the matter the following materials are considered: wood, metal, textiles, and glass. The selection has been based upon the cultural image built upon Scandinavian design, often associating it with these natural materials. The immersive approach is touched upon based on fantasy landscapes, present at the turn of the 1960s and 1970s.

## WOOD

By far the most commonly available material, wood, provides the visual, tactile, and olfactory experience which has been used in both conceptual and commercial projects. It can convey various messages, from the locality factor, through its texture, colour, finish and even scent up to sustainability. It is crucial to distinguish mass produced pieces, even those incorporating advanced craftsmanship techniques, from conceptual pieces which do not need to meet the manufacturing/production standards. In both cases, wood has always been associated with high quality products, which require a certain level of craftsmanship, are long-lasting and change over time by acquiring patina. Moreover, on a much smaller scale, the tactile component, present in all the projects mentioned below, can be elevated by involving the user in the process of assembly, utilised among others, by the Danish brand Norman Copenhagen. Their Bau lamp, designed by Vibeke Fonnesberg Schmidt (2014), is composed of plywood pieces requiring to be assembled by the user, who experiences the tactility and the scent of wood. Even though the feeling of warmth provided by the wood might be affected by the ambient temperature, and its texture can give various tactile experi-

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<sup>17</sup> Hengfeng ZUO ET AL., “An Investigation into the Sensory Properties of Materials,” in *The Second International Conference on Affective Human Factors Design, Singapore 27-29 June 2001* (London: Asean Academic Press, 2001), 500–507.

ences,<sup>18</sup> the material has always been at the core of Scandinavian design because of its durability and traditional connotations.

Commercial projects such as Alvar Aalto's and Hans Wegner's furniture provide an insight into the potential of wood in terms of shape and finishes.<sup>19</sup> The elaborate techniques of bending solid wood and plywood unlocks a multitude of forms which can be experienced on various sensorial levels. Aalto, being a pioneer of bent plywood technique, widely popularised from the 1930s onwards, has introduced his idea of functionalism based on a user-friendly(ier) approach in terms of materials. However, this was not achieved only by replacing the commonly used tubular steel with natural wood, but also by providing simple yet organic forms. According to the MoMA curator Eliot F. Noyes, "a design may be called organic when there is a harmonious organization of the parts within the whole, according to structure, material, and purpose. Within this definition there can be no vain ornamentation or superfluity, but the part of beauty is none the less great—in ideal choice of material, in visual refinement, and in the rational elegance of things intended for use."<sup>20</sup> Moreover, various finishes, from the most natural such as oil and soap to artificial paints and high gloss lacquers, make it possible to nuance empirical sensations. In this sense, Aalto's projects can bring the multisensorial perspective of materials evoking locality and of shape by resembling nature, hence something calming and familiar. The combination of the visual and tactile stimuli results in a holistic, positive experience for the user. As emphasized by Bente Dahl Thomsen, "in order to understand the Organic Design process and its purpose, it is necessary to know that one purpose of the competition was to bring forth the sweeping, feather light lines that appear in nature and that are tied to the human soma."<sup>21</sup> Moreover, Aalto's style, combining traditions rooted in nature with emerging artistic trends, can be seen as a new way of expression later followed by his successors. Michael Trencher also pays attention

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<sup>18</sup> Takeshi SADOHI and Kanji NAKATO, "Surface Properties of Wood in Physical and Sensory Aspects," *Wood Science Technology* 21 (1987): 111–20. <https://doi.org/10.1007/BF00376191>.

<sup>19</sup> Marina CIONCA et al., "Postwar European Chair Design. A Comeback of the Style Connection," *Pro Ligno* 4 (2015): 603–5.

<sup>20</sup> Eliot F. NOYES, *Organic Design in Home Furnishings 1941* (New York: Museum of Modern Art, 1941), introduction, n.p.

<sup>21</sup> Bente Dahl THOMSEN, "Organic, Bionics & Blob Design – Conceptual and Methodological Clarification," in *Design Society 82: Proceedings of the 17th International Conference on Engineering and Product Design Education...*, Loughborough, UK, 3–4.09.2015, ed. Guy Bingham et al. (Glasgow: The Design Society, 2015), 144.

to Aalto's innovative approach within the creative process, resulting in him "being somewhat removed from the struggles of generating the new style, Aalto also had a unique aesthetic ability, combined with his Finnish heritage, that enabled him to balance these contradictions and synthesize new responses."<sup>22</sup> Opposite to the sleek and simple organic forms of Aalto's pieces, in Hans Wegner's works, being the epitome of Danish Modern, the focal point is put on creative multitude. The multitude refers to the use of various materials within one project and different finishes can completely change its overall perception. The elegant forms of bent wood of high craftsmanship are combined with materials such as handwoven paper cord of the seat, leather or natural fabric. The textures substantially differ, from smooth surface of wood and leather to rough and natural feel of cord and fabric. The mid-century modern approach of adding an element of decoration creates a different perception of the pieces, where the tactile experience can work as a grounding factor, being the reminiscence of the true nature of the materials. The way wood is treated also determines our impression of it and our long-term empirical experience. The example is lacquer, which retains the original look for a very long time, providing the sense of permanence, while soap finish, popular in Denmark and lacking protective properties, darkens wood in direct contact with the skin, allowing natural patina to occur.<sup>23</sup> To add to the visuals, the tactile experience also changes from smooth, shiny surface, to matte, more natural and rougher.

