



Figura 9. "Food Reality Experience" in Cozinha Nomade. © Michele De Sanctis, 2020

FOOD REALITY EXPERIENCE

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How can virtual reality be a medium to enhance inclusion and interaction among tablemates? How is it possible to humanize technological divide, leveraging accessibility and literacy of people of different ages, towards the correct use of technological devices? This paper discuss how the use of ICT at Social Tables has created a new language and has fostered connections and interactions among participants; how it has spread the knowledge of food, places, and traditions from different countries; how it has created and activated a fluid experience of all the senses with which we are endowed. This has been made possible, through the experiments conducted during the *Food Reality Experience*: performative dinners where ingredients and food are mixed with 3D videos.

digital co-design / gastrophysics / neurogastronomy / social dinner / virtual reality storytelling



Figure 1. A detail of the Cardboard we used for the prototype of Food Reality Experience ©Michele De Sanctis, 2018

THE CONNECTION BETWEEN GASTROPHYSICS AND VIRTUAL REALITY

Food Reality Experience is a virtual dinner with real dishes. It's also a social and communicative experience, during which tablemates, equipped with virtual reality headsets, explore a new way of being together. It is also a multisensory and culinary performance that takes place around the table: the visual stimuli provided by virtual reality are accompanied by the activation of other senses often to determine different and unexpected perceptions.

Food Reality Experience is a path of research on gastrophysics and neurogastronomy, which is the ability of our brain to process information from each sense (Spence, 2017). In fact, the food perception occurs not only in the mouth but also in the mind. The result is a multisensory performance in which each participant interacts at 360 degrees: on the one hand, by being a protagonist in the video due to full immersivity of ICT devices, on the other, by experiencing an interaction between senses, actions and conviviality. The significance of these experiments was to test how food perception is influenced by aesthetic aspects, tastes, smells, textures, and noises of what we eat. While working on *Food Reality Experience*, the main references has been the studies of gastrophysics related to flavours, perceptions, cognition and memory. Specifically, the term comes from the union of "gastron-



Figure 2. Culinary performance „Ecosistema” in Cozinha Nomade © Giovanna Picca, 2018

omy” and “psychophysics”; it’s a set of possible culinary experiences and studies on our perceptions of them. Coined by Charles Spence, the concept focus on the multisensory perceptions which characterize our daily life and specifically the culinary experience.

Many research and experiments related to food estimate that the pleasure of gastronomic experience also depends on side elements, such as the shape of a dish, the weight of cutlery, the temperature of the environment, the colour of tablecloths, which directly affects our emotions, senses and memory.

Food Reality Experiences plays with gastrophysics, by watching an immersive video, while tasting a meal without knowing which are the ingredients and recipes proposed to the participants. Hiding the courses of a meal allowed tablemates to fully dive in the experience and not be influenced by their own cultural background and biases about that meal.

The idea to work with sensorial experiences and tastes is not new but always inspiring, as suggested by Jean-Anthelme Brillat Savarin, a French politician and gastronome. In his book *The Physiology of Taste* (1826) he mixes scientific notions, philosophical reflections, historical anecdotes to explore taste importance. Taste, such as it is by the grace of nature, remains the one among our senses, when everything is taken into consideration, which procures us the maximum of delight:

1. Because the pleasure of eating, used with moderation, is not followed by weariness;
2. Because it is of all times, all ages, and all conditions;
3. Because it recurs out of necessity at least once, and may without inconvenience be repeated twice or three times, within a single day;
4. Because it can be enjoyed in company with all our other pleasures;
5. Because the impressions which it receives are more durable and more dependent on our will;
6. And lastly, because when we eat, we experience an indefinable and peculiar sensation of well-being, arising out of our inner consciousness; so that by the mere act of eating we repair our losses, and add to the numbers of our years.

