Enhancing assertiveness of curly hair products through sensory trained panels

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Sensory Science EXPERTS & PANELS

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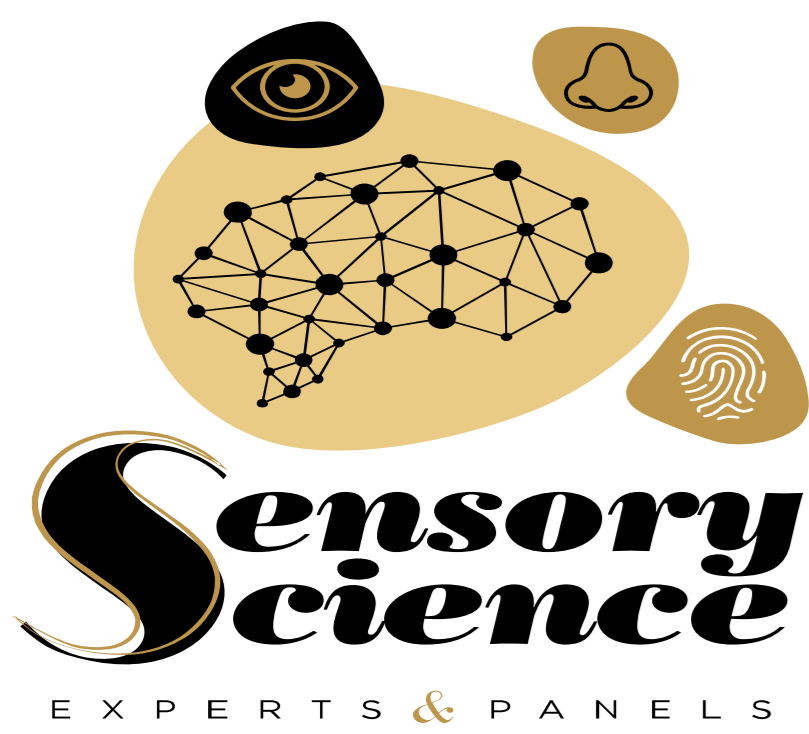
Introduction:

The search for a natural hair look increased by association with social movements made curly hair to become an important segment for the cosmetic industry. More and more the industry is formulating specific products for this target and the consumer becoming even more demanding about products' performances. The variability of hair shape is a complex and an under discovered territory where scientists are dedicating efforts to understand it. The image bellow suggest a Re-partitioning of hair into the eight curliness types [1].

I II III IV V VI VII VIII
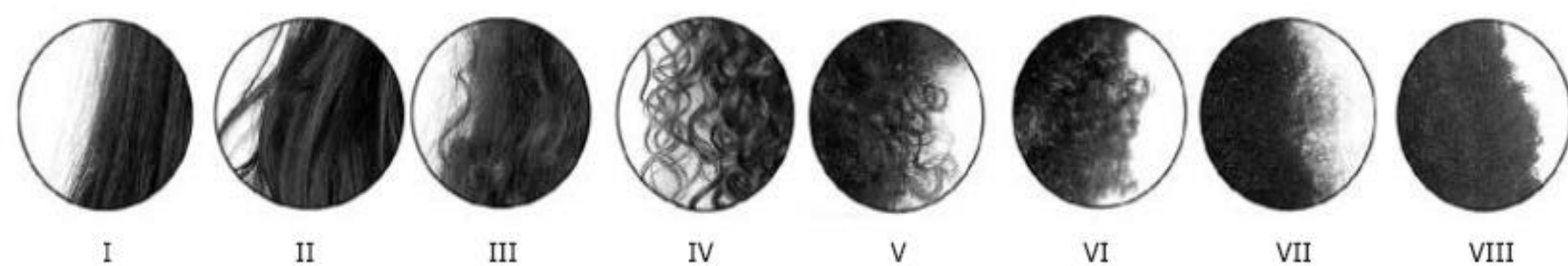
The usage, perceptiveness and sensoriality of the hair products are impacted when associated with some hair proprieties as porosity, surface integrity, smoothness, softness, resistance, hair dimeter, shine, curvature and directly related about how the consumer will perceive and use them.