Yet another distinctive approach to wood can be observed in the works of the Fiskars-based company Nikari, whose projects are deeply rooted in wood-making traditions, accentuating the rawness of the material. In many of their designs wood is untreated, showing natural marks and a rough texture reminding the user of its origin and uniqueness.<sup>24</sup> The company's founder, Kari Virtanen, a cabinet maker, has developed his own style by combining simplicity and natural materials. The main characteristic of the pieces is accentuating the true beauty of wood by not concealing any raw features such as uneven grains or cracks. The impeccable finish still allows them to show up, making each piece inimitable. In terms of Nikari's products there is also an element of contradiction, if not deception, for the user,

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<sup>22</sup> Michael TRENCHER, *The Alvar Aalto Guide* (New York: Princeton Architectural Press, 1995), 26.

<sup>23</sup> Chris MITCHELL and Pilar GUZMÁN, *Patina Modern. A Guide to Designing Warm, Timeless Interiors* (Artisan: New York, 2022), 24–40.

<sup>24</sup> Laura HOUSELEY, *Out of the Blue. The Essence and Ambition of Finnish Design* (Berlin: Gestalten, 2014), 60–69.



as some pieces, like the Biennale coffee table (2014), retained the rough look with cracks, while being polished and smooth to the touch (figure 1).

Within the realm of conceptual design one of the most significant examples of multisensorial projects is the Tupa armchair (2009) designed by Simo Heikkilä. The project, being more of a mental exercise on sustainability than an actual production-ready prototype, was elevated by the deeper, more profound idea of environmentally friendly and eco-conscious solution.<sup>25</sup> The armchair is made exclusively of birch wood, lacking any other material even in terms of joints, and demonstrates how every single element, including wood waste, can be turned into a usable component of the final project (figure 2). The classic form of a club armchair uses wood shavings in place of a traditional upholstered cushion, highlighting the zero-waste potential. For the user, the overall experience has been built on many sensorial levels—visual, tactile, olfactory, and auditory as well as communicative, linking the project with an idea of sustainability. Another project, which eventually came into production (Lensvelt), was the chaise lounge project called *cane divani* (1999–2011, various materials). The chaise on metal legs was made of bent cane sticks, ergonomically shaped to resemble the human body. The cane sticks of the furniture provide a strong tactile experience, where all the elements can be felt.

Wood can also provide another type of touch related experience, visible for example in the rocking chair Relaxer (1974) designed by Verner Panton. Being the introduction to his most progressive design made of synthetic materials, the chair was still very much grounded in the traditions of high craftsmanship. The half-moon shape of the piece was simple in construction yet futuristic in term of form. The project related to the progressive societal changes of the 1960s, being the embodiment of modernity and divergence from tradition.

The idea of movement has been developed and popularised by the Norwegian designer Peter Opsvik.<sup>26</sup> His works combine the sculptural forms inspired by nature with the synergy inspired by the human body and principles of ergonomics. As he underlined, “we have become a sedentary society with a rather limited view of how we should fold our limbs when sitting.

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<sup>25</sup> Anna WIŚNICKA, *Simo Heikkilä. Designer's Life and Work* (Warsaw: Wydawnictwo Uniwersytetu Kardynała Stefana Wyszyńskiego, 2020), 175–76.

<sup>26</sup> Cristina SALVADOR, “Apart from Traditional Design Approaches: Peter Opsvik's Path,” *Blucher Design Proceedings* 1, no. 5 (2014): 681–86, <https://doi.org/10.5151/despro-icdhs2014-0100>.

That is why, from the beginning of the 1980s, it was essential to demolish the stereotypical ideal of the proper sitting posture.”<sup>27</sup> Projects such as Gravity (1983), Variable (1979) or Garden (1985) break the rules of static sitting, encouraging the element of movement. Their design introduced organic shapes made of wood and fabric that *force* the user to change their sitting position, often promoting unconventional postures.<sup>28</sup> His project Garden, being a sculptural combination of poles ended with cushioned ball-like seats, provokes questions of how sitting should be redefined according to the physiological needs of the user (figure 3). Another significant Opsvik’s contribution is the Tripp Trapp chair (1972) which is meant to grow with the user from the earliest age up to adolescence. The wooden frame with moveable elements is a lesson on longevity of natural materials, which provide a tactile, visual and motoric experience at the table for the youngest audience.

