Walking and Talking: Place-based Data Collection and Mapping for Participatory Design with Communities

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ABSTRACT

This paper explores the value of a participant-led walking method, during which matters of place in urban or rural contexts are explored. While walking, a diverse dataset is collected, including audio recordings, photographs, GPS tracks, as well as three words that participants are prompted for at each stop along the walk via a bespoke web application. We used this approach in an urban community in the UK and a rural community in Greece as part of ongoing place-based initiatives. Our findings show how participants connected personal and emotional stories with structural issues, countered official, 'authorised' discourses about both places, and how maps and videos created after the walks acted as boundary objects. We reflect on the claims of walking as a method that fosters equitable researcher-participant relationships, outline future design directions for participatory walking and mapping technologies, and consider the value of walking methods and map-making for participatory design.

CCS CONCEPTS

• **Human-centered computing** → **HCI design and evaluation methods**.

KEYWORDS

walking interviews, walk-along, mobile app, counter mapping, participatory design

1 INTRODUCTION

HCI researchers are increasingly engaging in place-based agendas. Interactive systems are built to collect, analyse, or advocate with place-based data, spanning diverse issues such as environmental quality [61], road safety [6, 50], urban development [20, 37], gentrification [16, 51], or police violence [57]. Data frequently concerns issues raised by local activists and communities of place [52, 70, 75]. Frequently, place-based design projects get funded based upon a discourse that a place is broken, that it needs investment, or that there are social issues that need addressing. This, however, ignores positive resources and assets available in a place while re-inscribing negative outside perceptions [31]. Place-based data has been used to feed into such narratives but also to resist them, such as by highlighting a place and a community's rich history [20] or local resourcefulness to solve problems [25, 33], or by explicitly countering official data accounts [51, 71].

With this paper, we build on this body of work by exploring the following research question: What is the value of a digitally supported walking method for place-based participatory design? Like others [38], we conceive of walking as a rich method to feed into participatory design processes. 'Walking and Talking', or 'walk-alongs', are typically semi-structured or unstructured conversations (interviews) between a researcher and one or several participants while walking through an environment relevant to the participant(s), for example their local neighbourhood [28, 43]. Compared to sedentary interviews, they have the potential to generate rich data about participants' thoughts about the environment [66], decentre the expertise of the researcher and give authority to participants [59], help to build rapport between researcher and participant [66], and foster attention to structural and political problems [11].

In our work, we used 'Walking and Talking' alongside a collection of readily available tools (to record audio, photo, and GPS data) and a bespoke mobile application (app) – WalkYourWords – which participants used on their walks to support elicitation of their experiences and to capture place-based data grounded in these experiences. WalkYourWords was inspired by the location service

what3words [78]. What3words uses a 3x3 metres grid laid over a global map, and each square on the grid is then uniquely identified by a combination of three randomly generated words. We turned this mechanism upside-down; in WalkYourWords participants can assign three words (or short phrases) to tag their current location, effectively building a user-generated grid with meaningful identifiers for the places they care about. Following the walks, we created personalised paper maps and videos for our participants that we used to engage them and others in further local action.

We walked and talked using WalkYourWords in two distinct contexts where we are engaged in long-term place-based initiatives with their communities. The first context is a semi-urban social housing estate in England, UK. It is characterised by a predominantly working-class population with a complex history of stigmatisation and neglect, and, as a consequence, community closure to outside intervention. The second context is a group of small remote villages in Greece. The region has suffered from economic downturn and a shrinking and aging population. Recently, major infrastructural investments have stirred up resistance among locals who denounce those infrastructures as top-down, poorly, and non-transparently designed that are extractive to the local environment.

Utilising our pre-existing connections in both areas, we conducted six walks in the UK and five walks in Greece. In the UK, the walks built on prior research relations in the neighbourhood and were the first step in an ongoing participatory design process to co-create community-led responses to entrenched social issues. In Greece, our engagement built on prior place-based actions to foster participation in local everyday politics and culture. The aim of our ten-day research visit was to contribute to ongoing public debates through the data gathered in the walks. Mindful of the fact that we were working with marginalised communities in both places, we devised 'Walking and Talking' as a sensitive ethnographic device to build equitable relationships with participants, putting them into a position of authority and expertise.

In this paper, we report on the findings from our engagements across these two sites, highlighting how walking, talking and WalkYourWords supported participants to connect personal experiences with wider structural issues, supported the creation of data that countered dominant discourses about their place, and how maps and videos acted as critical boundary objects across different social contexts. In reflecting on and discussing the method and findings, we contribute a deepened understanding of the role of digitally supported walking methods in participatory and place-based projects with communities. Specifically, we offer new insights on how walking methods support more equitable researcher-participant relationships, the value of mobile technologies to collect and disseminate diverse data about a place, and how walking can inform design-based inquiries of place.

2 WALKING AND MAPPING IN HCI

We situate our work within socially and civically engaged HCI research and community-based participatory design. Participatory design has strong political roots [8, 39], being based on the double principle that involving future users of a system in its design does not only result in better design, but is also people's democratic right. Questions of who participates and whose voice counts have long been at the heart of debates in participatory design [26, 74]. More recently, the wider HCI community has begun to engage with 'communities' through 'community informatics' [12], 'design for civic engagement' [42], 'civic tech' [9], or 'digital civics' [76]. These contributions have explored what role digital technologies can play in strengthening citizens' participation in local or national politics and culture, supporting non-profit organisations in delivering their work, and helping to build grassroots and activist movements.

However, in recent years, both in participatory design and in civically engaged HCI, calls have been mounting that the ethos and methods of design itself can be inappropriate and even harmful when working with marginalised communities without responding to the historic injustices they have experienced [17]. For example, Harrington et al. [36] point out that as researchers we need to be reflexive over potentially traumatic histories of marginalised communities in relation to a research institution, our limits to fully understand lived experiences in a community, how certain brainstorming and 'blue-sky' thinking methods can be alienating for resource-constrained participants, and the potential harm caused by data collection and dissemination.

Recent efforts to centre equity in the design process have argued that designers and researchers need to invest in building relationships and trust to evidence their commitment to a community rather than a research or design outcome [36, 45], they need to integrate community knowledge in the design and share control over the design process [15], and focus on available assets and capacities rather than deficits [31, 80]. In this paper, we want to position walking as a method for participatory design and civically engaged HCI research that contributes to such equity in the design process. In this section, we first present the unique qualities others have found in walking that underline this claim. Afterwards, we discuss map-making as a political tool for countering official, 'sanctioned' discourses about a place.

2.1 Walking as a Method for Design Research

Walking has long been part of research practice (e.g., in ethnography), but recently received attention as a method in its own right [11, 28, 43, 46]. Evans and Jones [28] differentiate between mobile methods (e.g., walking interview or a walk-along) and sedentary methods in motion (e.g., sitting in a car while interviewing, also called a 'ride-along' [11]). The go-along, which can be either a walk-along or a ride-along [43], is broadly defined as "interviewing a participant while receiving a tour of their neighbourhood or other local context" [11, p. 264]. It typically combines aspects of field observations and sedentary interviews. Field observations help to familiarise a researcher with an environment, its people, and their social interactions. However, the insights drawn are limited to the researcher's own interpretive framework. Interviews are useful methods to hear about people's biographies and perceptions of self and others. However, as they are typically conducted in a closed room, they are not situational, and it can be difficult for interviewees to talk about issues they are not immediately aware of [11]. The walk-along is a hybrid of the two methods.