As the sensory panel is a methodology where ordinary consumers are trained to increase their accuracy differentiating more the products through sensory experience, the objective of this paper is to propose an understanding about how a sensory trained panel focused on curly target can be a real important method for the cosmetic industry to better understand the hair care market.

Materials & Methods:

To select the potential panelists, it was presented some scales exercises to first understand their potential to classify and to list products on that according to their intensity and some discriminative tests. After the first assessment of this evaluation and with the group selected, they were presented to the panel methodology and for the category of Leave On products.

It was asked them to test some products and try to describe their perception of the texture and application spontaneously with the objective to cast one possible first list of attributes. All attributes listed were discussed to consensus of meaning and gestures to guarantee the same perception, developing a final list with 39 attributes.

Recruitment → Selection of volunteers → Training 6 months → Validation
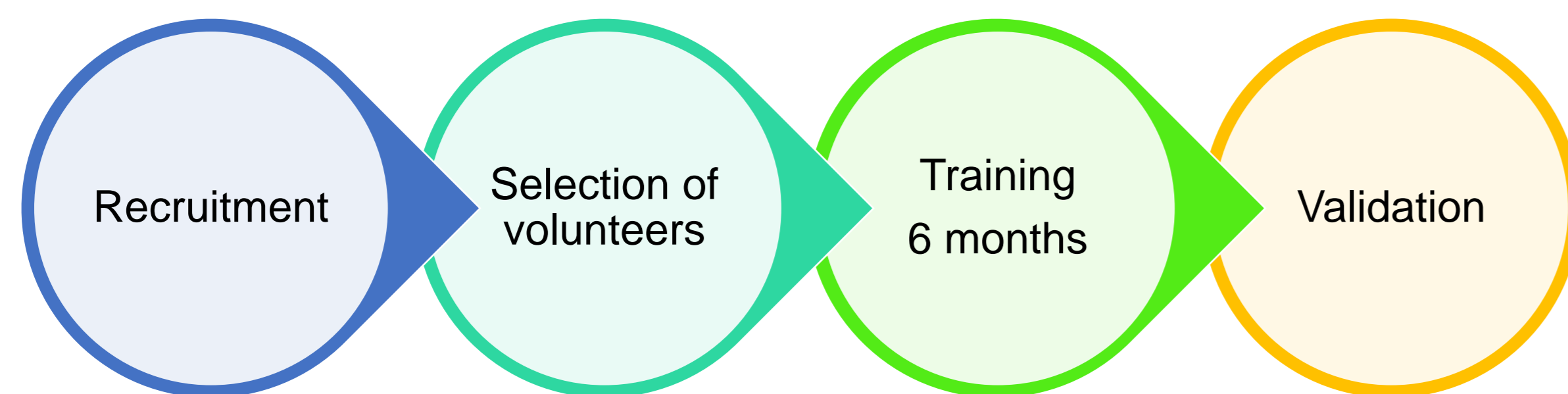
The panelist applied each product anchor on the hair to know deeper about the product – note that, some anchors are references for more than one attribute, being applied just once. The training of these group its necessary to ensure consistent and repeatable sensory assessments of different products that can also become from a different category [2].

It is import to consider that the same measurement procedure or test procedure need to be performed by the same operator on the same measuring or test equipment used under the same conditions and locate and to consider to assess the products at least in duplicate [3].

After all training of attributes and evaluations, four products were chosen for the validation of the panel based on their performances already known by the team with expressive differences on the performance. All the tests were carried out in a sensory design test room. The analysis was carried out to verify the discriminatory and reproducibility capacity of the panel and to analyze the validity of their judgments. During the evaluation the panelist receives two samples of the same product, where the first one is for texture evaluation and the second one for application - both with three-digit code. It is important to mention that this validation is done yearly to follow the panel ability and sometimes retraining sessions are held [2].