The properties of wood can be also discussed based on the gustatory level. One of the examples, which derives from the Saami culture, is the production of the so-called *kuksa* vessels. Small cups curved in solid wood have been commonly used by the nomadic people of the North. While in use the natural oils present in coffee, tea, and other beverages will penetrate the porous structure, eventually sealing the vessel. At the same time, the distinctive taste and smell of wood has been an added component, differing the drinking experience from the taste-neutral tableware like glass or porcelain.

## METAL

Metal has been widely popular in Scandinavian design, however not in a way promoted by the German modernism in furniture design. The idea of a tactile experience provided by furniture has not been often explored by Scandinavian designers who preferred the natural warmth of wood. The sturdy yet subtle effect that metal delivers inspired many light projects based on the idea of reflecting and dispersing light. Moreover, warm-coloured metals, such as brass or copper, added the much-desired aspect of cosiness. The most iconic examples being the Beehive lamp (1953) by Al-

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<sup>27</sup> [www.opsvik.no/works/industrial-design/garden-0](http://www.opsvik.no/works/industrial-design/garden-0).

<sup>28</sup> Peter OPSVIK, “Rethinking Sitting,” *Visual Communication* 1, no. 1 (2002): 35–39, <https://doi.org/10.1177/147035720200100103>.

var Aalto and the Artichoke by Poul Henningsen (1958).<sup>29</sup> The latter was deeply convinced that metal used in a functional, yet modern way would bring new qualities to the development of design. Combining the new aesthetic with familiar connotations, Henningsen established a new way of experiencing the most basic of human needs—light. Replacing glass with metal has a significant impact on the way light fixtures are shaped and allows one to create different sculptural forms. It also makes objects less fragile, creating a more user-friendly solution. Current projects use metal in order to achieve original shapes, like the Cirque lamp (2016) by Clara von Zweigbergk bringing the memory of Copenhagen’s Tivoli Gardens.

Another equally significant multisensorial experience is delivered by cutlery. This type of objects is experienced on the level of sight, touch, and taste. The personal contact between the object and the user can provide different type of encounters based on one’s subjective preferences and taste. However, it has been scientifically proven that the shape, the weight and even the colour of cutlery can affect the way food is perceived by the user. This variable can affect the sweetness, saltiness, etc.,<sup>30</sup> which undoubtedly proves the multisensorial aspects of cutlery. Within the spectrum of Scandinavian design, it is worth mentioning four sets of cutleries designed by Henning Koppel Henningsen, Jens Quistgaard, Arne Jacobsen, and Tappio Wirkkala. They all come from a different idea of what sort of user experience cutleries ought to provide. Koppel’s set designed for Georg Jensen has rounded shapes and colourful plastic handles, which recall the pop design of the late 1960s and early 1970s. Both the shape and colour resemble children’s cutlery, providing a youthful aesthetics. Jens Quistgaard’s set named Fjord from the same period, uses a very similar shape, influenced by the mid-century and pop visuals, however, its wooden handles change the overall user experience, building a more timeless image of the set. Quite the opposite way of cutlery design has been presented by Arne Jacobsen’s cutlery launched in 1957 (figure 4). Its futuristic, streamlined and elongated form combined the modernist and futurist aesthetic, providing a completely new experience on all levels, demanding a slightly different way of holding

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<sup>29</sup> Mark MUSSARI, *Danish Modern: Between Art and Design* (London: Bloomsbury Academics, 2016): 29–45.

<sup>30</sup> Vanessa HARRAR and Charles SPENCE, “The Taste of Cutlery: How the Taste of Food Is Affected by the Weight, Size, Shape, and Colour of the Cutlery Used to Eat It,” *Flavour* 2 (2013): Article 21, <https://doi.org/10.1186/2044-7248-2-21>.

them, similarly to Wirkkala's Composition set from 1963, with twisted knife handles.

Even though metal has not been extensively used in projects revolving around multisensorial experience in the realm of Scandinavian design, it proved to have the potential for more creative experiments.

### TEXTILES

Textile-wise the sensorial aspect can be investigated from the way texture is perceived to the tactile and olfactory (sometimes even auditory) connotations the material can provide. As proved by the control experiments run by a Southampton research team, "texture and texture perception or perceived texture are two different concepts, the former is objective, the latter is subjective... In the material texture perception by touch, vision can increase the response to geometrical configuration, and enrich, strengthen the emotional feelings. Blindfold can increase the responsive sensitiveness to some physical-chemical characteristics, particularly warm-cold, moist-dry, and hard-soft."<sup>31</sup> Another example of multisensorial experience can be observed in terms of the Finnish textile company Marimekko. Their fabric design is deeply rooted in the tradition of nature-inspired patterns, which in combination with natural materials, such as linen and cotton, creates a long-lasting connotation with something authentic and wild (figure 5). Using the same pattern on different surfaces, depending on the product, brings a unique experience<sup>32</sup> combining the visual familiarity with the new tactile experience. In addition, recent studies in Nordic textiles show possibilities in active sound reduction thanks to the new generation of smart fabrics which can be used for sound absorption as well as the way fabrics can change the individual experience of sound as proved by Margareta Zetterblom.<sup>33</sup> Fabrics were also used in furniture design, replacing sturdy seating materials such as wood, allowing the pieces of furniture to adapt to the weight of the user. Some examples are the series called Eva (1933–1941), Pernilla (1943)