A participant's level of control over conversation and route is critical. As with any qualitative interview method, questions can be open-ended or semi-structured. Similarly, the route can be set

by the participant (natural walk-along) or the researcher (contrived walk-along) [28]. Hybrid forms exist, where the researcher may offer a predefined set of places to visit, and participants choose a subset and/or the route between them (e.g., [19, 66]). It is generally recommended to allow deviations (going off route) to keep the method flexible and responsive [38]. Moreover, routes might not be determined at all, called 'bimbles' [5] or dérives [24], based on the concept developed by Situationist Guy Debord.

In HCI, researchers have used walking methods alongside designed prompts or digital augmentation to help structure or orient walks around specific issues. For example, Crivellaro et al. [19] used prompt cards with open-ended statements participants had to associate with places along their walk. The cards were NFC-tagged to access further archival material related to places along the walk and elicit reflections on their meaning and history. Stals et al. [66, 67] prompted participants to indicate how they feel in relation to various places along a walk using Plutchik's emotional wheel [58], which depicts eight basic human emotions across different levels of intensity. Clarke et al. [13, 14] conducted performative group walks during which participants wore animal masks that acted as prompts to take their animal's perspective on the urban environment, other species, data, and communication technologies.

2.1.1 Strengths of Walking as a Method. Social science, HCI, and participatory design literature has identified several benefits of walk-alongs compared to sedentary interviews. First, they generate rich data about participants' thoughts about the environment [49]. Physical features give cues, trigger memories, and prompt conversations while walking [28, 66, 72]. Periods of silence are not perceived as awkward, and movement and physical activity stimulate reflection and thinking [66]. As a consequence, walking interviews tend to last longer than sedentary ones [28] (which can also be a drawback, see below).

Walking methods can also decentre the expertise of the researcher. If walks are led by participants, they become leaders and experts in their own experience [59]. In contrast to most sedentary interviews, while walking, researcher and participant are positioned side-by-side, with little or no direct eye contact, which may help reduce power imbalances [11]. Walking builds a co-presence and shared understanding through movement. This is created through the shared rhythmic movement of walking and the same field of view as researcher and participant walk next to one another [46]. This also helps to build rapport between researcher and participant. Thus, the act of walking helps to relax and open up about emotional or sensitive topics [66]. However, contrived walks (where the participant cannot choose the route) might lessen the empowerment felt by the participants [11].

When walking, it has been observed that participants more readily confront power and display a critical awareness of structural and political problems [11]. One reason for this might be that the focus on the environment rather than the individual biography also brings structural issues to the foreground. Drawing on De Certeau [23], Crivellaro et al. [19] utilised this aspect in the group walks discussed above as a means of resistance. Participants used counterfactual maps and the NFC audio prompts to contest existing narratives about places. In the context of the smart city, van Zeeland et al. [72] and Powell [59] conducted group walks during

which participants explored means and effects of surveillance and new data infrastructure.

2.1.2 Drawbacks of Walking as a Method. Challenges of walk-alongs concern both the conduct of data collection outdoors as well as the complexity of data analysis. Walking can be impacted by the weather and the physical abilities of participants [11, 66]. The method is therefore less suitable for particularly hot, cold, or wet climates. There is a risk of excluding participants who cannot walk longer distances. Therefore, depending on the context and participants, alternatives, such as ride-alongs in a car need to be considered. Time and weekday, as well as safety are other critical factors to consider [11]. A number of technical challenges to data collection have been pointed out as well. Unlike in a sedentary interview, equipment needs to be carried at all times [11, 28]. In the absence of a writing surface, note taking is generally not possible [66]. Environments can also be noisy, limiting the quality of audio recordings [11, 28].

As noted above, walk-alongs have been shown to last longer than sedentary interviews [66]. Therefore, it can be complex to analyse the data. A missed opportunity [28, 49] is the fact that researchers frequently do not map data spatially. Usually, location information (using verbal cues, notes, annotated maps, or GPS recording) is insufficiently documented, which can limit data analysis. References made during the walk (e.g., "this building over there"), can become too vague later on, if no spatial data had been recorded. Geographers have used GPS devices which they time-synced with audio recordings to generate spatial transcripts to overcome this limitation [28, 49]. Finally, recording precise GPS data requires reflexivity of researchers over the ethical use of this data, as it could be abused or constitute a violation of privacy [49].

In summary, walking can be an equitable method that centres the participant's experience of place. As one way of preserving the spatial quality of data collected during walks, in the next section we unpack map-making as a complementary method and how maps as political datasets can inform design processes.

2.2 Counter Data and Counter Mapping for Advocacy and Civic Action

Over the last decade or more, there has been a growing body of work that has examined the role of digital data as it relates to civic matters, local communities, and place-based concerns [70]. The broader framing of this literature is to challenge popularised discourses of smart cities and big data that tend to place citizens in passive roles and generate datasets that are *about* places but not engaged with the experiences and concerns of people *in* those places. Researchers have used design as a means to playfully highlight that certain places can be 'othered' and misrepresented by the provision of large scale, decontextualised datasets – such as how neighbourhoods and places are represented in open policing and crime data portals [30]. Others have made attempts to reconceptualise what data means within communities. For example, Taylor et al. [70] coined the term *data-in-place* as part of their research working with communities engaged in local planning disputes with their local governmental authority. Conceptualising data as in-place requires careful consideration of the "tight-knit and always emerging relations between people, places and data" (p. 2871), and that data is

part of the social geography of communities, neighbourhoods, and streets.

Researchers within social and critical geography and HCI have also studied and developed new approaches and practices to challenge concerns around the relationships between people, place, and data. Dalton and Thatcher [22] coined the term *counter data actions*, which Currie et al. [21] further elaborated on as a means to develop "acts of resistance to politically dominant datasets". For example, Meng and DiSalvo [51] documented the ways a grassroots housing group in Atlanta, USA, assembled "counter data" to challenge what community members experience as incorrect data about their place generated by official sources. Such counter data was used by the group in a variety of ways, including to challenge city officials and organisations about the portrayal of the community in official data and records. Outside of being specifically framed as counter data, there are also many other examples of where tools have been developed for and with specific communities to support the creation of citizen-generated datasets to influence local policy making, participatory budgeting and community development initiatives (e.g., [37, 47, 56]).

Data related to places and communities is oftentimes represented in the form of maps. Like those who have challenged the notion that data represents 'truths' about the world, many scholars [27, 35, 41] have argued that maps are not descriptive objects but hold semiotic prescriptive power [40, 65]. Maps are *boundary objects* as introduced by Star [68]. Boundary objects are objects that are plastic, so that they are interpreted differently by different communities, but are also robust enough to maintain a shared identity across them. Creating a map as a boundary object is the result of subjective decisions about what to include, what to leave out, and what to communicate [18, 41, 69, 81]. These decisions increase the communicative value of maps across social groups, but are also acts of standardisation and exclusion [69]. In this regard, maps have been described as political objects which are not mirrors of nature but producers of nature; they do not simply reveal but create 'knowledge' and ontologies [41]. Within HCI, similar concerns have been discussed when maps and data are combined together. For example, Le Dantec et al. [44] explored how a map possesses authority in a cycle network planning context, irrespective of the fact that the data it represents is incomplete and partial. Johnson et al. [37] discussed how maps overlayed with crime data can label entire areas permanently as 'unsafe' despite data being insufficient granular and outdated. Corbett and Loukissas [16] discussed how maps of online place-making platforms contribute to everyday processes of gentrification.

