

## The Importance of Sociality

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### Context

Ageing does not suddenly start at the age of 60, rather, it starts at conception and continues until death. Urban design in the context of ageing therefore has to take all ages into account. As all ages exist concurrently, it is therefore incumbent on urban design to be openly intergenerational. Society is the coming-together of a wide range of people to create a coherent and cohesive whole, where doing so provides benefits in terms of safety, security, health and wellbeing. *Homo sapiens* ceased to be nomadic some 10,000 years ago, and brought the first cities into existence around 6,000 years ago. The modern city – despite evolution in terms of size and technology – has at its heart the same societal needs, and it is important that the design of streets and spaces (i.e. public realm) meets these needs.

### Space

*Homo Sapiens* is the last remaining hominid survivor from the last climate crisis about 12,000 years ago. One of the reasons for this was that this species was able to collaborate to capture enough food to keep itself alive – the large brain required a lot of energy, and after the last ice age the food became both more sporadic and larger, thus needing collaboration in order to capture it. This collaboration required the ability to communicate, and this communication remains one of the hallmarks of human society today. The ability, and willingness, to communicate – what I term ‘Sociality’ – is one of the important markers for wellbeing (Smith & Joffe 2016), and thus, for cities to support society, public realm design must enable Sociality: it must create a place where a person can greet and receive a response from someone who they do not know without fear or difficulty.

Proxemics is a theory developed by Edward Hall (Hall 1966) following observations of people in public space in New York City and establishing a set of spaces in which certain activities occurred. Figure 1 shows four distances. These are shown from the perspective of one person seeing someone else at various distances, ranging from the ‘public’, where the response to a person could be identified, through ‘social’, where the person is now close enough to be able to infer their mood and acknowledge the potential for an interaction, and ‘personal’ where the person can be engaged in a conversation, to ‘intimate’ where the person is only admitted if they are familiar – otherwise entry into that space is an act of aggression.

What Hall did not establish is why these distances were so particular. Work in our laboratory has started to indicate potential reasons for this. It is driven by the way in which sensory and neurological systems work: the voice and hearing systems – of both listener and speaker – work best at distances of around 1.2m. At this distance, it is possible to speak and be heard without having to strain either the voice or the ability to hear; it is also a distance at which it is possible to see the facial microgestures that indicate mood, meaning, emphasis on the part of the speaker, and on the part of the listener, comprehension, disagreement, and so on, that are a major part of communication. So conversations happen at these distances. This seems to be multicultural – the sense that different cultures might wish to chat at more or less than this range is, it seems, a confusion between the initial greeting or taking leave rituals (shaking hands, bowing, hugging) and the actual conversation between these. Why is this important?

