

A comparative study: Influence on real-world consumer perception of products presented in Augmented Reality

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Background

As consumers' use of augmented reality increases, there is a **growing need to understand how users perceive the product model in the AR environment and the difference compared with the real-world product**. Also, from the perspective of the product, which attributes of the product can be better perceived in an augmented reality scenario. In this paper, we propose a comparative study method to measure user perception and product performance under real word and AR system.

Literature Review

Background

- What is AR
- AR development
- Current AR application on consumer market
- The structure of the literature review

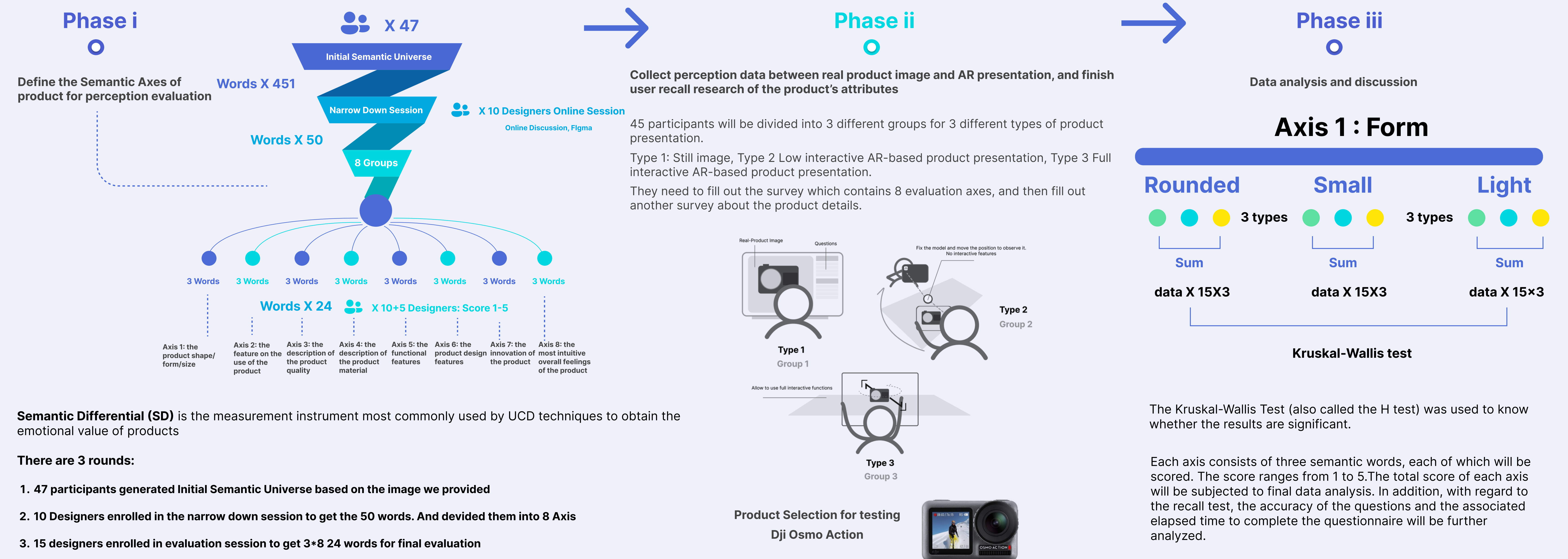
AR Presentation Features

- Mixed Virtual & Real
- Interactivity
- Space placement (Interaction with environment)