On the other hand, maps – as political and value-laden boundary objects – can be used (like data) to counter top-down narratives about territories, their histories, or their use. Counter-mapping examples include Psychogeographic maps [24, 73] decolonial maps (e.g., The Decolonial Atlas [3], Palestine Open Maps [7]), maps produced by indigenous communities facing forced migration and land exploitation (e.g., MappingBack [2]), bioregional community maps [77], neighbourhood maps against gentrification (e.g., [1]), and maps produced by groups investigating human rights violations (e.g., Forensic Architecture [29]).

In summary thus, data and maps are political tools that possess authority to tell a story about a place, be it top-down, "a view from

nowhere" [34] or to advocate ground-up views and counter official narratives, bound up in the situatedness of place [70]. Explicitly connecting walking and map-making, in Kanstrup et al. [38], participants collectively made a map combining all significant places they walked to. Clarke et al. [13] generated a map with pictures and drawings from their group walk. Stals et al. [67] used the data collected during their walks with Plutchik's emotional wheel to generate an emotional map of the city. In this paper, we propose a method and an app to support designers and communities to collectively gather and analyse place-based data through walking and to produce maps representing this data. We tested the method using readily available technologies and our bespoke app Walk-YourWords. Before we explain the details of the method and app, we will introduce the UK and Greek research contexts.

3 RESEARCH CONTEXTS

This research was located in Meadow Well, UK, and Katsanochoria, Greece. The Meadow Well engagement took place between January and April 2022 and was part of an ongoing participatory design inquiry to co-create place-based actions addressing the systemic injustices the estate's community is experiencing. We visited Katsanochoria for ten days in May 2022, where the second author has been part of ongoing design-led efforts to strengthen local relationships and civic engagement (e.g., through a community maker space and design projects). In both contexts, we were motivated to use the Walking and Talking method to contribute to these continuing efforts.

Meadow Well is a semi-urban social housing estate near Newcastle upon Tyne in North East England, UK. It is predominantly residential with a streetscape dominated by approx. 4000 typical mid-20th century English terraced houses (see Figure 1). In the centre of Meadow Well, there are a handful of small shops and three non-profit community centres, about a five minutes' walk from one another. A fourth non-profit, focused on youth work, is located at the estate's northeast end. Just to the south of the estate is a park that connects the estate to a large river. Meadow Well is one of the poorest neighbourhoods in the UK. Over the course of the 20th century, the estate's residents have been neglected by local authorities and shamed by the media. In a mix of defiance and self-help, delinquent behaviour became increasingly the norm in Meadow Well. Tensions escalated in the late 20th century, when two young men died in a police chase. Residents took their anger to the streets, looted shops, and burned cars. Since the so-called 'Meadow Well riots', the estate has seen significant investment in 'community development'. The number of non-profit organisations active on the small estate pays testimony to this. Nevertheless, on England's index of multiple deprivation (IMD, which spans the dimensions of income, employment, education, health, crime, barriers to housing and services, and quality of the living environment), Meadow Well ranks among the upper 10 percentile of the most deprived neighbourhoods, with pockets falling within the upper 1 percentile [55]. What these statistics do not tell is that Meadow Well residents have a strong sense of community and resourcefulness, partly due to the relative closure to outsiders and a continuous distrust in state and other institutions. People know each other on

the street and problems are rather dealt with internally than by calling authorities.

Figure 1: Meadow Well

Katsanochoria is a constellation of eight villages located in the region of Epirus, Greece (Figure 2). Formerly its own political region, Katsanochoria today is part of the much larger municipality of North Tzoumerka. Epirus is considered to be one of least developed regions in Greece and until recently, because of limited road infrastructure and its mountainous terrain, a very isolated area. Since the 1980s, following a general trend [4], the population of all villages that belong in the municipality has been shrinking, with the majority of people migrating abroad or to bigger towns and cities. As a result, formerly cultivated land became idle, and houses were abandoned. Today, the area is slowly becoming a tourist destination and road infrastructure is being built or upgraded to make the region more accessible. The population of the five villages we visited and walked around with locals varies from 9 to 65 residents. The great majority of them are pensioners. The few non-pensioners either sustain small flocks of livestock or commute to a nearby city (20-30 km; 12-18 miles). Overall, the population of all five villages is ageing and there are very few school-age children living in the area. The villages oftentimes experience power and water cuts and have poor access to the Internet. Out of the five villages we visited, only two have a 'kafeneio' (a pub/cafeteria) that operates throughout the year. Kafeneios, alongside the local church, are important social places for the community. Due to the shrinking population and public budget cuts, church services do not take place on a weekly basis but only once every two or three weeks.

4 THE WALKING AND TALKING METHOD

The Walking and Talking method used in this research consists of three phases: pre-walk, during-walk, and post-walk, as depicted in Figure 3. As part of the pre-walk, we acquired ethical approval, recruited participants, and briefed them about our plans. During the walk we used the WalkYourWords app and other tools to collect audio, photos, three-words, and GPS data. Post-walk, we designed paper maps (for Meadow Well) and videos (for Katsanochoria) which we shared with our participants in a workshop (UK) and on social

Figure 2: One of the villages making up Katsanochoria

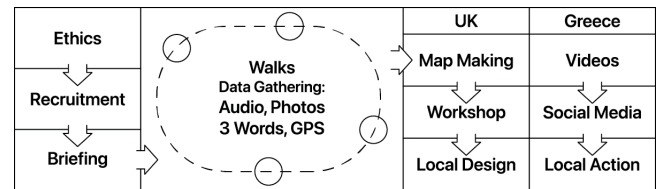media (Greece), respectively, to inform further design and local actions (which are beyond the scope of this paper).

Figure 3: The Walking and Talking process

4.1 Relationship Building and Recruitment

Building relationships and trust with community members, or "the work before the work" [45, p. 1357] is essential for meaningful participatory design. In Meadow Well, the first author had existing relationships with non-profit organisations on the estate building on over five years of prior research collaborations. His earlier presence and commitment to the location enabled the support of the organisations. To build rapport with local residents, he signed up as a volunteer in two community centres, helping out in a low-cost grocery service, a community garden, and a games group for several months. In these places, he met residents regularly and over time invited them to take him on a walk around their neighbourhood. Participants had to either live or have lived on the Meadow Well estate and be able to walk for approximately 30 minutes. In total we recruited six participants, three male, two female, and one genderqueer. Ages ranged from 19 to 65.

Due to funding restrictions, our time in Katsanochoria was limited to ten days. We therefore did not have the time to build rapport with locals in the same way as in Meadow Well. However, the second author has family roots in the region and had been living in one of the villages intermittently over the last three years. He and a local friend acted as mediators between the first author and the participants and as translators (from English to Greek and vice versa) during the walks. In order to recruit participants for the project, they shared a call on Facebook groups run by locals and

personally invited people they already had connections with, resulting in an initial interest by 10-12 people. However, during our stay, the majority dropped out, so we employed a 'door-to-door' method involving visiting the villages' kafeneios and directly asking locals to participate. Out of the five participants we walked with, all identified as men. Ages ranged from 45 to 69 with the majority of them aged over 60. While we clearly stated that all genders are invited to participate, two women who initially agreed to participate cancelled their walk (we will reflect on this aspect later).

