



Exposing Tensions in Documentary Filmmaking for Design Research: The Inner Ear Shorts

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ABSTRACT

Documentary filmmaking is inherently subjective. The filmmaking team decides when to film, how to angle the camera, how to edit, and what narrative to put forward. At the same time, documentary filmmaking has a capacity for sharing people's experiences, expressing emotion, and foregrounding context through image, sound, and movement. In this paper, we discuss the tensions with using documentary filmmaking as a method for documentation as well as dissemination in design research. We present our approach to creating a series of 12 documentary shorts in the context of the Inner Ear project. The Inner Ear is a data physicalization project that invites participants to capture vibrations in their homes, which are then materialized as porcelain sculptures. We articulate the pressures and uncertainties of filming, and the responsibility of building narrative through editing. Finally, we discuss the generative but conflicting goals of combining research documentation with public dissemination via documentary filmmaking.

KEYWORDS

Filmmaking, documentary, research-through-design, subjectivity, dissemination

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1 INTRODUCTION

Over the last years, design researchers have developed methods for documenting and disseminating the messy and nonlinear processes of design research (e.g. [8]), mostly for an academic and design audience. Yet, despite calls for broader public dissemination of design research work (e.g. [12, 22]), appropriate methods are still underdeveloped. In this work, we turn to video, in particular documentary filmmaking. Video is an extraordinarily diverse and versatile tool in design—from in-house documentation of research interviews [16] and prototypes, to medium-budget Design Fiction videos [3], to high-budget corporate Envisioning Videos [25, 26] such as [28]. The use of video has proven to be effective in documenting process, prototyping interactions, as well as disseminating new or alternative visions.

In design, we find documentary filmmaking to be a valuable tool, but it also raises important ethical questions about the authorial voice of the filmmakers behind the camera. In the case of design research, applying documentary filmmaking practices to ethnographic interview documentation holds a valuable potential by providing insight into participant experience. We asked how researchers might step outside the traditional use cases of video as a tool for either documentation or dissemination, and instead wonder about how video might exist in between. The discipline of documentary filmmaking holds a wealth of information regarding the capturing of human experiences on film—with the intentional aim of broad dissemination. Applying documentary filmmaking methods opens an alternative form of synthesis, and an understanding of participants' lives and experiences, that push past the limits of traditional video documentation techniques. We found that the authorial voice of the team competed with that of participants, further provoking reflection on the roles of research, documentation

and dissemination. In this paper, we discuss documentary filmmaking's inherent subjectivity (and the tensions it creates) as a mode of research fieldwork, synthesis, and dissemination.

2 RELATED WORKS: DESIGN, VIDEO, AND DOCUMENTARY FILM MAKING

Documentary is a representational capture of a subjective reality; however, viewers often interpret it as a fully “truthful” reality. Discourse about truth in documentary cinema is nearly as old as the medium. Arguments span nearly every plane of definition, including ethics, morality, legality, and method [4, 6, 10, 24]. In our case, a documentary is media of which could be asked: “might it be lying?” [10]. The formal aesthetics of the film do not make it a documentary. A documentary is then a film in which viewers assume it is “not lying”—as opposed to “telling the truth”.

The relationship between what is captured and what is disseminated as a “truth” shares a critical and undeniable relationship [4, 6]. In 1977 [4] Blumenberg noted that a different camera angle, lens choice, frame rate, color grade, or edit depicts an entirely different subjective truth. Butchart [6] presents three ways in which an ethic of truth may sidestep impasses in contemporary documentary discourse. These strategies include: overcoming objectivity, accounting for the audience's right to know, and reducing the problem of participant consent. An ethic of truth in documentary would be restricted neither by consensual ideological values nor by moralizing judgments, Butchart argues. The current and historical debates in documentary discourse have influenced our video-editing and dissemination decisions.

In design, the question of truth is often addressed as the tension between reality and fiction, as explored in design fictions [3]. Bleecker argues that design fiction can serve as a means of exploring and critiquing the future implications of emerging technologies, allowing designers to speculate and experiment with possibilities that have not yet become a reality. Designers create design fiction artifacts to explore these realities, and often disseminate alternative visions through video.

Within design and HCI, design researchers have experimented with video beyond portraying alternative scenarios. Video has become a creative and insightful approach to embody the perspective of things (e.g. [19]) or to elicit new ideas [5]. Gaver [11] proposed to collaborate with documentary filmmakers to report on research through design projects, and to capitalize on their ability to inform and shape public opinion. Green and Kirk [13] presented the documentary making process as a qualitative research method for gathering rich media data, valuable to design research projects. Green et al. [14] additionally interrogated the role of the author in the context of interactive documentaries. Finally, recent work further deepens the relation between HCI and documentary film making through the development of new technology such as 3D video and virtual reality [18] or a remote interview box [15]. While designers have explored documentary filmmaking for documenting the design process [21] and as a method to conduct ethnographic interviews, in this project we explore the use of documentary filmmaking to capture participants lived experiences during a design deployment.

