



CROSS-MODAL ASSOCIATION

:the tendency of consumers to perceive certain features or dimensions of one sensory input as a different sensory input



Our five senses (sight, sound, touch, smell and taste) help us navigate the world every day. While it is easy to say watching TV involves your vision, it may be a little more challenging to recognize that every other sense contributes to the experience as well, just at varying degrees. The sensory input from one modality can be achieved with a different sensory modality through the idea of cross-modal association. By exploring the sensations and perceptions of the consumer, marketers can better evaluate how consumers will interact with products, packaging and communications. Learning how influential the intersensory is on an experience helps in developing a more cohesive message. Knowing the fundamentals of cross-modal association, the Skittles' idea of "tasting the rainbow" may have more layers to it than most consumers realize.

The Bouba vs Kiki Effect

The connections that exist within our brain systematically associate certain sensory inputs with different sensory inputs. Brain plasticity and sensory substitution are embedded in the exploration of cross-modal association research for the ability to substitute functions of a given sense with another modality (Metatla, Maggioni, Cullen, & Obrist, 2019). For example, certain shapes are associated with specific sounds. A classic example of cross-modal association comes from research by Wolfgang Köhler and was expanded on by Vilayanur S. Ramachandran and Edward Hubbard in the early 2000s. Participants had to assign the nonsense words "kiki" and "bouba" between two shapes (shown in Figure 1). After collecting the information, it was clear the rounder shape was associated with "bouba" and the spikey shape was paired with "kiki" (Ramachandran & Hubbard, 2001). The reasoning for the associations is unclear; however, the robust phenomenon has proven, through many replications with different words, languages, cultures and ages, it is not random.

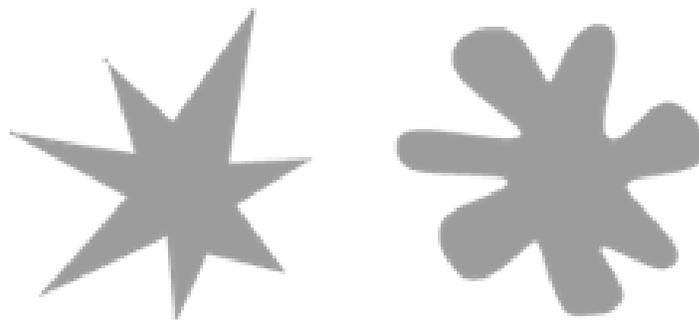


Figure 1

An example of the sharp inflections of the visual shape in "kiki" on the left and the rounded contours of "bouba" on the right (Ramachandran & Hubbard, 2001).

This study inspired the term bouba-kiki effect to represent the mapping between shapes and sounds. Although the bouba-kiki effect occurs without conscious awareness, this paradigm laid the groundwork for a lot of studies focusing on the intersections of sensory input and how it influences perceptions. Taste and sound, taste and shapes, sounds and shapes, as well as odors and sounds are just a few of the many reported cross-modal correspondences noted in the recent literature (Motoki, Saito, Nouchi, Kawashima, & Sugiura, 2019). The framework inspired researchers to look into other cross-modal associations, providing a foundational awareness of the importance of sensorial congruency.

Voice of an Angel: Harmonious Marketing Applications

Brand harmony is accentuated by increasing the extent to which sensory-related attributes of products agree with each other. Through the exploration of brands, logos, messaging and the psychical product congruency, the consumer experience will be more appealing and consistent. Shopping experiences are multisensory, therefore the consumer interactions with each sensory factor influences the experience. Setting the mood in a store is an attempt to promote buying behavior.

One example of this was investigated through brand logos. Looking into consumer judgment about the circularity and angularity of logos helps to understand mental concepts developed (and therefore, what story the brand is looking to tell). Jiang, Gorn, Galli, and Chattopadhyay (2016) explored if the shape influenced the consumer perception of the product. The circular logo was linked to softness, which then helps the product be inferred as comfortable. In this cross-modal association, the visual effect of the circular logo created a connection to a touch sensation of softness. This information is very telling because the way consumers engage with the product will affect their behaviors and perceptions towards it. **Therefore, the brand must really decide what purpose the product is serving to the consumer.** Is the brand benefitting by having the product be perceived as comfortable? The answer is dependent on the product (having a comfortable couch is great, but a comfortable computer seems a bit odd). The information about the product's role in someone's lifestyle is determined by the consumer but can be affirmed by the R&D and marketing teams. Exploring those expectations can give meaningful insight into the direction of the product development.

Furthermore, finding ways to create signature sensory experiences in a brand profile can be really valuable to it being distinguished. Whether it is the color of the logo or the celebrity representing a style, these associations will influence the consumer. Motoki et al. (2019) found how voices and perceived taste affect the consumer response during an advertisement, finding that higher-pitched voices exhibit buying intentions to sweet and sour foods over lower-pitched voices. Voice-pitch-taste correspondence influences preference, furthering the notion that each component of the sensory experience is crucial in making an impact. **Gathering information on the perceptions must be done cautiously to ensure the information obtained is valid.** Utilizing tools from psychology, such as implicit testing, can help provide an unbiased perspective on consumer opinions. Additionally, the self-assessment manikin (SAM) has been utilized to expand on the bouba-kiki effect to understand the emotional content during such complex interactions (Metatla, Maggioni, Cullen, & Obrist, 2019). Such tools provide foresight into the success of the brand harmony, consumer preference and sensory congruency.



From Development to Delivery: Ending on a High Note ↻

Consumers are overwhelmed with a lot of different products and messaging all grasping for their attention. Through cross-modal association, the product modulates messaging and vice versa. By capturing the value in each of the modalities, the components all enhance the overall message. The information that does break through to conscious awareness is extremely valuable, therefore its crucial the intersensory experience is congruent.

Consumers prefer having compatible sensory information, which is why concepts like Brand Harmony are so important when developing an immersive product experience. By keeping a cohesive storyline, the consumer can easily interpret the message being relayed and easily find the purpose of one specific product out of a crowded, competitive space. The convenience of removing the cognitive load influences consumer preference by increasing liking, acceptance, satisfaction and willingness to pay extra (Motoki et al., 2019). Knowing these benefits, exerting cross-modal association research, can ensure a holistic intersensory experience.

IF YOU ARE INTERESTED IN LEARNING HOW TO APPLY CROSS-MODAL ASSOCIATION INTO YOUR MARKET RESEARCH, **PLEASE CONTACT ALLISON.GUTKOWSKI@HCDI.NET**.

REFERENCES

Jiang, Y., Gorn, G. J., Galli, M., & Chattopadhyay, A. (2016). Does your company have the right logo? How and why circular-and angular-logo shapes influence brand attribute judgments. *Journal of Consumer Research*, 42(5), 709-726.

Metatla, O., Maggioni, E., Cullen, C., & Obrist, M. (2019). " Like Popcorn" Crossmodal Correspondences Between Scents, 3D Shapes and Emotions in Children. In Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems (pp. 1-13).

Motoki, K., Saito, T., Nouchi, R., Kawashima, R., & Sugiura, M. (2019). A Sweet Voice: The Influence of Cross-Modal Correspondences Between Taste and Vocal Pitch on Advertising Effectiveness. *Multisensory Research*, 2019(4-5), 401-427.
<https://doi.org/10.1163/22134808-20191365>

Ramachandran, V. S., & Hubbard, E. M. (2001). Synaesthesia—a window into perception, thought and language. *Journal of consciousness studies*, 8(12), 3-34.