Consumer perception of the product

- Purchase decision making
- Tangibility of the product
- Consumer cognition

Method



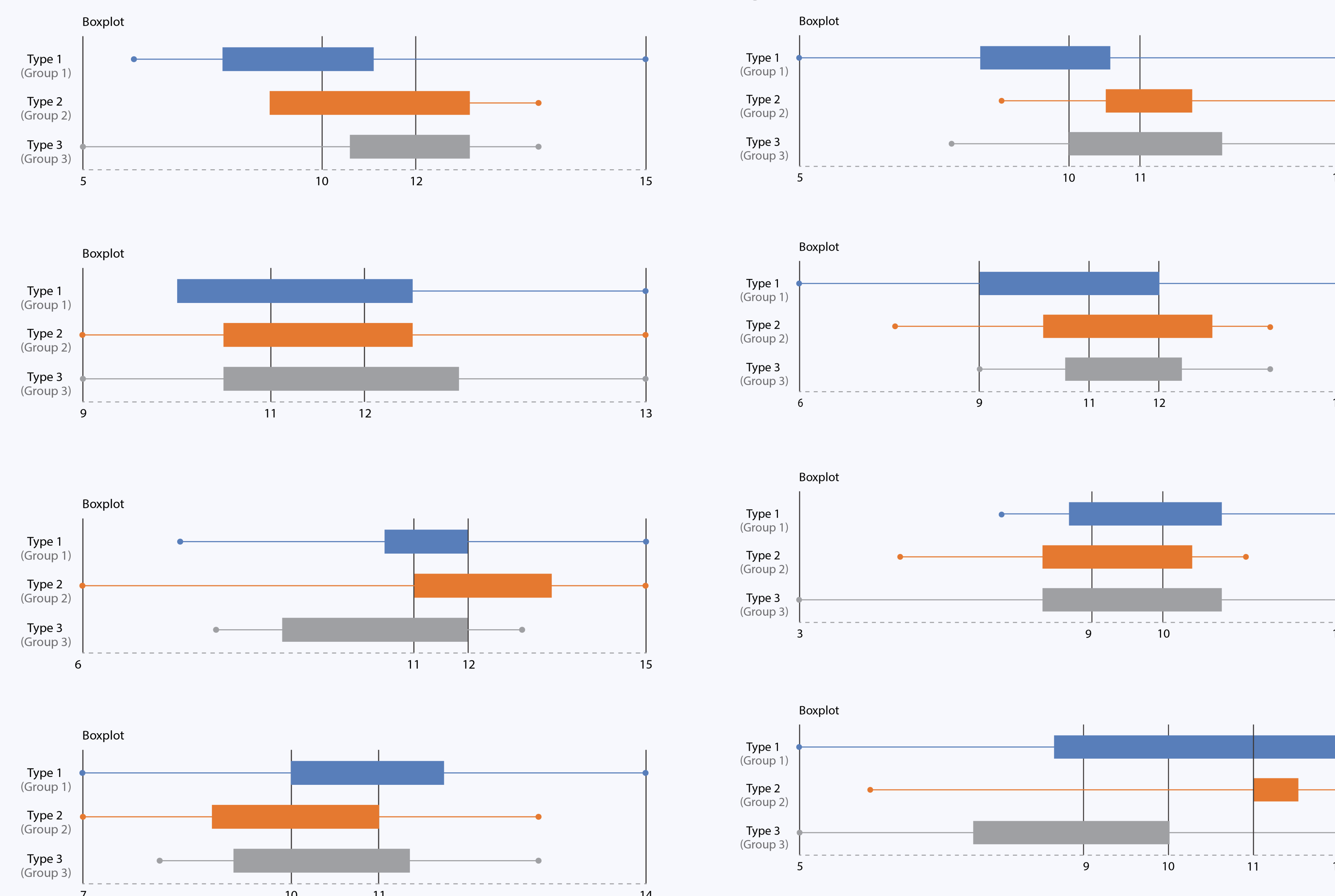
Result & Conclusions

Our study reveals that in AR-based product presentations, users exhibit a better perception of the product's basic form, usage features, quality, functional features, and design attributes. However, concerning product material, innovativeness, and direct intuitiveness, the test results vary significantly. Additionally, considering the semantic evaluation test- ing results and the recall survey, higher levels of interactivity lead to a deeper perception of products, particularly regarding their basic form. However, as the interactivity level increases, more discrepancies in the data are observed.

From a research standpoint, this study represents an improvement over previous meth- ods of testing user perception. It offers an actionable approach to conducting user perception testing of the product presentation.

- In general, augmented reality (AR) demonstrates its potential for effective product presentation. AR showcases its potential in presenting the basic form of the product (Axis 1) and incorporating narratives regarding the size of the product (Axis 2).
- In dimensions related to the texture or material of the product, static images demonstrate a certain level of stability in providing high-fidelity presentations.
- The stability of product perception is associated with the level of product interactivity; reduced interactivity can enhance per- ception stability but may reduce users' comprehensive understanding of the product.
- The outcome of recall survey also reveals that with the increase of interactivity, the participants will have a deeper memory and perceptions about the product layout and size based on accuracy rate.
- The recall survey presents the AR's high efficiency in perception towards product

8 Axes testing result



Recall survey result



Limitations

- Limitations do certainly exist. The first point, which has been mentioned before, is how to eliminate incremental user perceptions in such studies, which can affect the final test results.
- Second, the technical limitations of AR. Despite the continuous attempts through professional renderers, it still cannot fully simulate the color and material texture of the products.
- It must be acknowledged that if more people could have been involved in the testing, it might have been possible to minimize the impact of the randomness in personnel.

Future Goals

In the future, there is considerable space for improvement in this type of research. Firstly, standardization of each stage is crucial. For instance, it is essential to explore more scien- tificaly driven approaches for generating relevant semantic vocabulary. Determining the optimal number of words to be used in the final testing for new environments or tech- nologies also requires careful consideration. Additionally, in designer meetings where the classification and refinement of relevant vocabulary are discussed, it is worth exploring and enhancing the establishment of a more standardized process.