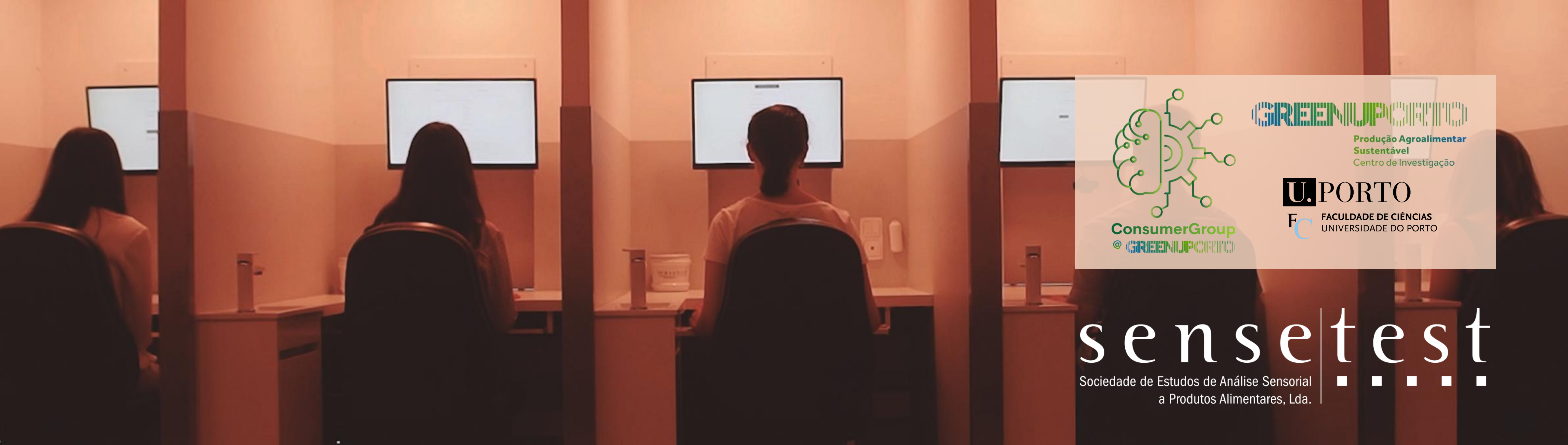




Contextual impact on hedonics, intake and feedback: Comparison between sensory booth and augmented virtuality bar

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INTRODUCTION

Conventional sensory methods often lack contextual information, which can limit their ability to predict consumer behaviours and the market success of new products [1,2]. To address this, **immersive technologies**, such as CAVE systems, videowalls, dome projections, and extended reality (XR) systems, **provide new opportunities in sensory and consumer research by simulating diverse food consumption contexts** [3-5]. These approaches enhance ecological validity by creating a sense of presence, which is crucial for evaluating desire, preference, liking, emotion, and food choice [4,6,7].

OBJECTIVE

This study aimed to evaluate the **impact of contextual immersion on hedonic responses, food intake, and consumer feedback** by comparing evaluations conducted in a **traditional sensory booth** and in an **augmented virtuality environment (Sense-AV)**. The Sense-AV system, developed for immersive, large-scale sensory and consumer studies, simulated a **sports bar environment (Fig. 1)** in which participants evaluated context-congruent food products.



