

Sustainable Interactions as Design Objects That Promote Digital Humanism [†]

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Abstract: The main purpose of sustainable interaction design is to meet global challenges in society, the economy, and the environment to an extent that goes beyond the well-being of human beings and attempts to promote the well-being of all beings. This paper examines the relationship between sustainable interaction design and digital humanism. Interactions as objects of design could/should be characterized as able to afford sustainable behavior for the following reasons: their very existence is sustainable, they are designed to evoke sustainability, or they are part of a sustainable system. Humanity needs to realize that every single human being is part of the humanitarian and ecological crisis. Through sustainable interaction design, we could really help users feel that they are part of the solution and that their actions can truly change lives. We seek answers related to the design, materiality, and contribution of sustainable interactions in shaping more humane interfaces.

Keywords: interaction design; digital humanism; sustainability; flat ontology



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1. Introduction

Humans can be thought of as emotional and social ‘tool beings’ that act in order to shape their environment and form their society for better living and survival. To do so they construct and use ‘tools’ to carry out particular functions towards their goals. From our point of view, we see sustainable interactions as tools and objects of design, and not simply actions that arise as a result of the actual form or functionality of the designed artifacts and their interfaces. These objects can be used in technology to trigger user experiences aimed at sustainable development. Thus, we consider sustainable interaction design as an iterative process in which sustainable interactions can be designed with a humanitarian vision.

The above philosophical position is based on an ontologically flat model of existence which rejects an ontology of transcendence or presence that privileges one sort of entity as the origin of all others and as fully present to itself [1]. In a flat ontology, objects, of all sorts and at different scales, equally exist without being reducible to other objects and that being is composed entirely of objects, properties, and relations such that subjects themselves are a variant of objects [2]. Consequently, we identify design activities as iterative processes of meaning-making based on quasi-representations and prototyping within a network of collaborating actors [3]. Inspired by this analysis, we treat interactions as equally important objects for the design of products, systems, and services. We investigate how these designed entities could be used in order to create a dialogue between the interface and the user and then transform the way we think and behave as members of society and world beings.

2. The Evolution of Interaction Design and Human Computer Interaction

Various interpretations of the concept of interaction have been formulated during the evolution of interaction design. To the first wave HCI, in the 1970s and 1980s, interaction

was strongly related to the application of cognitive psychology models, in an attempt to focus on human beings and further explain the user's capabilities and limitations during the performance of computer-based tasks [4]. The focus of second wave HCI was shifted to design in the context of groups working with applications, systems, and artifacts. "Rigid guidelines, formal methods, and systematic testing were mostly abandoned for proactive methods such as a variety of participatory design workshops, prototyping, and contextual inquiries" [5]. Third wave HCI placed greater emphasis on the terms and conditions of the interaction prior to the subject and computational object participating in the interactive relationship [6]. In this sense, the phenomenon of interaction is positioned at the center of the research agenda.

The new era in designing interactive technologies is oriented towards a more humane and social approach that takes considerable account of values related to wellbeing, social reform, and sustainability. According to Stephanidis et al. (2019), there are seven grand challenges for the domain that include: human–technology symbiosis; human–environment interactions; ethics, privacy, and security; well-being, health, and eudaimonia; accessibility and universal access; learning and creativity; and social organization and democracy [7].

3. Human and People Centered Design

Human or People Centered Design is a scientific discipline and a practice of designing interactive systems and technologies oriented towards an anthropocentric approach. Influenced by cognitive science and usability engineering, Norman (2013) called for a paradigm shift from user-centered design [8]. In particular, he proposed that designers should take a more humanized view of their responsibilities to the people they design for and thus focus on improving their lives and wellbeing. People-centered design consists of four principles: people-centered, solving the right problem, everything is a system, and small and simple interventions.

Norman also identified the common problems for a designer, particularly the difficulty in accomplishing one or more of the following: appreciate that people already understand what they need in the area they live, understand the realistic needs of the people, their freedom of choice, and the capabilities they have in the particular environment, and realize that grandiose plans that seem to work in theory cannot always be implemented successfully. Therefore, he recognized that there is a way for the designer to be able to understand real human needs and find realistic solutions if the following suggestions are taken into consideration: spend years in the location, collaborate closely with the local populations, see everything as a system, co-design with your population, keep an open eye on the solutions the population has attempted themselves, and remember that "foreign" can mean within your own country, province/state, or even city [9]. Accordingly, Norman (2021) concludes that "what unites all of us in the field [. . .] is the focus upon people, society, humanity".

4. Sustainable Interaction Design

The term sustainable interaction design initially appeared in the work of Blevis [10], as "the perspective that sustainability can and should be a central focus of interaction design". Sustainability, for Blevis, is the creation of sustainable futures, taking into consideration various areas such as the environment, public health, social equality, and justice, as well as other aspects such as humanity and the biosphere. He also clarified that sustainability should not be limited to environmental concerns. Indeed, while sustainability has introduced the importance of long-term design thinking and the resilience of artifacts into interaction design, its meaning has been further correlated with quality of life and well-being [11].

Amantova-Salmane (2015) recognized the need to create economic, social, and environmental ethical values of sustainability, some of the most crucial are the following: making environmentally unhealthy products cheaper, an obligation to help poor people in need, an obligation to leave adequate resources to future generations, and the precautionary

principle formulated to address scientific and technological projects that may have effects on environmental and public health.

