Through the Zoom Glass: Drawing Design Inspiration from Mediated Playful Interactions with Food and Child Personas

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ABSTRACT

In this paper we describe our experiences in running a workshop aimed at exploring the use of playful food interactions as a means of uncovering design insights for child oriented food technologies and experiences. The workshop was originally planned as an inperson event in which we could jointly experience the gustatory and olfactory elements of the food items at hand and interact with their tactile properties. However, as a result of the COVID-19 (coronavirus) pandemic, we converted the workshop into a virtual event in which participants had to convey their multisensory food experiences and ideas through the limited sight and sound capabilities offered by online platforms such as Zoom and Miro. We report on the methods used and reflect on how the constraints of digital mediation and the desire of participants to overcome these constraints shaped the experience and outcome of the workshop.

CCS CONCEPTS

ullet Human-centered computing ullet HCI theory, concepts and models

KEYWORDS

Play, Culture, Food, Situated Play Design, Participatory Research through Design, Human-Food Interaction, Children

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1 INTRODUCTION

In this paper we describe an online workshop held as part of the Interaction Design and Children (IDC) 2020 conference [11] in which we explored the ways in which the various personal habits, family practices, and cultural traditions surrounding the consumption and preparation of food that we encapsulated in a set of playful food traditions and child personas can be harnessed towards the development of novel play and culinary experiences. We report on the methods we used and reflect on how the constraints of digital mediation and the desire of participants to overcome these constraints shaped the experience and outcome of the workshop.

2 THE WORKSHOP

The IDC workshop [12] followed a series of workshops held as part of the CHIPlay 2019 [3], Animal Computer Interaction 2019 [14], and EFOOD 2019 [19] conferences. The workshops were designed to explore the Situated Play Design methodology and the notion of chasing "play potentials", i.e. "existing playful dynamics that are already meaningful in context" and thus can be used "as a starting point for designing for situated and emergent playful engagement' [5]. We also intended to expand our understanding of Human Food Interaction (HFI) [4, 9] in general and playful interactions with food [6, 7, 13, 25] in particular. We chose to focus on food because, first, it is highly tangible, which makes it an excellent conduit for material and design explorations. Second, it is intrinsically linked to people's everyday life and their sense of being in the world. Third, food naturally invites play through its shape, texture and flavour [6, 7, 13, 25]. Fourth, food and play are key elements of human life and experience, the consumption of food fuels the body, and play provides a "space within which we experience the world above and beyond utility" [32].

While in the previous workshops we focused primarily on adults and their practices, in the IDC workshop we focused on what we could learn from: 1. children's natural affinity towards play; 2. children's tangible exploration of the world through their bodies [2]; 3. the unique set of challenges associated with involving children in the design process. Ackermann [1] notes children play because they have a deep desire to understand the world. While playing, they are developing skills in all areas of development: cognitive, physical,

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communication, social and emotional. Play allows children to try out new ideas and make connections between their previous experiences and active engagements with their environment. Skovbjerg [33] further argues that play has two distinct dimensions: play practices, i.e., the physical and mental mechanics involved in the act of playing and play moods, i.e., the feelings and sensations evoked by the act of play. A similar correlation can be drawn with food practices used to describe the physical properties of food and the assorted mechanics associated with food preparation and consumption, and food moods. For instance, our attraction to, or aversion of certain food items. In this regard, the practices of food and play represent ways of being in the world [21]. As such the tangible nature of food and its capacity to embody various notions and be embedded in different activities make it an ideal vehicle for play and experiential forms of learning [23, 26, 27] and thus a perfect conduit for child development in both the physical and cognitive meanings of the word.

