



Building Our Children's Future

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EDUCATION



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*“But what are we actually
saying to our kids?”
A consideration of the
spatial perceptions
of children and our
architectural response.*

Dr. Jenny Russell

Have you ever lost a child in a public place? – Remember the panic? You are not alone! – Often we blame the child for misbehaving, or the carer for not paying enough attention, but rarely do we blame the building or the architect for an organization of space that is calling to children in a way that adults will never fully understand.

Architecture has the privilege of influencing mans' experience of a place. It has the potential to evoke emotions and produce feelings of fear, peace, solitude, excitement etc, etc. Conversely, it must also have the potential to cause damage to those emotions. It can also tell a person how important, public, intimate or private a space is. It can tell them what sort of responsive behaviour is expected within that space – if they should just merely pass through or if they should stop. However, simple observations of different groups of people in buildings reveal that they do not always behave as may be expected, particularly if its a group of children. Observers may relate these

differences to different levels of maturity or energy rather than the innate perceptual ability of those involved. This chapter will explore that perceptual ability within children to comprehend architectural space in order to consider "what it is actually saying to our kids."

"I know up on top you are seeing great sights, but down here at the bottom we, too, should have rights"¹

'Children are important' - so says the United Nations Convention on the Rights of the Child. This shift in thinking has become more apparent in recent years with a greater awareness of and consideration towards them as citizens in their own right. However, there is nowhere within the UN convention that tells us that children are different. Even Dr Seuss merely suggests that "a person's a person; no matter how small"² but herein lies one of the immediate problems which arise when designing for children - their size is one way in which they differ from adults, however their perceptions of space also differ³ and it is this which presents the much more subtle, but just as important, dilemma to the architect.

Within the field of architecture, particularly within the educational sector, children are gaining a much more predominant role. In many respects, they are being given a voice. Over recent years, children's involvement in the design process has developed, in the main due to research conducted on children and their relationship to the physical environment, and through the involvement of children within the design process. This may be partly due to the recent surge of activity in the construction of schools across the UK. In projects such as "The School I'd Like"⁴ and "joinedupdesignforschools"⁵ the key emphasis has been on the child as active participant throughout the entirety of the project, where children are engaged as researchers and designers of their own environments.

Although the role of children within the process of architectural design is changing from passive observer to knowledgeable participant (radically developing, albeit embryonic in its inclusion within the field), it is apparent that children are being involved more so on account of their opinions than their comprehension. That is,

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although children are being given the opportunity to comment, and become involved in the design of their environments with regard to what they like; what they think is good, bad, attractive, uncomfortable, their innate perceptions and subconscious behaviour within their environments are not being addressed. In particular, within this field, and this is a subject of which children cannot be the sole contributors, having a place within the environment is not something of a single direction focus, but a two-way process, with the environment communicating with the user and the user interpreting and manipulating the environment. Therefore, this chapter will attempt to consider the spatial perception of children from an architectural perspective. It recognizes the relationship between the field of architecture and those of environment behaviour, psychology and sociology and draws upon research from these fields, questioning, not only how children perceive space, but also applying that knowledge to their subsequent behaviour within space.

"Grown-ups never understand anything by themselves, and it is tiresome for children to be always and forever explaining things to them."⁶

Within certain areas of society, children are still considered to be miniature versions of adults and are incomplete in terms of their development.⁷ Research has, however, determined that children are different; physically, cognitively, neurologically and socially.⁸ It has also been suggested that children learn and understand by means of the right hand side of their brain within the first five years and as formal schooling takes over their personal learning pattern, a switch occurs and they are taught using methods which favour left hand side of the brain activity⁹ highlighting the possibility of a stunting of spatial development¹⁰. This concurs with physicist J. Robert Oppenheimer when he made the statement that "there are children playing in the street who could solve some of my top problems in physics, because they have modes of sensory perception that I lost long ago." This is emphasised by the knowledge that children, not only have an interest in their environment, but their active participation in it enables them to learn¹¹. Their interest in their environment is observed through their play, which, despite

assumption, is still similar to the play of children all around the globe and not that of the picture of the 21st century urban child¹².

To discuss this further, this chapter will consider two spatially different school buildings and discuss the variations in the perceptions and comprehensions of the children who inhabit them: Woodlea Primary School in Hampshire, England and Craigour Park Primary School in Edinburgh, Scotland.



Woodlea Primary School, Hampshire.

Woodlea Primary School was designed by the architecture department of Hampshire County Council, headed by Sir Colin Stansfield Smith. It occupies a densely wooded rural site in a large village in central Hampshire.

