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NOT JUST FUNCTIONAL, NUTRITIOUS, BUT ALSO EXPERIENTIAL: DESIGNING EATING
EXPERIENCES FOR SPACE TRAVEL

Abstract

In light of short- and long-term space travels to the Moon and Mars, it is essential to design nutritious foods, but also to make eating an enjoyable experience that contributes to the overall wellbeing of individuals and groups. To date, most research on space food design emphasizes the functional and nutritional aspects of food for astronauts. To the best of our knowledge, there are no systematic studies as yet in which the focus is on the actual human experience of eating in space of astronauts neither the potential human experience of future private customers of space travels. This is important knowing that, on Earth, food has a multi-dimensional role in societies that involves, sensory, hedonic, and social elements.

We present, how research in the field of Human-Computer Interaction (HCI) can provide a user-centered design approach to co-create the future of food and eating in space, balancing functional and experiential factors in human food-interaction design. Based on our research, we developed three design concepts that meaningfully integrate and tackle four crucial challenges for 'Eating in Space': [1] to be functional, [2] sensorial, [3] emotional, and [4] social. Moreover, we thought about the relevant environmental/atmospheric perspective in our design concepts. We can capitalize on recent technological advances such as digital fabrication, food 3D printing technology, virtual and augmented reality to enable the design and integration of multisensory eating experiences in space.

In future space travels, the target users will diversify. Thinking about future target users, we need to look at astronauts (current users, paid to do the job) but also beyond them and consider customers (non-astronauts) who will be able to book a space holiday to the Moon or Mars. To create the right conditions for space travelling and to satisfy those users, we need to innovate beyond the initial excitement of designing an 'eating like an astronaut' experience and go beyond the novelty of the situation. To do so we can draw upon prior HCI research in human food-interaction design and build on insights from food science and multisensory research, particularly research that has shown that the atmospheres where we eat and drink and their multisensory components can be crucial for an enjoyable food experience.