The advantages of using playful design techniques to involve children in technology design are well-documented, both in terms of inclusivity and in terms of the potential for new insights and understanding [15, 20, 31, 34] as are the unique set of challenges associated with balancing the duty of care for the child, the wishes of the caregivers, the desires of the child and the cognitive and experiential disparity between children and adult designers [12, 16, 22, 29] involved in such activities. Although, as Barendregt, et al [10] note, the nature of the children's participation in the design process will vary in terms of the phases in the design process (Requirements, Design and Evaluation) and activities undertaken during these phases. As we could not include children in the workshop due to regulatory and logistical constraints, our original intent was to mediate the perspective and expertise of children into the early stages of an interaction design process. Specifically, we had planned to hold a physical one-day event in which we would share and examine the properties of various foods. Our approach was to explore the potential of playful traditions through hands-on co-design activities in which the participants assume various child personas. However, the global COVID-19 (novel coronavirus) pandemic forced the IDC conference to move online. As a result, we needed to reformulate the workshop in order to: 1. address the challenges posed by the virtual nature of the conference; 2. account for the vagaries of time zones and the limitations of working from home; 3. explore the impact digital mediation and the inability to physically share the same food items and prototyping materials would have on the workshop and its outcomes. Thus, a workshop originally intended to examine ways through which we could mediate the perspective of a child into the design process turned into a workshop in which all the interactions between the participants were digitally mediated - a stark contrast to what until now has been a highly tangible series of workshops.

2.1 Pre-Workshop Activities

Prior to the workshop participants were asked to: 1. Submit a playful food tradition derived from their lived experience; 2. Create a child persona [8] based on their observation, experience, or imagination that would serve as a catalyst for design speculations; 3. Forage for food and food-related materials with a playful potential from

their home or immediate surroundings; 4. Play and explore one or more of the playful food traditions we had shared online; 5. Upload their personas, observations, and comments to a shared online space. Instructions on how to complete each of the steps were provided to the participants two weeks before the day of the workshop. The submitted personas, traditions, observations, and comments reflected the varied cultural and lived experiences of the participants all of whom had been transplanted from one place to another at least once and served to spark discussions and inspire ideas.

2.2 Workshop Activities

On the day of the workshop, we held a four-hour online meeting in which we: (1) presented and discussed the submitted playful food traditions, (2) split into three groups and created several prototypes based on our discussion, and then (3) regrouped to present and discuss the created prototypes. We used Zoom [35] as our communication platform and Miro [24] for collecting and sharing ideas and artefacts. The entire workshop (both the main session and the breakout rooms used by each group) was recorded and archived for further analysis. Following the workshop, the recordings were viewed and annotated by three authors to create a set of vignettes comprised of text and screen capture images. In the weeks that followed, workshop participants were asked to comment on the experience via a survey and email questions. The collection of digital artefacts (Miro board, videos, etc.) then served as the basis for reflective discussions by organizers.

2.3 Description of the Event

In all, the workshop had 10 participants including 4 organizers and 6 registered participants. Although we did not plan to engage children in the workshop due to regulatory and logistical constraints, the domestic environments in which the workshop was held meant children were present in some of them and thus participated in the workshop to a larger or smaller extent. Out of the 10 participants, 3 had a child in their home: a 3-year-old daughter who actively participated in the preparatory activities that led to the workshop and assisted her mother with various tasks during the workshop; a 2-year-old son who helped his mother forage and select food for the workshop by exploring different food flavours and textures in the days preceding the workshop; and a 3-year-old granddaughter who inspired a persona and was an enthusiastic prototype tester during the workshop.

After a quick welcome, participants introduced themselves and their submitted traditions and personas. Introductions quickly turned into a lively discussion on the transformative nature of food and play, as participants tried to convey the properties of their foraged foods and the nature of their traditions. They discussed ideas using only the visual and audible aspects of the foods, as we were not able to share them in-person around the same table. As a result, we had participants shaking rice and lentil jars to convey their respective sound effects; as well as participants smelling tea, drinking smoothies, eating cookies, and chewing on dinosaurs as they strove to convey their organoleptic properties. In addition, participants showed ingredients, utensils, and kitchen appliances as they used all the elements at their disposal to convey their ideas

Figure 1: From left to right, workshop materials, Zoom screen, Miro board



Figure 2: Participants exhibiting their various foraged foods and cooking implements

and the foods they had foraged. These interactions created a form of sensory and imaginative ethnography [18, 28].