The school is stepped around a dip in the site, so although on the same floor, the level changes throughout the plan. The school is entered on the middle level, into the central concourse of the building. From that point both steps and ramps are used to circulate up to the hall and music facilities and down to the different classroom spaces, separated by the library which is both part of, and yet articulated separately from the central concourse. The senior and junior classes enclose opposite sides of the site basin. This provides the territorial distinction often needed by infants and younger pupils to provide them with their own space, away from the older children, in which they can find security and create

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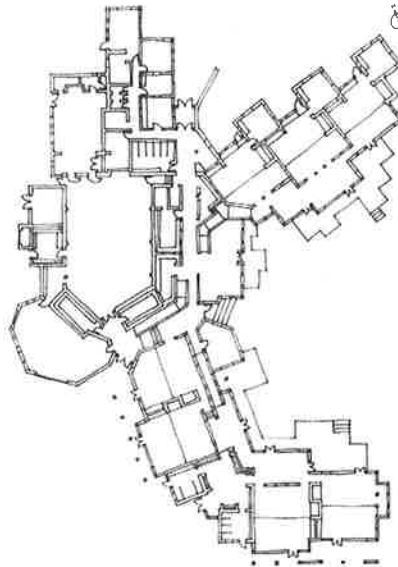
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their own identity. However, with the views across the site basin of the older classes, they not only have the awareness of belonging to a larger community, but also are able to understand the progression that they will make through their time at school. The majority of classrooms are open plan, with glazed screens between classrooms and doors placed only when necessity intervenes. However the choice of material, and autonomy granted to pairs of classrooms, provide the necessary acoustic sensitivity. Architecturally, Woodlea Primary School has the essential element of a central space from which it is possible to orientate oneself and advance to all the necessary accommodation.



Plan of Woodlea.

Craighour Park Primary School is situated in Edinburgh. Designed by the Holmes Partnership, of Edinburgh, Craighour Park was one of seven schools designed within the first phase of the PPP plan for the city of Edinburgh. The predominant design focus for all schools within this first phase was one of functionality and efficiency, particularly with

regard to the amount of circulation required throughout the school. The school is designed in three main sections of accommodation. The administration and staff accommodation of the school are situated along one corridor running the width of the front of the school. The shared accommodation of hall, dining area, changing rooms, library and computer room are all located within a belt of accommodation in the centre of the school. The classroom accommodation is located in two wings projecting from the rear of this central belt. The junior wing accommodates primaries 1 to 4 while the senior wing accommodates primaries 4/5 to 7. The classrooms are designed around a flexible shared area and both the party walls between classrooms and shared space and between each pair of classrooms are constructed of demountable panels. These allow the whole wing to become both a flexible space and responsive to the teaching requirements of each programme. These wings each have their own main entrance and pupils arrive and leave school by means of this entrance rather than through the doors at the front of the building. The different sections within the school are separated by solid fire doors; while the classroom wings each have a secure entry system. Resulting in the situation in which the pupils are 'locked in' to their classroom units unless taken to a different part of the school. The majority of activity occurs within the classroom wings and so the pupils are contained within these spaces for the majority of the school day.

These studies took place in the first half of 2005. Pupils from classes P3 and P4 within each school took part and each was invited to make a drawing of the space within their school, following which, each was then asked a series of questions by means of a small group discussion. Observations were made of the pupils' behaviour and interaction with the space.

Of an understanding of the overall space within each building, while the majority of the pupils at Woodlea were able to create a footprint within which to contain all the spaces of their school, the majority of the pupils at Craigour Park worked within the boundaries of the paper on which they were working. This gave the impression that they were unable to interpret the building as an object with its own space and boundaries and thus would fit

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their interpretation of the space within the school into the space with which they were presented. This method appears to have caused follow on problems with regards to the space and layout of Craigour Park. Whereas the main classroom wings project directly out of the rear of the school in two separate wings, in attempting to express the school within the rectangular footprint of the page, the resulting relationship between the two groups of classrooms was incorrect in the majority of the drawings. Some of the drawings were even drawn within the framework of a grid, within which each section represented one room. In comparison, although few of the pupils of Woodlea were able to create an accurate footprint, the overriding expression of the layout of the school was that of a journey, of which, again, the majority of the drawings alluded to in some manner.



Craigour Park Primary School, Edinburgh

Whereas thresholds were highly evident in the drawings of Woodlea, it was of interest to acknowledge the lack of doorways and thresholds in the drawings of Craigour Park, due to the spatial arrangement of the school. Craigour Park can be considered as four specific sections: the main administrative corridor, the central section of shared accommodation, and the two classroom wings. These spaces are divided, both physically and visually, by the presence of doors. Although these doors are clearly the dividers of space within this school, they were acknowledged within very few of the drawings. It is apparent that the compartmentalized nature

of this school is having a subversive effect on the cognitive maps of the pupils. From the representations provided by the children, it is possible to postulate that due to a lack of visual linkage between the different spaces of Craigour Park, the scope of understanding within the pupils concerning the overall space within the school, is being stunted.

The contrast between the spatial perceptions of the pupils of Woodlea and those of the pupils of Craigour Park is evident. Although the easier plan to visually represent in two dimensions, analysis of the drawings of Craigour Park suggests that, for children, the three dimensional reality of this school proves far more difficult to express, and thus it is postulated, to perceive and understand, than the complex plan of Woodlea Primary. The opportunity for pupils to experience their school, both physically and visually, as a whole at Woodlea, rather than as a series of compartments, appears to be hugely advantageous in the development of their cognitive maps of their school environment.

