Co-designing data physicalisations through alternative values

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There is a growing number of efforts in HCI and other disciplines to account for the underrepresentation of multiple realities, lived experiences and knowledges [2, 7, 8, 10], which could help shape technologies from different points of view, contrasting with the current standardisation of some sociotechnical concepts, including data, which are mostly understood only from a single lens. This alternative focus could lead to the reinterpretation of interactions with information, including data physicalisations, to become responsive focalised and adaptive to the different contexts where they are deployed, the diversity of actors they need to engage with and the cultural margins they are inserted into. Collections of more contextually aware, non-extractive and non-productive data, could help envision translations for intangible values which could set parameters for new design approaches. Crafting these new tangible tools for appropriation could help to express and physicalise previously undetected or hidden actions, thus providing a source of interesting nodes for visualising personal data and, on a contextual and community level, for facilitating participatory actions and more informed decisions.

1 PERSONAL INFORMATICS: A COMMUNITY APPROACH TO THE PRACTICE

It is important to recognise the existence of practices or activities currently under-valued, and which are substantial for people in relation to their surroundings, their participatory dynamics or their daily life. Adding more sensorial and qualitative aspects to data through physicalisation [1, 11] could provide an interesting context for research as a mean to experience new layers, meanings and knowledges around alternative models and non-traditional practices. Based on this premise, data itself should be collected, produced, represented and understood from the same approach: a plural, diverse and multi-sided value perspective that doesn't ignore or exclude different backgrounds and skills. Therefore, it is indispensable to co-create methods to embrace these activities, allowing information to flow transparently.

Addressing the domain area of personal informatics, I am interested in understanding representations and significance both at individual and community levels, acknowledging the communication processes between them. Such interpretations could provide data with more empathic characteristics and shared values performed in a specific context. On a deeper level, it could uncover new and localised data epistemologies [18], emerging from new and plural understandings.

Uncovering these alternative representations through practice could be useful for accessing layers of complexity within daily practices and for generating new dialogues around them [20]. In contrast to mainstream measurements of quantitative assets, I consider there is an interesting space for co-created physicalisations to aim and reflect on the more intangible, concealed and omitted factors that might not be currently represented elsewhere, but that are still invaluable and meaningful parts of the imaginaries and knowledge of persons, individually and as part of a community.

Co-creating tangible prototypes based on the needs, curiosity, behaviours and social factors [21] that individuals could be interested in visualising and materialising, both for self-reflection and also for sharing with members of a wider group, could provide them with a closer and more familiar interpretation of this non-productive and non-extractive data [3]. Recognising themselves as the owners and creators of such could support in creating more contextually aware translations for it, feeding a collection that could help envision solidary plans or ideas for social wellbeing and more inclusive practices.

2 CHALLENGES

As part of the discussion of how to take into account the intangible attributes of certain social dynamics [4] and systems, it is relevant to question what would be the consequences or drawbacks of datafying those actions. It is necessary to design new approaches through co-creation that can provide a responsible and contextual value-driven perspective centred on meeting the needs of people, both as individuals and as members of a community. Thus, it is paramount to focus on which methods would be needed to uncover these characteristics and how they could be physically interpreted into data [11].

For those requirements and ambitions to be met, I think it is necessary to design tools that allow for appropriation processes to thrive, which should entice strategies for adoption, adaptation and repurposing of physical artifacts, models and data itself in order for them to exist under the conditions and desires of the individuals and the group [17]. Therefore, new speculative prototypes or physicalisation probes [5], would be needed to collect and visualise intangible actions as hidden labour, to embrace care practices and to showcase informal networks, from a respectful and plural perspective.

This also leads to critically enquire about the consequences that the translation of such data as an accessible resource to the rest of the group could mean. The presence of data-driven prototypes could also lead to risks around misuse practices, to reduce some personal and communal values to plain depictions and, potentially, to extractive actions in the context.

It is fundamental to recognise the plausible negative aspects of it as well, and to ideate strategies that allow for equal use and accessibility for every participant. Therefore, reflections and horizontal dialogues within the different actors involved must be facilitated for them to debate and contest about which particular values, intangible and qualitative factors intrinsically need or do not need to be represented as data and what new rules and definitions should be created for it.

3 VISIONS ON CONTEXT

As part of the efforts of the data visualisation and physicalisation practices to craft material representations, creative approaches and collaborative tools, it is instrumental that the contextual, social and cultural aspects around which they are designed are not only understood or recognised, but well incorporated into fair processes and developments at a local level.

As it was previously mentioned, approaching data from mundane, underrepresented and community related actions, could be relevant for people to experiment it as an assessable and intelligible concept and to make sense of it from a more thoughtful perspective [14, 15, 25]. Such actions must, naturally, be developed in close connection and in constant dialogue with the location in which they are being developed and co-created. From an ethical and responsible perspective, data physicalisation could present an opening for visualising focalised and context-driven idiosyncrasies, realities and non-extractive methods [6], offering frameworks to explore how particular aspects around data could ambivalently affect contextual systems or could support people in shaping and creating new relations around them.

Beyond considering physicalisation and alternative representations of information [16, 26] as means for creating awareness of particular behaviours or to make data more democratic or transparent, the introduction of co-creative tangible ideations could be envisioned as a transformative presence. If adopted as part of existing individual and community practices, these objects could facilitate participants to construct self-interpretations in constant evolution, taking the form of unfinished prototypes [19, 23] for example, thoroughly based on the datafication of certain aspects [12, 13, 24].

These contextual value-driven explorations could be relevant to explore how people imagine data in their particular surroundings by using them as approachable and generative tools [22] for real-time self-analysis, that can help to make sense and take actions at a local scale, based on self-generated collections to be managed by the same individuals, to visualise practices and validate needs, desires and behaviours. Once the individual and community-owned data is collected, interpreted and shown, the group could propose and lead the co-creation of their own narratives, rules and more equative models of distribution for supporting plural and diverse practices at personal and group scales.

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