After the introductions and early discussion, participants split into three groups, each in its own breakout room. Groups were asked to pick one or more playful traditions and then use their foraged foods and resources to conceptualize and prototype a playful food experience for one of the child personas that were created for the workshop. In each group, an organizer served as both a participant and a moderator, while the fourth participating organizer served as an external observer and kept track of the overall progression of activities within the workshop. As groups were small, moderation was kept to time management to keep the design process as organic as possible. The activity yielded three prototypes:

- 1. A "Puzzle Pita" that invites small children to solve a puzzle by taking turns in grabbing a piece of the pita (represented by Nori seaweed) and guessing its contents by flavour and texture alone. The turn taking process and the choice of a pita bread were derived from the child persona of a Palestinian girl and the cultural traditions of the Middle East.
- 2. An edible construction set which a toddler can construct and later deconstruct, providing ample opportunities for material exploration and creative experimentation fitting with the playful curiosity of the toddler persona and the real-life granddaughter the group was designing for and occasionally with.
- 3. An augmented reality storytelling application which connects the past to the future life story of an orange, thereby expanding the scope of the interaction to the wider sustainability aspects surrounding the production and consumption

of food and the wider world view of the group's early teen child persona.

The dual dimensions of play in terms of practices and moods were highly present in the workshop, as each group delved into their respective personas, traditions, and foraged food items. They also talked about the memories and associations they evoked in the participants as they developed their prototype ideas. However, since the prototyping session only lasted one hour it was not possible to fully flesh out the ideas. Thus, we will concentrate the discussion on our observations and reflections of the use of the food items, traditions and personas as catalysts for design rather than on the produced prototypes themselves and the discussions that led to their formation.

3 OBSERVATIONS

The tangible nature of food and its capacity to embody ideas and trigger memories proved to be quite transformative, as it served as a catalyst for discussions on form, function, and purpose. It was also a trigger for childhood memories which in turn led to further discussions, ideas and physical explorations as exemplified by the following observational snippets from the conducted activities.

3.1 Pre-workshop activities

A participant observed a child in the supermarket who presumably never saw a chicken before responding to a question "how many legs does a chicken have?", with the answer of 4. When asked why he thought chickens have 4 legs, he responded that all of the chicken leg packages in the supermarket had four legs in them.









Figure 3: Prototype explorations









Figure 4: Bread "smushing" (left) and variations on a cookie theme (right)



Figure 5: Sensory exploration with an orange

- Another participant observed his granddaughter "smushing" bread continuing a long-standing family tradition of engaging children in the bread making process by having them shape their own mini loaf of bread.
- Taking full advantage of the potential of digital connectivity, a participant invited relatives to join her and her daughter in pursuing the playful tradition of shaping and decorating cookies thus exploring not only the physical aspect of shaping the cookies but also the social aspect of comparing their creations via messaging application and observing how different their individual interpretations of a cookie are from one another.

3.2 During the workshop

- Cutting an orange and gnawing at its contents to quickly describe its properties led a participant to experience a crunchy sensation which she described as strange. She attributed the sensation to the difference in texture she senses when gnawing the orange as opposed to when she peels and segments the orange before eating it.
- Grappling with a lemon led another participant to remember that as a child she used to peel an orange to resemble a phone cord and the fun she had trying out various shape, form, and pretend play combinations.

- Another participant remembered a family tradition of using almond dough, cut using various forms and then baked as providing endless opportunities for exploration and play during all stages of preparation and consumption.
- While discussing their "Pita Puzzle" idea, a group realized none of them had any pita bread at hand, so they opted to use a sheet of Nori seaweed as the food wrapping element instead. This highlights the universality of certain play-food affordances such as using one food element as a wrapper for another while playfully sharing a meal.

As an example of the breath and scope of the ideas sparked by conveying the experience of these simple tangible interactions the resulting discussions included musings on:

- How young children may eat a certain food when its cut but not when it is whole as the cut pieces, beside being more manageable in size offers a more varied sensory experience.
- How resultant pieces can be arranged to create an even more varied experience which would be appealing to older children as well as adults, based on the contextual adaptation of the pieces into various forms of play and games.
- The value of exploration and creative failure through material manipulation and transformation as in breaking an egg, squeezing an orange, mixing different foods in the microwave and baking (or burning) a cookie in the oven.





