

Elizabeth Jochum**Linda Candy and Sam Ferguson:
Interactive Experience in the Digital Age.
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Nearly two decades ago, David Saltz asked whether interactive art constituted a new genre of art and proposed that interactive art be viewed through the lens of performance, where the interaction between the work of art and the observer becomes the aesthetic object.¹ Since then, interactive and participatory art have emerged as distinct genres that redirect critical engagement away from the art object and towards an understanding of the work of art as experience. In *Interactive Experience in the Digital Age*, Linda Candy and Sam Ferguson explore how interactive technologies transform the nature of experience and argue persuasively that interactive art works require formal methods of evaluation. Including contributions from practitioners, academics, curators and entrepreneurs, the book outlines a framework for applying research methods from human computer interaction (HCI) to art-based research projects. Crucially, the authors acknowledge the inherent tensions that arise when research goals and artistic methods are not compatible. The collaborations presented here illustrate how research has become integral to interactive art practice and indicate how such an integration can lead to new methods of understanding and evaluating art works and practice. The findings have far-reaching implications for research methodologies in Practice Based Research (PBR), and cast new light on how audiences interact with art works and how practitioners incorporate digital tools and technologies into their practice. A more thorough understanding of the relationship between design and research methods in interactive art will impact experience design, art-making, and the curatorial practice of researchers, museums and other public art settings.

Evaluation is a key challenge for interdisciplinary collaborations that bridge HCI and art practice. While the authors maintain that “the relationships between the interactive arts, audience engagement, and experience design in public art form an important and fertile research landscape, the study of which can be highly beneficial to both the Digital Arts and HCI”(p. 21), it is clear from the case studies that evaluating research outcomes is both essential and problematic: “In the making of interactive art, being able to understand both audience experience and the technological basis that underpins and shapes it, brings us inevitably to the question of how to evaluate it both from an audience and artist perspective” (p. 39). Adapting evaluation methods from HCI is difficult because these methods typically focus on quantitative criteria such as usability, task efficiency and effectiveness—measurements that are not easily applied to works of art. However, some HCI methods do transfer readily, such as ethnographic studies that account for user experience and concepts like playfulness and aesthetics, while quantitative measurements have also proved useful for artists eager to learn how users interact with collaborative systems in novel or unanticipated ways. To determine the appropriate methods and criteria for evaluation, it is important to decide at the outset for whom the evaluation is intended (the practitioner, the user, or the curator), which determine the most appropriate evaluation methods to be used.

Evaluation methods are determined largely by context and the nature of the work of art. For example, Bryan-Kinns’ work with *Daisyfield*, an application for generating collaborative music by novice users who interact through web and iOS interfaces (Chapter 9), and Bengler and Bryan-Kinns’ *Polymetros*, an interactive collaborative music system inspired by minimalist composing techniques (Chapter 12), the goal is to understand the creative process of music making by non-experts. The authors aim at uncovering the nature of collaboration and creativity in collective art experiences in order to identify how “micro-creativity” emerges and can be sustained in public settings. For *Daisyfield*, the practitioners developed algorithms for identifying mutual engagement and participation by identifying specific musical features such as complexity and rhythm. The data visualization results in a deeper understanding of how users interact collaboratively with the system and each other, and the authors suggest how this approach might be applied to other works of art. For *Polymetros*, the researchers want to understand the social dimensions of interactive experience and the way in which context influences user participation. Correspondingly, the evaluation techniques consisted of mixed-method ethnographic approaches combining questionnaires, interaction logs, field observation, and video analysis to measure the link between the users’ perceived sense of control and creativity. Alternately, *Tweetris*, an interactive game that requires whole-body interaction (Chapter 11), was designed to study how users engage and interact physically with art installations. While the authors initially set out to study collaboration and competition, the research questions and evaluation methods shifted during the project and prompted the practitioners to abandon the questionnaires and reorient their analysis towards the ways in which users interact physically with the system. The authors’ candid and well-documented discussion sheds light on the

difficulty of balancing artistic and scientific goals with user studies “in the wild” and serves as a powerful reminder of the importance of maintaining flexibility in research.