N = 15
(Brazilian women; 20 to 40 years old, Hair type III to V)

4 products

39 attributes
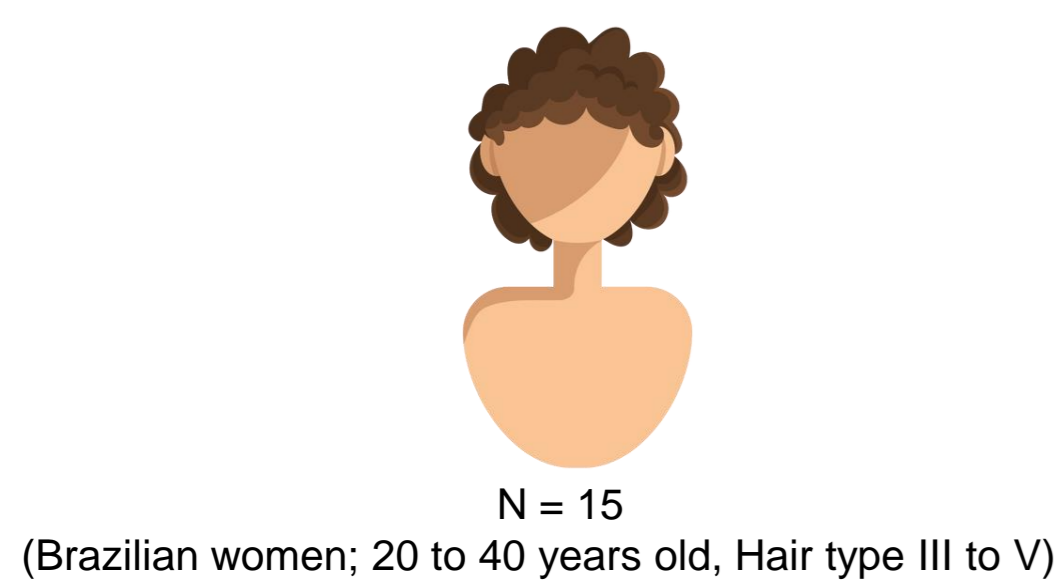
The panel performance was analyzed according to their agreement and repeatability agreement mean % of panelists with scores closer from the overall mean (% of data between mean-1,5 and mean+1,5); repeatability is the % of panelists with close scores between the first and the second assessment (% of data with │Mean2-Mean1│<1,5).