METHODS

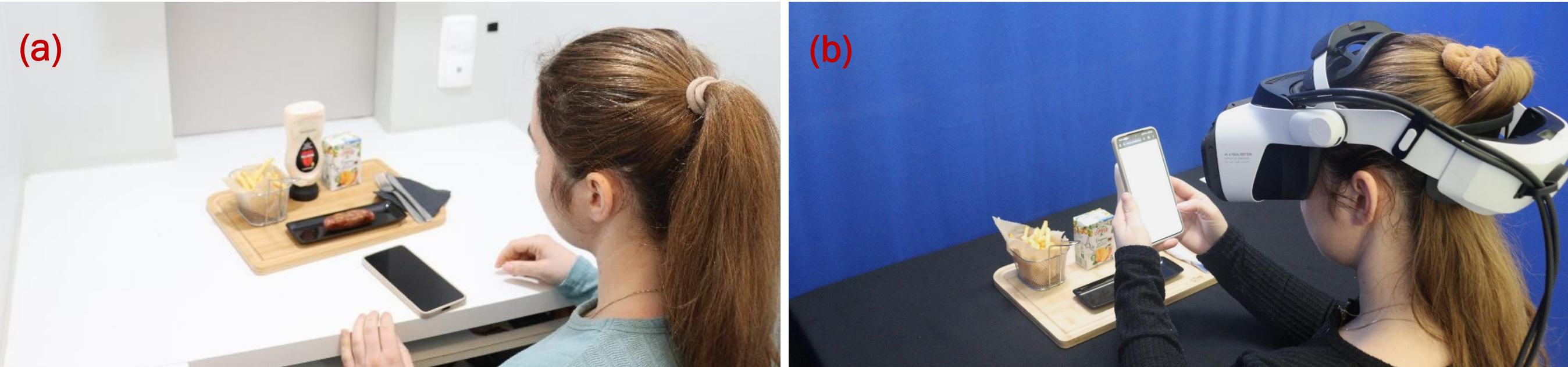
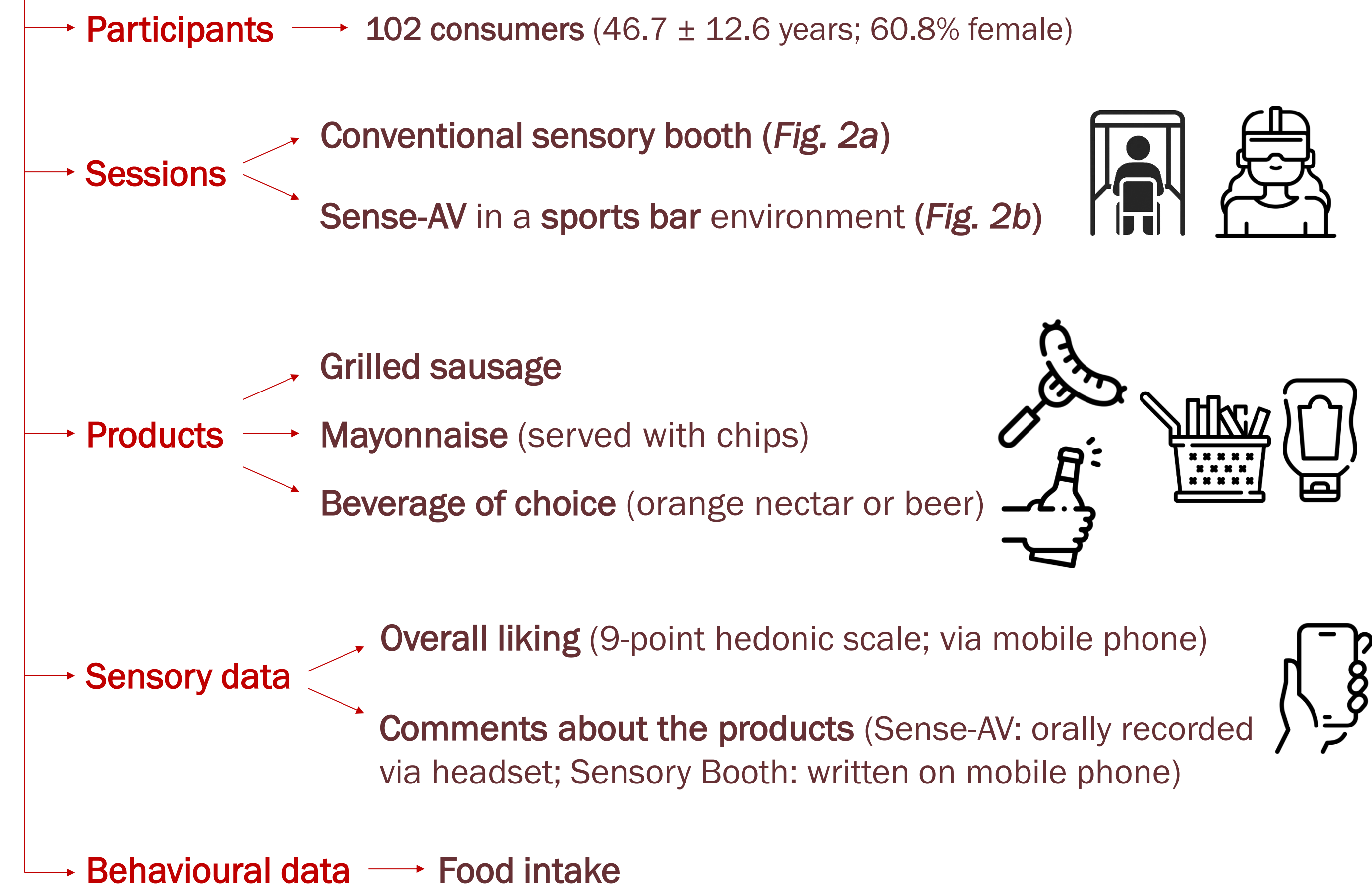


Figure 2: Participant performing the sensory evaluation (a) during the sensory booth session; (b) during the Sense-AV session.