According to DiSalvo et al. (2010), “sustainability in design” is about improving the technology we use when we design systems in terms of energy consumption, performance, and longevity of use, while “sustainability through design” focuses on the impact of the technology and the sustainable futures that we plan to create when we design interactive systems [12].

In the context of sustainability in design, Blevins (2007) believes that interactions should be designed with resource reuse, recycling, and renovation always in mind. For this purpose, he proposed a rubric for understanding and assessing particular interaction designs from the perspective of sustainability, comprising the following set of focal points: disposal, salvage, recycling, remanufacturing for reuse, reuse as is, achieving longevity of use, sharing for maximal use, achieving heirloom status, finding wholesome alternatives to use, and active repair of misuse.

Aiming to further contribute to sustainability through design, they later provided the following four overarching questions linked to the different aspects of what sustainable interaction designers must do, based on values and ethics [13]: (i) Understand and reduce the negative environmental impacts of existing practices, while taking human wants and needs into account; (ii) uncover assumptions and values that are embodied by the practices our technology encourages which result in environmental impacts; (iii) match practices to wellbeing; and (iv) encourage resilience and preparedness.

We consider sustainable interaction design as an iterative process where we constantly and equally investigate if all the entities involved have either a sustainable purpose or promote/create sustainability. The world is changing ecologically, politically, socially, and economically. As a result, we find that there is a significant need that the materiality of sustainable interactions should dynamically change, together with the relationships of those interactions to subjects, objects, and other entities such as culture, the environment, and society as a whole. This openness of sustainable interactions could benefit humanity, as it will expand our horizons and understanding of the world. Interactions need to “listen” to humanity and humanity needs to “listen” to interactions.

5. Sustainable Interaction as an Object of Design That Promotes Digital Humanism

While focusing on sustainability in interaction design, the challenge is to be able to trigger experiences in users that will change their life philosophy and motivate them to aim for a more sustainable and humane future. An even greater challenge is to create experiences that are timeless and create in the user the feeling that (s)he is part of a collective goal for the benefit of society and the environment, so that (s)he really wants to contribute, without the need to be forced by any legislation or behavioral rules. The key to the longevity of experiences is to think of interactions as constantly adaptable mediators that lead to the creation of a truly meaningful dialogue between subject and object. Focusing as much on sustainable interactions as on the user and the technology during the design process is an important step in achieving this goal.

We therefore support that interaction designers need to think beyond the basic interaction models previously proposed by the HCI community, the majority of which represent interactions as intermediate states between the user and technology [14]. In recent years, efforts have been made towards the non-linear modeling of interactions, giving it a “materialistic” substance and at the same time positioning it at the forefront of interaction design. For instance, Wiberg (2018) proposed a model for interaction, where the materialistic nature of the interaction motivates the user to use it, leading to interaction sessions, which in turn change the form of the interaction, while at the same time the materialistic nature of the interaction activates sessions of computational threads, which in turn reshape the materiality of the interaction [15].

According to Bryant (2011), ontologically flat entities coexist without being reducible to others, but at the same time they do not exist equally [2]. He further elaborates that “no

object such as the subject or culture is the ground of all others” and that objects do not exist equally in the sense that they contribute to a greater and lesser degree in an ontologically flat network of interactions. Therefore, interaction could become a designed object itself, an entity which exists equally with other entities, such as the user and the technology artifacts, so that equal consideration is given in terms of sustainable interaction design. Interaction designers, as human beings, are inevitably anthropocentrically biased [16], and therefore flat ontology is for them a challenge to surpass themselves and see beyond their subjective reality. Nevertheless, an essential clarification is that, as in the case of flat ontologists, the purpose here is not to objectify the subject. On the contrary, the intention is to give subjects the same importance in the interaction design process as any other entity. The main purpose is to design in a more sustainable way and create more humane products and services that take into consideration the differences between the various entities that contribute to the network of afforded interactions. Therefore, the user acquires a more complex role by sustaining his/her self-organization, being an entity of the interactive system, and at the same time an aware member of the society.

This understanding of ontological relations takes into serious consideration the nature of emerging technologies (AI, machine learning, etc.) that can possibly exceed the constraints of human and other beings [17]. It supports a reality of supplementations where human intelligence and existence is one of many possible forms of general intelligence and existence that can potentially coexist in a rich network of interactions and interrelations. To become more humane, we need a better understanding of the reality of others including entities, technologies, and objects that shape the horizons of our interactions.

6. Conclusions and Future Research

The present research has shown that the advancement of interaction design has highlighted the necessity to focus on people and their real needs during the design process, and thus has prompted us to further investigate the integration of interactive systems with the values of digital humanism and sustainability. As we proceeded to explore the concept of sustainable interaction design, the ethical values associated with the concept of sustainability were analyzed in greater detail. Approaching sustainable interaction design on the spectrum of flat ontology, we portrayed the designer as a composer of a mosaic of entities of equal importance, in which sustainable interactions eventually emerge as valuable tools and distinct objects of design. In terms of upcoming research, we consider the further exploration of design methodologies such as speculative design [18], design fiction [19], and quasi-representations as opportunities to develop interactions for possible humane and sustainable futures.

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