BUILDINGS & CITIES

SPECIAL COLLECTION: HOUSING ADAPTABILITY

RESEARCH

Architects' 'enforced togetherness': new design affordances of the home

ELENA MARCO
MINA TAHSIRI
DANIELLE SINNETT
SONJA OLIVEIRA

*Author affiliations can be found in the back matter of this article

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ABSTRACT

Lockdown impositions have impacted people's lives, their health and wellbeing, changing the ways in which dwellings are used and occupied. Spaces within the home have had to be rapidly renegotiated, redesigned and resynchronised in ways not yet fully explored or understood. Social relationships in the home have shifted and adapted as a result of 'enforced togetherness'. This study presents a rich snapshot of 23 UK designer-architects' transformative lived experiences of lockdown, using an interpretative phenomenological approach. It identifies four critical socio-spatial affordances that are rooted in the physical and mental wellbeing of the architects/designers. 'Individuality' suggests the need for increased physical separation to be alone. 'Communality' denotes a need for household members to be together. Both individuality and communality are seen as two opposite dimensions of the socio-spatial affordance of the home. 'Adaptability' points to requirements for flexible, decluttered and versatile spaces to enable 'vibrancy' not 'suffocation'. Finally, 'connectivity' encompasses the need for a strong connection between the indoors and outdoors. These dimensions must be considered in housing design, so new housing models can emerge. The use of interpretative phenomenological analysis, employing the architectural tool of drawing, is shown to be a useful approach for housing research.

PRACTICE RELEVANCE

The impact on households' wellbeing as a consequence of Covid-19 lockdowns has led to new considerations for future housing design. In a post-Covid environment, the particular needs for housing have been transformed. The findings and insights from this study will help to reframe the existing conventions of housing design criteria (*e.g.* a reliance on defining space functions) toward a clearer set of qualities for inhabitant and household wellbeing. New housing criteria involving socio-spatial affordances of individuality, communality, adaptability, and connectivity are shown to be viable and highly appropriate. These new dimensions highlight how inhabitants' wellbeing can be included in viable and affordable housing.

CORRESPONDING AUTHOR:

Elena Marco

Department of Architecture and the Built Environment, University of the West of England, Bristol, UK

elena.marco@uwe.ac.uk

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1. INTRODUCTION

To stop the spread of the Sars-Cov-2 virus (Covid-19), restrictive lockdown measures were introduced in many parts of the world during 2020 and 2021. Historically, there have been precedents in Africa, China and Canada where specific areas were quarantined as a consequence of severe outbreaks of disease (Brooks *et al.* 2020). However, the type and scale of restrictions seen to combat the global spread of Covid-19 were unprecedented. Lockdown restrictions varied from place to place, but generally involved a complete shutdown of educational facilities, shops, restaurants, amenities, events and workplaces not deemed to be essential. For many people this resulted in extended periods of homeworking, often with children at home.

These lockdown impositions have impacted people's lives, their health and wellbeing (Brooke & Jackson 2020). As a consequence, the way homes are used and occupied has also changed, along with the interactions amongst household members. Almost overnight, our homes became an office, meeting room, school, gym, place of worship, pub and doctor's surgery, to name a few. Household members had to negotiate, synchronise and take control of how the spaces in their home were used, reordered and adapted, involving notable adjustments to the physical space as home boundaries shifted. Rules, structures and routines were reconsidered, re-negotiated and re-established. The meanings and values of 'home' were reshaped overnight.

The meaning of 'home' has always been a complex, layered and multidimensional term. It embodies physical attributes (Wright 1991), emotional qualities associated with belonging (or not) (Sixsmith 1986; Mallett 2004), cultural, social and even historical attributes (Rybczynski 1986), as well as being an in-between concept that holds socio-cultural connotations for the relationships not only amongst its inhabitants but also between the inhabitants and their possessions (Somerville 1989; Mallett 2004). For example, Després (1991) places the meaning of the home as a territory or a set of territories where the inhabitant(s) control the space and its associated activities. Somerville (1997), on the other hand, argues that the home is more than just a physical space: it is also an ideological construction that carries cultural meanings related to household members. Dupuis & Thorns (1998) take this further by suggesting that the meaning of the home needs to be contextualised and seen as generation specific and changes over time. Whilst the meaning of the home is complex, three key attributes are recurrent in seminal studies about its meaning: emotional and physical *security*; *control* over the physical space of the home; and seeing the home as a *refuge* from outside pressures (Watson & Austerby 1986; Somerville 1997; Gurney 1990; Sixsmith 1986; Després 1991), and the present study starts to identify a shift in these attributes.

The term 'house' is understood here as the physical space (*i.e.* bungalow, flat, terrace house, semi-detached house, detached house, *etc.*) where the majority of people spent lockdown, and the 'home' is a mentally constructed reality (Somerville 1997; Jackson 1995; Rapport & Dawson 1998; Mallett 2004) that has emotive, intellectual, social, cultural and personal meanings attached to it by its occupants. Each member of the household has a different experience of the home, through the activities and interpersonal relationships in which they engage. In pre-pandemic times, the household members could leave the house for activities such as work, education, shopping, socialising, exercising, *etc.* Lockdown has shifted our relationship with the physical space of the home. It augmented the time spent with household members, whilst at the same time limiting the number of physical interactions with people outside the household. These changes have had a severe impact on the physical and mental wellbeing of household members due to the lack of support networks, separation from loved ones, loss of freedom and increased boredom (Losada-Baltar *et al.* 2020; Brooks *et al.* 2020). This led to frustration, anger and, in some cases, suicide (Brooks *et al.* 2020).

For this study, physical wellbeing focuses on the individual's lifestyle choices that ensure their health (*e.g.* exercising and eating healthy, *etc.*) (AANA 2016). Mental wellbeing focuses on individuals' emotions (*e.g.* satisfaction with their life, personal development, how they feel, *etc.*) and social contexts (*e.g.* connections with family, community, place, culture, *etc.*) (Aked *et al.* 2008), as part of a wider and holistic understanding of mental health.

Luzia (2011) associated wellbeing in the home (both physical and mental) with conflicting ideals and expectations amongst the household members that require a process of negotiation. She uses Massey's (2005: 151) term 'throwntogetherness' within the context of the home to capture the different needs, relations, routines, wishes, preferences and behaviours of those sharing the home that require a negotiation as a way to exert control over the home space and the way it is used. By arranging the furniture or organising the spaces within the house, each inhabitant personalises and demarcates the boundaries of their occupation.

Early on, Sixsmith (1986) identified a time dimension to the way the home is experienced, by considering particular events, activities, and rituals that create memories of emotional significance and influence. In this study, the concept of 'throwntogetherness' is understood within the extreme lockdown of Covid-19, where the boundaries of space in the home had to be significantly re-negotiated, turning these accepted ideals and expectations on their head—what is referred to here as 'enforced togetherness'.

Alexander (1964) suggested that sudden change leads to irreversible cultural consequences, which in turn leads to pivotal transformations in design thinking. Covid-19 has transformed the experiences and interactions that take place in the home, presenting a unique opportunity to use lived experiences of practising architects/designers as a means of exploring how future homes should be designed to better support the inhabitants, physically and mentally, in a post-Covid world.

