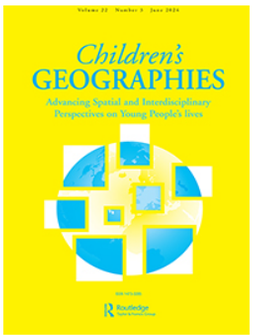

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Voices in a pandemic: using deep mapping to explore children's sense of place during the COVID-19 pandemic in UK

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ABSTRACT

Children's sense of place is important for wellbeing, development and belonging in a community or place. The VIP-CLEAR (Voices in a Pandemic – Children's Lockdown Experiences Applied to Recovery) project used creative methods and repeat engagement to capture children's experiences of the COVID-19 pandemic in socially disadvantaged, urban settings, in Bristol, UK. This paper focuses on findings from the two-phased 'deep mapping' activity conducted in schools with 6–11-year-olds to consider children's sense of place at this time. Children's maps showed how their mobility was restricted to the home and/or adult-controlled, looped routes for functional tasks rather than child-directed exploration. Key locations - including school, family houses, and parks - were disconnected and highlighted as sites of 'absence', where children were excluded. These places were given meaning due to pre-COVID practice, sensory experience, and/or their relationship with valued people. As pandemic mitigation relaxed, children's maps showed increasing connections and greater visibility of the community and non-essential activities. As places changed, the amplification of existing social inequalities became apparent. In both phases, sense of place evolved and digital and natural spaces (through animals) showed potential for children to increase practice and connections with place. A strong sense of place may support adaptation to change, and this paper contributes to limited research on how children's sense of place is dynamic, altering with fluctuating social and environmental conditions, e.g. mitigation of a global pandemic. The implications of findings on future recovery planning involving children are also considered.

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Children; COVID-19; mapping; mitigation; resilience; sense of place

Introduction

Sense of place has been described as an attachment to a 'meaningful location' (Cresswell 2011, 132); a unique and subjective process that begins in childhood and develops and changes through an individual's lifetime (Chawla 2007). Associated with building identity, belonging and self,

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developing a sense of place is important for health and wellbeing (Jack 2010). However, as Grimshaw and Mates (2022) highlight, there has been little attention to how children use and understand place.

Children's place-making is different from adults (Chawla 2007; Rasmussen 2004); it offers a window into their worlds and an opportunity to understand lived experiences that may otherwise go unseen. Their sense of place is driven by novel experiences and sensory engagement, in contrast with adults' which may be more intellectual and rooted in memories over time (Bartos 2013). Children's meanings associated with place are influenced by factors including personal experiences within places and with people, familiarity, practice and reiteration of practices (Martz, Powell, and Wee 2020; Rasmussen 2004; Vujakovic, Owens, and Scoffham 2018). Age is also important as meanings and relationships with place develop as children increase independent exploration as they grow older (Grimshaw and Mates 2022; Jack 2010).

Our understanding of sense of place is underpinned by the work of Massey who described the place as unbounded and dynamic (1991). It is a process, and there is recognition that places are in a 'state of becoming' (Bartos 2013: 91). As such, sense of place is always changing and being negotiated due to personal, social, and environmental conditions. For example, children's use of different environments may be limited by families, cultural factors and/or a more risk-averse society (Bartos 2013; Jack 2010; Lim and Barton 2010).

Understanding how individuals adjust to situations of risk may support adaptation to change, and knowledge of people's attachments regarding place may help to strengthen their ability to cope (Cunsolo Willox et al. 2012; Masterson et al. 2017). Previous research has examined sense of place in relation to understanding how communities respond to place-based risk such as flooding and decisions regarding adaptation and action (e.g. Quinn et al. 2018). Whilst some have considered more pervasive and less geographically bounded risks, e.g. climate change, these studies have tended to focus on adults (e.g. Cunsolo Willox et al. 2012). Therefore, there is a need to understand the meaning given and attachment to places by children during a time of heightened risk or social shock. The COVID-19 pandemic, and its changing restrictions on how children could interact with their environment and other people, and the meaning given to places, offered an opportunity to examine such a context.

From 2020, mitigations to manage COVID-19, including global movement restrictions, transformed our sense of place (Bissell 2021). In the UK, 'stay at home orders' prevented people from leaving their homes except for essential travel, and limited contact with those outside the household, including friends and extended family. Mobility restrictions resulted in a 'time–space expansion' (152) where everyday known spaces (work, school, the city centre, the local park) were rendered distant.

Children experienced changes to all aspects of their lives as government plans to contain and manage the virus in the UK and internationally were actioned. The voices, experiences and perspectives of children affected were largely absent, or mediated through parents/caregivers at a single point in time (Cortés-Morales et al. 2021; Holt and Murray 2021; Stoecklin et al. 2021). At times of social crisis, working with children and adding their voices to inform plans for recovery is essential, especially disadvantaged children who may already be subject to inequalities around use of space, resources, education, and issues of poverty. Deep mapping is one way that researchers can work with and amplify these voices.

