

Concept Craft Cards

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Deck of theoretical and practical suggestions for ACI developers

Fiona French, F, French*

School of Computing and Digital Media, London Metropolitan University, f.french@londonmet.ac.uk

Clara Mancini, C, Mancini

Faculty of Science, Technology, Engineering and Maths, The Open University, c.mancini@open.ac.uk

Helen Sharp, H, Sharp

Faculty of Science, Technology, Engineering and Maths, The Open University, h.sharp@open.ac.uk

This is a demonstration of how to use a deck of Concept Craft Cards that represent the first iteration of a toolkit for Animal-Computer Interaction (ACI) developers. The cards will be available to share, discuss and deploy online in relation to a series of non-human client briefs. At the top conceptual level, we offer suggestions for ACI developers embarking on a new design journey; the next conceptual level considers user experience and offers our recommendations for interaction design that values cognitive and sensory enrichment; at a practical level, we provide a set of topic cards, to be used during development to support the realization of design concepts through crafting and tinkering.

CCS CONCEPTS

• Human-centered computing - Interaction design – Interaction design theory, concepts and paradigms

Additional Keywords and Phrases: Animal-Computer Interaction, ideation, UX Design, alternative aesthetics, tinkering, crafting

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1 Introduction

Animal-Computer Interaction (ACI) has steadily developed over the last fifteen years, evolving from a niche topic in Human-Computer Interaction (HCI) to a multi-disciplinary field with practitioners worldwide [11]. This demonstration represents some of the outputs from exploratory work undertaken with captive elephants and their carers, where we

focused on the design of species-specific interfaces for technology-enabled enrichment devices in their environment. A large part of this project involved investigating suitable methods by which ACI practitioners can progress their ideas, in conjunction with their target species.

We adopted a *Research through Design and Craft* approach [2], finding RtD to be an appropriate method for exploring future kinds of enrichment because of its emphasis on speculation and reflective practice, through making physical objects [9] and through documenting the design choices made as the objects evolve [5, 16]. The emphasis on craft (including tinkering) arose from an increasing awareness that designers of interactive systems for non-human animals can gain new perspectives through the process of crafting. Several researchers [12, 6, 13, 18] have made a strong connection between *craft* and *design research*. Nitsche and Weisling [14] reposition craft as being *inclusive of computing*, in the context of tangible interaction design. In our case, a detailed hands-on approach to the construction of interactive prototypes, attentive to the details and subtleties of material interactions, gave rise to many insights. We have presented a collection of our findings in a deck of **Concept Craft Cards** that is the focus of this demonstration, and which pays particular attention to the aesthetics of interfaces and experiences for non-human animals. We propose that the Concept Craft Cards have relevance beyond working with a particular species and that they can therefore be used as part of a toolkit in other ACI design contexts.

2 Overview

The reasons for presenting our suggestions as a deck of cards are threefold. Firstly, the deck becomes a scalable, shareable output to which we hope other researchers will contribute. This opportunity is highlighted in the demo, during which we encourage participants to share and discuss their thoughts. Secondly, cards are associated with creativity and spontaneity – a playful approach that values a surprise element, fostering action and reaction within a clear framework. Just as co-crafting can focus participants on the finer aspects of a design and enable fluid creative expression amongst a group of designers [10, 3], so can a set of cards inspire members of a design team [17, 15]. Discussion points (physical cards) can be linked together and moved freely around a table, apportioned to different people or juxtaposed in relevant and thought-provoking ways. Finally, the format supports egalitarian teamwork. Since one person is not in charge of a list, or taking minutes, or indeed holding the whole deck, using cards can empower and engage participants. There are blank cards available for people to add their own ideas, and moreover, a snapshot of the tabletop can provide an instantly shareable, visual reminder of the discussion at a moment in time.

2.1 The Card Deck

The 55 card deck currently comprises the following sets of cards:

- Key Values (3 cards)
- Species Characteristics (7 cards)
- Aesthetics (11 cards)
- Interaction (6 cards)
- Experience Design (15 cards)
- Craft and Tinker (13 cards)

The Key Card (Fig.1) shows the icons associated with different sets. The two icons at the base represent human and non-human collaboration, indicating whether either or both are required in order for the practical part of the card topic to be achieved. Each card may be linked to other sets, and this is also indicated using icons at the base.

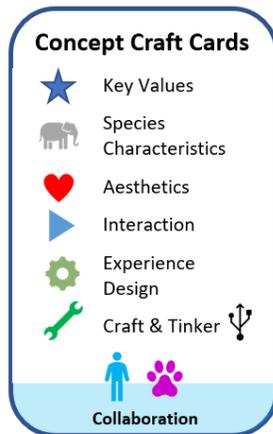


Figure 1: Key Card showing contents of deck with relevant icons

2.2 Expanding Aesthetics

Our exploration of craft revealed its value: (i) for connecting the designer with the *aesthetic* qualities of materials through sensory and intellectual practice; (ii) for supporting collaborative practice through communal activities; (iii) for *mediating between designer and non-human user*, through mutual interactions with the designed artifact.