Seizing this opportunity, this study builds an understanding of the implications that this new Covid-19 'throwntogetherness' home environment has presented. By exploring the lived experiences of a small number of architects/designers during the first UK lockdown in March 2020, it determines whether transformative thinking about housing design can emerge. This study uses interpretative phenomenological analysis (IPA) to examine what lessons can be learnt from designers that have lived this transformative and emotional lockdown experience. It revisits current models through this focused lens, so novel dimensions on how future housing design, which support social and emotional wellbeing, can be identified.

2. METHODS

Phenomenology has been defined as the study of lived experiences (Van Manen 1990), which tries to reveal or uncover the meanings behind them as they are lived (Laverty 2003). This study uses interpretative phenomenological analysis (IPA) (Smith et al. 2009; Pietkiewicz & Smith 2014) as a way of examining a major change in the lived experiences and associated feelings of architects/designers during the lockdown periods. This methodological approach has been widely used in psychological research to explore problems such as homelessness (Riggs & Coyle 2002) and how people come to terms with death (Golsworthy & Coyle 1999), but it has not been used in the context of architecture to the authors' knowledge. At the time when the study took place, the more restrictive lockdown had terminated, even though people could not meet with other households socially in groups of more than six. Everything had started to reopen including travel; mortality and hospitalisations were still high; and the roll out of vaccinations had just started.

The study was conducted through an online, hour-long semi-structured interview with 23 architects/designers. Each interview was conducted individually through MS Teams. In IPA appreciation of each participant was key. For this reason, the samples of IPA studies are small and could range from one to a maximum similar to the sample in this paper (Smith et al. 2009; Pietkiewicz & Smith 2014).

In a phenomenological approach, openness and objectivity are critical (Koch 1996). Therefore, to capture the richness and reality of the participants' lived experiences (Laverty 2003), a four-stage structure was developed for the interviews (***Figure 1***):

- identification of the physical space qualities
- narration of lockdown experiences
- resilient future housing design thinking
- capturing the experiences and feelings associated with lockdown.

The interviews also included a visualisation and sketching component to capture the participants' propositions for design of the future home. Pallasmaa (2009: 89) identified sketching and drawing as 'spatial and haptic exercises' that help designers to record, measure, evaluate, correct and re-evaluate a specific experience – it makes them 'remember vividly'. Therefore, the IPA was enhanced by using sketching as a tool to record the changes that the participants had experienced in the physical spaces of their homes as a consequence of the lockdown experiences.

Participant recruitment was conducted through invitations sent out to The Royal Institute of British Architects (RIBA)-associated practitioners as well as disseminating the call on social media platforms. A total of 23 practitioners volunteered to participate in the study, all of whom met the homogeneity criteria (Alase 2016) related to their background as designers and experience of lockdown defined for participant selection. The criteria for participants in this study included a purposeful homogeneous architectural background that consisted of: (1) three years (minimum) of architectural practice experience; (2) shared living in a dwelling with other household members (*i.e.* more than single occupancy); and (3) their work from before lockdown continued and was transferred from an office to their home (*i.e.* a new situation of working from home). This purposeful sample ensured that the research problem had relevance and significance for the field of architecture.

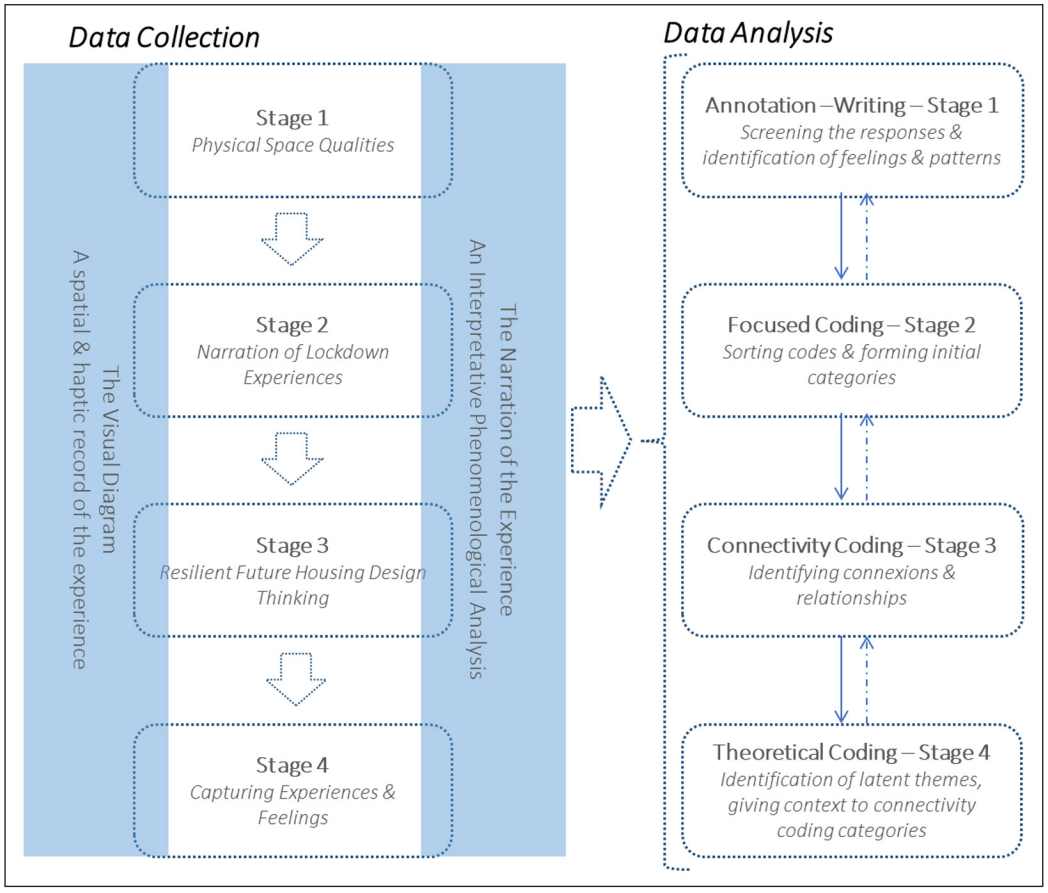

Figure 1: Data collection and data analysis stages.

As depicted in ***Figure 1***, in the first stage of the interview the participants were asked to give *key details*, such as the type of house, its spaces, including the garden, the size of the house, and the make-up of the family unit. As the information was captured, it became clear that each participant had had a totally individual experience, showing the disparate array of houses and family situations that were encountered; however, strong common themes were emerging, identifying how critical this study could be going forward for architectural research.

Once the key information in relation to their personal situation was captured, Stage 2 asked the participants *to narrate their lockdown experiences* in relation of the change in use of spaces in the home, the types of new activities that they had to accommodate, the changes in the family

units' social patterns, and how the lockdown had impacted their physical and mental wellbeing. This stage was the most awkward, emotional and, at times, shameful for the participants as the worst moments of the lockdown were brought back and narrated. Stage 3 explored what considerations would they take forward as designers when thinking about *future housing design*. During this stage participants were asked to sketch the changes that their houses went through during lockdown, and articulate how the additional activities had changed the use of spaces. The annotated diagrams were emailed to the researcher after the interview. The final stage allowed the participants to express any *other reflections, feelings or experiences* that needed to be considered as part of the research.