Mapping has been used with children to explore their understandings of specific spaces during the pandemic, e.g. 'home' (https://www.stayhomestories.co.uk/mapping-home). In addition to developing a sense of place and affirming one's identity and belonging (Sobel 1998), mapping can provide insights into children's social and spatial perceptions of place, including negative issues (Vujakovic, Owens, and Scoffham 2018). In contrast to traditional cartography, 'deep mapping' aims to understand a place through different people's relationships to it and allows for a more sensitive approach as emotion and experience are layered on a place. It can be construed as both creative - and aesthetic - process and practice (Springett 2018), and is described as

'conversations-in-process' (Biggs 2022, 1). It is a socially engaged research tool that explicitly works to capture and amplify the voices of marginalised groups, flattening knowledge hierarchies. By distinction, mental mapping – a 'spatialization of meaning' - captures a person's perception of their world (rather than objective geographical knowledge, e.g. Götz and Holmén 2018, 157), without the social and ecological underpinnings of deep mapping. This work is informed by previous research using deep mapping to explore children's understandings of hydrocitizenship (McEwen et al. 2020).

Research purpose

Voices in a Pandemic: Children's Lockdown Experiences Applied to Recovery (VIP-CLEAR) was an interdisciplinary collaboration between researchers and a socially engaged arts practitioner (LGB). From March 2021-February 2022, the project worked with 6–11 year olds in socially disadvantaged, urban areas of Bristol, UK to capture their 'voices' at the time of COVID-19 restrictions. A sequence of arts activities was used with repeated visits to the same children, including photo elicitation and a 'tree of hope and ambition' (Williams et al. 2023). Here, we describe our process and findings of the first activity, deep mapping, and explore children's sense of place alongside fluctuating COVID-19 mitigation.

Methods

Bristol, a UK city with over 400,000 inhabitants, is diverse and multicultural. Four primary schools were selected based on (i) Index of Multiple Deprivation (IMD) deciles (UK Ministry of Housing, Communities & Local Government 2019), (ii) proportion of children receiving free school meals, and (iii) their geographical setting. IMD measures are created using seven domains: income, employment, education, health, crime, barriers to housing and services, and living environment across a small geographic area or lower super output area (LSOA). The four schools were in locations with IMD decile rankings of 2–5 (1 includes the most deprived 10% of LSOAs nationally and 10 the least deprived) and have a high proportion of children receiving free school meals; 34-45% compared to 19% national average. All four schools were situated within 10 km from the centre of Bristol, in the north/ northeast of the city. They represent an urban matrix of residential housing, industry, pockets of natural spaces and infrastructure. Whilst it is unlikely that participating children share identical social characteristics and there is some variation in diversity between sites, the school locations are broadly similar.

Bristol had low COVID-19 infection rates when pandemic mitigation measures were introduced (March 2020), but later waves were much higher (Figure 1). The deep mapping process occurred between the third and fourth wave of COVID-19 cases (March to June 2021), and just after emergence from the third national lockdown.

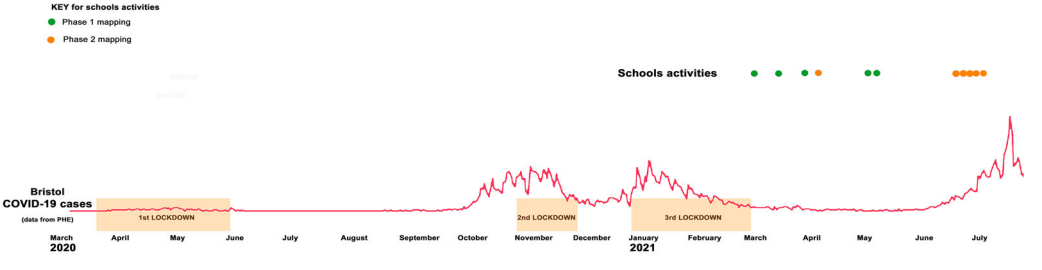

Figure 1. COVID-19 timeline in Bristol with deep mapping activities overlaid [please note: colour version is available online].

Ethical approval (UWE FET 20.07.062) included securing informed consent from parents/carers via schools. Children were also asked for their consent for their work to be used and words recorded at the start of each activity.

Deep mapping activities

The children's deep mapping activity was delivered in two phases, phase 1: mapping 'your world at this time', and phase 2: map reflection and development. Phase 1 took place during March and April 2021; for one school it was a whole school activity on the first day back after two months of lockdown (8th March 2021). The majority of phase 2 occurred in June. The period between mapping activities varied with school availability from five, 45, 49 and 98 days. Due to COVID-19 restrictions, all phase 1 sessions, except one, were conducted online; all phase 2 were face-to-face, reflecting the 'flippability' of our research methods (Williams et al. 2022).

The phase 1 mapping session started with LGB showing her hand-drawn maps including memories of small-scale places from childhood to emphasise that children's experiences of place were valued. These focused on the artist's lived experience (not related to COVID-19 or lockdown) and modelled the activity in a different context, a common approach in education (see Newlyn 2013). She reassured the children that their maps did not need geographical accuracy but encouraged them to make them emotionally accurate, reminding them that 'it is your map and that it can show how you *feel* about things'. The children were then asked to map their 'world at this time' onto small plain (A5) postcards (less daunting than a large sheet of paper) and invited to add labels and emojis, and text to the back as explanation. Our open request allowed children to become absorbed in their own internal and external worlds; their maps giving us a personal and relatively unmoderated view of each child.