The data analysis for panel is the comparison between two products to understand their profile based on T-student statistical test analysis e/or a 2D plan mapping to represent a landscape based on Euclidian distances between the products using a Multiple Factor Analysis (MFA), that is an extension of principal component analysis (PCA) using a confidence.
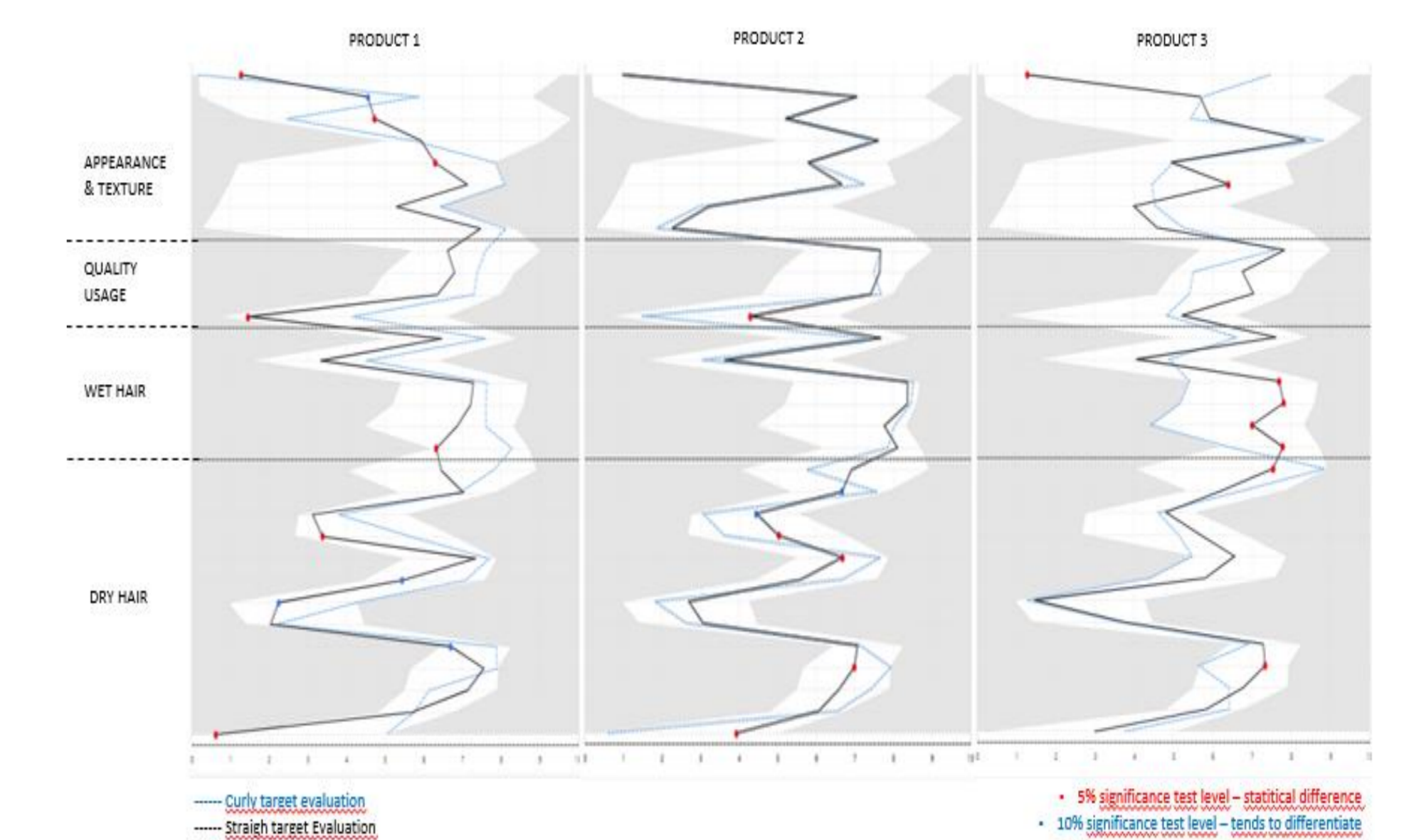
Results & Discussion:

Table 1: Association of gestures and attributes for different hair targets and specific attributes for Curly hair target

| ATTRIBUTE NAME	CURLY EVALUATION	STRAIGHT EVALUATION	CURL SPECIFIC ATTRIBUTES
Wet Smoothness	Palm of hands over hair	Fingers through the hair strands	Wet Evenness
Fast drying	Separates the hair into 4 parts and with a diffuser dried each quarter	Run the fingers through the strands with the dryer	Wet Definition Dry Crunch effect Dry Shrinkage Dry Evenness
Dry ends	Slide the fingertips over the hair and combine it with a visual assessment	Slide the fingertips over hair	Dry Definition Dry Curvature Dry Individualized curls
Dry Suppleness	Squeeze the hair	Roll hair strand through fingers	

In a same attribute we could see some differences on their perception comparing curly target to the straight one. This differences can be explained due to concern of curly women about the format of the curves and hair definition that makes them more careful in general. Also, the curly panelist where able to describe more attributes than the straight target mainly because some aspects are related with the format of the hair (table 1).

For the comparison between three different products, focusing on the attributes in common for each target, we can find statistical differences between the targets and at different times (appearance, quality of use, wet or dry hair). This allows us to conclude that in fact the type of hair has an impact on the overall assessment and that there is no prediction about the impacted attributes.