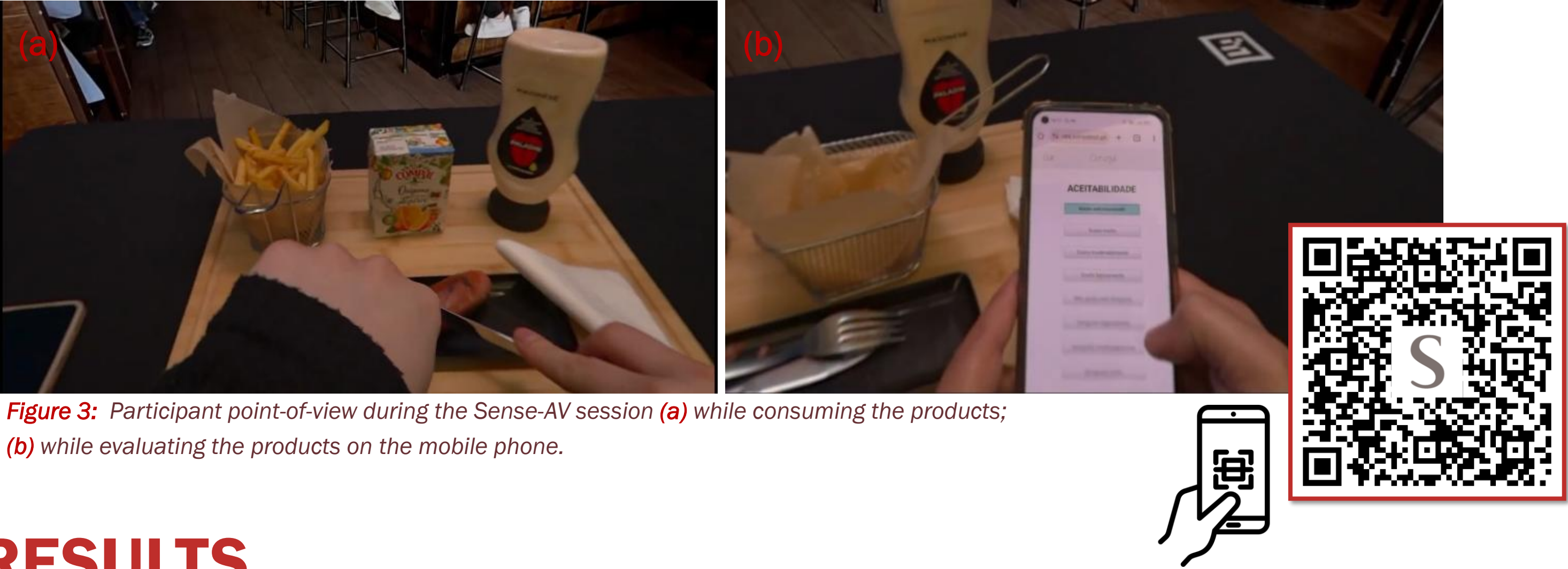


Figure 3: Participant point-of-view during the Sense-AV session (a) while consuming the products; (b) while evaluating the products on the mobile phone.

RESULTS

Overall Liking and Intake

Table 1: Mean overall liking and intake (± SD) of the food products consumed during the sensory booth and Sense-AV sessions.

Products	Overall Liking			Intake		
	Booth	Sense-AV	p value	Booth	Sense-AV	p value
Sausage	8.2 (± 0.7)	8.2 (± 0.7)	0.869	31.5 (± 9.9) g	24.7 (± 11.9) g	<0.001
Mayonnaise	7.8 (± 1.2)	8.0 (± 0.9)	0.019	7.6 (± 5.7) g	6.5 (± 4.8) g	0.091
Nectar	8.1 (± 1.1)	8.1 (± 1.0)	0.794	23.2 (± 11.0) g	19.9 (± 15.2) g	0.023
Beer	7.9 (± 1.3)	8.0 (± 0.9)	0.850	151.0 (± 50.0) mL	102.5 (± 53.7) mL	<0.001
Chips	-	-	-	144.1 (± 44.9) mL	109.9 (± 47.0) mL	<0.001

- The realistic manipulation of mayonnaise and its natural pairing with chips, while in a virtual sports bar, may have enhanced the sense of familiarity and enjoyment.
- Intake was likely affected by cognitive load, divided attention, and social awareness within the immersive bar context.
- The novelty of the Sense-AV system may have shifted participants' focus from food consumption to exploring the environment.