Before we present the process of the actual walk, we introduce the technical architecture and design of the WalkYourWords app.

4.2 The WalkYourWords App

WalkYourWords is a web app that allows participants to place sets of three words at visited locations during their walk (see Figure 4). The motivation for WalkYourWords was to allow participants to express and assign their own sentiments about a place, potentially countering official labels and narratives. In designing the app, we were inspired by the commercial service what3words [78]. What3words is a location-based technology that allows people to identify and find a location using just three words. What3words divides the world into 57 trillion 3-meter squares [79] where each square is assigned a unique three-word address; for example, the three words "pretty.needed.chill" can be used on to locate the company's business premises in Oxford, UK. The service has had success and adoption across many countries, for instance being used by emergency services. However, this has not been without criticism. For this work, what3words provided the design provocation that in today's world places are 'pinpointed on a map' by systems, whether this is through what3words, latitude and longitude, or coordinates. These identifiers, while highly accurate, have little meaning to most people and are simply 'given' to places. By creating WalkYourWords, we intended to flip this association by allowing people to describe a place through a few chosen words.

Figure 4: WalkYourWords prototype app

WalkYourWords was written using a development stack with HTML, CSS, Node.js runtime environment, and the Express.js framework. On loading WalkYourWords for the first time, participants are

assigned an anonymous username that they keep for the duration of using the app. They are then given three text boxes to enter three words which are uploaded and stored on its secure website along with the latitude and longitude of the location. After the walk, the organiser can use an admin page on the web app to display the walker's route and meta data. The admin can see words entered for each location as well as generate each route as a GPS trace using the OpenGIS schema format [54] from the Open Geospatial Consortium KML standard [53]. The GPS trace is then displayable on mapping websites.

For our work, there is no intention to find a location on a map; instead, we envision the use of this technology to be part of an assemblage of other rich location-based data to inform ethnographic research and participatory design. Influenced by what3words, the app does ask for three separate words, e.g., "maybe, another, day", however, it does not enforce any validation on this entry which allows users to enter more than one word in each text field if they desire so. Fields can also remain empty if a user wants to enter fewer than three words. The three-word combination also does not have to be unique. Intended as a technology to re-label 'sanctioned' or official descriptions of places, we understand WalkYourWords as a counter-mapping tool. Users can assign their own labels to places that have meaning to them, be that positive or negative associations. We now present the structure of the walks in which we used WalkYourWords.

4.3 Structure of 'Walking and Talking'

Prior to the actual walk, we met with each participant to discuss the process and get informed consent. In Meadow Well, we gave participants a card with a map of the estate and several prompts to think about places they might want to bring us to. Participants could use the map to mark places and draw a route between them. However, none of the participants used this opportunity and instead just had a route in their head when we met for the walk. In Katsanochoria, we did not include a map on the prompt card because of the experiences in Meadow Well and because of the locale being a much larger rural area.

At the start of each walk, we (re-)introduced the devices we would use to collect data: a handheld audio recorder (or a voice recording application on a phone in some instances), a phone to take pictures, an off-the-shelf app to track our GPS coordinates, and the WalkYourWords app. The participant then led the researcher(s) from place to place. At each stop, they explained why they chose this location, took one or several pictures of the place, and used the WalkYourWords app to enter three words they associate with it. Between places, the conversation was largely unstructured. We had, however, also prepared a small number of open questions we asked along the way, including about how they came to live in the neighbourhood/region, what they think the best and worst part of Meadow Well/Katsanochoria is, and what they would like to change. We adjusted and added questions from one walk to the next to incorporate topics brought up by previous participants. In Meadow Well, all interviews were conducted as walk-alongs. In Katsanochoria, two interviews consisted of walk-alongs with sections conducted as ride-alongs in a car to reach the places our participants wanted to show us.

In Meadow Well, walks lasted on average 1 hour (between 43 and 80 min). Average distance walked was 2.69 km (between 1.05 and 3.55 km) or 1.85 miles (between 0.66 and 2.21 miles). In Katsanochoria, walks lasted significantly longer; average duration was 2:19 h (between 2:07 and 3:06 h). Average distance covered was 5.37 km (between 3.11 and 10.54 km) or 3.33 miles (between 1.93 and 6.61 miles), reflecting the sections driven in a car. In Meadow Well, we made a total of 33 stops visiting 22 different places, 8 of which were named by at least two participants. The average number of stops was 5.5 (between 4 and 7). In Katsanochoria, we stopped at 26 places. Reflecting the different geography and the fact that all participants came from different villages, no routes or places overlapped. The number of stops per route was similar to those in Meadow Well, averaging at 5.2 (between 3 and 8).

4.4 Map Making

We organised post-walk activities to reflect back the data to our participants for collective sense-making and to feed into the ongoing place-based efforts in each place. In Meadow Well, we transcribed all audio recordings and generated personal maps displaying the route, the three words for each stop, the pictures taken, and a slightly shortened transcript. We used the MapOSMatic web service to generate the map images overlayed with route data using OpenStreetMap as a base layer. We also printed foldable copies of the maps for each participant to keep (Figure 5). We organised a workshop with all walkers, in which they had the chance to meet and view each other's maps. We also generated a map with all six routes laid on top of each other (Figure 6). In the workshop, we discussed shared issues which we will present in the Findings.

Figure 5: Personalised paper maps made for Meadow Well participants

In Katsanochoria, we created short videos out of the material that we could share online, primarily on the Facebook groups related to the villages we visited. The videos we created vary in duration (17-27 min). Like the paper maps in Meadow Well, they include a map with the walked route and photographs. The videos zoom in at each stop and the three words/phrases the participants shared with us are presented (Figure 7). All videos were sent to the participants
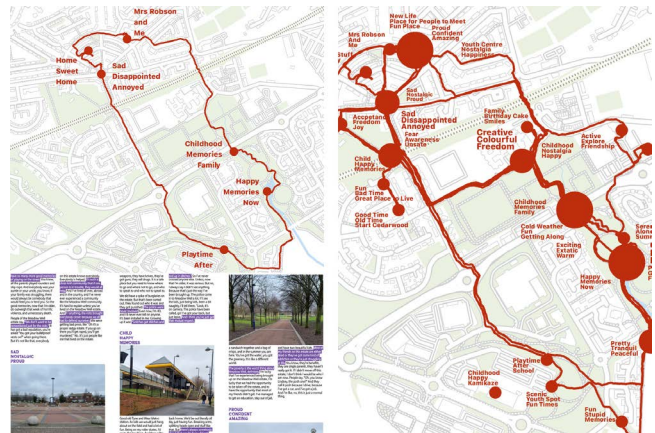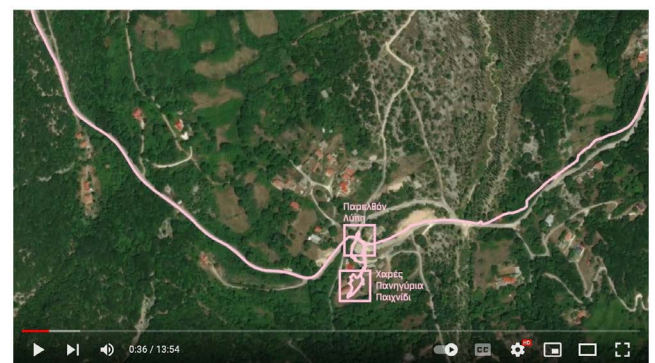
Figure 6: A participant's individual route (left) and all Meadow Well routes overlayed (right)

asking for their consent on the content we included before they were made public on YouTube and Facebook.