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<sup>31</sup> ZUO ET AL., "An Investigation into the Sensory Properties," 507.

<sup>32</sup> Hendrik N. J. SCHIFFERSTEIN and Pieter M. A. DESMET, "Tools Facilitating Multi-Sensory Product Design," *The Design Journal* 11, no. 20 (2008): 137–58. <https://doi.org/10.2752/175630608X329226>.

<sup>33</sup> Lena BERGLIN and Margarita ZETTERBLOM, *Textile Sound Structures*, poster presented at the Ambience '08 International Scientific Conference, 2–3 June 2008, accessed February 20, 2023, <https://www.diva-portal.org/smash/get/diva2:886697/FULLTEXT01.pdf>.

and Miranda (1941) by Swedish designer and interior architect Bruno Mathsson. The ergonomic shapes of his projects made of birch plywood, use linen webbing in place of cushioning. This simple solution uses the natural stretch of the fabric to provide the user with a soft, movable sitting which adapts to their shape. The same idea has been used earlier by Alvar Aalto, however in “ergonomic design, rather precise acts of sitting are often in focus, as exemplified by the Balans chairs by Mengshoel and Opsvik for Stokke, and by how the Swedish designer Bruno Mathsson is said to have come up with the basic shape for one of his chairs by sitting down in the snow and then measuring the resulting imprint.”<sup>34</sup> This clearly shows the tactile experience which determines the utility of the projects. Another property of fabrics is the power of evoking lightness, which can be seen in projects of the Swedish designer Jonas Bohlin. His LIV-Collection Lamp (1997) and Orion lamp use natural and synthetic fabrics to diffuse light, while the construction of the lamps is meant to be moved by the wind, reminiscent of the natural movement.

## GLASS

Glass, often considered by designers exclusively for its visual aspects, brings the tactile element of shape and structure. The nature of the material gives numerous possibilities of finishing its surface, like polishing, engraving, carving, sanding, each of them bringing different results. In Scandinavian design, and particularly in Finland, glass has been widely popularised in the 1960s as an integral part of everyday living. The early modern Finnish examples can be traced back to modernism, cultivating the ideas of functionalism and egalitarianism. A good example of applied simplicity with a visual and tactile enhancement can be found in Aino Marsio-Aalto’s projects of tumbler glasses from the early 1930s. Their basic conical form has been adorned by irregular rippled rings placed around their surface. This added an interesting visual component, also providing a much more interesting user experience in terms of tactility and in terms of function as the design sat better in the hand. Others tend to mimic contact with nature, evoking the earliest memories of the user by using different techniques, very often focused on the surface of the object. One of the most notable

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<sup>34</sup> Johan REDSTRÖM, “RE:Definitions of use,” *Design Studies* 29, no. 4 (2008): 412.

examples of adding the strong sensorial aspect to the design has been presented in 1964 by Timo Sarpaneva in his collection called Finlandia. All the objects, including tumblers, vases, carafes, candleholders, were mouth-blown using a special mould made of carved and textured alder wood. Thanks to this technique, each object was unique, having a slightly different surface due to the mould. The idea of unevenness of the pieces, accentuating the artisanal production has been transposed onto the item itself, bringing additional value. Indentations, tiny holes, and texture provide another layer of sensorial experience, apart from the obvious look and the usually smooth glass surface.<sup>35</sup> The use of wooden moulds in Finland has a history which brings the multisensory aspect deriving from Alvar Aalto's experiments with bent plywood, which allowed him to create the organic form of the mould for his most iconic glass project the Savoy vase in 1936.