Open comments – Oral (Sense-AV) vs Written (booth)

Table 2: Mean word count of the open comments (± SD) performed for the products evaluated during the sensory booth and Sense-AV sessions.

Products	Open comments – Word count	
	Booth (Written)	Sense-AV (Oral)
Sausage	11.5 (± 7.2)	23.5 (± 18.5)
Mayonnaise	11.2 (± 7.9)	22.4 (± 17.1)
Nectar	12.0 (± 7.6)	24.3 (± 17.9)
Beer	13.8 (± 11.7)	24.5 (± 14.5)

Oral comments (Sense-AV session):

- Longer
- Generally more expressive
- Roughly twice the word count
- More intensifiers
- More contextual references

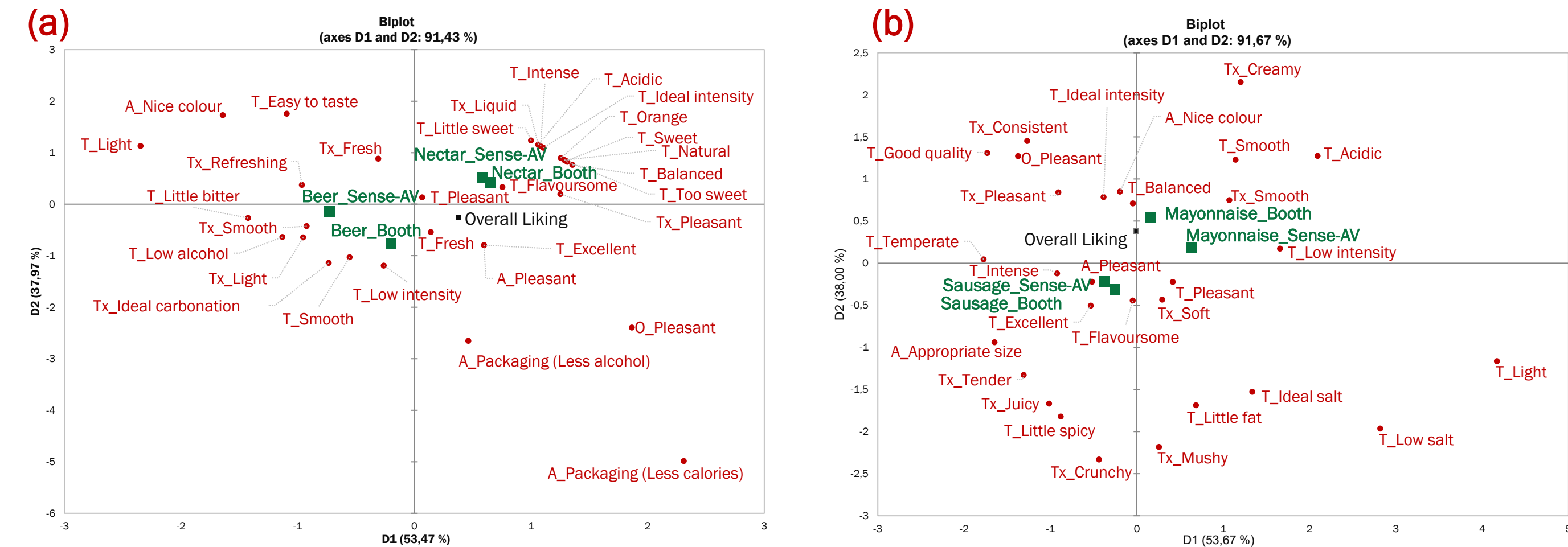


Figure 4: Correspondence analysis of the open comments for (a) nectar and beer and (b) mayonnaise and sausage.

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CONCLUSION

Sense-AV influenced consumers' overall liking in a product-specific manner. Mayonnaise showed increased liking, highlighting that immersive and realistic interactions can enhance hedonic perception to certain products. Intake decreased for most products in the Sense-AV session, suggesting that cognitive load, attention division, social cues, and novelty can reduce food consumption. Oral feedback provided longer and richer insights than written comments, demonstrating that response modality affects the depth of consumer evaluations and may serve as a valuable complement when paired with immersive consumer experiences.

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