At Woodlea, where the accommodation is organized around, and within, a central space or group of spaces, the children demonstrated an overall understanding of the arrangement of the space. However, at Craigour, where the organization is linear, and there is no central hub from which to make observations, the children found difficulty in creating a construct of the overall space. They were unable to contain the different spaces within a single element, which was particularly apparent in their drawings. The issue of space, as something that acts as a container versus something that is contained, bears heavily on these observations. When space is the positive commodity and is contained by the elements which surround it, it appears to benefit the child's spatial understanding and their cognitive map is both clear and accurate. However, when space acts as the negative socket into which elements are placed, and the organization of those elements is packed densely, children are less able to build an accurate cognitive map of the space. Their understanding appears to have been compartmentalized.

For children from both schools it was apparent that their experience was tied up, not only in the container, but also in that

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perceptions of the pupils of Craighour Park is evident. Although in two dimensions, analysis suggests that, for children, the task proves far more difficult to receive and understand, than in two dimensions. The opportunity for pupils to receive spatially and visually, as a whole of the building, appears to be a function of their cognitive maps of

space is organized around, and the children demonstrated a linear arrangement of the space. In their observations, the children's drawings of the overall space. They focus on a single element, rather than the overall space. The issue of linear versus something that is more complex. When space is defined by the elements which children's spatial understanding is not accurate. However, when elements are placed, which are packed densely, children's cognitive map of the space. Their drawings are linearized.

It was apparent that their drawings are linear, but also in that

which is contained by the space. Furniture, people and other such details appear to be integral in their understanding of space. To the child, the 'keeper' of the building appears to be the receptionist. This person dominates more than any other, the cognitive maps of children and should be regarded as such during the design process.

Based on the from both schools, it can be seen that the spatial organization of both Craighour Park and Woodlea influence the child's experience and perception of that space. Children actively involve themselves within a space responding to and experiencing the aesthetic of the place, and thus children appear to build a stronger three dimensional cognitive map of spaces in which there is an overall conceptual pattern - that is, that there are strong spatial and visual links throughout the building.

And so, the question has to be asked: Are we designing school buildings in a way that is helping to shape and develop the three dimensional thinking and understanding of the child, or are we smothering it?

when I grow up
(as everyone does)
what will become
of the me I was¹³

The role of the architect is one of responsibility. Perhaps this chapter will help some architect's to understand a little more of the language which they have the power to manipulate, that design would be forced to develop a greater response to both children and adults and that they would begin to realize, to a greater extent, just... "what they are actually saying to our kids."

And to leave the final word to Dr Suess...

"Unless someone like you cares a whole awful lot, nothing is going to get better. It's not."¹⁴

References:

1. Extract from "GEISEL, T. S., (DR SEUSS) (1963) Yertle the turtle and other stories, New York, Collins
2. GEISEL, T.S., (DR SEUSS) (1963) Yertle the turtle and other stories, New York, Collins
3. MILLAR, J.E., (2006) An investigation into Children's Perception of Space in Schools, Scotland, University of Dundee
4. BURKE, C. & GARDINER, I. (2003) *The School I'd Like*. Children and Young People's Reflections on an Education for the 21st Century, London, RoutledgeFalmer.
5. SORRELL, S & SORRELL, F (2005) *joinedupdesignforschools*, London, Merrell
6. Extract from SAINT- EXUPERY, A. D. (1991) *The little prince*, London, Mammoth.
7. PROUT, A. & JAMES, A. (1990) A new paradigm for the sociology of childhood? Provenance, promise and problems. IN PROUT, A. & JAMES, A. (Eds.) *Constructing and reconstructing childhood: Contemporary issues in the sociological study of childhood*. Basingstoke, Falmer Press.
8. KUIPERS, E., FOWLER, D. & GARETY, P. (1995) *Cognitive Behaviour for Psychosis; Theory & Practice*, Chichester, John Wiley.
9. STEA, D. & TAPHANEL, S. (1974) *Theory and Experiment on the Relation Between Environmental Modelling (Toy Play) and Environmental Cognition*. in CANTER D. & LEE, T. (Ed.) *Psychology and the Built Environment*. Kent, Architectural Press.
10. EDWARDS, B. (2001) *The New Drawing on the Right Side of the Brain*, London, Harper Collins Publishers.
11. BELL, S. (2002) Spatial Cognition and Scale: A Child's Perspective. *Journal of Environmental Psychology*, 22, 9-27.
12. BURKE, C. (2005) "Play in Focus:" Children researching their own spaces and places for play. *Children, Youth & Environments*, 15, 27-53.
13. FISHER, A.L. (1991) *Always Wondering: Some Favourite Poems of Aileen Fisher*, London, Harper Collins
14. Extract from "GEISEL, T. S., (DR SEUSS) (1963) Yertle the turtle and other stories, New York, Collins