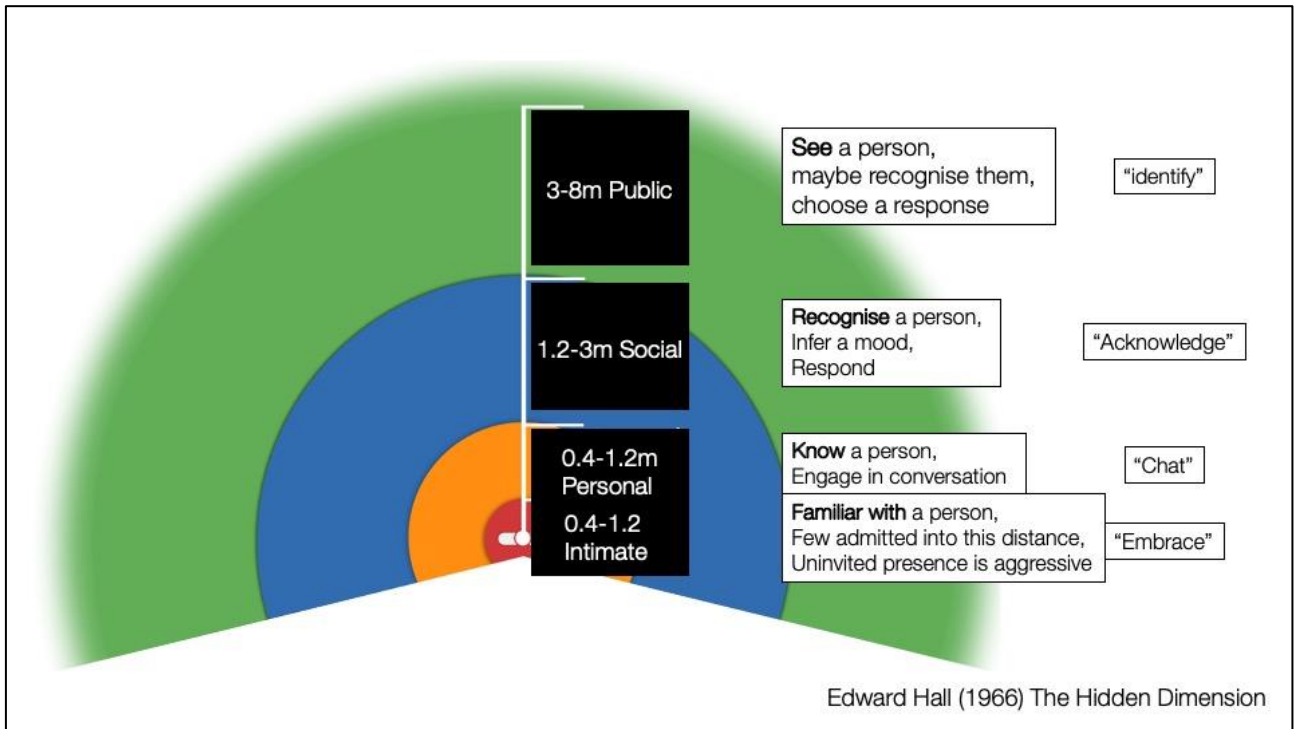


Figure 1 Distance categorisations from Hall (1966)

## Sociality

Conversation is food to homo sapiens, as much as the physical food needed to enable the physical body to survive. As a species we need this social interaction and failure to have it results in poor health outcomes, including mental as well as physical illness. 'Loneliness' is a distinct marker for social isolation, and although it is often realised as a particular concern for older people, it is something that arises across all ages – indeed there is a case for strengthening intergenerational conversations as a means of crossing this age divide. Urban designers therefore have a responsibility to enable conversation as a key driver for a stable and progressive society.

Enabling conversation means ensuring that public realm has places where the acoustics are favourable to the human voice, where the light – whether artificial or natural – is sufficient to enable those microgestures to be seen, where the space is such that a group of people can engage in conversation without having to strain to be heard, and where people are not compressed into too small a space. It is also necessary for the other spaces identified by Hall can work – it is necessary to identify that an oncoming person is or is not a threat, so sight lines need to be appropriate. So how big should this space be?

The number of people we find that enables a group to engage in a mutual conversation (i.e. where every member of the group participates in the conversation) is four. This is because, at the distance at which conversation can happen and where the microgestures can be observed, the useful field of view permits sight of three people. If a fifth person joins the group, it quickly breaks into a group of three and another of two (the membership of these groups can change dynamically but mutual conversation within the group overall ceases at this point). Figure 2 shows grouping of this sort. This is actually the result of an urban design intervention; the pedestrianisation of Havana's historic city centre, with bollards to exclude vehicular traffic. 18<sup>th</sup> century bronze British naval cannons were used as bollards, which present a convenient leaning height for a person. As a result it forms a natural point for creating a social space – the person leaning on this bollard is in a group of three, there are groups of two and four in the photograph – but none more than that.



Figure 2 Social spacing in Havana, Cuba

The creation of spaces that people can 'own' and have a conversation (or not) is key. The sense of ownership of such spaces is one of the things that enables someone to use it, but it also confers a sense of responsibility on them for using it well. The latter is more likely if the space works, and this is dependent on the whole range of circumstances coming together – acoustics, sightlines, spacing and so on. Figure 3 shows a group of people engaging in a conversation whilst sitting on a bench. But look further. The two people at either end of the bench have to struggle to engage in the conversation because they need to see the other people – those microgestures again – and to hear them. The natural response to this 'bench space' is to move forwards on the bench and turn so that communication can continue.

Figure 4 shows people sitting on a bench in Nicosia, Cyprus. In this case it is possible to see a number of behaviours: some are reading or looking at their mobile phones, whereas others are engaging in a conversation. All of these behaviours are possible in the same space because the benches are curved. In this case they are an 'S' shape, which offers the inside of the curve, where the problem noted in Figure 3 is resolved, so conversation is more easily sustained without having to sit forward and turn awkwardly, and the outside of the curve where it is easier to carry on more private activities. The degree of curvature is important in order to achieve this – it depends on the angle of view from one end of a four-person length of bench to the other – and if it is too sharp, it will not work.