GASTROPHYSICS MEETS BISCEGLIE: ONE-YEAR PROTOTYPING FOOD REALITY EXPERIENCE

The works of both Charles Spence and Jean-Anthelme Brillat Savarin served as the basis to implement a first experimentation with virtual reality and gastrophysics. Food Reality Experience: a year – on the World has been designed and promoted in Bisceglie, Apulia (2018) in collaboration with Cozinha Nomade whose founders have years of expertise with food-related experiences, and MoreView, with a focus more on storytelling and technologies.

While designing the experience, the main driving concept was to make tablemates travel around the world, while comfortably seated around the same table. In the neighbourhood kitchen of Bisceglie –where Cozinha Nomade is located– a single table has been set, hosting twelve people, each wearing Oculus VR headset and enjoying different tasting kits, depending on the country they were visiting.

In this first experiment, augmented reality videos significantly representing different food cultures has been edited. Starting from the study of the original ingredients from different geographic areas, the videos extended and combined the five fundamental tastes perceived by receptor cells present in the human oral cavity: sweet, bitter, sour, salty, umami (kokumi).

Together with taste perceptions, different flavours have been investigated through their ability to arise positive emotions and memories connected to food. Another main aspect to perform a complete tasting experience has been the meticulous care for details: from the table setting, to the music selection, from the wall projections, to the weight and colour of each single plate, cutlery, glass and napkins.

Regarding the selection of contents related to the AR 3D videos, the driving criterion has been the possibility of bringing the users gradually to feel comfortable with the Oculus headsets.

In the first video (Fig. 4), we proposed a virtual roller coaster ride, one of the most popular and intense experience in a Theme park. To facilitate the immersivity, we have chosen to provide the user with a bag of hot and crackling popcorn: a "playground" product, which is fragrant and easy to enjoy despite the curves of the mountains. The video is set in North America, where roller coasters became a mass attraction at the beginning of the 20th century, whereas the ancient inhabitants of the new continent (Aztecs, Incas, and Mayans) invented popcorn nine thousand years ago . The idea was to play on the differences between the surrounding environment, the videos and the food proposed.

The first impressions on the videos confirmed that viewers do not separate the act of tasting food and the possibility to establish dialogues with other participants, in the convivial setting of the shared dinner. A basic condition was that all participants do not know each other, but sharing this experience creates an emotional linkage able to foster interaction and exchange.

For the second video, we moved to Brazil (Fig. 5), exactly in Salvador: a large and varied drum circle welcomes our guests, where a group of people is playing different types of percussions in forró, a samba and bossa-nova cross-over. During the performance, the audience taste a revisitation of regional bruschetta made of Altamura bread and easily available ingredients that characterize South America: avocado cream, black bean mousse and puffed amaranth. Here tablemates, who are still unexperienced with their Oculus VR headsets, eat with eyes covered.

At the end of the vision and tasting, the participants were amazed by having eaten such an unexpected fusion recipe —discovering the combination of typical Brazilian ingredients with an Italian cereal bread from Altamura— while the selected music drifted tablemates in a totally colourful and tropical mood.

From the tropical notes of South America, we travel to India (Fig. 6): we are on a bike through the narrow streets of Chandni Chowk Market, the largest and busiest spice market in New Delhi. Peeping out on the big table are a flood of spices that can be touched, smelled, passed from hand to hand while the video proposes a sequence of crowded streets and market stands adorned with mountains of cumin, cardamom, turmeric, sacks full of coriander, pepper, nigella, licoricey and cinnamon sticks.



Figure 3. Molecular spheres flavored with seaweed, tomato, ginger, parsley © Michele De Sanctis, 2020

In this case the participants immersed in the Indian atmosphere, could calmly touch the spices displayed on the table, bringing the, closer to nose and mouth, but with their eyes uncovered, preparing their palates to enjoy an Indian Curry Soup which could recollect all the tastes and flavours elaborated in their mind during the streaming of the video.

This different experience is based on Gordon Shepherd's research on neurogastro-nomy, the complex of mechanisms that allow the brain to create flavours. According to the neuroscientist tastes are not in food, but are created by our brain by our olfactory system. Odour molecules carry information and stimulate our olfactory receptors, which transmit this information to the brain, which translates it into images or personal memories.