For phase 2 mapping, children stuck their maps to the centre of an A4 sheet of paper. They were asked 'can you tell me more about this?' and encouraged to develop their initial maps through additional drawings and notations. Returning to the activity helped children communicate their changing relationships, with both place and connections with places. All mapping sessions were observed by a researcher who took detailed notes on the artwork, children's discussions, and interactions.

Analysis of maps and text

685 children took part in phase 1 mapping workshops with 131 having consent for analysis. A subset of these children, based on consent and availability, were selected to create phase 2 maps in smaller groups. Once data from non-consented children were removed, 190 maps (including 59 phase 2 maps), 54 sections of text (from the back of maps), and 13 sets of observation notes across five-year groups (Table 1) were scanned digitally ready for analysis.

For phase 1, at least three researchers individually studied each map, recording what was drawn and potential interpretation. Researchers were prompted to consider what was included, notable omissions, creative elements, alongside other observations about the map. This process enabled

Table 1. Age breakdown of children's maps by the two stages of mapping activity.

Age of children (UK school age given in parenthesis*)	Phase 1 maps	Phase 2 maps
6–7 years (year 2)	61	24
7–8 years (year 3)	11	9
8–9 years (year 4)	12	7
9–10 years (year 5)	41	14
10–11 years (year 6)	6	5
Total	**131**	**59**

*Ages taken from school years and therefore not precise for each child

the research team to become familiar with the data and to start to consider their disciplinary perspective and positionality. For phase 2, a similar process was undertaken but due to time pressure the maps were examined and interpreted collectively, as a team in a series of research meetings. All maps were also coded inductively in NVivo 1.5 (QSR International) by one member of the research team. This focused on capturing what was featured on each map, for example, the presence and type of animals, buildings, figures, etc., and stylistic elements. The research team then spent time reflecting on this analysis to generate key themes and build theory. Whilst challenging with such a large body of data, this iterative and interpretative process, using team meeting discussions, email exchanges, and interactive documents and platforms (e.g. Google jamboard), was essential to move from topic summaries to themes (see Braun, Clarke, and Hayfield 2022). Initial ideas focused on critical continua in children's memory of their experiences and included axes from 'strong sense of place' to 'lack of sense of place' alongside 'connection' to 'disconnection', 'presence' to 'absence', 'contraction' to 'expansion', 'real' to 'imagined' and other areas of exploration, before refining to the themes below. Phase 2 observer notes associated with each child were also examined for key themes, and to add context to their artwork (phase 1 notes were not included as most mapping sessions were online, and it was difficult to identify individual children).

Results and discussion

Responses to and interpretations of the prompt 'map your world at this time' were diverse, ranging from 'formal' maps to representations of key activities, to depictions of historical and/or imaginary spaces. In many cases, points of interest and emotion were labelled by children. Few explicitly referred to COVID-19 but its impact was seen through reference to their lived experience of mitigation, amplifying existing social inequalities. Themes of physical (mobility, practice) and social (valued interactions) importance are explored here within the structure of the two phases of the activity and the national COVID-19 response.

Phase 1 maps

England in March/April 2021 was coming out of a 3rd national lockdown, and schools and outdoor sports facilities were reopening; before this, all but 'essential' shops (i.e. supermarkets) were closed. In the earlier stages of the pandemic, people could only leave their house to shop for necessities, obtain medicine or treatment, travel for necessary work and exercise (once a day). By the end of March 2021, the 'stay at home rule' was lifted but many restrictions remained in place, including working from home where possible, and the implementation of the 'rule of 6' (a maximum of 6 people including children meeting outdoors at a distance). Travel abroad was prohibited.

Physical

For many of the study children, their 'world at this time' represented a 'hyperlocal sense of place' (Bissell 2021, 153), their maps including a house and/or immediate locality, an area of green and/or play space, a shop or supermarket. Whilst these locations are key places for communities, children's focus on them here demonstrated the limitations of COVID-19 restrictions. A third of maps included a representation of school or learning (Figures 2 and 3).

Houses featured on the majority of phase 1 maps which is perhaps unsurprising as home is the place where children spend most time and have, alongside school, most of their social interactions (Jack 2010; Lehman-Frisch, Authier, and Dufaux 2012; Sobel 1998). However, over half of the children who drew houses only depicted a single house on their map. As Vujakovic, Owens, and Scoffham (2018) also observed, these were often drawn as a stereotypical square with a triangle on top which is uncommon UK architecture (Figure 2(C) and (D)) but is frequently used in marketing, and children's picturebooks. It is hard to know how much this dependency on symbolic imagery hides; we would anticipate the potential for detail here both in terms of the physical structure