3 OUR APPROACH: FILMING THE INNER EAR PROJECT

The Inner Ear is a porcelain sculpture augmented with electronics that participants can use to capture vibrations in their living spaces. In this project, we invite participants (six households in total, in Seattle, USA) to focus on invisible and perhaps unfelt vibrations in their own homes. After data is captured, the central module is augmented with 3D printed porcelain data rings, which carry physicalizations [2] of the vibration data. In contrast with ‘always on’ data collecting smart home devices, the Inner Ear allows home dwellers to intentionally capture vibrations of their choice, for only short durations. For more details on how the Inner Ear works and was designed see [9].

To document experiences with the Inner Ear, we combine video filmed within participants' homes with quotes that we found relevant or interesting. We are creating two documentary shorts for each participant. (1) The first focuses on how participants lived with the Inner Ear as a vibration capturing device. We focus on unique elements of the home, what was captured, and where the Inner Ear was positioned. (2) The second short focuses on first reactions to the data physicalization, as well as how the participants lived with the Inner Ear and its physicalized data for the following 6-8 weeks. In future work, we plan to present the deployment findings. Here we present the documentary process. *See supplemental files for an example of a short, with participant Katharina.*

We visit the participants three times to film. We generate 7-25 minutes of video footage and 30-120 minutes of audio recording per session, which we edit into three-minute videos. To edit, first, a separate team member conducted a form of open coding of the audio transcripts from the interviews. Then the editor used selected quotes, designated to be thematically relevant, to construct a representative narrative from the participant's audio transcript, adding video footage to the dialogue where applicable.

4 TENSIONS IN USING VIDEO DOCUMENTATION TO CAPTURE PARTICIPANT EXPERIENCES

Our work has two goals. One goal is to use the documentary shorts on a public website that would allow people who didn't live with the Inner Ear to form an understanding of what this experience might be. Our second goal is to open up questions regarding how project participants currently live with other data collecting devices in their own homes. Hence, we have to both document people's real experiences with the Inner Ear, and to create compelling videos that can reach a broader audience. As we edit the first six shorts, we are also in the process of shooting footage for the next six videos. This has highlighted tensions in filming and editing in the context of design research.

4.1 Filming: Pressures, Uncertainty, and Embodied Practice

As video became more integral to the dissemination of the project, so did our corresponding goal to capture “good-looking” and “usable” footage to closely reflect the participants' experiences. Thus, entering an unknown location for the first time with the need to

capture viable footage became a recurring problem with complex factors changing from participant to participant. At times, participants invited us only in their basement workshop or their kitchen. Other participants surprised us with an empty apartment for example, or an eclectic collection of found objects.

To approach the challenge of capturing “good-looking” footage that is also reflective of the participants’ experiences, the team needed to make quick assessments and instinctual decisions about what *might* be “interesting” or “relevant” as future findings. The short nature of our interviews meant that we could not do multiple takes or engage in protracted decisions around camera angle and movement. We quickly formulated an initial idea of what we could capture at each location, adjusting camera settings and framing with the final video’s intended rhetoric in mind. We made instinctual decisions regarding camera movement, framing holding in mind what rhetoric would be communicated in the final video.

The presence of the camera equipment also played a large role in participants’ behavior on-camera, which introduced another variable in the “truthful” representation and reflection of their experiences. We used a small cinema camera to capture high-quality footage but found that its larger footprint became too present for participants. In one case, participant Tim (pseudonym), oriented us towards filming only in his workshop, the area he had been planning to capture vibrations. The confined space of the basement workshop exaggerated the presence of the camera and equipment and led to noticeable differences in Tim’s behavior. A different participant, Beth, had removed the furniture within her apartment before the arrival of the team. Beth didn’t share her reasons, even upon asking, so we are left wondering if she might have done it in anticipation of our filming or due to inspiration from the larger project.

4.2 Editing: Building Narrative and Laborious Decision Making

Our first step to editing the documentary shorts is to find themes that best captured participant experiences. Using audio recordings and transcriptions, we engage in a form of open coding [23] to organize, describe, and classify meaningful expressions made by participants. In this process, we make subjective decisions about what “might” be interesting or relevant to the narrative of a participants’ experience, similar to the team’s camera operators during filming sessions. Quotes we selected were based on a subjective interpretation of how interesting or relevant a particular statement was. The timing of filming between short 1 (capturing data) and short 2 (living with data) makes selecting “interesting” or “relevant” quotes an even greater challenge. In our process, coding and editing of short 1 precedes filming of short 2, necessitating anticipation of recurring or emergent themes in short 2 to select quotes for the short 1. After documenting all parts of a participant’s experience, we reassess and adjust the overall narrative presented.