Each interview lasted about an hour in total, with five minutes for the key details stage, 25 minutes for their lockdown experiences, 20 minutes for their future housing design proposals and 10 minutes of reflection. The interviews were audio-recorded, verbatim-transcribed and then a manual thematic coding carried out.

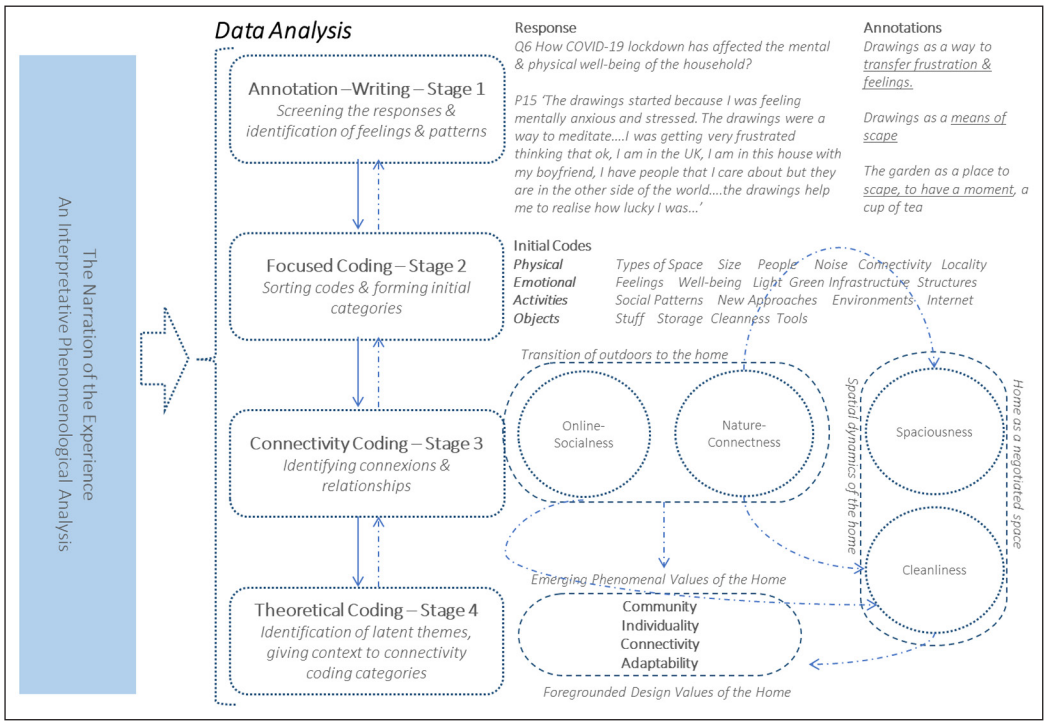

Figure 2: Data analysis example response with the annotation's stages.

The thematic coding of the interviews was conducted manually in four stages, as per ***Figure 2***. First, the researcher read the transcripts, listened to the recordings numerous times, and made annotations to identify emotions, silences, signs of stress, repetition of words, *etc.* For example, stress could be identified through the raising of the voice or talking faster, showing stronger emotions about the event that they were recounting. These interpretative notes were triangulated with observations recorded during the interview and the sketches produced by participants to verify the emerging codes (Carter *et al.* 2014). In Stage 2, the initial codes were sorted and categorised based on semantic similarity associated with participants' experiences, leading to four overall categories of Physical, Emotional, Activities and Objects codes. In Stage 3, interrelationships between the categories were examined in conversation with the research team and through mapping excerpts from interviews to develop a set of emerging connectivity codes. Following this, an 'iterative process of revision and feedback' (Elliott *et al.* 1999: 215) allowed the validity and reliability of types of connections made to be scrutinised, resulting in four connectivity codes or subthemes comprehensively representing all participants' experiences, which were: online-socialness, nature-connectedness, spaciousness and cleanliness. Finally, all codes were contextualised within the literature to identify four core latent phenomenological themes that can be considered as critical 'affordances' for the design of future housing, which were:

- connectivity
- adaptability
- communality
- individuality.

Within the context of this study, the design 'affordances' are understood as the properties of an environment as well as the 'body–environment' relations that allow activities and actions (Chemero 2003; Atmodiwirjo 2014), following the concept of affordance introduced by Gibson (1979). Affordances become important to understand the possibilities offered by a space for and with its occupants (Atmodiwirjo 2014), or as it is referred to in this study, they are socio-spatial affordances of the home in a lockdown environment. Designing a space means creating, articulating, structuring or even prohibiting possibilities for its use, and the possibilities of a space will depend on the nature of the relationship between the 'body–environment' (Atmodiwirjo 2014; Franck & Lepori 2007). Heft (1988), and later Clapham (2011), articulate how affordances are significant properties relative to individuals as they might 'afford' different responses to the same environment.

3. FINDINGS

This section reports and discusses the findings of the study categorised under these affordances and contextualises them within the literature.

3.1 CONNECTIVITY

During lockdown, almost overnight, inhabitants were confined to their homes, and all external social and physical activities with friends, families and colleagues ceased. The outside world was only able to be accessed through the non-physical social world of platforms (*e.g.* Zoom, MS Teams, Facetime, Cisco Webex, *etc.*). Having access to Wi-Fi and mobile data became critical to maintaining non-physical interactions with the outside world and to avoid being isolated. These online platforms became the tools by which inhabitants could work, home-school, have a doctor's consultation, have formal and informal social interactions (seeing friends getting married, getting together with families and friends, attending funerals, *etc.*). The physical space of the home had to be adjusted to accommodate these extraordinary virtual exchanges, and inhabitants had to learn to live within the parameters that this isolation imposed.

> The Wi-Fi is my only connection with the outside world, we don't even have a mobile signal so I use Wi-Fi for calling. We do have a landline as a stand-by but it is used less and less. [...] If I did not have the Wi-Fi I would not have a connection with the outside world, I would have to drive 3 miles to get a mobile signal. I have learned to be isolated. If you asked me before lockdown, I would not have wanted a life of such an isolation in the countryside with only Wi-Fi and 6 miles from the village to buy anything and no one coming to visit.
>
> (participant 7)

Wi-Fi became the main connection to the outside world, and the position of the router in the home became a key enabler to accessing the new online world. A total of 18 out of the 23 participants either had to add boosters to ensure the Wi-Fi signal could reach new areas of the house, or change the location of activities that depended on access to Wi-Fi. Three participants had to negotiate the times when various members of the household could connect to the Wi-Fi, three had to upgrade their broadband speed to cope with the increased use, and one was dependent on mobile data since broadband was not available at their home. During the interviews, six participants noted that without Wi-Fi and its associated technical devices, the experience of isolation would have been significantly worse. They recognised that at times online social interactions required more effort than face to face, but accepted this in order to see the faces of friends and family. Ellegård & Vilhelmson (2004) had already hinted that the role of digital platforms (television, email, mobile phones, *etc.*) were key for people's everyday lives, regardless of the negative impact on the physical–social interactions of the household.