Figure 7: Stills of YouTube video showing map with GPS track and the participant's three words for two locations (top) and a photo he took (bottom)

To make the videos, we used iMovie (video editing), Audacity (audio editing), and qGIS (to generate map the with overlayed route data). Compared to the Meadow Well maps, we switched from

MapOSMatic to the more powerful qGIS, as OpenSteetMap data of the Katsanochoria region was not detailed enough, resulting in mostly empty maps. To make the routes more relatable to the viewer, we decided to switch to satellite images on top of which we placed route data and the three words. We shared the videos on YouTube and local Facebook groups and personal profiles, accompanied by a small text that summarises the key points we talked about with each participant.

4.5 Data Collection and Analysis

In this paper, we draw on the audio recordings, photographs, GPS tracks, and participants' three words gathered during the walks, as well as our research diaries and reflective conversations during the engagements. Furthermore, we included the audio recording of the post-walk workshop in Meadow Well and the Facebook comments made about the walks in Katsanochoria in our data. We used this corpus of data in a thematic analysis [10] using the qualitative data analysis software nVivo. In a first step, we read transcripts of audio recordings and reviewed maps and pictures. We then coded all text material – including the sets of three words – in an inductive manner. Open coding allowed us to remain sensitive to the unique themes of each context, which we later cross-compared. Furthermore, as we were interested in the diversity that different data collection tools can bring, we coded the three-words data separate from the recorded conversations. Initial open coding resulted in 90 codes. After several passes through the data, we first clustered these codes into 28 second-level codes. We then grouped them into 8 themes for the three-words data and 6 themes for the audio transcripts. Finally, we discussed the themes for consistency within the research team. The next section presents our findings resulting from this process, focusing on the three most central themes of the audio transcripts, which are cross-referenced with the three-word themes in the text. To protect our participants' privacy, their names are replaced with IDs, 'MW' denoting a participant from Meadow Well, and 'KA' a participant from Katsanochoria.

5 FINDINGS

In this section, we highlight three qualities of the data produced by the Walking and Talking method, complemented by the Walk-YourWords app and the follow-up activities (creation of paper maps and videos). The data shows how participants connected personal experiences with structural issues, countered official 'authorised' discourses, and used maps and videos as boundary objects for further debate.

5.1 From the Personal to the Structural

The walks in Meadow Well and Katsanochoria showed how personal, often emotional memories are entangled with larger-scale structural issues. Walking through place, our participants recalled events that happened there, which they did not necessarily plan to talk about. For example, MW1 brought us to the site of his childhood home. Standing in front of new houses, he shared his memories of the Meadow Well riots:

> All these are new houses. After the riots, some collapsed, quite a few got burned. Because the kids, we don't have them wooden telegraph poles now, they

> just cut them down, blocked the road, and set them alight the minute the emergency services come in. That's how bad it was. Because there's nothing around here for the kids. (MW1)

After our conversation, MW1 tagged this location using Walk-YourWords with "fun, bad time, great place to live" – illustrating his ambivalent feelings about his home and the riots. As the quote shows, MW1 quickly connected his personal memories of the riots with the structural issue that the area lacks opportunities for young people. It is common knowledge on the estate, and all our participants reiterated this view, that "there is nothing for the kids". The estate has three community centres (targeted at families and adults needing support) and a detached youth work charity, but there is no indoor space were young people feel welcome. However, MW1 did not simply blame young people for causing havoc – there is a long history of tolerance of so-called 'anti-social behaviour' due to the shared rejection of police and local authorities – but instead blames the local council for not doing enough to prevent young people ending up on the street.

In Katsanochoria, we drove between two of KA2's planned places when we passed a half-finished football pitch (soccer field). KA2 suddenly asked us to stop. The sight of the football pitch (see Figure 8), cued him to raise a structural issue imbued with personal memories. The 5-a-side pitch had been in the current stagnant state for months without any further progress. It is located on top of an older 11-a-side pitch. The decision to build it was made by the North Tzoumerka municipality, of which authorities are located outside of the Katsanochoria villages. The downsized pitch, for KA2, is reflective of the population decline in the region. KA2 told us that when he was younger, they used to have a football team that played in the local league every week and fans would come to watch. For KA2, the smaller pitch, but also its design and placement, are symbols for a municipality that takes decisions in a top-down and non-transparent way and one that does not believe that the villages can attract new residents:

> Look what they did here, that's stupid to say the least. They destroyed the football pitch and who knows if the 5-a-side will be used? Now there are no kids at all, but in the future, with new migration waves or another way of life, there might be 100 kids. Are they going to make the 11-a-side from scratch here then? They destroyed something to build something new. We should make new things without destroying existing infrastructures, this is what I believe. (KA2)

The three words KA2 used to describe the scene are "misery, misery, misery". Like MW1 above, KA2 connected his personal memories and emotions with a structural issue. Interestingly, the comparison between the WalkYourWords and the conversation data showed, that when talking, participants' feelings came across in the tone of their voice; the app made them more explicit. In Meadow Well, participants tended to use emotion words, such as "happy", "joy", or "sad", while participants from Katsanochoria also used poetic or associative expressions, such as "source of life" or "alpha and omega". Overall, the data shows that participants trusted us and – cued by the environment – shared their feelings about painful and contentious topics.

Figure 8: Half-finished football pitch; picture taken by KA2

5.2 Counter Data

A second theme we found in the data collected during the walks is that it frequently counters official, 'authorised' discourses about each location. This first concerns what is being included or left out on official maps of both places. In Katsanochoria, KA3 took us to a small church on a mountain that his mother and himself have been building as a memorial for his father after he passed away (Figure 9). According to KA3, the municipality does not recognise the building as a church:

> It is considered illegal to be in the church, to use the church. […] The central authorities don't recognise it as such, thus a priest is not allowed to run a service. […] You see, there is no cross on the roof […] but it's a legacy for my family, my dad. […] God might have accepted it as a church, but it seems that his representatives on Earth did not. (KA3)

As a non-consecrated church, the building is not visible on an official map of the area. By using the WalkYourWords and tagging it as "in memory of, [first name], [last name]", KA3 put his church on a map, countering the official data.

Figure 9: The 'illegal' church, picture taken by KA3

In a slightly different vein, what is a part of Meadow Well was also contested by our participants. The park (Figure 10) exemplifies this, as it is officially outside, south of the estate. When we handed out the prompt sheet and map of Meadow Well to our participants, we therefore did not include the park on it. Accidentally, we attempted to restrict our participants to the authorised boundaries of the estate. Nevertheless, five out of the six walkers brought us to the park, making a total of 12 stops there. In the park, MW3 argues:

> I still class this all as Meadow Well. I mean, North Shields is further away. You could call this the Royal Quays, I guess. All part of this. Because further along there's is Percy Main, further longer there's North Shields and this bit is Meadow Well to me. I don't know. Maybe it's not classed as that, I don't know. (MW3)

Luckily, our participants ignored the map on the prompt sheet and showed us *their* Meadow Well, which included the park as an important community asset. Examples of three words include: "calm, ducks, belonging" (MW2), "pretty, tranquil, peaceful" (MW3), "exciting, ecstatic, warm" (MW4), "childhood, memories, family" (MW5), and "peaceful, green, fun" (MW6).