#### Time

But the conversations in Figure 3 and Figure 4 are between people who seem to know each other, so it might be argued that the detail is not necessary – the people in Figure 3 certainly seem to be enjoying themselves even though their bench is not ideal. The key to this question lies in Sociality and brings the other dimension that is often forgotten in urban design: time.



Figure 3 Chatting on a bench in Copenhagen (Image Gehl)



Figure 4 Chatting on a bench in Nicosia

The time taken to greet someone is quite definable. If two people are walking towards each other, the time it takes from first seeing and identifying the other person in Figure 1 to being near enough to chat to them is around 4 seconds. In that time, the process of identifying and acknowledging them, deciding that they do not pose a threat and being ready to greet them needs to be completed. That is a lot of processing to do whilst walking along the footway, and most of it is done preconsciously – neither person will be aware that they are doing this. Sociality is therefore a time issue. Designing an urban space in which people wish to linger, where they can enact those needs for sociality, is therefore kicked off by first initiating this 4-second period necessary to start the conversation process. Then it is a case of designing the space for having that longer conversation – perhaps a few seconds, or minutes – in which the other characteristics of the space come into play.

Researching these issues

Exploring these interactions between people and the environment has proved challenging because, if done through observations of activity (as Hall did), although it is possible to see and infer actions taken by a large number of people in different situations, it is much more difficult to study why these interactions happen as they do. The environment is in constant flux so no conditions can be held constant, and the experiment is likely to be affected by sudden events, which the observers might or might not see, and thus it is impossible to determine why people do what they do. On the other hand, controlled experiments in a traditional psychology laboratory are very abstract, or far away from reality, because they are trying to control for anything other than the phenomenon of interest in the experiment. Therefore, although these might be very informative about the phenomenon of interest, they barely represent the reality that people experience in the street. To overcome these problems, we built a laboratory in which we could create, at life size, the environments of interest, bringing people into them to study the interactions in more detail, knowing that we can control the environment features, such as lighting, noise and appearance.

From these experiments we have learnt how older people compare with younger people in terms of their responses to different step heights in the footway surface (Cheng T-J 2014), how people with dementia see the environment, how lighting conditions change perceptions of the footway surface (Wang 2017) and much more. This laboratory is now being replaced by a larger one in which we will be able to control more features of the environment and work with larger spaces, including streets and town squares, railway stations and airport environments. Called the Person-Environment-Activity Research Laboratory (PEARL), this will include more comprehensive lighting (e.g. to simulate lighting at any time of day at any location in the world), a sophisticated spatial audio system, variable visibility and the ability to introduce scents into the environment. It will be able to have a full sized street up to 100m in length, or a railway station platform with train carriages, or access onto and off an aircraft. In terms of observation of the participants, PEARL will have sensors ranging from video cameras and posture/gait recording systems to cover physical motion, physiological sensors, such as eyetrackers, electrodermal activity, heart rate, oxygen consumption, and, to study neurological activity, we have EEG and functional Near InfraRed Spectroscopy to monitor brain function as people are engaging in activities in the laboratory. PEARL also has a 500-seat pop-up theatre to enable us to demonstrate results to interested parties so that research findings can be disseminated to stakeholders in a way that means that they can experience the situations themselves. In these ways, it will be useful for urban planners and designers to try out ideas, stress-test projects etc. before critical stages in their development. PEARL is due to start operations in May 2021.

We are now designing an addition to PEARL, called CAVE (Clean Active Ventilation Environment), which will open late 2021 and help us study similar aspects of indoor environments, including investigation of pathogen transmission through different ventilation regimes to study physical distancing needs and behaviour, and the effects of different room design. .

## Conclusions

Conversation is the nourishment of society and the way to counter social isolation and loneliness at any age, but perhaps especially for older people; intergenerational conversation is how society coheres. Urban design can foster this important activity – it is important that we do not allow the design to kill it. However, it is difficult to know precisely how this chain from perception of the environment – including other people – actually interacts with a person. Our work is exploring this by creating environments in which we can control all sensory factors and then studying the neurological, physiological, psychological, sensorial, and physical responses as we change those environmental conditions. See <https://www.pearl.place> for more details of how this is done.

## References

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