A very similar concept of using wooden casts can be seen in Paader's Ice—sculptures by Tapio Wirkkala designed for the Iittala glasswork in 1962. The ripples in the surface have the tactile properties but the focus is put on the visual aspect, particularly when the piece is lit by natural light, which gives the same impression as melting ice. Even though the technique of production is quite simple as “texture derive from the interplay between the molten glass, the mould into which it is poured, and the pressure exerted to create the basic hollows in the top surface. The result is a magnificent example of a design that allows the material to speak for itself.”<sup>36</sup> The sensorial experiments were introduced into the realm of mass production with Wirkkala's series called Ultima Thule (figure 6). The main source of inspiration for the series was the ever-changing nature of ice. The state of matter which turns from solid to liquid, permeating in between, has inspired the organic shape of the vessels. The nature-drawn inspiration can be seen on the irregularity of form, resembling various forms of ice from frostbite, through the ice sheet of different clarity, up to icicles.<sup>37</sup> Rounded shapes bring the idea of melting ice, which is reinforced especially by the water condensation on the glass, mimicking the actual contact of warm hand with the coldness of frozen water. The visual and tactile level appeals to the

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<sup>35</sup> Andy McCONNELL, “Triumph of Design Collecting Post-War Glass from Sweden & Finland: The Remarkable Variety as well as the Quality of Modern Scandinavian Glass Is Attracting Increasing Numbers of Collectors,” *Apollo* 165 (May, 2007): 66–71.

<sup>36</sup> Keith CUMMINGS, *A History of Glassforming* (Philadelphia: University of Pennsylvania Press and A&C Black, 2002), 167.

<sup>37</sup> Kaisa KOIVISTO, “How Finnish Utility Glass Became Part of Scandinavian Design,” *Journal of Glass Studies* 62 (2020): 245–62.

shared experience of the North, where the weather conditions impose direct contact with nature.

The idea of introducing natural connotations into glass production was also used and popularised by Oiva Toikka. His Kastehelmi (dewdrop) collection refers to the look of dew drops on the surface of the glass, adding the tactile experience by providing convex elements that bring an added stimulus. The visual aesthetics of droplets, placed in rows, varying in size, mimics nature in its imperfection and diversity. Although the initial idea of the beads came as a way of concealing glass production defects, the final result turned out to add an unexpected value to the project and has been turned into a focal point.

The newest experiments with tactility in glass making can be observed in the series launched by the Danish brand Ferm Living called Ripple Glass. It combines the idea of visual interest by changing the proportions between glasses' bases and bodies within one set with the tactile and auditory experience. The first one is brought by vertical undulations in the thin glass structure, the other by the sound of very thin, crystal glass, rarely used by Scandinavian designers known for their functional approach. However, on the multisensorial level the thickness of glass and its shape can also affect the taste of the beverage, which has been proved while researching wine-tasting variables.<sup>38</sup> This is a topic for further interdisciplinary studies on Nordic glassware as the Scandinavian approach to multifunctionality often disregards the strict rules of glass use in terms of the beverage served.

Another example which is equally interesting in multisensory terms is the Kivi candle holder collection (1988) designed by Heikki Orvola. It is mainly focused on colour properties, characteristic of Iittala's in-house advanced pigments development.<sup>39</sup> The cylindrical glass vessels use various colours of unusual undertones, which are inspired by the colours of Finnish nature, mainly the spectrum of the Northern Lights. Combined with the warmth of fire (in the form of a tealight candle) and the transparency, glass can evoke various psychological responses, many of which are directly linked with the feeling of cosiness, resembling the sensation of looking at

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<sup>38</sup> Raffaele CAMPO, Felipe REINOSO-CARVALHO, and Pierfelice ROSATO, "Wine Experiences: A Review from a Multisensory Perspective," *Applied Sciences* 11, no. 10 (2021): 4488, <https://doi.org/10.3390/app11104488>.

<sup>39</sup> Peter FRANK, "Ken Friedman: A Life in Fluxus," in *Artistic Bedfellows: Histories, Theories and Conversations in Collaborative Art Practices*, ed. Holly Crawford (Lanham: University Press of America, 2008), 150–51.

fresh fruit thanks to the component of translucence.<sup>40</sup> The colour aspect, operating between the extremes (so characteristic of the Scandinavian design—shadow–light, hot–cold, etc.), is an idea used also by lighting designers. Many projects combine the element of layering and see-through materials, including paper, which provide the user with a much softer light, often associated with the concept of the applied cosiness also known as *hygge* which has an impact on the global well-being and social experiences.<sup>41</sup>

The last category of glass products which should be mentioned are light fixtures. In this case, glass changes its visual properties depending on the light source as well as on the level of natural light. Historically speaking, Scandinavian approach to light has been strictly linked to creating a living environment that would meet the utility and welfare standards. For this reason, many projects were designed with a specific function in mind whether to provide a work light source which would be bright and usually oscillating within the cold spectrum of white or to create ambient light, currently often falling under the cultural/marketing *hygge* umbrella. The latter can be exemplified by early projects of Poul Henningsen, who by using warm-coloured, amber glass was able to mimic the colour of fire, i.e., very warm, orange-based light which from the psychological point of view provides the most relaxing environment.<sup>42</sup> His projects, including glass-shape models of PH 3/2, PH 2/1, were meticulously designed and based on the in-depth knowledge of the physics of light, ensuring the proper lighting angle, strength and even warmth.<sup>43</sup> The newest IKEA collection called Varmblxt (2022), designed by Sabine Marcelis, is based on the same idea of ambient light, which creates an inviting environment rather than a working light fixture (figure 7). The collection embraced the designer's favourite donut shape, previously manufactured as a pouf, and utilised it in lamp

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<sup>40</sup> Yeong Ji Cho HWANG and Taig YOUN, "The Role of Transparency in Color Preferences: Sweetness Expectation and Preference for Translucency," *Psychology of Aesthetics, Creativity, and the Arts* (2022), advance online publication, accessed March 15, 2023, <https://doi.org/10.1037/aca0000530>.