> If you imagine this situation without any form of technology or ways of seeing other people's faces, I think it would be a completely different experience, and actually being able to FaceTime people or Zoom people has been very valuable. We would not normally do pub quizzes, but we did a lot of quizzes during lockdown and it did feel a bit of a drag at the end. But every Saturday and Sunday we would be doing quizzes, as you got at least to see people and have a chat and switch off from looking after the kids [...].
>
> (participant 11)

The home significantly changed in response to new dominant social non-physical structures. Emotional relationships became intertwined with technological devices that had to be accommodated in the physical space of the home to maintain social connectedness with the outside world. The ways of connecting with family, culture, community, learning or enjoyment had to be reinterpreted online, where the physical, sensorial and bodily experiences were lost.

However, this digital online connectivity with the outside world worked in parallel with a recognition of the importance of nurturing connectivity with nature and green spaces, either inside the home or associated with it (*e.g.* having plants in the home, a garden or access to local parks). Each household was connected to the online world, but also established a way of accessing a range of green spaces, which become critical for their physical, social and emotional wellbeing.

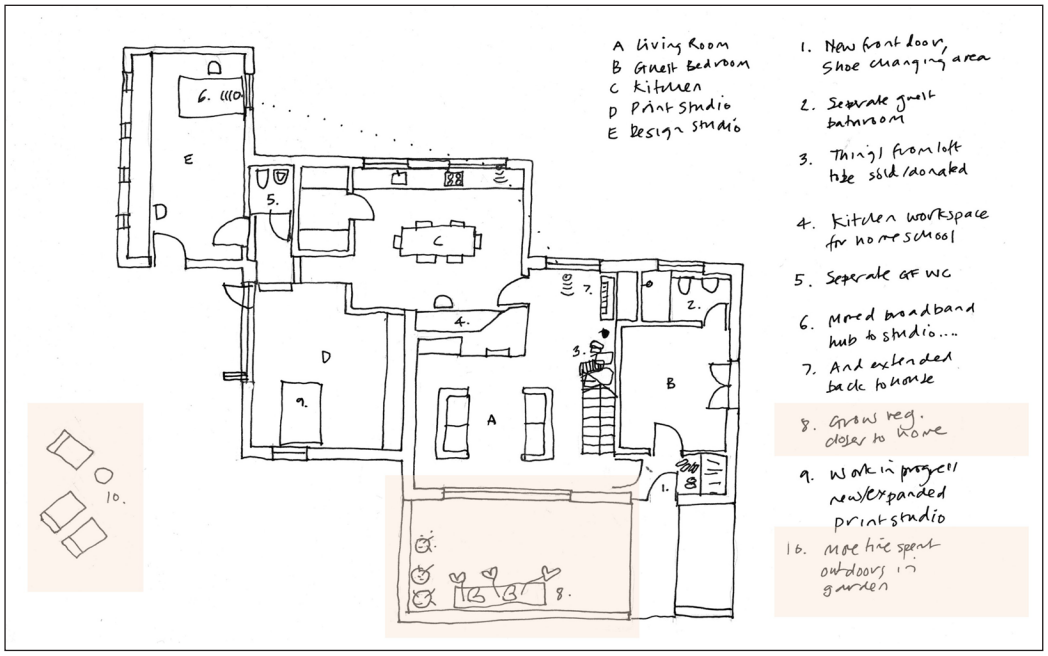

Figure 3: Participant 3 sketch showing the importance of outdoors.

Growing plants in the home or garden allowed the participants to 'relax' and 'feel good': it gave them 'solace'. The idea of growing either 'beautiful' (*e.g.* flowers) or 'useful' (*e.g.* vegetables) plants gave the participants a feeling of achievement, pride, and a 'feel-good vibe' that clearly enhanced their physical and emotional wellbeing (***Figure 3***). Food-growing in the home or in community gardens or allotments has established benefits for health and wellbeing (Genter *et al.* 2015). Six participants even started to look after chickens in their garden, as well as growing vegetables and plants. Being able to grow things was seen by 18 of the participants as a replacement for the lack of physical human contact that lockdown had brought. Only two participants were unable to access a garden and relied instead on accessing green infrastructure in their local area, in common with other studies highlighting the importance of local parks for those without access to a private garden (Poortinga *et al.* 2021). The garden become the most valuable 'room' for the participants during lockdown, a place in which to socialise with friends and family, somewhere to play and be active, and to get way from the online world. The garden became the 'critical space for survival', the 'gateway', the 'lifeline' that enabled them to 'unwind', to 'feel safe', and it played a key role in separating them from work.

> It was really important to have that connection with the outside. When you don't have that connection with other people, the physical connection with the outside becomes even more important. It is a way of marking the time of day, because previously you commuted, you went to the office, you got in at a certain time, there were so many things that marked your day [...] now, apart from scheduled MS Team meetings, you have to make your own markers [...] previously you would go and talk to colleagues, have a break. [...] You can't do that now, it is all in the screen, it is all in the same position. It is a little window. So, to have those breaks of your own, what I call 'walk around the block' is quite important. So, I would have an MS Teams meeting and I would give myself permission to have a 'walk around the block', so I would walk around the garden. That saved me.
>
> (participant 7)

> After work I used my neighbour's garden for a cup of tea. She had two tables COVID-19 safe for the neighbours to come a use the garden. I used it in the evening with her, not alone. You miss this physical socialising from your daily routine, so being able to go to a garden and be with another person and discuss something different from COVID-19 news. It was really nice.
>
> (participant 15)

> Creating an outdoor living area in the garden become really important. The garden became our lifeline really. Horrendous. The house is tiny for two independent women. [...] I had not appreciated that people need their own space. People underestimate the space. [...] There was a long list of dislikes that were coming out of COVID for me. And whilst I was not craving going to the pub, I just wanted people in my house to socialise. This was the hardest thing for me, this disconnect.
>
> (participant 18)

Daylight and having a view of the outside raised positive feelings such as contentment, enjoyment, peace or happiness, and was felt beneficial for both the physical and mental wellbeing of the participants. Having those intimate moments looking outside or feeling the sun on their face felt good, 'like you could forget you were in lockdown, like you could "breathe"'.

> The dinner table became my morning office, and then after lunch when the sun moved to the other side of the house, I was moving to one of the bedrooms that became the afternoon space. I was just following the sun. [...] I felt like a cat enjoying the sunshine.
>
> (participant 15)

Twelve participants saw the importance of the 'digital existence as a truly generational change going forwards', and future housing design will need to design-in these technologies that support the non-physical social connectedness as part of the new interiority of the home. A total of 20 out of the 23 participants also identified this new non-physical social online way of interacting as being, at times, loud, and concluded that the acoustics of new houses will need to be reconsidered.

This led the authors to recommend that future housing should identify key separate spaces within the home, where these 'at times loud online-interactions' could be carried out in private and without disturbing others. At the same time, the connectivity with external space and good links to the wider green infrastructure network of the locality had been 'underplayed' pre-Covid-19. All participants noted that the threshold between the internal and external spaces (*e.g.* garden, balcony, shared courtyard, *etc.*) was an important continuation of the social space in the home, and must become a critical affordance-based design consideration for the wellbeing of all. In addition, daylight and external views were identified as important affordance-based design feature for maintaining the physical and mental wellbeing of the household.