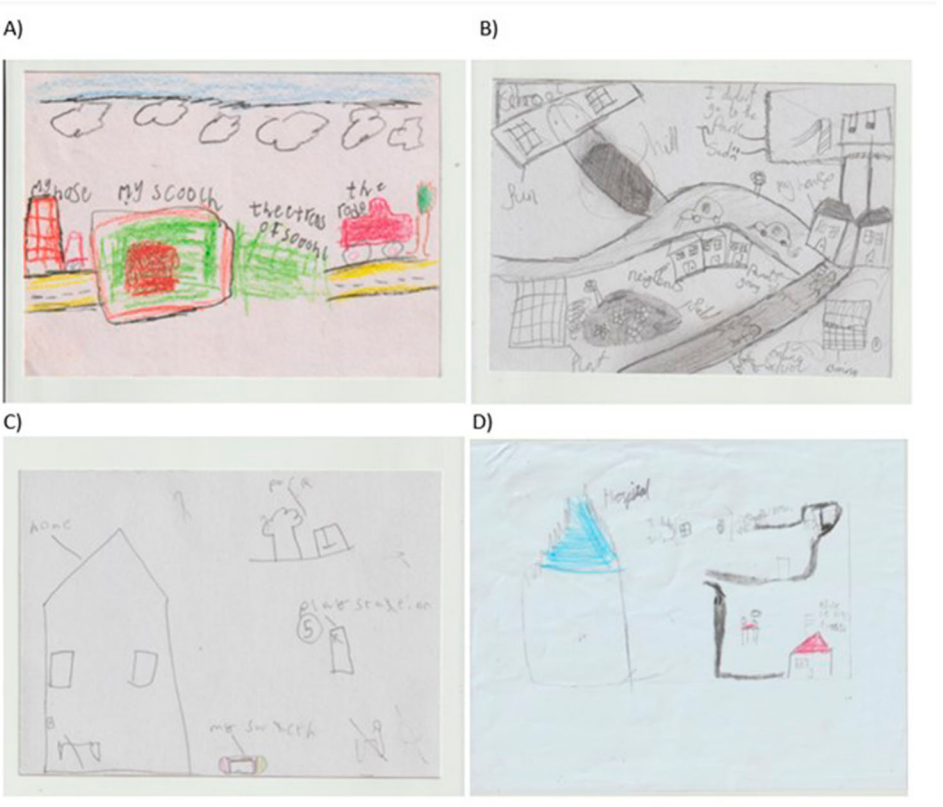

Figure 2. Children's maps from different stages of the mapping activity (A) phase 1, by child aged 6–7 years, (B) phase 1 by child aged 9–10 years, (C) Phase 1 by child aged 9–10 years, (D) Phase 2 map by child aged 7–8 years [please note: colour version is available online].

and layered memories, but the use of such symbolism renders it unseen. This 'generic house schema' is common in maps by younger children (Sobel 1998), however, it was drawn by all ages in this study suggesting a pervasive presence in children's lives. These isolated homes dominated the page of all age groups and are in contrast with pre-COVID-19 mapping research with older children that found the home was often small and indistinguishable from other houses (Sobel 1998). Bissell (2021) suggests that at this time, home became a kind of 'non place … detached from its surrounds' (156) and children's drawings of isolated houses, supported this sense of physical separation and lack of mobility:

> I was just locked in my flat, there was a very tiny garden but we didn't go there, it was really boring. (9-10 years)

> My world is my room. (9-10 years)

Sense of place is associated with repeat experiences, physical sensation, and independent exploration, and children begin to explore more of their neighbourhood and natural world in middle childhood (Sobel 1998). However, the phase 1 maps reflected a constriction of space and experiences, as homes became children's worlds during the pandemic. Residential gardens were only seen on one fifth of maps, attesting to the fact that those living in urban, socially disadvantaged areas had less access to private greenspace and relied more on communal outdoor spaces where access was restricted (Dodd et al. 2021; Rasmussen 2004). Children's physical experiences and practices in this study were shrunk to the physical constraints of the home.

Figure 3. Children's phase 1 maps (A) Child aged 9–10 years, (B) Child aged 6–7 years, (C) Child aged 6–7 years [please note: colour version is available online].

School buildings were depicted on a third of phase 1 maps and, in contrast with the home, represented a valued site of absence, as many children were unable to attend during initial lockdowns. Unlike home, they were often drawn with technical accuracy, including the physical structure of the building, placement and colour of windows, play spaces and key entrances. Schools, part of the institutionalised triangle of 'places for children' (with home and recreational facilities), are, by their nature, sites of practice and routine (Rasmussen 2004). They are central to children's social interactions (Lehman-Frisch, Authier, and Dufaux 2012); a place of routine, practice, and negotiating friendships with peers. The value attributed to school was both positive and negative; some children were keen to return to school:

> It was annoying because my world went smaller not bigger. Kept on isolating. But now I am back to school and I feel beter [better – sic] (10-11 years)

while others enjoyed not having to attend:

> I liked lockdown. I didn't have to go to school. It's boring to be back at school (7-8 years)

Like schools, the inclusion of green spaces on children's initial maps, was often not a reflection of current experiences but restrictions of access:

> I feel sad about the park because I can't go! (9-10 years)

Children annotated their maps to highlight that they were frustrated and sad because they were *not* able to use their parks and important communal green areas during lockdown, either due to formal

mitigation rules or family concerns. Green spaces dominated maps and were frequently drawn and described as places for play, including formalised areas e.g. playgrounds often depicted with slides and/or swings. Whilst this represents a focus, particularly in urban areas, on adult-directed and designed activities, these are still important places for children. Beyond the home, children in Britain spend most time playing in playgrounds or green spaces (Dodd et al. 2021) and Rasmussen (2004) describes swings as 'frequently the locus of a world of physical activity, imagination, songs and dreams for children' (163). In the maps, these areas of potential adventure, sensory experience, and creativity were noticeably empty, and just featured unoccupied apparatus.