<sup>41</sup> Mikkel BILLE and Tim Flohr SØRENSEN, "An Anthropology of Luminosity: The Agency of Light," *Journal of Material Culture* 12 (2007): 263–84, <https://doi.org/10.1177/1359183507081894>.

<sup>42</sup> Rossella TOMASSONI, Giuseppe GALETTA, and Eugenia TREGLIA, "Psychology of Light: How Light Influences the Health and Psyche," *Psychology* 6 (2015): 1216–22, <https://doi.org/10.4236/psych.2015.610119>.

<sup>43</sup> Anders V. MUNCH, "Conspicuously Quotidian: Poul Henningsen on Bauhaus and the Art of Promoting Danish Modern," *Tahiti* 11, no. 1 (2015): 7–19, <https://doi.org/10.23995/tht.111940>.



form. The round shape in combination with orange-tinted glass gives the illusion of softness. The question of light that explores the *emotional possibilities of light at home*<sup>44</sup> is very deeply rooted in the Scandinavian approach to everyday life, evoking the memories of fire and warmth.

#### FANTASY LANDSCAPE

Discussing the multisensorial face of Scandinavian design, one should touch upon the question of the fantasy landscapes, particularly popular in the 1960s and 1970s. The utopian idea of creating the entire living environment as an immersive experience based on the variety of textures, colours, and shapes came to life as a part of the cultural discourse revolving around often contradictory phenomena. The question of immersion should be accentuated, especially considering its unclear definition, which can be understood differently according to its application. As accurately pointed by Florian Freitag's research team, "depending on the context, immersion may designate either a specific state of mind or a set of properties, found in either objects or practices, that contributes to generating such a state of mind."<sup>45</sup> It can generate numerous types of experiences, varying from optical and tactile, through those directly linked to the overall exposure to the space generated by modified proportions of the space in relation to the human body.<sup>46</sup> All the features have been applied to the design of fantasy landscapes, accentuating the multisensorial impact on the user.

The futuristic visions, on the one hand, have been fuelled by the technological development and the space race, particularly in the Western world associated with a certain type of aesthetics known as the Space Age design. On the other hand, the 1960s and early 1970s visuals were heavily influenced by the hippie subculture, with contrasting colour schemes often being the aftermath of travels to India and the exposure to its material and cultural heritage. The two ostensibly distant origins resulted in extremely complex visions were combined in the psychedelic exhibition *Visiona 2* designed by Verner Panton in 1970 for Bayer's cruise ship (figure 8). Fantasy

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<sup>44</sup> See <https://www.ikea.com/global/en/stories/varmblixt-collection-130223>, accessed May 15, 2023.

<sup>45</sup> Florian FREITAG ET AL., "Immersivity: An Interdisciplinary Approach to Spaces of Immersion," *Ambiances* (2020): 1–23, <https://doi.org/10.4000/ambiances.3233>.

<sup>46</sup> Špela HUDNIK, "The Image of City in Popular Culture," *Urbani Izziv* 14, no. 2 (2020): 104–8.

landscapes and interior design were a vast part of Panton's creative portfolio, always bringing holistic, yet innovative approach. Among the most famous projects there were the Kom-igen guest house, the *Visiona* exhibition in Cologne, and the offices of *Der Spiegel*.<sup>47</sup> Although all of them incorporate multisensorial principles, they reached their heyday in the *Visiona 2* project. Its concept played on the idea of spatial arrangement which must be perceived with all the senses, encouraging the user to reconsider the way their own living space is shaped and utilised. The entire room furnished with custom-designed modules was meant to be experienced rather than used. As underlined by Mads Nygaard Folkmann, Panton's projects "explore the sensual impact and range of basic constituents of ambience such as strong colours, the use of organic and geometrical forms in combination, and the role of the surface and the texture and fabric of materials;... many of his designs can be regarded as an act of isolating what a place is, what the various devices of interior design can be used for, and how a place signifies. They are laboratories of the possibilities of interior design."<sup>48</sup> Another important aspect of the work is the use of colour, which was very intentional given Panton's interest in its psychological aspects. It is known that the designer thoroughly studied and analysed the relations of colours of various undertones in one space, as well as their impact on the user. He owed his in-depth knowledge to Martin Johansen, under whose supervision he conducted short-period research.<sup>49</sup> The idea of a fantasy landscape implemented by Verner Panton arose around the concept of stimulating all the sense, simultaneously depriving the user from any kind of connection to the outside world. The holistic experience of the space with dimmed, artificial light, soft fabrics, organic shapes embracing the body, and an array of colours was meant to provide the surreal impression of entering a foreign yet inviting environment, currently being popularised by many artists specialising in immersive art installations.<sup>50</sup> Apart from the obvious set of sensory