3.2 ADAPTABILITY

The second theme to emerge from the analysis was the range of adjustments that lockdown brought to the physical space of the home and its inhabitants. Physical interactions (work, schooling, socialising, exercising, *etc.*) that were previously carried out outside the home were

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now conducted through online platforms that had to be accommodated within the physical space of the home. Household members had to negotiate, synchronise and take control of how the spaces in the home were used, reordered and adapted as home boundaries suddenly shifted. All participants in the study carried out some sort of spatial adaptation, reconfiguration or alteration of their home to respond to the lockdown restrictions. In some cases, these reconfigurations had to be revisited later, once the implications of living under lockdown were properly understood. All the reconfigurations were done either to resolve 'conflict' amongst household members or to aid inhabitants' emotional and social wellbeing. The participants experienced the 'throwntogetherness' (Luzia 2011; Massey 2005) of being together 24/7: in this case, 'enforced togetherness'.

> We started using the lounge as a working space because we had the computers set up for the children, so I started using it as a workspace. When I worked at home previously, I was using the kitchen table with the laptop, but during the lockdown I realised that working in a shared space in the house was really disruptive for me. I could keep an eye on the children, but I got constant distractions and I really could not get on with my work. So, we had kept one bedroom for visitors and I moved my working space to that room so that I could still keep an eye on the children, but close the door and try to have a much more isolated space to work, unless the screaming gets too loud and I can step in.
>
> (participant 2)

> In the first few weeks while I was still working, my husband was working in the dining area and I was upstairs in the front bedroom. The kids were trying to do homework in the lounge. But quickly my son went to his bedroom to do his homework and the little one was floating around. We were using the dining area as a work area, the lounge as a homework/watching telly, and I was in the front bedroom trying to work. We spread ourselves around the house and when I was on furlough, my husband moved to the front bedroom upstairs. Then, my son did not want to be upstairs. It was all new and it took us a while to get into a new routine.
>
> (participant 14)

New rules, structures and routines had to be re-established and re-negotiated to ensure a harmonious, ordered and controlled state of being in the home. To avoid conflict and survive the lockdown, the expectations of the social relations of family life, its limits and boundaries were reconsidered by all participants.

> The first thing we did was to draw a family timetable, as we did know we needed structure in our lives. We sorted out spaces where we could do what we could not go out and do. We got that quite quickly and made it feel more comfortable.
>
> (participant 9)

The marginal spaces that did not have a specific use, such as an alcove in the corridor or a space under the stairs, became critical spaces that were appropriated during lockdown. Five participants converted these nooks to become places to work from, places to go to or to become a place that they could call 'theirs'.

> There is this room now, which was the corridor, but now is the study, because we did not need a study before, and this is now the study, as neither of us had planned to work from home, so we never had a place for a study [...] this space is mine, my place.
>
> (participant 12)

All participants understood the need for more adaptable spaces as being crucial for future housing design, with the idea of creating 'spaciousness' becoming a key affordance-based design consideration for wellbeing. Three participants went further, suggesting designers stop labelling rooms, but create interchangeable spaces that can be reconfigured by each household. Four participants noted that their architectural work had already changed and clients were already asking for 'adaptations' to address the challenges that Covid-19 had brought, while pre-Covid this type of work was very rare.

> Loads of clients are asking how they can both (separately) work from home, exercise at home, how can their kids have spaces to play whilst having the option of a spare bedroom in the future, when we are allowed friends and family to stay. They want their homes to feel welcoming instead of messy. Before was less critical working from home, exercising or spaces to play, these were not driving forces, and now it is a reason they have got new jobs in their practice. People are asking them to resolve the problems they have encountered during lockdown. Clients want to adapt their home, not only extend, which was quite rare before.
>
> (participant 12)

Adaptability and flexibility have been considered an essential part of any housing provision (Till & Schneider 2005; Wigglesworth 2019; Rabeneck 2021; Marco *et al.* 2021). However, this study also recommends 'spaciousness' is taken into consideration in order to provide spaces that can cope with the 'enforced togetherness' of lockdown.

3.3 COMMUNALITY

The dining table was identified by 16 participants as an important communal space where a versatile array of activities that involved all family members took place (***Figure 4***). It became the space to work, home-school, eat, play, socialise, have meetings, be together as a family and talk. Not only did it become the most versatile space in the home, but also 'a place of gathering', 'the heart of the house' and the space to 'go to when you needed company'—the social hub of the household.

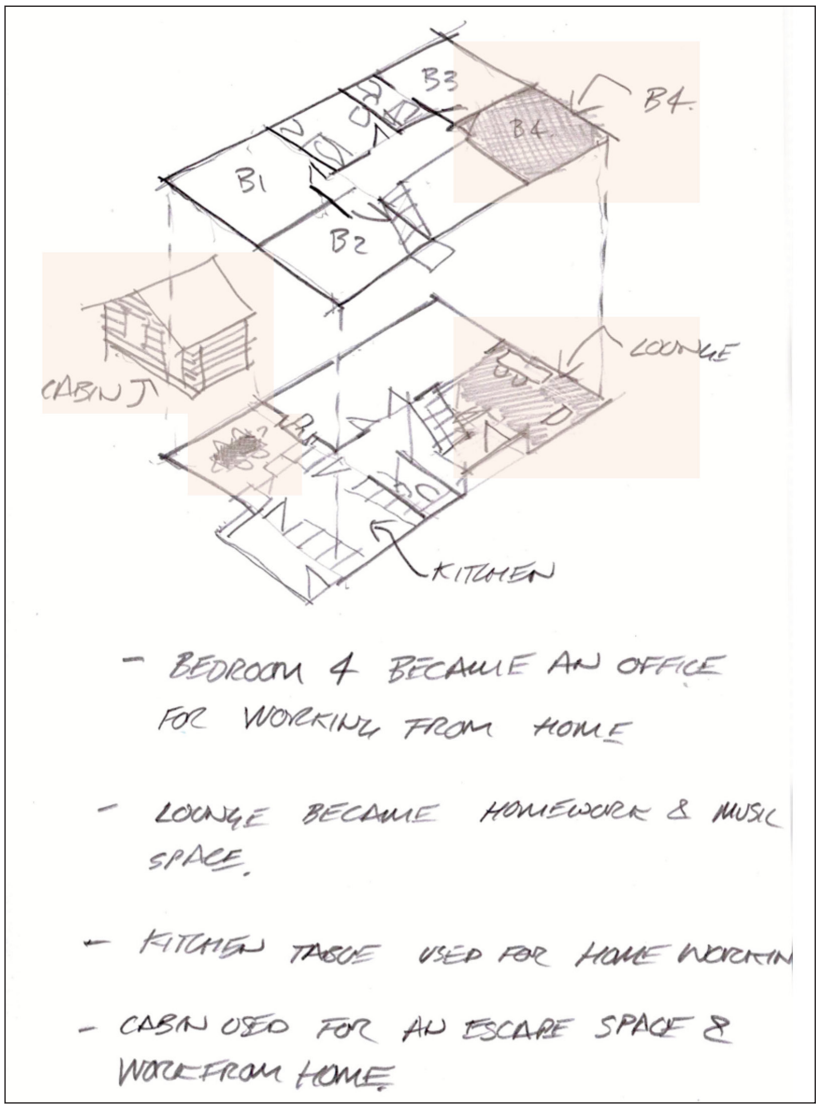

Figure 4: Participant 4's sketch identifying the dining table as a home working space.