Other meaningful places and experiences (including ice cream vans, leisure centres, swimming pools, indoor play areas, and cinemas) were crossed through, annotated, or verbally highlighted to emphasise their inaccessibility due to COVID-19 mitigation (see Figure 2(B)). One map showed an empty pool and a sad face emoji next to it:

> I didn't get to go on the pool because it was lockdown (7-8 years)

These valued places were given additional meaning through their enforced absence and associated emotional response. Both ice cream and swimming pools represent important sensory experiences for children which provide layered meaning to places (Bartos 2013). Swimming, whilst associated with play, is also an important life skill and all English primary schools must provide lessons to enable children to swim and perform self-rescue (UK Dept for Education 2013). Restricted access to these experiences and the environment more generally, could impact on competence and children's long-term development and safety (Lim and Barton 2010).

Beyond key buildings and locations, children's drawings commonly depicted roads, paths, and routeways, a likely interpretation of the 'mapping' instruction. Major roads were sometimes drawn in heavy, black lines, perhaps reflecting the proximity of participating schools and associated communities to motorways (Figure 3(B)). Children did not always depict a direct route; some (e.g. Figure 3(C)) showed recognised journeys with all the twists and turns of familiarity alongside tangles of less familiar and unknown routeways. The maps show children's developing sense of place as they drew their 'story' about the routes, incorporating notable structures and experiences that defined the journey for them. For some, routeways linked valued places that were part of everyday routines (pre-pandemic); for example, some maps were drawn as linear routes between school and home (Figure 2(A)). Figure 2(D) shows the walk to school with a parent and young sibling and how the path takes them around other houses and structures that by repeated practice, give meaning for the child. For some, these repeated journeys constrained independence and they wanted to expand their experiences:

> [I have drawn] a way to school. Halfway but I do feel Annoyed because it's the same old way and sometimes I want to learn a new way (9-10 years).

However, places and routes did not always connect with each other (e.g. Figure 2(C)). This is not uncommon in young children's maps (Sobel 1998), but in this study was seen for all ages. Middle childhood is associated with an increase in spatial autonomy, with some limitations from family/ carers (Grimshaw and Mates 2022; Jack 2010; Lim and Barton 2010). This is vital for developing sense of place and in turn, self-identity, self-confidence, and belonging. During restrictions, independent exploration was, perhaps inevitably, reduced to specific, often adult-led routes.

Children's maps also showed a change in how they explored places during this time:

> my picture shows what I did during the pandemic using a map and drawing. I have been going on walks and bike rides and staying at home a lot (10-11years)

Some of the maps contained visual representations of outdoor, looped scooter and walking tracks, including family dogs (Figure 3(A)). These shrunken 'daily space–time paths' (Bissell 2021, 153) around the local community became more about exercise and functional access to outdoor spaces.

For some children, using green spaces was explicitly connected with physical activity rather than exploration, play or education:

> have ben to the park 3 tim to exersise' [sic - I have been to the park three times to exercise] (9-10 years)

This shift in focus from parks as sites of play to exercise reflects public messaging of COVID-19; during the initial 'stay at home order', the use of parks and public green spaces fell dramatically (ONS 2021). However, similar movements are being seen due to safety concerns; British children's use of space has been 'subject to a gradual, creeping lockdown over at least a generation' (Dr Tim Gill in Weale 2021); they are not allowed to go out alone until they are two years older than their parents/caregivers were (Dodd et al. 2021). This change to independent mobility and exploration is concerning for children's mental health, wellbeing, and competence long-term (Chawla 2007; Jack 2010). However, one could argue that these new ways of engaging in outdoor spaces during lockdowns (through personal mobility and practised experiences) could support the development of sense of place for some children. More attention was paid to the positive value of walking and cycling, potentially providing an access point into the natural environment, improving ability, and offering freedom of movement and value for these places that may/may not have been present before (Bartos 2013). New, repeated, and slower engagement with green spaces could also lead to increased observations of animals, where they are found and their behaviour. For example, one child labelled bushes near their home, 'the foxy hedge', showing a strong understanding of the animals present in their local, urban environment and a sense of place which could have been enhanced through regular 'practice' during lockdown.

Whilst children may not have had opportunities to roam and explore independently during COVID-19, some appear to have very good knowledge and relationships with their 'hyperlocality'. This was also seen through the inclusion of small patches of green and/or trees or vegetation on their maps, outside the boundaries of formalised, public green spaces. This focus on less traditional green places represents the importance of 'other' natural environments for children; in a national survey, 26% of children said they visited grassy areas in nearby streets in 2021, e.g. by the roadside, a green or pathway (Natural England 2022). In addition to grassy areas, other green spaces on maps included those associated with exercise (cycle path), pets (dog park) and a local cemetery. Non-traditional green spaces were often labelled in terms that may have special significance for the child i.e. 'purple patch', 'mountain', 'best picnic spot, 'the greenery'. Space can be given meaning and become a place through naming (Cresswell 2011, 134/135) and maps showed many 'children's places' which may not be seen by adults but are important to children due to physical and emotional connections (Lim and Barton 2010; Rasmussen 2004). During the personal and social upheaval of a global pandemic and associated mitigation, it is even more important that children have access to 'their' places.