Figure 10: Meadow Well's unofficial park, picture taken by MW2

Besides the question what is included and excluded of each site, walks also contradicted the authorised narrative of the places needing 'development'. While the high number of community centres and other charities in Meadow Well reflects the official narrative, most of our walkers stress the strong sense of community and internal resources. To this day, the riots define the negative image of the estate. However, MW1 and MW4 brought up counter data to the official narrative of the riots, pointing out the fact that the riots were escalated by hooligans from another part of the city: "Because at the same time the riots happened, I think it was the east end of Newcastle, they came down, trying to riot with us, looting the shops, and then we were obviously trying to defend our little estate." (MW4). The participant then went on to point out how supportive the community is, while rejecting stereotypical media stories:

Literally, it's always been [a] really close [community]. And then, if anything, the riots brought everybody closer because we all had to defend ourselves. We were getting bad press, we were getting like, "Oh it's a proper radgy estate. If you go on there, you'll get raped, you get murdered". No, it's just people like me that lived on the estate. So yeah, we all had to defend our innocence, I think. (MW4)

To this day, the media portraits Meadow Well as a dangerous and delinquent place, which reinforces the community's closure and distrust towards institutions. While official statistics, like England's index of multiple deprivation, tell a story of deprivation, the counter data our participants collected on the walks tell a story of a community that is sticks together. The official narrative by the North Tzoumerka municipality is equally that the region needs development, in this case through large infrastructure projects, such as the new highway currently being built. However, our participants countered this narrative and understood it as an attempt of top-down centralisation and a "strangling, of, nature" (three words of KA3). Figure 11 shows the construction work and the damage it causes to the mountain's terrain. KA2 expressed the view that most locals hold about the project:

I disagree with this project. It should not have been built here. It will not help the area "develop more", as they say, and since it doesn't traverse any of the villages it will possibly isolate them more [. . .]. And it is catastrophic to the environment which however might heal itself at some point [. . .]. We were not asked. (KA2)

Figure 11: The road works cutting across the green mountain; picture taken by KA1

Rather than mapping the road as a positive development in the region that eases access and promotes tourism (ideas locals are as such not opposed to), they map it as a project of further isolation, environmental destruction, and centralisation. Walking and talking thus enabled our participants to resist dominant narratives and power relations. In the next section we will look at how the maps and videos further contributed to these efforts.

5.3 Maps and Videos as Boundary Objects

A key aspect of the Walking and Talking method is not just the walk itself, but also what happens afterwards. Here, we found that the paper maps and YouTube videos acted as boundary objects [68]. In their capacity to bridge communication across different social groups, boundary objects can be used as a design device to facilitate dialogue, acknowledge and discuss these differences, and build relationships [32]. In Meadow Well, we designed the paper maps as personalised gifts to our participants, a souvenir and reflection back of the walk we did together. However, we also used this personalised map to bring all six walkers together and structure a dialogue. For the workshop, we hung all maps side-by-side on a wall and invited participants to browse and read others' maps at the start of the session (Figure 12). Most participants did not know each other, or only via a common friend. Very quickly though, they started talking about each other's maps, compared which places they went to, and particularly those they had in common, such as the park. Some of the pictures, in particular of the community centres and views of the park, were almost identical. Moreover, each contributed their particular story about shared events or buildings. Since the riots were such a key event in everyone's life, participants pieced together their memories of the events. For example, they discussed the involvement of other hooligan groups in the riots:

MW5: They were other kids coming in and [. . .] pulling things down and harassing people.
MW1: That's how the riots started.
MW5: No, the riots didn't start like that.
MW1: They did, people from the other areas.
MW4: No, there was a police chase.
MW5: The riots started because the two young lad[s] got killed on the Coast Road.
MW1: They shouldn't have pinched the car though.
MW5: [. . .] That's what the riots were for, yeah, for that reason.
MW1: Yeah, but people came from the West End as well though.
MW5: Yeah, people were coming in on busses to see where the riots have been. [. . .] They parked where the Collingwood pub was. [. . .] There were buses, queues to get in!
MW1: Getting a drink before they come for a tour. [laughs]
MW5: I bet you they did.

It was through such contestations and re-constructions of shared memories connected to Meadow Well that the group began to form social ties and a collective identity. During the main discussion, we had a large print of all routes overlaid (see Figure 6) spread out on the table around which participants sat. We used this map to guide the conversation about places visited, particularly those that were visited by several people. While the discussion was largely unstructured, the map acted again as a boundary object, connecting the different realities and walking experiences. It also reinscribed the role of the participants as experts in their own experience. They knew all places better than the researchers and it gave them an opportunity to share their knowledge. The discussions once again surfaced community assets rather than deficits, both tangible (e.g.,

the park) and less tangible (historical knowledge, informal support and policing networks). Issues, as opportunities for community action utilising existing assets, still emerged in the discussion: 1) there are no offers for teenagers, which is a long-standing issue even pre-dating the riots; 2) litter, broken glass, and vandalism are connected to young people, but also caused by adults and the council who are neglecting the area; 3) more than 30 years after the riots, there is still stigma attached to Meadow Well. We then took those ideas forward in a participatory design project (which is beyond the scope of this paper).
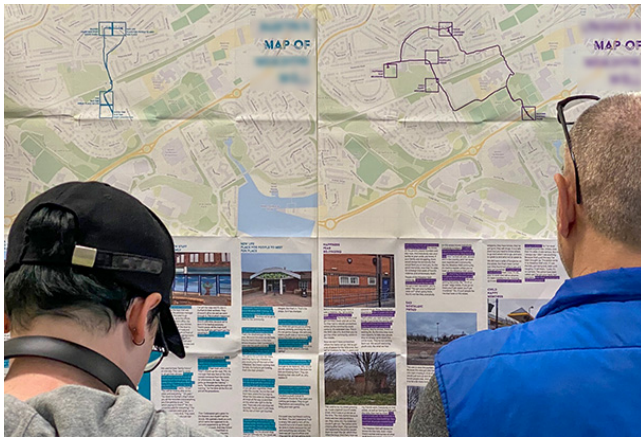

Figure 12: Meadow Well maps side by side in workshop

In Katsanochoria, the videos also fulfilled the role of boundary objects. However, as there was no opportunity to engage in a longer-term participatory design process following the walks, the process was messier and more incomplete than in Meadow Well. As described in Section 4.4, we hosted the videos on YouTube and shared them on Facebook, both on personal Facebook profiles and in groups that some villages run. The number of views each video received varied from 60 to 230, which is considerable in the context of the small population. However, no comments were made on the group pages. On the second author's profile, all comments came from persons not related to the area. Someone commented, "It felt that I was in the walk with you. Great project", while on another video someone wrote, "Your walk-and-talk made me want to visit the area again". In their capacity to standardise communication, the boundary objects (the videos) reduced the rich lived experiences of going on a walk into a an object that can be shared with others yet is robust enough to communicate the essence of the experience. The second author also received comments (online and in person) about the videos from people living in the area. One of the participants told him that people discussed the videos in the local kafeneio and another person coming from the same village as KA1 reached out to the author on Facebook. In his video, KA1 proposed the development of an elderly home as a way to attract new residents and keep existing ones. The commentator praised KA1's idea and indicated an old boarding school building as a space that could host the proposed care home.

