

Interactivity and creativity in design, through the lens of materiality

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The design process requires systematic methods, tools and data to support the creation and evaluation of a user-dedicated experience based on the desired message. Interaction in design is at the heart of the system of relating and perceiving a message or subject, being influenced by the informational and sensory quantum. Sensory and multisensory aspects are transposed into the creative and interaction process through new creative methods of representing the desired experiences using contemporary technologies such as sensors, robotics, augmented reality, virtual reality and 3D printing with new types of materials.

The contemporary user has moved away from the role of a passive recipient of products and services and has become an active participant in shaping the experiences intended for him. With the advent of “human-centred design”, the importance of empathizing with the user was recognized, thus appealing to understanding his needs and desires in the product development process. By experimenting with new and familiar materials, personalizing products and assimilating the diversity of user experiences, those who practice contemporary design discover and create new types of sensations by capitalizing on the user’s daily experiences. Following psychological research and analyses conducted through the lens of the sensory in the interaction between product and user, it was found that intuitive and unconscious/automatic memory guides the decision-making factor in the first stage of communication. The creative process is at the heart of the design of the project dedicated to the user and is guided by its sensory, informational and psychological data. By understanding the cultural, social and historical connotations of material diversity, as well as their physical properties and sensory characteristics, designers can use them to more effectively communicate the message evocative of emotions and meaning.

The analyses and creative processes dedicated to this project have as an area of interest the ways of perception and interaction between the human being and the visual arts.

Behavioural design addresses emotions such as pleasure or disgust based on assimilated experiences. Subsequently, we prefer the round shape for the

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wheel, as it is easier to use. Reflective design also requires more complex thinking: it involves self-image, personal satisfaction and associations. It is a determining factor in many brands and entities. A consumer buys a coffee from Starbucks based on his satisfaction with the product, previous positive experiences and personal identity related to the status that the brand's reputation confers. People prefer easy options. The user experiences a sense of stress when choosing an option. The less complicated the decision, the more comfortable we feel. Design that seems easy to use is more attractive to us than design that seems complicated. Light colours, such as red, blue and yellow, are less demanding on the viewer than a complex colour, such as olive green.



Fig. 1, 2 Chromatic interaction – environmental design¹

User memory plays a critical role in shaping user experience (UX) design. By understanding how users access information, we can create more intuitive, engaging, and memorable experiences. In this section, I will explore the importance of user memory in design and practical steps to harness memory to improve user experience. Design can use human memory as a guide to improve experience. By activating an abstract concept that is currently in the viewer's mind (for example, the steps needed to purchase something online), we can effectively manage expectations to streamline the relationship between the experience and the user.

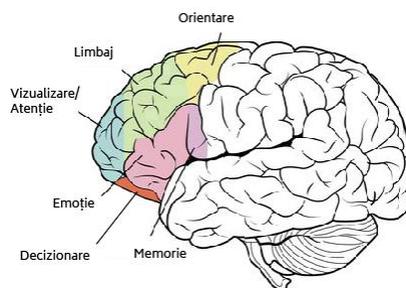


Fig 3 Chesley Bonestell, *Short term iconic memory*

¹ “Linea comfort botanic” – interior design, source: <https://cutt.ly/4wecRSVa>.

The areas of the brain highlighted in the image, from top to bottom: orientation, language, visualisation / attention, emotion, decision-making, memory.

Memory is a complex natural system for storing and processing data. It stores a lot of information throughout life and is even able to organize it according to the needs of the owner. Moreover, it assumes the responsibility of setting priorities and preserving certain details that could be remembered, while information that is not needed or has not been used for a long time is deleted. Human memory is one of the mechanisms that determine human interaction with the outside world.



Fig. 4, 5 Chesley Bonestell, *New York central building* ²

By experimenting with new and familiar materials, customizing products, and embracing the diversity of user experiences, contemporary designers are discovering and creating new types of sensations by capitalizing on the user's everyday experiences. The senses are the direct source of stimulation, pleasure, and pain, and are therefore inherently essential to the human body. Their importance fits perfectly into the wake of the cultural sphere, which in turn conveys specific feelings in terms of intensity, extension, form, and meaning.³ The senses play an important role in the practices and theory of the performing arts, music and visual arts, of which the branches of design are also part. The perception of the “guiding” or “dominant” functions uses the role of the visual, auditory and tactile senses in cultural experience, being noticeable when they are used individually but also in sensory groups. Of course, the proximal senses of taste and smell, although essential for general aspects of cultural life, for example, in the field of gastronomy and perfumery, have often been placed on

² Chesley Bonestell (1929). *New York central building*, source: <https://cutt.ly/owecYUsl>.

³ Ellen Lupton & Andrea Lipps (2018). *The Senses: Design Beyond Vision*, Princeton Architectural Press, p. 6.

the secondary level in the sensory hierarchy of European culture, now extending globally. The evolutionary impact of the informative discovery of the senses in the fields of history, anthropology and social culture has led to the hierarchy of the senses according to complexity and use (visual, auditory, tactile, olfactory and gustatory)⁴.



Fig. 6 Using the control set in VR (virtual reality)⁵

Proprioception, also called kinaesthesia, is the body's ability to sense its location, movements, and actions. This is why we can move freely without thinking about our environment. VR (virtual reality) experiences involving proprioception aim to integrate the sense of physical presence into a virtual environment. For example, the virtual reality game "Beat Saber" uses controllers to create the sensation of balance and movement while also interacting through the sense of hearing. This creates a sense of physical involvement by integrating the human being into a virtual environment that gives them freedom of movement.

The communication process in relation to the contemporary user experience is represented by sensory, functional and semantic connections with the aim of conveying the meaning of the desired message, which can influence the lifespan of a project in a constantly changing society.

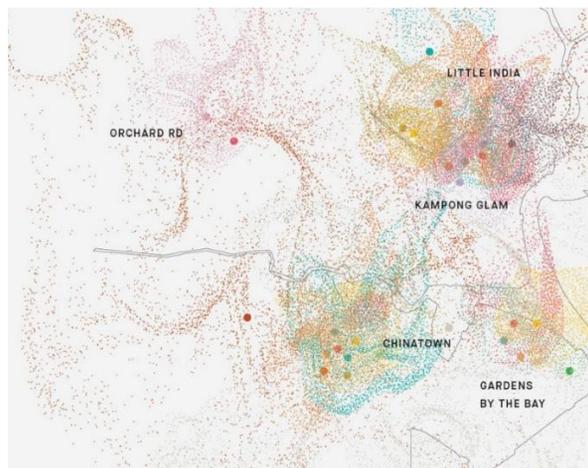


Fig. 7 Kate McLean, *Singapore sensory map*⁶

⁴ Russell Jones (2020). *Sense*, Welbeck, pp. 9-12.

⁵ Rachel Stewart (2017). *Whitney Biennial in New York*, source: <https://cutt.ly/d91O6ev>

⁶ Kate McLean (2015). *Sensory map of Singapore*, source: <https://cutt.ly/uweZeUzL>

By understanding the cultural, social, and historical connotations of material diversity, as well as their physical properties and sensory characteristics, designers can use them to effectively communicate messages that evoke emotions and meaning.



Fig. 8 Relationship between the physical world and the digital one⁷

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Webography

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⁷ Refik Anadol (2017). *Infinity installation*, source: <https://cutt.ly/k3sKgTh>.