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Throughout the day, the house took on different roles, changed and transformed, depending on the activities that each room had to accommodate (***Figure 5***). Twelve participants noted the importance of having versatile and varied spaces that could break the monotony of the day. However, closing the door to work, or leaving work in another room, become important for all participants. Not being able to close a door between the workplace and the home was felt to lack 'mental or physical separation', and therefore work was with you at all times. Even in cases where participants were able to close the door, sometimes even the memory of having worked in the other room was enough to remind them of the work waiting on the other side. For example, the drawing of participant 5 showed only 1 m of separation between the space where they worked and where they relaxed (***Figure 6***). The desk, monitor and laptop became reminders that work was there and they 'could not get away'. In contrast, participant 12 commented that they found being surrounded by 'homeness' when working produced a distraction. Either way, physical separation became a critical consideration for nearly all participants.

> I would like to have a study, either in the attic or the garden. I think it would be better, as it is too easy to be distracted. I start looking at the washing machine with a pile of washing on the floor and the dinner that has to be cooked and all the mess around me. I am really not that productive at home, you are surrounded by 'homeness'.
>
> (participant 12)

A key recommendation from this research is that 'a separate space to work from' is a critical design element for future housing design. The idea of having a shared working space was seen as no longer feasible, as working from home had been redefined since Covid-19. For example, 10 participants commented on the frequency of online meetings, online chats with colleagues, online continuous professional development (CPD) events, *etc*., which pre-Covid would have been mainly physical, with working from home being a day where you could 'catch-up'. Having 'private' spaces in which to retreat, or 'communal' spaces in which to come together, will become a critical affordance-based design dimension for the future, especially when considering the mental wellbeing of the inhabitants. All participants felt that the social interactions between household members were severely tested, and some felt that were unable to effectively communicate amongst the household members in the same home. They felt lonely even when others, something already identified by Lades *et al.* (2020). Having a quiet space where one could physically and mentally separate themselves to reset became an essential space to survive the lockdown.

3.4 INDIVIDUALITY

The final theme that emerged from the analysis was the (positive and negative) feelings that lockdown brought and their effect on the physical and mental (social and emotional) wellbeing of the participants. Being at home, working, schooling, exercising, socialising and resting 24/7 brought a dramatic change to participants' interactions, structures and routines. Three participants actually thrived during lockdown, feeling that this 'monastic' and 'hermitic' life suited them. However, for the other 20 participants, the lockdown experience brought more strong negative feelings than positive. The most recurrent negative feelings were isolation, imprisonment, stress and anxiety, dislike for household members, fear, loneliness (even when being locked-down with others), frustration, being fed-up, having lack of tolerance, inadequacy, jealousy, resignation, marginalisation and a lack of control. When experiencing these negative emotional feelings, 15 participants noted that they needed to find a space and a time to 'calm down', to 'hide-away', to 'escape' so they could find a way to 'reset' themselves. Having a 'safe space' where one could retreat, to be on their own, became very important for the participants' social and emotional wellbeing.

> When you are forced to spend so much time together in one house, you realise the benefits of spaces where you can be on your own [...] communal spaces are often prioritised in housing design, the open-plan, the kitchen-diner [...] but the experience of lockdown has emphasised the need to get away from everything sometimes. I would consider how slightly bigger bedrooms could provide a space to be on your own, away from the rest of the family, as well as communal spaces to share family life [...] but you need spaces where you can close the door if the screaming gets too loud.
>
> (participant 2)

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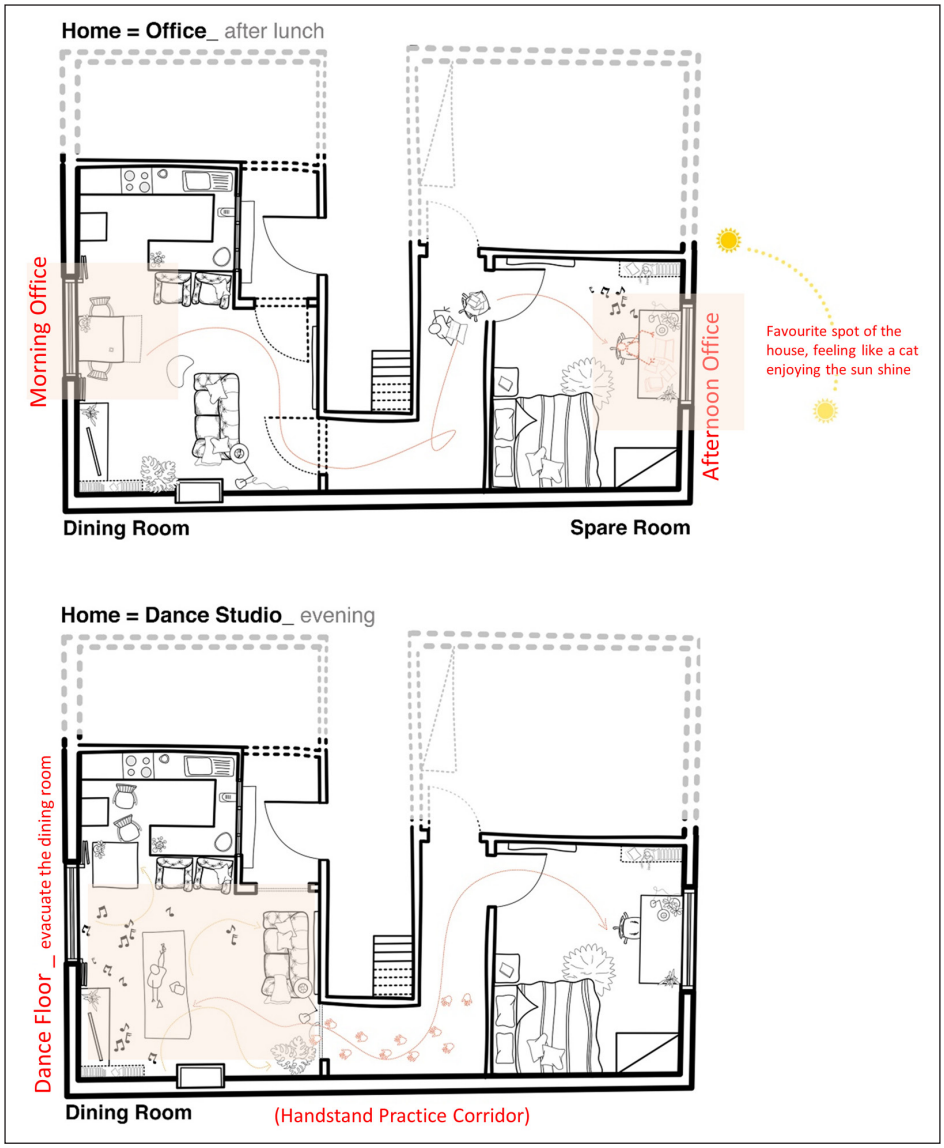

Figure 5: Participant 15's sketch showing the roles that the house took during the day.