Social

Where multiple houses were depicted on phase 1 maps, they were defined by relationships and experiences, e.g. labelled as belonging to family, friends, and neighbours. For these children, the physical structures had meaning because of the people inhabiting them. However, and this may be a product of the request to draw a 'map' (Vujakovic, Owens, and Scoffham 2018), only half the children included figures in their drawings.

Some children in our study enjoyed the intensity of lockdown experiences within the home, finding it beneficial to spend quality time with family without the structure of a school day (Canning and Robinson 2021; Stoecklin et al. 2021):

> it was nice in lockdown. Usually you don't see your family for like, 7 h at a time, but you could see them all of the time (9-10 years)

These children described novel, sensory, and quality experiences with their family e.g. baking, art and watching films (see also Stoecklin et al. 2021). This repeated experience and social input from valued others (Jack 2010), in addition to agency to manage their time and experiences within the home, strengthened their sense of place and contributed to a positive experience at this time.

However, there was a diversity of responses, and home took on new emotional meanings for certain children during lockdowns:

> At home I felt a bit sad because couldn't see anyone, like family. I missed them and they missed me (9-10 years)

When people were added to maps, they were often alone or near others with no obvious interaction. Sometimes they were drawn in pairs (Figure 2(B)) or depicted apart from one another as if social distancing (groups were not allowed to meet during lockdown). This is different from previous research where neighbourhoods were seen as a 'place of social interactions' (Lehman-Frisch, Authier, and Dufaux 2012, 27). Whilst children drew intensely familiar places, the personal connections giving them meaning were absent.

Some children felt alone and bored at this time and drew spaces of loss where they highlighted the absence of friends, family and those who live at a distance:

> I miss my uncle a lot. I haven't seen him since lockdown (6-7 years)

> Couldn't go out much. Never got to see my cousin much. Felt stressed and needed help (9-10 years).

Lack of access to important social networks, e.g. friends and family can potentially have a negative impact on health and wellbeing (Belle and Benenson 2014). Children thrive in the company of other children as well as input from interested and supportive adults, but many were isolated from these stimuli during COVID-19 lockdowns (Cortés-Morales et al. 2021). While some children felt lonely, others yearned for more space; shared places could be cramped, especially in large, multi-generational households, and space was being used in new ways as home became a site of work and learning (Stoecklin et al. 2021). For others, restrictions, and containment in proximity for a sustained length of time resulted in family conflict due to a lack of personal space and disputes with siblings:

> [Spending time with] my annoying brother … I thought my house was my grave! (8-9 years)

Whilst physical interactions between people were not often depicted in phase 1 maps, potential for online and digital interactions beyond learning was seen; Roblox (an interactive children's platform for online play aimed at 7 years and above) and games consoles. Virtual mobility and place-making was important for children where physical experiences of place were restricted.

Green places often had value for the children due to an association with special family members and friends:

> Wen I was litle my nan tok me to —– [when I was little my nan took me to —- - sic] it was a big park. I go running there I played on the swings (9-10 years)

For this child, this park was a special place due to its repeated association with a valued grandparent, but the closure of playgrounds during COVID-19, left them with little space to play and engage with valued others. However, for some children the pandemic restrictions gave them agency:

> I've not been to the park for a long time. Because of lockdown. Even though it's so close my mum wouldn't let me. It was OK because my brother and me we made a park in the garden. With my desk we made a slide (6-7 years)

This child and their sibling were able to adapt creatively to lockdown by shifting a valued experience into a new place; the pandemic provided opportunities for 'new appropriations of space' (Stoecklin et al. 2021, 53). Whilst access to private green spaces may not be possible for all living in socially disadvantaged areas, agency was seen on smaller scales with indoor activities as mentioned earlier.

Green places also provided opportunities for access to animals which featured on a third of children's maps. Whilst pets have been found to dominate young children's maps in other research (Sobel 1998), here a wide range of wild, domestic, and imaginary animals were included by all age groups. It is possible that children sought out and developed connections with animals in the absence of valued others in their lives (Belle and Benenson 2014). Connections with animals may support children to engage with something 'beyond themselves' which can expand sense of self (Bartos 2013).

Phase 2 maps

By June 2021, non-essential retail and outdoor venues were open in England. Thirty people were allowed to mix outdoors, and some large-scale social events permitted. Indoor venues reopened, with restrictions.

Physical

Houses were the most frequent additions to children's maps within phase 2; communities became more visible as houses were added to homes initially depicted as isolated. Whilst not seen to the same extent as non-COVID-19 studies where older children's maps ran 'off the edge' as children moved from the house as the main source of place attachment into their neighbourhood (Sobel 1998), they showed an evolving relationship with place. In several cases, houses were labelled as 'new', the children having moved home in the time between activities. One child showed the impact of COVID-19 restrictions on child contact arrangements; Mum's house (where lockdown occurred) was on the original map and Dad's house (accessed as restrictions eased) was added. Natural spaces were seldom added during this phase.