6   DISCUSSION

The insights about the data generated from our walks – the connection of structural and personal issues, data countering official narratives, and boundary objects for ongoing debate and design – allow us to offer three reflections about the possibilities and limitations of our Walking and Talking method and WalkYourWords app supporting place-based participatory design and civic engagement. We will revisit the claim that the method supports equitable relationships between researcher and participant, lay out design directions for location-based technologies supporting participatory data collection through walking and talking, and consider how the method and WalkYourWords app can feed into design processes.

6.1   Revisiting the Claim to Equitable Researcher-Participant Relationships

When working with marginalised communities, power imbalances between lay 'informants' and expert 'researchers/designers' can further reinscribe inequalities and alienate participants. This assertion has been recognised by various fields of design, including participatory design [36], design for social innovation [48], and design justice [17]. How then can walking-and-talking methods contribute to more equitable researcher-participant relationships in design?

Walking methods have widely been credited for decentring and challenging the researcher's expertise. As we argued in Section 2.1.1, the act of walking side-by-side is less confrontational than in a sedentary interview; if the route is set by the participant, they are put in a position of authority and leadership; and if questions remain (semi-) open and the conversation can flow freely, participants can act as knowledge experts [11, 46, 59]. Our experiences with the method can confirm these claims. Walking next to our participants, they opened up about sensitive and emotional topics, as the personal memories about the Meadow Well riots, their childhood, or youth illustrate. Another important aspect for equity in the research process was that participants decided which places they wanted to bring us to and which path we took between them. We did not only walk next to our participants, sometimes we walked behind them, as they were leading the route. This framed the participant as the local expert and the researcher as the visitor. The map we provided participants in Meadow Well with was optional and turned out to be unnecessary. Participants knew their estate like the back of their hand. In fact, as the discussion in Section 5.2 about the park showed, participants resisted the authorised expert discourse over what the boundaries of the estate are. Like route setting, questions also remained very open. 'Talking' while walking resembled less of an interview and more of a conversation among peers. Conversations were free to go off topic and we encouraged participants also to ask us questions during the walk. In all conversations, there were periods of silence, which sometimes lasted minutes. In a sedentary interview, even a few seconds of silence can be experienced as awkward or as a signal that the interview is over [66]. In contrast, while we asked participants to come up with a route that would take about 30 minutes to walk, all walk-alongs took significantly longer, often an hour or more.

However, we need to reflect to what extent these qualities are inherent to the act of walking, or whether the rapport we built with

our participants before the walk, and how we framed our questions during the walk, contributed to them feeling at ease and share personal stories and articulate their dismay with structural issues. For example, when we first invited participants in Katsanochoria to go on a walk with us, many suggested places to go to that aligned with the official, authorised discourse of the municipality (touristic highlights, a river gorge, or ancient Greek ruins). We had to clarify that we are more interested in places that are significant to them personally, irrespective of how 'pretty' they are. Thus, while we do feel that walking helped to decentre the researcher as a person of authority and expertise, it equally depends on how the walking method is configured. If the route is set by the researcher and if questions are less open, one may be walking side-by-side, but that does not make the relationship more equitable.

A concern of walking as a method is that it may exclude participants who are unable or do not feel comfortable walking. While during recruitment we set expectations (to be able to walk for 30 minutes), in Greece we had two participants who needed a car for part of their route as they could not walk to the places they wanted to show us. To address this inclusivity issue, future work should offer alternatives to walking from the start.

The comparison between the UK and Greek contexts also shows how important relationship and trust building are to live up to claims of equity and inclusion. In Katsanochoria, all our participants were older men. Despite the fact that we made clear to everyone that we do not expect anything specific other than being taken on a walk to talk about their village, from the start women and younger people were more hesitant to participate. The most common reason shared with us was their perceived inability to provide rich and historically correct information about the area. One of the women that we initially approached suggested that we should go for a walk with her husband or with some other men living in the area. The woman thus referred us to men as an authoritative source of local knowledge and history. Old white men, taking up more public space, represent another layer of authorised discourse, even if below that of the municipality and the state. Four of our five participants were involved in local politics in some way and thus may be considered the 'usual suspects'. We were perhaps underprepared for the more patriarchal structures in the villages.

A limitation of our work in Greece was that we did not have as much time as in the UK to build relationships and trust with the more invisible community members. Furthermore, both authors who travelled to Greece are male. While a female friend of the second author supported us with recruitment on site, we may have had more success if we had spent more more time building trust with female participants. Or, had we not gone to kafeneios, which are male-dominated places, but to the church or knocked on people's doors, we may have met more female participants. Our experience reminded us that a place or a community are not homogeneous entities. They are comprised of heterogeneous groups with their own power dynamics and inequalities that we as researchers need to become sensitive to before we engage 'the' community to take part in our research. For equity and inclusivity in research and design, doing "the work before the work" [45, p. 1357], being present in a place and building rapport, are as – if not more – important than the actual work.

In conclusion, while the method does afford more equitable research relationships, it still depends on the willingness of the researcher to create an environment where participants can take space and authority. There are large societal forces at play that require reflexivity of the researcher to overcome.

6.2 Future Walking Data Collection Technologies

As we have shown, the Walking and Talking method has revealed rich data, spanning personal and structural issues, countering official narratives of a place, and acting as boundary objects to facilitate further discourse and action beyond the walk itself. The richness of the data has been supported by diverse data sources and how they interact. The conversation data is accompanied by succinct 'tags' from the WalkYourWords app and the photographs visually represent the discussed topic. The GPS tracks ground the other data in a particular location. This interaction was not without tension during the walks. Most, if not all our walkers were focused on walking and talking. The conversation usually flowed well with very few moments of silence. During a stop at a location, when everything was said, participants wanted to move on. It was usually then when we had to remind them to "do the three words" and take a picture. Collecting this data pulled them out of the flow and asked of them to pause and reflect. While one or two words came quickly, participants frequently struggled to find a third one. Similarly, participants had to use the camera to capture the 'essence' of our conversation visually. Sometimes this was a simple snapshot from where we were standing, other times it required to walk around to find a good perspective or get closer or further away from an object. We do not interpret this interruption of flow as a problem, but as an indication that participants actively thought about how they would capture what we had just talked about in a succinct format (three words and a photograph), contributing to more diverse data.