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<sup>47</sup> Marlene OTT and Nicola IMRIE, "Progressive Design for a Progressive Journal: Verner Panton's Interiors for the Spiegel Building in Hamburg," *Studies in the Decorative Arts* 17, no. 1 (2009): 96–122, <https://doi.org/10.1086/652665>.

<sup>48</sup> Mads Nygaard FOLKMANN, "Aesthetic Coding in Interior Design," in *The Handbook of Interior Design*, ed. Jo Ann Asher Thompson and Nancy H. Blossom (Chichester: Wiley & Sons 2015), 104.

<sup>49</sup> Sabine EPPLE, "Verner Panton as an Interior Designer," in *Verner Panton: The Collected Works*, ed. Alexander Von Vegesack and Mathias Remmele (Weil am Rhein: Vitra Design Museum: 2000), 158–59.

<sup>50</sup> Just to mention the *Infinity Rooms* by Yayoi Kusama, see <https://www.tate.org.uk/whats-on/tate-modern/yayoi-kusama-infinity-mirror-rooms> (accessed June 4, 2023).

experiences, this kind of artificially built space can be also seen from a different perspective, involving psychology and feminist studies. Julia V. Hendrickson brings a new viewpoint on this project through the concept of *motherism* introduced by the artist Lise Haller Baggesen. The idea applies all the physical and mental connotation of motherhood, using main tools of women's studies. According to the author, Pantón's work can be read also on a more subliminal level, being a direct reference to one's earliest memories and/or dreams. Regarding the aesthetic layer of the Visiona 2 project, she says that

in Motherism, the use of bright colours, soft surfaces, and soothing lights in immersive surroundings references a therapy technique first developed in the Netherlands in the 1970s for children with autism and other developmental disabilities: a controlled multi-sensory environment (MSE), or Snoezelen room. This word is combination of the Dutch verbs snuffelen—meaning to sniff, or colloquially, to poke around and inquire—and doezelen, meaning to doze or rest lightly and peacefully.<sup>51</sup>

An even more powerful impact can be noticed by the tactile experience, providing the feeling of being encapsulated and protected, bringing maternal connections called *womblike* by Hendrickson.<sup>52</sup> Sabine Epple also raises that aspect of prenatal safety, contrasting it with other radical designs of the period, including Jo Colombo's.<sup>53</sup>

## CONCLUSIONS

The question of the multisensory in Scandinavian design, although not yet thoroughly investigated in international literature, provides a valid research opportunity, engaging both the design critique and cultural studies viewpoint. The design identity, particularly present in Finland and Denmark, is created by particular social-economic and cultural conditions and involves a high level of craftsmanship. Companies with a clear vision have been known to provide almost patronage-like environment for the artists,

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<sup>51</sup> Julia V. HENDRICKSON, "The Mother-Shaped Hole: Lise Haller Baggesen's Motherism," in *Inappropriate Bodies: Art, Design, and Maternity*, ed. Rachel Epp Buller (Bradford: Demeter Press, 2019), 40.

<sup>52</sup> HENDRICKSON, 41.

<sup>53</sup> EPPLE, "Verner Pantón," 176.

encouraging creative experiments. Finally, the natural habitat itself, as an integral part of everyday life, was a vast source of inspiration for multisensorial approach to design. The present text aimed to showcase a variety of approaches to the questions by analysing case studies based on selected material of Scandinavian origin. For reasons of space, I did not touch upon a wider selection of materials, i.e., paper, leather, synthetics, etc., which deserve a separate examination. The main outcome, being also a further research opportunity, confirms the theory of the multisensorial nature of Scandinavian design. However, its distinctive nature does not seem to be fully intended in all the cases. Some of the projects use materials subconsciously, being more focused on the cultural message, like wood waste furniture, while some others came out with it as a result of visual experiments. Another question worth signalling is the intertextuality of projects. The popularity of well-executed multisensorial solutions is evidenced by many design inspirations and stylistic repetitions. Some of the most vivid examples are the Artichoke lamp by Poul Henningsen, adapted by several other brands such as Normann Copenhagen, Umage, IKEA. Aino Alto's rippled glass texture is repeated by IKEA and Ferm Living and certain ways of material use link brands such as Nikari, Carl Hansen & Søn and Artek. One could argue that also Verner Panton's and Peter Opsvik's pieces equally introduce the concept of dynamic sitting, infusing the project with movement. The matter can be illustrated with an array of examples, which would benefit from a separate case study and an in-depth analysis. Scandinavian design provides a wealth of examples which can be further analysed, including in-depth archival studies involving creative motivation behind the projects in order to trace back the earliest conscious motivation of providing the user with multisensorial experience. Moreover, in terms of psychology of perception, interdisciplinary study could reveal whether the weight, material and colour of cutlery and tableware present some universal pattern characteristic of Scandinavian design which affect the target user. Summarising, the question of multisensory approach to Scandinavian design offers many research opportunities, which would benefit from a multidisciplinary approach.