In some cases, routes were added, and others connected during the phase 2 mapping activity as children increased networks and developed their worlds on their maps in a way that paralleled the 'opening up' of spaces during easing of lockdown restrictions. More shops and fast-food outlets were added to the original maps and non-essential locations such as hairdressers, fairgrounds, and the 'Lego' shop were included. Locations began to take on more meaning as they returned to children's sphere of reference. One child (Figure 2(D)) added a hospital to their phase 2 map; this looming presence (almost the same size as their entire phase 1 map) represented the difficult arrival of a new sibling. Whilst the child did not visit the hospital for long and thus had little physical experience of the site, it dominated their family's experience. Our sense of place is informed by those places with which we hold value and practice place-making within (Cresswell 2011). In this example, the child's experience of place was defined by family rather than their own practice.

Social

In addition to physical infrastructure, people (friends or family) were often added to phase 2 maps and with more evidence of interaction between them; figures were drawn physically connected and touching. As COVID-19 mitigation eased, schools settled into face-to-face teaching and people could physically engage, albeit with social distancing in some cases; maps reflected this increased contact. However, a tone of caution was expressed by older children. One child noted how for children living with risk, home may still be volatile and lonely, highlighting how underlying issues in families can affect emotions and place:

> People start to feel alone, that the world forgot them, that no one loves them, some people stuck with their abusers (age 9-10)

Others recognised that while school and parks were open, they could only visit family members 'sometimes' (accompanied by an image of people wearing masks) and that travelling was still not possible as 'I don't want to isolate' (10-11 years). Overt reference to pandemic mitigation was only seen in phase 2 when several children added face masks, hand sanitiser and social distancing signage. Some younger children amended their maps in phase 2 by adding borders and/or photo corners to 'frame' their drawing both in time and space. This 'fixing', and containment creates distance from the events and may help with a more objective reflection and ability to move on from the experience. Whilst they seemed able to fix phase 1 maps in the past, older children were acutely aware that this was an ongoing and evolving pandemic, continuing to amend and annotate their phase 2 maps accordingly.

In addition to encompassing educational and developmental milestones for children, schools are locations for social rites of passage as children navigate through educational levels. A common

experience in the UK is an overnight camp or experience marking the end of primary school. The phase 2 mapping activity elicited a strong emotional response from our 11-year-olds who were sad and cross that COVID-19 mitigation rules meant that they were unable to have this experience:

> the most saddest thing is that our school cancelled our year 6 camp and we can only be in school til 7pm (10-11 years)

> we knew there were restrictions but yesterday there were new ones and now we can't do the overnight (10-11 years)

Whilst their maps demonstrated relaxation of social distancing rules and subsequent opening of physical spaces and increasing physical connections, children were still unhappy with mitigation measures that impacted their access to friends, mobility, and sense of place, in this case collective milestones (see also Stoecklin et al. 2021).

In contrast to the phase 1 maps, where for many children, 'their world at this time' was grounded in a strong sense of place where school was represented by a physical building, phase 2 showed education in a digital, ephemeral space. Home learning was a common narrative, with children supplementing their original maps with drawings of computers and laptops; for some, home learning only became associated with valued spaces, e.g. home, on reflection. The phase 2 mapping activity also allowed children to consider some of the practical challenges of home learning and highlighted inequalities regarding access and resources. Children were disadvantaged by a lack of resources and appropriation of their home as a place for learning (e.g. Canning and Robinson 2021):

> Wifi wasn't good. Rooms were stuffed. So much noise when home learning (9-10 years)

For these children, the home became a contested place of work, school and play as multiple family members tried to utilise the space in different ways. This was a particular issue for disadvantaged children from lower income households who are more likely to live in overcrowded accommodation (UK Ministry for Housing, Communities and Local Government 2020).

As with many elements of the pandemic, the response to learning in this way was polarised:

> online school is very boring because we couldn't talk to our friends (9-10 years)

> zoom was sometimes stress (8-9 years)

> I get to see my family at home and can do home learning really fast and then go and play (6-7 years)

Children valued the experience of home learning if it enhanced the value that they attributed to home i.e. time with family, play, agency regarding managing their time, but were less positive if it was unable to replicate the social relationships and learning support associated with school. As reported in other studies, some children found it harder to communicate with teachers digitally and missed the 'co-operative' approach to learning (Canning and Robinson 2021; Stoecklin et al. 2021). These children relied on parents or peers to support them, but this was not always possible due to availability and/or skills, and was particularly difficult for those who would have had 1:1 support at school:

> My parents were very hands off. They're not educated so if I got stuck on something they'd say 'ask your teacher'. It wasn't that easy, but I would talk to friend] about it (10–11 years)

> it's like when I do it on the laptop I don't really know where the keys are and that's why my mum helps me (6-7 years).

Perhaps unsurprisingly, home learning was a source of tension in households at this time as some parents found it difficult to support children's learning:

> Mum shouted 'not doing it quick enough' … the whole point of school is that you do it slowly (6-7 years)
> it was quite hard as there are three kids and we had to juggle only 2 screens. By the end of it Mum had lost it.

> But my little sister did go to nursery at the end which made it a bit easier. My mum and brother had lots of arguments and I'd never realised just how patient teachers are! (10-11 years)

Parents' responses and resilience are key to children's ability to cope in stressful situations e.g. a pandemic (Domínguez-Álvarez et al. 2020). Supporting parents beyond technical infrastructure will be key for adapting to social challenges moving forward.