"Given the importance of the flavours we learn to love them. It seems curious, but at the same time regrettable, that most people are unaware that flavours are largely due to smell, and that they mostly arise from the smells we perceive when we breathe with food in our mouths. Few people know that modern research has shown that an odour triggers patterns of activity—a kind of 'olfactory images' in our brains—which are the main basis of our perception of taste. These olfactory images are hidden factors that determine most of the pleasure we derive from eating and share some of



Figure 8. Edible Soil used for the installation "Architecture of the Shame" © Joseph Geoffriau, 2019

the responsibility for the problems we encounter when we eat food that is not good for us. Better understanding the central role played by smell also means understanding how to reduce problems and increase pleasure". (Shepard, 2012).

In the following stages of the journey, we went to Japan (Fig. 7). In this case a fragrant tea has been offered to accompany a virtual tour in a traditional tea ceremony where serving and preparation techniques were explained in the videos. While virtual travelling through the Sahara Desert in Morocco we integrated tasting experiments that propose more often the active use of hands and hearing. Completely unexpected for the tablemates, we offered edible sand (Fig. 8) composed by cinnamon short crust pastry, cocoa beans, carob flour, inspired by installation of Joseph Geoffriau "Architecture of the Shame" (2019).

LEARNINGS FOR FURTHER APPLICATIONS: LEARNING THROUGH CONTINUOUS EXPERIMENTING

The first prototype of Food Reality Experience collected vivid curiosity, positive feedbacks and great satisfaction. The different comments received allowed us to further develop the project and to improve the access to professional augmented

Virtual Reality technologies. Finally, the changing of the seasons gave the possibility to experiment new dishes with the methodology of shared social table, running Food reality experience once a month for a whole year.

In order to test further fields of experimentation, in 2019 we applied and won a cooperation project thanks to the strategic partnership with the association "Molfettesi nel Mondo", scaling up and transferring the Food Reality Experience to Buenos Aires, connecting Italian-Argentinian communities to the territories they, or their relatives, originally came from.

In order to promote Apulian food culture, specific videos have been shot in places rich in traditions that could have potentially rise emotions and reminiscence in the participants. We enhanced collective knowledge through three methodological steps: (1) A site-specific question connected to a virtual map has been posted on Cozinha Nomade Facebook page, tagging invited experts to point out significant locations and personal tastes related to regional cuisine; we ended up with a map of around 20 places worth to visit in Puglia; (2) Semi-structured interviews with locals has been conducted in order to perfectionate the local tours and activities (3) Six detailed tours has been shoot in dedicated videos trying to express the different cultural landscapes of Apulia, such as: Gargano National Park, Arco di San Felice, Trabucco, Castel del Monte, Polignano a Mare, Alberobello.

In parallel, different food experiences have been designed to transfer traditional Apulian recipes in different location in Buenos Aires, such as: Restaurant Cucina Paradiso, Feria de turismo Sudamérica (FIT) and the association "Molfettesi nel Mondo". This time, the users were more varied: children, elderly people, local administrators, shopkeepers, professionals. People were impressed thanks to the augmented reality experience in combination with food tasting. In particular, the VR technology allowed us to incorporate dynamic immersive visions and to offer a complete experience in places that were not directly accessible. While watching the 3D video though Oculus headsets, sounds, images, and the idea of different flavours, has been formed in the brain of the participants.

Talking about food, it means to dive into a cultural journey where creativity and social relationship are enhanced. In the book *The ritual of Dinner: Origins, Evolution, Eccentricities, and Meaning of Table Manners* (1992) Margaret Visser reminds us that "food is never just something we eat. We use eating as a means of social relations: the fulfilment of the most individual of all needs becomes a means of creating community". Thanks to the development of Food Reality Experience we have learned that the active involvement of people in the design process, allows you to

observe places and things –which often looks familiar– with a different perspectives, where technologies can be “humanized” in order to create equal interaction and collective experience rather than isolation.

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