Huotilainen et al. [8] describe craft as a form of *embodied cognition*, whereby the crafter gains cognizance through handling materials. One way of understanding the ‘other’ (non-human animal) can be through sharing a world space and gaining mutual awareness [7]; we suggest that a way for a designer to appreciate the ‘other’ as a potential user of a device can be through crafting that device and experiencing its physical qualities while reflecting on the sensorial and cognitive capabilities of the intended user.

Our work with elephants highlighted the differences between human and elephant perceptive ability, so that we began to expand the set of aesthetic sensibilities from the traditional five senses (touch, sight, sound, smell and taste) to encompass more aesthetic dimensions and sensory modalities. As an example, the elephants’ reactions to devices introduced into their enclosures pointed to a predilection for movable objects, such as tyres, hanging ropes, chains and large sliders. This led us to introduce a card for Performative Aesthetics, addressing the pleasure of kinaesthetic experience. As well as offering a more desirable and engaging experience for the user, movable objects offer the designer more opportunities for evaluation, since actions are easier to measure than emotional responses when we lack a shared interspecies language [1].

To further enhance and expand the cards, we considered aesthetic sensibilities that are not within human capability without technological support, for example, the abilities to detect electro-magnetic fields or extreme audio frequencies. We hope that participants will find the Aesthetics card set thought-provoking and that they will contribute their ideas for additional aesthetic sensibilities.

3 THE DEMONSTRATION

We invite people to explore the card deck in relation to specific briefs for non-human animals. E.g. ‘*Design some domestic aquarium accessories for fish and their carers.*’ The actual briefs will be revealed during the event so that responses are unpremeditated. We will focus on the sensory dimensions of the proposed designs, using the Aesthetics card set to prompt and guide reflection.

As participation is likely to be asynchronous, this experience will be delivered as an individual or shared experience using Miro interactive whiteboard (see Fig.2). Participants can either join the board independently or watch and discuss with presenters who share their screen within GatherTown.

3.1 Walk-through

As people arrive, they see the Miro board (via shared screen) and are invited to join in using a private link. Participants can move freely around the space to explore different sets of cards. There is a simple explanation of controls for people not familiar with the software, while presenters act as guides.

There are three tables, each with a broad species-specific design brief. Videos show the animals identified in the briefs, and key species characteristics are defined. Participants are asked to select a brief and respond by offering suggestions that encompass as many aesthetic criteria as possible. Ideas can be presented as text or graphics (e.g. sketches, annotated photos – see Fig.2). Discussions are encouraged, as are additions to the card set.

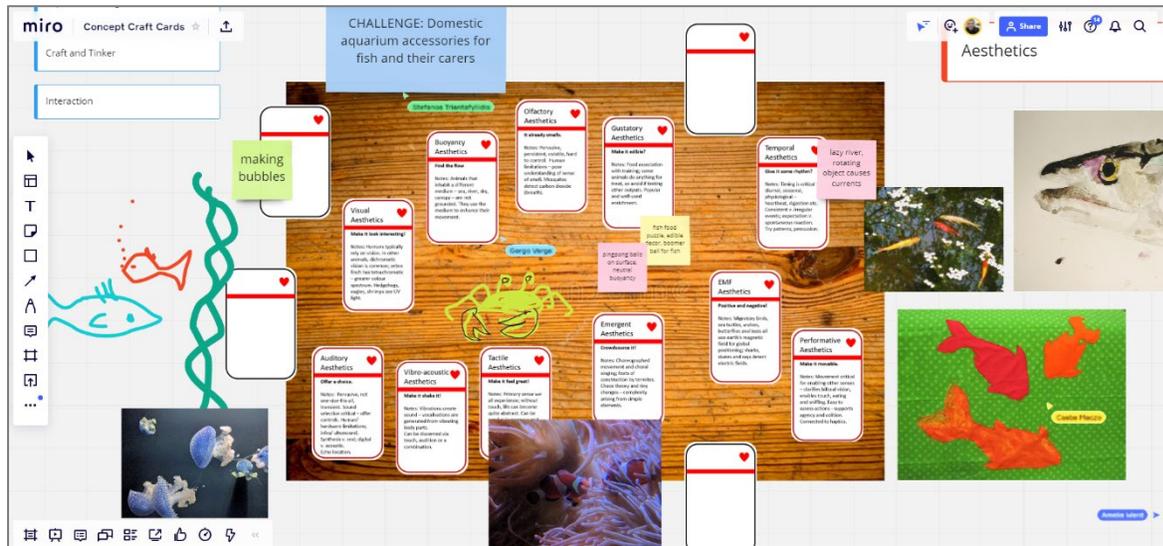


Figure 2: Screenshot from Miro board showing Aesthetics card set and user interactions – media and text.

Interactions and uploads to the Miro board are saved in real time, and the collected contributions will be shared with the community and attributed in any future presentations.

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