Reference to digital devices beyond learning continued to be added to phase 2 maps. Increasing use of web-enabled, mobile devices is thought to be changing children's place-making (Martz, Powell, and Wee 2020). Whilst many video games include conflict, social interactions in games are often co-operative (Quiring 2015); as lockdowns restricted access to physical spaces, digital places allowed many children not only to virtually escape confinement but to retain relationships with their friends and family (Cortés-Morales et al. 2021), providing an important function during lockdown. However, Canning and Robinson (2021) reported that parents found it difficult to maintain boundaries around the use of screen time especially with online learning a requirement. Several children in our study referred to the social media video-sharing app, TikTok, which has an age restriction above the age of our participants. It demonstrates the difficulty of navigating independent use of digital spaces; they can support connection with valued others, but it can be difficult to balance that with adult concerns around access to potential adult content.

Methodological reflection

The project was not without limitations and challenges. For example, conducting research during a pandemic presented significant logistical issues: consent was harder to obtain without face-to-face engagement with parents, mitigation guidelines made it difficult to work in schools, activities needed to be shifted online, and the virus impacted on children's and staff absence. Therefore, voices of some of the most vulnerable/affected children may not have been captured. The maps might also have looked different if we had done a similar process with children in other settings within Bristol.

We recognise that asking children to develop their drawings on a larger sheet of paper in phase 2 may have encouraged extension. However, children frequently amended their phase 1 map rather than just spreading outward, and discussions around the activity clearly gave context to their drawings and how they represented change over time. Assumptions were made regarding valued places: if they were on the maps, they were presumed to hold importance and meaning for the child. It is hard to know if this is always the case; they may not remember or add something imaginary if they feel they don't have the ability to draw sufficiently (Lehman-Frisch, Authier, and Dufaux 2012). During thematic analysis, these images and scenes were then interpreted from a researcher and adult perspective. We acknowledge this positionality and accept that, as adults, we will never fully understand everything about children's worlds (Jones 2008 on the 'otherness' of childhood). One way to navigate this difficult territory was to have multiple methods that amplified a child's voice in different ways, and a team of researchers with different research and personal perspectives (including around childhood and COVID-19). Whilst there was still a tendency to view the maps through a functional lens, multiple disciplinary perspectives helped give a more holistic understanding. Without these numerous sources (artwork, discussion, and observation), we would not have known that many of the key places that children were drawing, were not actually being visited.

Conclusion

This research captured the, often unheard, voices of children in socially disadvantaged settings during the COVID-19 pandemic. The use of repeated and creative engagements provided valuable insight into how children's sense of place, and understanding of their world, changed in response to a global social shock.

Children's maps presented a dynamic sense of place; their world was a network of relationships in places that were evolving, shrinking, and growing, local but shaped by global events (Massey 1991). Experiences were diverse but restricted mobility and disconnections with place were commonly seen in the initial maps. Meaning was given to places through restriction, isolation, and intensity of practice (home), and absence or constraints to physical, sensory, and social interactions (school, green and play spaces, family). COVID-19 mitigation restricted access to meaningful places and disrupted everyday practices and social interactions that define place but as mitigation eased, there was evidence of connections and relationships being re-developed. However, older children were more cautious and guarded in their acknowledgment of change and may need support and time to work through longer term impacts.

It is important to understand the changing meanings and attachment that children attribute to place, and their connections and interactions within it, to be able to effectively support them to adapt and cope during future social shocks. Digital spaces were considered important for connecting and communicating with valued others, but inequalities were amplified around home learning as home became a contested space for work, school, and family. Future mitigation should incorporate and utilise digital media for social and learning opportunities but must be mindful of the increase in resources and support that will be required to provide an equitable solution. The importance of public natural and play spaces, and interactions with animals within these urban settings was also seen in the maps. While some missed valued interactions in natural spaces, others found new opportunities and strengthened their sense of place. Access to these places must be a priority for the future along with opportunities for independent exploration of the natural environment and local neighbourhood which is crucial for learning and development, especially for older children.

We know that developing a sense of place as a child can impact on an adult's engagement with the environment, sense of identity, and how they are able to shape future places and independence (see Bartos 2013; Chawla 2007; Grimshaw and Mates 2022; Jack 2010). Indeed, developing and supporting a strong sense of place may help adaptation to change (Masterson et al. 2017). However, the diverse experiences children encountered - during lockdowns and their subsequent emergence - highlight that some government mitigation measures favoured adults. This resulted in disproportionate impacts on children, particularly in socially disadvantaged settings.

Finally, capturing children's voices through arts-based mapping methods has many benefits, offering children creative ways of reflecting on, and making meaning of, their experiences (Williams et al. 2023). The amplification of their 'voices' is key to informing policy and practice around childhood provision both during and outside periods of societal shock. It is therefore crucial for policymakers to actively listen to children's perspectives and incorporate targeted actions and support to address these impacts at school, neighbourhood, and societal levels (see VIP-CLEAR's policy brief - McEwen et al. 2022). The current UK COVID-19 Inquiry needs to include and recognise these young voices and prioritise protective measures that develop children's resilience in the face of future social shocks.

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Data availability statement

A subset of consented children's artwork and associated documentation will be available from Bristol Archives.

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