Evaluation is equally important for practitioners, but the notion of evaluation shifts when the interaction between the artist and the work of art is considered (as opposed to that of the audience and the work of art). In this case, the research questions center on the experience between the artist and the technological tools and interfaces used to generate the work of art. An evaluation of the artist’s experience indicates how technological tools can nourish creative expression and stimulate the artistic process by providing a catalyst for contemplating new forms of art-making. Andrew Johnston’s work with a professional dance company on *Encoded*, a large-scale dance performance that combines interactive projections with live dancers, is an example of formative evaluation that combines user-centered, iterative design and development approaches with qualitative evaluation of how technological tools impact performer practice and experience (Chapter 4). For *Encoded*, the goal was to “facilitate a creative dialogue between performer and system by providing a rich and stimulating environment for improvisation” that would result in a performance environment that supported fluid, “conversational interaction” (p. 49). Improvisational sessions were recorded and reviewed using video feedback to determine choreography and composition for the final performance. The use of video recording analysis and Video Cued Recall (VCR) are additional methods used to evaluate improvised networked musical sessions of musicians performing collaboratively and at a distance (Mills and Beilharz, Chapter 8).

The conception of interactive art as dialogic performance between artists and the work of art resonates in Bown *et al.*’s discussion of autonomous art (Chapter 6). Their discussion of the cybernetic art works *Uzume* and *Accomplice* considers how artists evaluate their work using adaptive systems. For autonomous art systems, the experience is not pre-determined but, like a performance, unfolds in the present moment with the user and the system as “interactors” (p. 77). Before the exhibition, artists evaluate a system closely for extended periods of time to observe its behavior, a process that involves “prolonged observation and probing of the system itself, which can take a more systematic approach in terms of searching the parameter space of a computational system, setting up test cases or specific studies to develop the mappings for interaction, and an analysis of behavioral properties” (p. 78). Observation and evaluation in the studio enable artists to anticipate how the system will behave and be perceived in an exhibition setting. *Uzume*, a responsive environment constructed by four projection screens utilizing a CAVE Virtual Reality (VR) System, allows users to shape and construct a virtual, generated data space in real time, using body movements. The authors describe their observation and interaction with the system as similar to “pursuing a dialogue without knowing the language of the other” (p. 83). *Accomplice* is comprised of small, autonomous mobile robots embedded into temporary gallery walls. The robots navigate the inner walls and are equipped with a punch and a camera lens that enable them to communicate with one another, perforate the walls, and physically inscribe their computational processes by “turning the wall into a playful state

for creating and learning” (p. 85). These examples highlight the formative quality of the artist’s evaluation and indicate how it might stimulate the artistic process by providing a critical basis for reflection and development—processes that are central to PBR.

Interactive arts are inter-disciplinary by nature, and according to Candy, working with and across disciplines affords greater flexibility for adopting evaluation methodologies from other fields (p. 27). The works of art presented in this volume make a strong case for applying HCI methods to interactive arts. Formative evaluation methods contribute to the creative process and result in more finely tuned interactive experiences. Candy and Ferguson outline pertinent frameworks, principles, and criteria for evaluation of interactive art works and experiences. The case studies provide a wide range of qualitative and quantitative methods for observing and analyzing interactive art works at the intersections of HCI and interactive arts, and propose strategies for applying art-based research to the design of interactive technologies in commercial settings.

Notes

- 1 Saltz, David. (1997). The Art of Interaction: Interactivity, Performativity, and Computers. *The Journal of Aesthetics and Art Criticism*, 55(2), 117-127.

Elizabeth Jochum, PhD
Assistant Professor
Department of Communication and Psychology
University of Aalborg, Denmark
jochum@hum.aau.dk