We advocate therefore for the design of new tools in this area and have open sourced ours[1] to provide a starting point. Based on our findings, we see the potential for integrated and configurable apps for the research community. Apps supporting walking-and-talking methods could be used by a participant together with a researcher. Moreover, if developed as an integrated app rather than a collection of tools and apps, they would become more accessible to be used by a community to conduct self-guided walks to collect data to support a local cause. For data collection, at the bare minimum, an app could allow users to: record audio, take photographs, enter three words for the current location, and track the walk. There is potential for further data diversification by collecting different types of data that can be spatially mapped. While in this work we have focused on data corresponding to visible features in the landscape, we see an opportunity to connect other data-in-place efforts to pull in 'invisible' data about a place to act as prompts and provide opportunities to contest it [70]. This could include, for example:

- Prompts for emotions felt about a place (cp. [66, 67])
- Prompts for levels of comfort, safety, or health

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[1]see https://github.com/GavWood/WalkYourWords.git

- Collection of noise, air quality, or traffic data from hand-held sensors (cp. [56, 61]) or use of pre-existing datasets (cp. [37, 60])
- Responses to geo-coded content created either by researchers (as in [19]) or by other participants who left content 'behind' for others to find. As a first step, the three words of other users could become visible while walking. Opportunities for further content are manifold, including gamified approaches (e.g., mobile learning [63, 64]) or popular location-based games, such as Geocaching or Pokémon Go
- Inclusion of pre-existing datasets from GIS sources (e.g., stationary air quality, noise, and traffic monitors, socio-demographic data)

Comprehensive tools should allow users to configure their walks, for example, by adding different prompts and data sets depending on their specific needs and interests.

6.3 Walking and Mapping in Participatory Design

In the introduction, we stated that our aim was to explore how walking as a method and tools like the WalkYourWords app can feed into ongoing place-based participatory design and civic advocacy. We have shown the strength of the method to connect personal experiences and emotions with structural issues, produce counter data to challenge official narratives about a place, and produce artefacts that can bridge the context of the walk with follow-up action. Taken together, we see real value for the method and the app to support design processes working in contested spaces and with marginalised communities, where it can help shift power relations and public discourses. As discussed in Section 5.3, the maps and videos are boundary objects that can either be used by professional designers and citizens to understand history, challenges, and opportunities of a place when developing novel services, tools, or infrastructures.

To strengthen our approach, both map and video generation could be semi-automated using the spatially linked data. Representation could generate printable PDF maps or publish them as an interactive map online for further analysis, exhibition, and discussion of findings. In our case, we used the geo-locations of the 'three words' as proxies to map the conversation data. This was done for simplicity of representation. A direct representation of, for example, 30-second transcript snippets on a map may be useful for data analysis by a researcher (see [28] for an example), but the result is not always aesthetically pleasing or accessible to read. However, this required a manual curation of the transcript by us during analysis. To automate this process, the process outlined by Martini [49] could be leveraged: GPS point clusters are indicative of stops during the walk. Transcripts could then be pre-grouped around these automatically detected stops. Of course, other location markers (such as the 'three words', location of photographs taken during the walk, or other prompts) could equally be used to automatically pre-group transcripts. Manual fine-tuning should be allowed to decide which transcript should be associated with which location on the map. Furthermore, for videos and interactive representations of the walks, there is the need or opportunity to preserve the original audio and map it, similar to the transcript,

spatially. This could be combined with collaborative audio analysis tools, such as Gabber [62], which would allow participants to not only code (tag) audio directly, but link what was said with where it was said.

By preserving the spatiality of the data, content from different users can be connected and contrasted, building on the map with overlaid routes we used for the discussion in Meadow Well. These artefacts then act as boundary objects insofar as they bridge the research phase (walking and talking) and a follow-up design process where they can be reviewed, critiqued, and used as prompts.

This being said, we want to point out a few caveats. While we see this method as part of participatory design, we as researchers and designers played a significant role in the process. The semi-automated process as outlined above could help to reduce the workload by having processing tools built in, but a one-click production seems very unlikely. In particular, the data curation process cannot be automated. Understanding the maps and videos as boundary objects reminds us that they are always an act of standardisation [69]. This aids communication across social groups and institutions, but there are decisions made – by a human or an algorithm – about what is included and what gets left out [18, 41]. We saw this in the maps of Katsanochoria, which were mostly empty. Most of the rich landscape has been left out, which led us to use satellite images instead. In turn, when generating the WalkYourWords maps, we as researchers decided which (conversation) data would be included or not on the map or video, as it needed shortening. In this process there is an inherent risk that existing narratives, biases, and power dynamics get reproduced rather than resisted. Maps generated through future systems like WalkYourWords therefore need to enable users to decide which transcript sections, location markers, images, and other data are included on the map. Furthermore, in the scenario of the app being used by communities directly (rather than in a curated design process) it remains unclear how the outcomes (maps, videos) can be communicated effectively to decision makers.

Finally, the Walking and Talking method bears value for asset-based design [31, 80]. In Meadow Well, walkers identified the park, their historical knowledge, and tight-knit community support and policing networks as assets. This is not to say that issues were not important or did not surface alongside the assets. The maps acted as design prompts to co-design place-based actions that address the issues identified by the walkers (space for young people, litter and neglect, image and stigma). In Katsanochoria, assets included their historical, economic, and ecological knowledge as well as a strong political consciousness and drive to take action without state support (e.g., building a church on a mountain). Issues discussed alongside these assets included population decline, short-sighted top-down planning, and the destruction of local ecosystems. However, further engagement using the videos as prompts in a design process will depend on further funding to continue engaging with the local communities and develop the ideas for changes raised by our participants. In the meantime, the videos contributed to ongoing public debates in the Facebook groups about burning political issues (in particular re-invigoration of the region and resistance to the top-down infrastructure projects). It is up to local actors to turn the debate into action, for example, the idea of a care home to enable elderly residents to stay in the villages.

7 CONCLUSION

In this paper, we presented an adaptation and application of a 'Walking and Talking' method in combination with a set of data collection tools in two different cultural contexts. Both contexts, a semi-urban social housing estate in the UK and a rural group of villages in Greece, are frequently portrayed as in need of 'development' and outside intervention to improve living conditions. Working with marginalised communities living in both contexts, our aim was to evaluate to what extent the method and the WalkYourWords app can support the articulation of place-based issues and feed into processes of participatory design and civic engagement. Our findings showed that by walking in-place, participants shared personal experiences and memories that were entangled with the place and wider structural issues, such as stigma and top-down intervention. Using the WalkYourWords app, they also produced data that counters official narratives about each place. They challenged what is officially considered a part of Meadow Well and Katsanochoria and produced narratives about community strength, environmental care, and self-determination rather than deprivation and development. Finally, the maps and videos we created out of the data acted as boundary objects to bridge public discourses in different social spheres. In Meadow Well, this was to facilitate an ongoing participatory design process to co-create place-based actions that respond to the issues identified by the group of walkers. In Katsanochoria, this was to share the alternative narratives of our participants in online fora to contribute to ongoing debates about the future of the villages.

Reflecting on our findings, we found that walking with our participants did indeed establish an equitable relationship between us that supported the articulation of personal and public issues. While the relationship and the trust we had built before we went on a walk, how we framed the research to participants, and what kind of questions we asked also contributed to this relationship, we do believe that walking side-by-side, putting them in charge of setting the route, and following a mostly unstructured conversation style played a significant part that may not have been achieved in a sedentary interview. Moreover, it was important to walk through their local environment and to use different data collection tools (audio, photographs, WalkYourWords app, GPS tracks) to be able to produce rich and engaging design artefacts reflecting back our insights – the paper maps and videos. We therefore see potential to further develop data collection tools for walking, both for researchers and designers as well as for communities to use themselves without academic facilitation. There is potential to semi-automate some of the post-walk data processing and output generation, making potentially valuable tools for place-based design processes and civic advocacy. As researchers and designers, we are excited to continue developing the app and share it with the HCI communities for use and further input.

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