Figure 6: Memory and material explorations with a lemon peel and almond dough

 How the tangible affordances of the spiral shape of the phone cord can still be used to engage children in explorative play despite its lack of mnemonic relevance to today's children.

4 REFLECTIONS

Any form of design, and in particular design that seeks to incorporate the needs and desires of its potential users, is a form of a dialog. In his reflections on the early days of Participatory Design (PD), Ehn [17, p.7] describes PD as "the dialectics of tradition and transcendence": an act of understanding and, where necessary, preserving tradition but also transcending the very limitations imposed by tradition, technology, or environment so we can better share and thus benefit from others' expertise. In this regard, the guiding idea of the workshop was to build on our understanding of the importance of incorporating children's perspectives, not only in designs intended for their own use, but also in design in general. This decision was motivated by children's natural inclination towards play and exploration as a means of testing and advancing design ideas while being cognizant of the difficulties associated with direct children participation in the design process. As due to regulatory and logistical constraints, we were not able to include children as active participants in the in-person workshop. Thus, we planned on applying an informant [29] as opposed to a participatory approach in which participants would assume a child persona while engaging in tangible interactions with food stuffs and the traditions that are imbedded in their preparation and consumption. We hypothesized that the mediating effect of assuming the persona would promote a dialog between the participants and evoke dormant memories of their own childhood experiences which in turn would transcend the discussion and reveal new opportunities.

As a result of the shift to a mediated format due to the pandemic, the setting of the workshop was distributed among multiple domestic environments some of which also included children. Thus, three children partially participated in the preparation for the workshop and in the workshop itself. This was either by design or by happenstance. Participants with a child at home both drew inspiration from the child and engaged them in some of the preparatory and workshop activities. In addition, children entered the workshop either inadvertently because the participant was in a room that serves as their play area or deliberately as they sought the attention of their parent. These occasions offered an opportunity for ad hoc "user testing" in which the child engaged with the prototype out of their own curiosity but were not necessarily planned. Mediated domestic environments offer intriguing opportunities for PD which

we seek to explore in future work but were not intended to be an integral part of this workshop.

The shift to an online platform meant that all aspects of the workshop were digitally mediated and forced participants to be highly animated in their presentation. As a result, participants were also more introspective in their description of the food they had foraged, resulting in a highly mnemonic experience and a large number of auto-ethnographic accounts. In essence, holding the workshop via Zoom was akin to holding a modern-day séance in which we were able to invoke our present selves and summon memories of our past selves. In the design of technologies for children, such memories are typically regarded as unrepresentative nostalgia due to the rapid rate of technological change and hence the experience of being a child. However, insofar as food and play are concerned, this does not appear to be the case, as the core elements of food and our interaction with it have not significantly changed. Thus, for example the memory of the orange peel phone cord described above proved to be highly instrumental. Participants sought new meanings in the spring shape of the cord and the tactile affordances it offered while recognizing that the mnemonic reference to a phone cord that was an integral element of their childhood memories would not be relevant to today's children.

The use of Zoom and Miro as mediating platforms had five additional unexpected outcomes:

- 1. Given the physical nature of the activity and the need to convey "the ephemeral smell, taste and texture qualities of food, participants used every ounce of their being and bodies to performatively draw the multisensory experience of food and construct an image of their ideas. However, at times these were only partially conveyed as conventional video chat setups are oriented towards capturing facial expressions rather than full body motion. We plan to consider camera placement, participant posture, and seating arrangements in the design of future workshops.
- 2. The loss of peripheral vision in Zoom, (easily afforded in inperson meetings) and the spatial dominance of a big square featuring the current speaker over other participants meant alternative forms of action were taken by participants in order to complete a task when they were the focus of attention in the big square. The participant who experienced a novel sensation while gnawing an orange noted that in an in-person workshop she probably would have peeled and segmented the orange in order to share the pieces around while watching and listening to other participants. Thus, this



Figure 7: Examples of the highly animated discussions that took place during the workshop

revelation would never have materialized without being put on the spot and needing to quickly provide a response while occupying the big square on the zoom screen.