Picture 1 Evaluation of three products for both targets to show the differences on evaluation of each of them

Picture 2: Sensory space defined through the clustering technique (MFA) considering market Top Sellers products for each target. (A) 15 product for Curly Target; (B) 18 products for Straight Target.
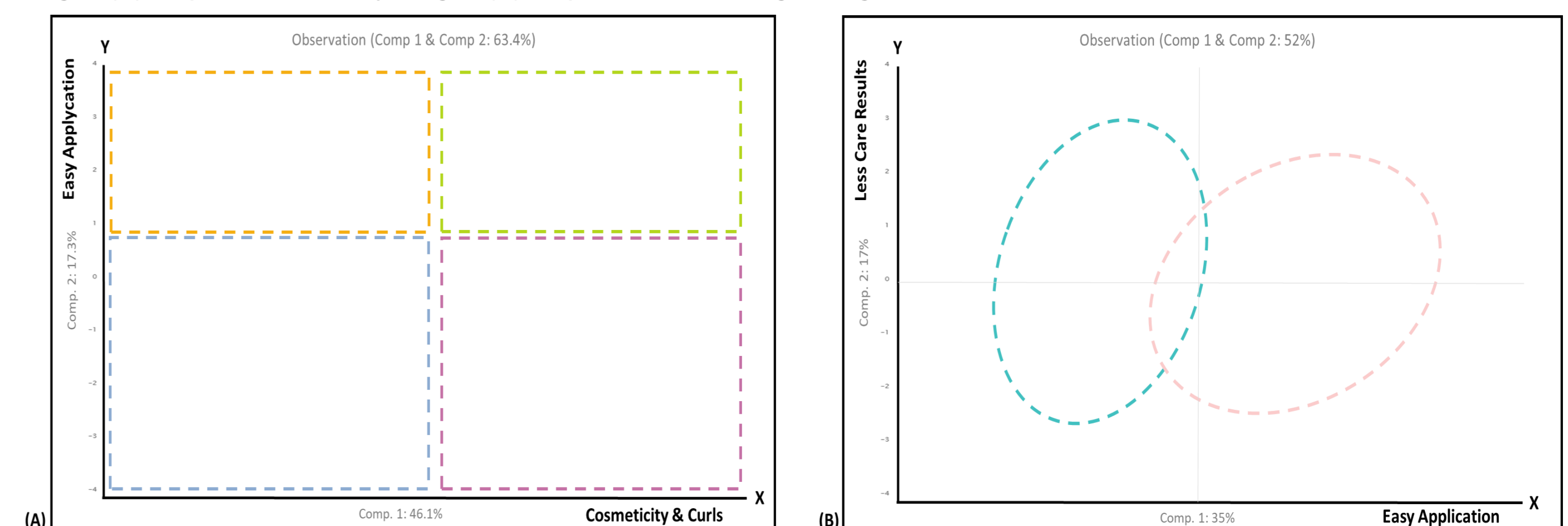
In the MFA for curly map (A) there is greater discriminability with the definition of 4 (four) distinct sensory spaces while for the straight target map (B) only two were defined presenting less discriminability when compared to the first one. It is noteworthy that the products that make up both maps allow a greater view of the market and are not necessarily the same since they were selected to represent the market of each hair target. The first dimensions presented by the MFA explain a set of 63.4% and 52% of sample variation for curly and straight, respectively, which demonstrates a good explanation of the set of samples for the curly group.

Conclusions:

The validation of the trained panel showed the capacity of these consumers to reproduce and to repeat evaluation of products without major efforts. For the group to consider the assessment (curly target) of this method and tool during the prototyping phase of a project can bring better assertiveness and strategic information of the market even before the launch driving consumer acceptance due to the previous understanding of the performance in the specific target.

Curly hair target presents specific gestures and attribute list reinforcing the relevance to have this specific panel.

Aknowledgments:

References:

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[2] International Organization for Standardization ISO 8586; Sensory analysis — General guidelines for the selection, training and monitoring of selected assessors and expert sensory assessors, V – 8

[3] International Organization for Standardization ISO 13299 (2016).Sensory analysis–methodology–general guidance for establishing asensory profile.Geneva, Switzerland: International Organization for Standardization.