Once we selected the quotes, we turned our attention to the camera footage. We combed through relevant clips, flagging and selecting them. Combining the clips and audio was a difficult process that raised complex questions regarding the collision of our authorial voice and the participants’ experience. We faced an additional area of ethical dilemma and tension when editing and re-ordering

participants’ audio clips in an effort to create a cohesive narrative throughout each video. Distilling 30–120 minutes of audio to a handful of quotes for a documentary of less than three minutes required a large amount of editing to create a linear narrative.

Our intention to publicly disseminate the project led us to decisions that shaping the videos in ways viewers may never know. We optimized the structure of the videos for viewers unfamiliar with the project (and with short attention spans). Editorial choices such as the opening line of dialogue and opening shot had an enormous effect on our representation of the participants’ experiences. For example, in participant Katharina’s video, a phrase mentioned 45 minutes into the interview was placed in the opening of the video, because it clearly highlighted a key theme from their experience. The new placement of the phrase completely altered its original meaning but contributed substantially towards establishing themes we identified when coding the transcript.

Our power to arrange and compose audio and video creates specific associations for the viewer. As we were filming within the participants’ spaces, there were countless options for combinations of audio and video, each containing its own embedded rhetoric and meaning. These associations were an exaggerated example of the Kuleshov effect [20]: by placing unrelated pieces of footage next to each other, an association is created between them. For example, as participant Katharina talked about seeing the Inner Ear as a companion, we paired her audio recording with videos of her dog and a stuffed animal (figure 1), potentially also seen as companions. The addition of the audio track created yet another layer of interpretation in that the participant tells the viewer what the footage represents with their voice over. The collision of these two initially unrelated elements — video and voice over — under the authorial voice of the team further complicates the ethical considerations regarding truth.

5 DISCUSSION

Our project involved conflicting goals: on the one hand, we wanted to use documentary film making to represent as closely as possible the experience of the participants. On the other hand, we wanted to create these videos to broadly share the participants’ experiences with a larger public (with the goal of broadening the reach and impact of research through design, a topic of high interest for the DIS community [27]). While documentary filmmaking already involves complicated ethical and subjective tensions, our dual goal further emphasized these complexities. Looking back at our process so far, we imagine how different our shooting and editing might have been if we had followed a singular ‘research’ goal of using video to represent experience. We might have kept longer scenes, chosen more experimental approaches, etc. However, because we wanted to cater to a broader public, we were concerned with how it would pique people’s interest and maintain attention. This leads us to reflect on how the Inner Ear Shorts relate to other modes of representing design work through video. Concept videos and design fictions aim at ‘selling’ a product, or ‘inspiring with a new idea’. Even how it might relate to commercial design documentaries, like *Abstract: The Art of Design, 2020*, or *Helvetica, 2007*. The design language of these videos, their aesthetics, have shaped how we have come to imagine what a ‘design’ video is. How the authorial



Figure 1: Footage of Katharina’s dog was originally filmed just for context, but after Katharina described the Ear as a companion, the team looked for other symbols of companionship in the home and cut these clips together in the film.

role of the team has shaped the prevailing aesthetic and narrative in the name of dissemination. As other design researchers might embark on a documentary journey, we encourage them to think about questions such as how might they disentangle these various goals and inspirations.

In conjunction with our questions about how to best represent participants’ experiences, other concerns emerged: how extractive is this practice? How much are we taking from participants with this video making? What will the value be for them? These questions are in line with current questions in the documentary world [4, 6], as well as in the research world [1, 7, 17]. We have begun to show the videos to the participants and plan to talk with each participant individually to have their input before sharing the videos more broadly. We are curious to hear their thoughts, and plan to adapt our editing based on their take.

Finally, we see an interesting parallel between our desire to create an artifact that gives back agency to participants in terms of collecting data in their own homes (how we designed the Inner Ear), and our need to capture video footage to disseminate the work. The Inner Ear project was designed with the central goal of creating IoT differently, pushing back against the common IoT data infrastructures such as the data economy and surveillance capitalism. We created a device that captures data in a home environment for the participants themselves, with no intention of using this data for other purposes. Although we created an artifact that doesn’t ‘use’ the participants’ data, the documentary process added a new layer of data collection: video data. Initially we wondered: how does it feel for participants to give their data (smart bed, voice assistant, smart home cameras) to IoT companies commodifying it, versus giving their data (vibration, in 15 minute recordings) to a research team to physicalize? Another layer of questioning emerged during filming: how will participants feel knowing that their experience captured on film (another level of data capture) will be broadly disseminated? While our application of documentary filmmaking for the dissemination of research poses many ethical and moral challenges, it synthesizes fieldwork and presents a valuable way to understand research insights. Further discourse should accept these challenges in order to better understand the abilities of documentary filmmaking as a design-process for sharing research through design, and design research.

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