INTERACTION UNDER INTERFERENCE

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Abstract

Across numerous theoretical models employed to describe interaction, interference is seldom accounted for, even though it manifests itself on technical and cognitve levels. Practical and conceptual paths towards an aesthetics of interference suggest the need for its inclusion in a more complete model. Our research surveys the potential roles of interference within interaction, attempting to ascertain its actionable properties and variables. These can hypothetically redefine successful interaction as discovery of latent potential, and inform experience design towards increased latitude for creativity and collaborative engagement. This requires addressing challenges such as cumulative effects, difficulty in mastering highly variable interference, and the impossibility of foreseeing every type of interference a system may become exposed to. As an agent for increased affordance generation and wider operational ability, on technical and cognitive levels, interference is hoped to contribute towards a framework for a more informed observation and configuration of interaction experiences.

Keywords

Aesthetics
Interference
Interaction
Design

1. PURPOSE

When mapping the field of digital media, interference emerges as part of its topography, rather than an obstacle to overcome. As a creative resource, interference has the potential to expand the actionable range of existing media channels, devices and ecosystems. This can be applied literally, as with electromagnetic interference (Menkman 2011), and metaphorically, in semantic and contextual manipulation (Latour 1994). We posit that the examination and discussion of interaction elements on these levels, as processes of interference, carries the potential to uncover new ground in digital media. This proposition aims to contribute pathways towards a greater acceptance of interference in interaction design practice, entertaining the hypothesis that greater permeability to interference can afford more organic and expressive interactions, and reduce conditions for perceived failure.

2. BACKGROUND

Current technological media, with all its nuances, is increasingly geared towards uniformity in experience. Paradoxically, it is also fragmented: while there is little fundamental difference across the different instances of devices and ecosystems upon which humans operate, those differences are often specifically designed for incompatibility. While standards assist establishing common grounds for communication and interaction (Murray 2012), this uniformity can hinder creative and expressive potential, when media devices and channels shape the tone and content of conversations (Langlois 2013). New vehicles for creation and collaboration become more interesting as they stimulate diversity and unique presence, widening the expressive range one can actively operate with.

Practical aesthetic research on digital media, in the fields of art and design, has contributed to enrich the more functionalist approaches (Norman 1999) with further critical viewpoints and enhanced creative potential (Cascone 2004). While this also makes it harder to map technology's impact on media studies, the massification of resources such as 3D printing and DIY electronics (O'Sullivan and Igoe 2004; Gauntlett 2011), embraced by produsage communities (Bruns 2007), has rescued hardware production from the confines of industrial consumer products, back to a more experimental and collaborative environment. This trend benefits technological literacy and fuels creative practices (Illich 2001), by bringing media devices to a more accessible and organic operational layer. This type of practice configures itself as a form of interference in normative technical fields, by embedding specific semantic and technical interference within devices and experiences. Thus, models for the analysis of interaction are required to take this interference into account.

3. APPROACH

Retrieving the physical to the field of digital media presents us with an opportunity, and requires that we look beyond the scope of its functional role in aesthetic experiences. As computational devices contribute to accelerated obsolescence, one must also remember to look at potential losses as new gains, trading romantic nostalgia for insights on how to further probe and employ the material layers of digital media, as a critical element of aesthetic interaction in mediated

communication. In sharpening the focus of our study, the still broad concept of interference has emerged as a strong candidate to channel these concerns and explore possible contributions. Examining processes of interference in digital media, from technical to cognitive levels, is proposed as a strategy to unbox interaction models and translate knowledge across fields such as design, computation, and psychology. Using this strategy, we aim to identify actionable properties and variables, which can then serve a dual purpose: first, to redefine successful interaction as the discovery of latent potential, instead of a linear path from intent to usage; second, to aid in the design of experiences with increased latitude for discovery, creativity and collaborative engagement.

While not limited to a self-referential experimental field, this research should include practical developments, thus making it a practice-informed research. We find it relevant to confront case-studies with further experiments, to verify previous findings and ground new discoveries. While imbued of an artistic nature, such experiments should purposefully seek validation of new findings and demonstration of external validity.

4. EXPECTED CONTRIBUTIONS

While it would be audacious to pursue an all-encompassing relevance, we hope to provide examples of how this research can contribute to stimulate new developments in various areas, such as interfaces, installations, exhibitions, games, toys, educational resources, therapeutic devices, and other possibly unforeseen applications. Aware of the risks of theoretical reductionism (Galanter 2010), a transdisciplinary approach seems unavoidable, if we are to contribute to the creation of rich, accessible, creative and collaborative environments. Incorporating and instrumentalising interference in different types of interaction settings, towards an interaction design practice more apt to embrace interference as an asset rather than a pitfall, can possibly lead to a previously discussed aesthetics of interference (Qvortrup 1998) in the field of digital media.

5. PROGRESS

While we are in early stages of our research, a few papers have been published on this and related matters:

Carneiro de Sousa, Catarina, and Luís Eustáquio. 2014. 'Art Practice in Collaborative Virtual Environments'. In Uncertain Spaces: Virtual Configurations in Contemporary Art and Museums, 211–40.
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Eustáquio, Luís. 2013. "Exploring Open Hardware in the Image Field." In *xCoAx 2013: Proceedings of the First Conference on Computation, Communication, Aesthetics and X*. Bergamo. https://www.academia.edu/6502179/Exploring_Open_Hardware_in_the_Image_Field.
———. 2016. "Evaluating Engagement in Aesthetic Interaction through Prosody." In *Proceedings of UD15: Periphery and Promise*—4th PhD in Design Forum, 344–53. Porto: PhD in Design Program, Faculty of Fine Arts, University of Porto, Portugal.

The topic of this research stems from previous work on our MA thesis, "Exploring open hardware in the image field", and a long-standing interest in expanding the range of affordances provided by the tools we build for communication and expression. Going forward, we aim to benefit from the inclusion of studies in cognitive science and psychology, as they relate to interaction theory, as well as further practical exploration. Experimental developments specific to this research are in conceptual stages, not having yet been implemented or exhibited.

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