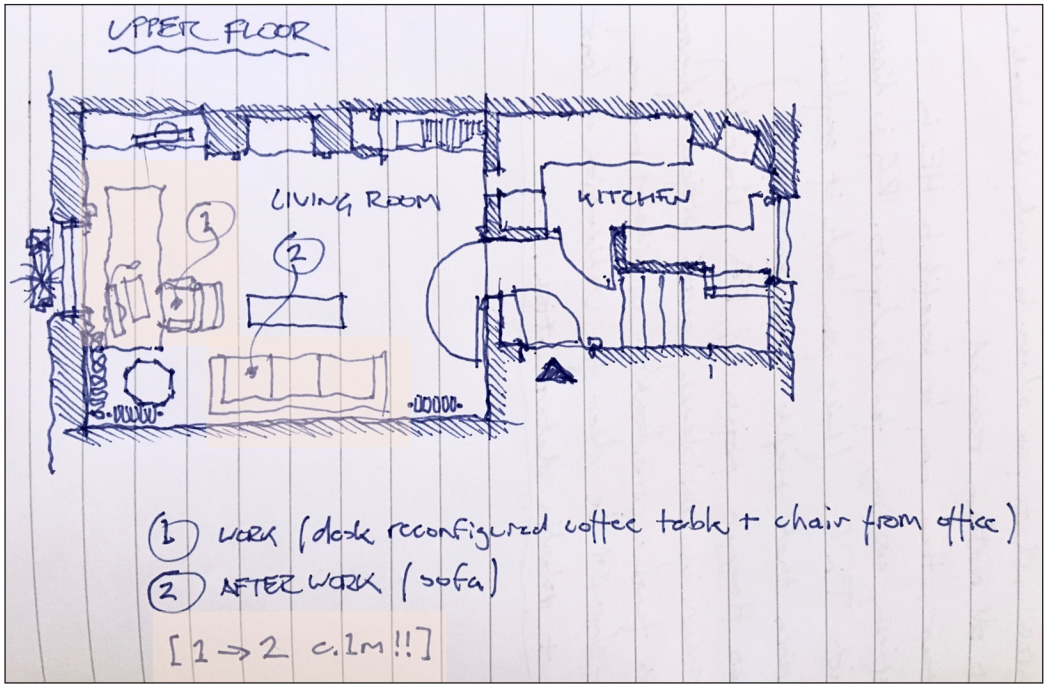

Figure 6: Participant 5's sketch showing the proximity of work and relaxation spaces.

Four other participants used the garden, the front door or walks as 'get away' spaces. Three others started drawing as a way to deal with negative feelings. Furthermore, eight other participants used their existing hobbies such as music, print-making, cooking, dancing, gardening, exercising or gaming as a way to relax and reconnect with their personal emotional wellbeing.

> The drawings started because I was feeling mentally anxious and stressed. The drawings were a way to meditate. [...] I was getting very frustrated thinking that ok, I am in the UK, I am in this house with my boyfriend, I have people that I care about, but they are in the other side of the world [...] the drawings helped me to realise how lucky I was [...].
>
> (participant 15)

> As there were people working in the kitchen and dining space still at lunch time, it was just impossible to get away from listening to people working, so I started taking my lunch and sitting on the front doorsteps to get away. Sitting there, as it was outside, I repurposed the front doorstep as something you imagine as nostalgic, where you chatted to people, but something you don't do much these days.
>
> (participant 23)

Participants that either had children or were in shared professional households appeared to struggle the most with lockdown. They were the ones who most needed spaces to get away from being 'constantly together', they had to find time to be by themselves, so they could cope with the 'togetherness'. Three participants moved house after lockdown, two of which had to separate themselves from those they shared a house with during lockdown, as they found the experience overwhelming.

As the household spent more time than ever together, de-cluttering and cleaning became important as a way of reordering and controlling what was happening in the home—bringing a new physical and mental order to the home, a way to be calm (Marco *et al.* 2020, 2021). Twelve participants went through cycles of cleaning, ordering, sorting, storing, recycling and throwing away, and they saw this process as beneficial for their wellbeing. Their 'stuff' became 'suffocating' and had to be cleansed.

> Three times a day I do a clear out, where I have to put stuff away or I feel out of control with my children and my life. My husband asks 'why are you tiding up as it will be messy again?'. I have to, otherwise I feel like I have lost track of all my sanity and I feel calm when everything has its place.
>
> (participant 12)

Being at home 24/7 for such a long period of time had an impact on household interactions and relationships. At times, household members had to 'close the door' to work, children, spouses and partners. Fifteen participants noted the importance of personal and individual spaces within the home, for 'time out', 'peace', 'relax', 'to get away from it all' and 'to be able to survive'—what the authors have identified as 'spaces to sustain the household members' emotional wellbeing'.

When reflecting on lessons for future affordance-based design, participants noted that, pre-lockdown, the house would have been a safe space in which to retreat from the stressful outside world. Now 'the house was housing the whole outside world', and the lockdown experience brought negative feelings of conflict, tension, anger and dislike due to an 'enforced togetherness'. Therefore, the authors recommend the provision of more intimate spaces to retreat to, spaces to separate household members and space for ordering (or storing), were identified as a key consideration for future affordance-based housing design for wellbeing.

4. DISCUSSION

The findings showed how the lockdown brought a dramatic change to the participants' lives, and significantly impacted their wellbeing as external and social activities as they were known ceased. The study builds on the existing literature around the meaning of the home (Clapham 2011;

Somerville 1997; Després 1991; Tognoli 1987; Watson & Austerby 1986) and the importance of green spaces for health and wellbeing (Poortinga *et al.* 2021), insinuating a shift in the meaning of the home post the 'enforced togetherness' of Covid-19. It identifies two critical new attributes for the meaning of home: as a nurtured and as a negotiated space, centralised on wellbeing (physical and emotional). Four phenomenological lockdown–socio-spatial affordances emerge from the study on how one can approach the design of future homes: connectivity, adaptability, communality and individuality. These socio-spatial affordances of the home, which arose at a time when the 'house was housing the whole outside world', are understood as a negotiated and nurtured space, centred on the individual wellbeing, that designers can consider in future housing design.

Connectivity is what participants referred to as the connection between indoors and outdoors, connection with nature (view and light) and connection with family and friends in new 'digital' ways that may have not been otherwise possible. The online experiences of participants really highlighted the social aspect of the need for connectivity and their efforts for bringing nature in or appropriating gardens as another space of the home (such as an exterior lounge), blurring the divide of the where the home physically ends and the outdoors actually begins. In lockdown, these contested digital platforms, considered detrimental to wellbeing in the literature (Gonza & Burger 2017; White & Dolan 2009), took on a vital role in giving people an 'online-socialness' that enabled them to interact with loved-ones and being able to be 'nature-connected' (Frantz & Mayer 2014), providing a respite from both the online world and conflicts within the household.

Adaptability is what the participants referred to as space(s) being able to be (re)appropriated recurrently, whether that be by cleaning and decluttering, or by changing the type of activities that occur in the same physical space. This leads to 'vibrancy' in the space, and it does not feel 'monastic' or 'suffocating'. In this context, this is understood as a socio-spatial affordance, as from a social angle it necessitates planning of time and the type of use of space for various interactions by all members of the household. From a spatial angle, it needs to be 'flexible', so the space is capable of different physical arrangements. Having flexible spaces helps accommodate the day-to-day life and the changes that lockdown brought. This flexibility ensures that spaces can be used outside their original assigned function, accommodating not only the current needs of the inhabitants, but also how future needs as time passes, and on different time scales (during the day, week, seasonally or longer). The adaptability and flexibility of spaces has long been considered an essential part of any housing provision (Till & Schneider 2005; Marco *et al.* 2020, 2021). However, this study also identified the need for 'spaciousness' as a way of retreating from the 'enforced togetherness' of lockdown.