- 3. The use of Miro as a shared whiteboard enabled us to share, organize and use materials before, during, and after the workshop. In the physical workshops we had conducted before, the physical whiteboard was populated and heavily used during the day of the workshop when we were all co-located in the same room, but was later relegated to an archival and referential role as we no longer had shared access to the physical board and had to rely on images we took of the board during the day of the workshop. We aim to continue to use Miro as a mechanism for sharing and organizing notes and ideas in future physical workshops considering the long-term usability it offers.
- 4. Time was another critical factor in the design and running of the workshop. The shift to an online platform allowed the participation of people who otherwise would not have been able to attend as they would not have been able to justify the time, travel and cost associated with attending a one-day workshop in London (the planned location for IDC 2020). However, having remote participants meant we had to count with a wide disparity in time zones with participants located in places as far apart as Haifa in Israel and Santa Cruz in the United States, as well as considering the constraints of the domestic environments in which all the participants were located. Thus, rather than following the full day (8 hour) format we employed in previous workshops, we opted to send participants a set of activities to complete 2 weeks before the workshop and hold a 4-hour online session replete with short breaks on the scheduled day of the workshop.

Pre-workshop activities allowed participants to more fully explore the play potentials of the shared traditions and to reflect in greater depth not only on said traditions but also on their own concept of, and relationship to food. Thus, participants felt they got more out of the workshop experience than if it would have been a single day in-person event in which you get to meet a number of people and engage with a couple of ideas but then return to your normal everyday business. The prototyping session to which we only allocated 1 hour ended up being too short as participants felt they did not have enough time to fully develop their ideas. However, they agreed that given, the circumstances, a one-hour session was a good compromise. In future online workshops, we intend to engage in further deliberation with the participants prior to the event in order to better navigate the constraints of place, time and attention span. Since the pre-workshop activities proved to be effective in allowing participants to reflect on the issues and pre-ferment their

ideas, splitting the prototyping session into two parts in which participants could either construct their prototypes or allow their ideas further fermentation time, would appear to be a good option to consider.

As in previous workshops, the playful traditions and available foods proved to be highly transformative. The playful traditions provided both a wealth of new ideas and a grounding to the ideation process as one participant noted "culture provides grounding so it's not just brainstorming on general principals but grounded on actual lived experiences from which we can think and through which we can draw correlations". The inability to pass around and share the same food item which initially we perceived as a distinct limitation turned out to be an effective catalyst as in addition to providing a source of ideas and a means of material interaction it also acted as a memory trigger as participants rose to the challenge of conveying the sensory properties of the foods they have foraged.

5 CONCLUDING REMARKS

Beyond the ability to engage children with new foods and food experiences through play interactions and the meanings they ascribe to them, discussion around food traditions can also offer opportunities for exploring educational strategies that specifically focus on leveraging critical conversations on the relationship between cultural diversity and potential risks of using emerging technologies. For instance, Schaper et al. [30] used food practices as a conversational prop with children to reflect upon the complexity of social norms and cultural traditions that surround a typical dish. The authors bridged these concepts with the critical reflection upon and the potentials and limitation of artificial intelligence to address issues that arise through cultural diversity in a society. Barbu and Lupu intend to apply play potentials while re-imagining the notion of illustration both in terms of using food as part of the illustration process in order to create inks, generate textures and form shapes, and in fostering the design of illustrated creations that will encourage children to interact with the abundance of food on offer. We have further plans but no room to describe them here, so look out for future publications from the above listed authors on the subject.

While not intended as a replacement for the actual participation of children in the overall design process, the approach presented in this paper offers a way of supplementing traditional observational approaches to design via the opportunity to physically explore the play and design potentials of food and other culturally and symbolically embodied artefacts through the mediated eyes of a child. This in turn will imbue the design with children's unique perspective and play oriented expertise and thus transcend the practice of design towards a more inclusive and imaginative future.

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