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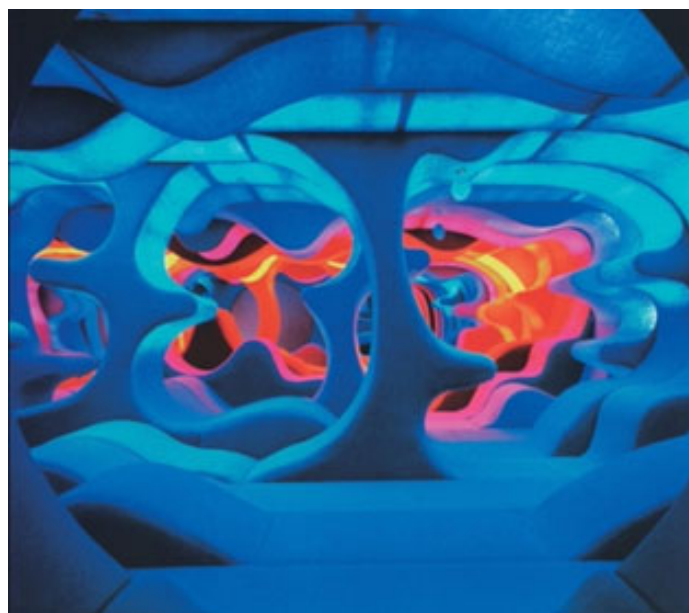
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## SCANDINAVIAN APPROACH TO MULTISENSORY DESIGN

## Summary

The text aims to investigate methods and techniques introduced by Scandinavian designers which are beneficial to the overall sensorial aspect of their work. To emphasize the wide spectrum of the subject, various materials would be taken into consideration—wood, glass, metal, textiles. Thanks to the analysis of selected case studies it is possible to showcase the main ideas

of how the multisensorial design practices have been implemented within the realm of Scandinavian design, focusing on diversity of examples. The methodology applied uses the analysis method of design history combined with the perspective provided by cultural studies and their analysis of the broad context. To enrich the latter, also certain cultural associations will be considered. Wood provides the visual, tactile, and olfactory experience which has been used in both conceptual and commercial projects. Glass, often considered by designers exclusively for its visual aspects, brings the tactile element of shape and structure, which are meant to mimic the contact with nature, vital for many Nordic projects. Metal and textiles can be considered as opposite sensorial features based on contrasting properties, hot–cold, soft–hard. The study serves as an introductory paper to touch upon the question of multisensory in Scandinavian design, not thoroughly investigated in international literature, by presenting further opportunities for in-depth studies.

**Keywords:** multisensory; Scandinavian design; Nordic design; product design; wood; metal; textile; glass

#### SKANDYNAWSKIE PODEJŚCIE DO MULTISENSORYKI W DESIGNIE

##### Streszczenie

Podejście sensoryczne jest nierozdzielnie związane z wzornictwem przemysłowym. Prototypy i/lub produkty wchodzące do produkcji są doświadczane na poziomie sensorycznym. Tekst ma na celu zbadanie metod i technik wykorzystywanych przez skandynawskich projektantów pod kątem multisensoryki. Aby podkreślić szerokie spektrum tematu, pod uwagę zostaną wzięte różnorodne materiały. Drewno zapewnia bodźce wizualne, dotykowe i zapachowe, które zostały wykorzystane zarówno w projektach koncepcyjnych, jak i komercyjnych. Szkło, często rozważane wyłącznie pod kątem wizualnym, wnosi walor dotyku w postaci kształtu i faktury. Słuchowa natura designu jest również wykorzystywana w nowej fali eksperymentów w sferze tekstyliów. W szerszej perspektywie wiele firm stosuje również techniki brandingowe wykorzystujące olfaktoryczne konotacje skandynawskiego dziedzictwa. Podsumowując, zagadnienie multisensoryczności w skandynawskim designie, choć nie zostało jeszcze dokładnie zbadane w międzynarodowej literaturze, stanowi ciekawą perspektywę badawczą, interesującą zarówno z punktu widzenia krytyki designu, jak i kulturoznawstwa.

**Słowa kluczowe:** design; multisensoryka; design skandynawski; user experience

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