Communality is what participants referred to as space(s) being able to create a sense of 'togetherness'. This is also a socio-spatial affordance, because from a social angle it necessitates a closer understanding of the type of activities that the home can accommodate in bringing people together. From a spatial angle, space needs to be designed to allow for co-locating household members engaging in separate or shared activities, together in the same space. Ellegård & Vilhelmson (2004) positioned the home as a 'pocket of local order', to which people return to for care and relaxation with loved ones. Lockdown brought a 'disorder' to this equilibrium, which required new rules, routines and structures. The boundaries of spaces were re-negotiated to navigate a new type of household life, with communication and social interactions between household members severely tested.

Finally, *individuality* is what the participants referred to as a need for 'physical separation', a space to 'escape' and be 'alone', the need to 'take control', or the appreciation of spaces that do not have a function, but to which you can retreat. In this context, this is understood as a socio-spatial affordance. From a social angle, it necessitates privacy inside the home. From a spatial perspective, it necessitates a sense of ownership and territory over space, even if that is a shared space. For example, an inhabitant can have their 'own' area to be in, and work in, within a shared space.

As articulated in ***Figure 7***, these four phenomenological lockdown–socio-spatial affordances, when juxtaposed together, form the notion of the home as a negotiated nurtured space. The new reading of what a home is about foregrounds and centralises design of the home on how it

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supports wellbeing. For example, in the analysis, participants identified the need to move away from accommodating specific functions (*e.g.* bedroom, kitchen, *etc.*) and explore a different categorisation of space types for the home. These proposed socio-spatial affordances to design spaces will accommodate each affordance, or a mixture of the four, wherein the emotional range and state of wellbeing of the end user is what drives the decision-making.

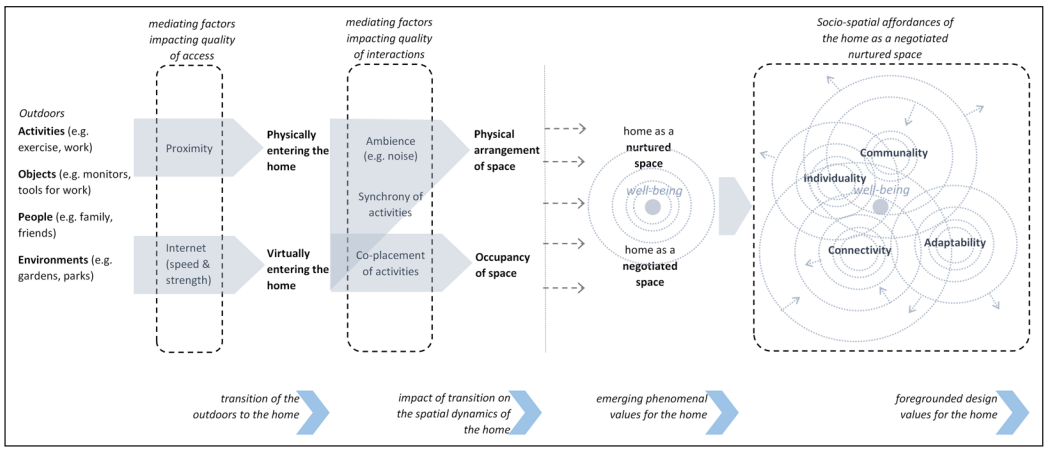

Figure 7: New affordances for future housing design.

5. CONCLUSIONS

This study revisited the concept of the home in light of the experience of 23 architects/designers of the first UK lockdown (26 March 2020–10 May 2020) during the Covid-19 pandemic, as the boundaries between the home and the rest of the world became blurred and new family dynamics were experienced. The home did not provide the emotional and physical *security* that one would have found in a pre-pandemic environment (Després 1991; Dupuis & Thorns 1998), the *control* over the physical space of the home (Després 1991; Watson & Austerby 1986) was re-negotiated, reconsidered and re-established, and the home was no longer a *refuge* from outside pressures (Dupuis & Thorns 1998; Després 1991; Somerville 1997; Watson & Austerby 1986). The pressures were now in the home. The four socio-spatial affordances of the home as a negotiated and nurtured space became critical attributes, to be added to the already complex and layered meaning of the home in a post-pandemic environment.

The study is very much of a qualitative and interpretative nature, focused on the beliefs and extreme experiences of the 'enforced togetherness' of a small number of architects. The conclusions should be contextualised as such.

In this research, the home is understood as a negotiated nurtured space, which accommodates four types of socio-spatial affordances centred on wellbeing. These affordances for design of future housing are: connectivity, adaptability, communality and individuality, which collectively speak of a requirement for achieving a delicate balance between people's desire for social relations and private introspections to occur in the house both synchronously and asynchronously with other members. In turn, this suggests a stepping away from conventions of housing design that arguably are driven by function and moving towards designing space types, sizes, qualities driven by the socio-spatial affordances related to the wellbeing of the household. Some might argue that these lockdown–socio-spatial affordances can already be found in pre-pandemic design guides (Park 2017), however there is little evidence that they are ever implemented (West & Emmitt 2004).

Moreover, this study identified connectivity, both digital connectivity and the physical connectivity between the inside and outside spaces, as new aspects of these affordances. The lockdown–socio-spatial affordances identified in this study must not be seen as optional, but as critical considerations for practice so the housing design of the future can face the challenges of future health crises, which are almost guaranteed to occur (Desmond-Hellmann 2020). Architectural practice needs to consider Covid-19 not as a singular anomalous event, but a 'new reality' that demands new design approaches in practice, by considering the lockdown-socio-spatial affordances as a way to face future health challenges.

Methodologically, the study demonstrated the applicability of interpretative phenomenological analysis (IPA) to architectural research, which thus far (to the authors' knowledge) has been seldom used in the field. In particular, given the requirement for designers to gain deeper insights into the intangible experiences of people in order to propose appropriate housing schemes supportive of their wellbeing, IPA can become a useful tool for the professional practice of architecture, especially when combined with the use of drawing. This paper outlined a four-stage approach that prioritises the wellbeing of its inhabitants. This can be adopted by architectural practitioners for conversing with clients and end-users for the design of housing.

This study was exploratory and has limitations. For example, the sample size for an IPA study could be seen as large for this methodology but small compared with other qualitative methods. However, the interpretative nature of the method meant going beyond the apparent content and the coding was performed manually to allow for greater intimacy with the data. This meant that analysing such a wide dataset (which included researcher observations and participant drawings) was demanding, layered and complex, and researchers should not underestimate the very time-consuming process that was needed when using this method.

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AUTHOR AFFILIATIONS

Elena Marco *orcid.org/0000-0003-0440-403X*
Department of Architecture and the Built Environment, University of the West of England, Frenchay Campus, Bristol, UK

Mina Tahsiri *orcid.org/0000-0002-9338-0254*
Department of Architecture and the Built Environment, University of the West of England, Frenchay Campus, Bristol, UK

Danielle Sinnett *orcid.org/0000-0003-4757-3597*
Department of Architecture and the Built Environment, University of the West of England, Frenchay Campus, Bristol, UK

Sonja Oliveira *orcid.org/0000-0003-4303-6612*
Department of Architecture, University of Strathclyde, Glasgow, UK

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The authors have no competing interests to declare.

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