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HUMAN SPATIAL BEHAVIOUR AS BASIS FOR OUTDOOR DESIGN IN NIGERIA

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ABSTRACT

The design of outdoor spaces and facilities in developing nations such as ours tended to rely heavily on visual design principles and pre-conceptions of potential function while ignoring the observed spatial behaviour, and psychological needs of the user. But studies from the advanced countries have shown that successful urban spaces are the ones which offer settings for accomplishing varied human spatial behaviour.

This paper discusses the need for observed spatial behaviour and tendencies to form a basis of outdoor design in Nigeria.

Concepts of human spatial behaviour are reviewed while the implications of these concepts and findings for the design of selected outdoor spaces are discussed. The paper finally stresses the need for future design of such spaces in Nigeria to be derived from evaluation of post-occupancy behaviour patterns in existing spaces.

INTRODUCTION

Frank Lloyd Wright advanced the doctrine that form follows function. This means that the form of the designed human environment should be spawned by the envisaged range of functions to be accommodated. It implies by extension that the design of the outdoor environment namely the plazas, streets, parks and general open space, should emanate from a proper understanding and application of human spatial behaviour. While in the past two decades, concern has tilted significantly towards this in the developed countries as evidenced in literature, scarcely little concern is exhibited in the developing nation such as Nigeria. Indeed, emphasis in the developing countries appear to focus on visual design principles and pre-conceptions of potential functions in the design of outdoor spaces and facilities. But as John Lyle observed, the patterns of human movement and activity in any well used outdoor space are intricate and varied and have been shown to often differ from what intuition or common sense would lead us to expect. Moreover, Lyle observed that these patterns can be manifestations of 'deeply seated cultural and psychological traits' (Lyle, 1970). Assuming that this is the case, some of the concerns

which have bothered researchers and designers elsewhere are equally relevant in developing countries like Nigeria, namely,

a. What do people do in outdoor spaces and is there any consistent relationship between these activities and the settings they choose or the postures they exhibit?

b. Do the spatial form and structure of outdoor elements affect the spatial distribution of people in a specific space?

c. Are there characteristics of outdoor settings which can be identified as attractors or non-attractors of human use?

d. Are there distinct differences in ways different age groups use outdoor spaces and does this use vary with the time of day or week?

Concrete answers to these questions have been and can always be derived from observations of people's behaviour in outdoor settings. If the architect is poised to plan and design outdoor spaces for better fitting interaction with people who use them, it is necessary to cultivate a working knowledge of ways people actually use or relate to these spaces. The right perspective for landscape architects, environmental designers and planners therefore is to realise that observed interaction between human behaviour and the built environment should from the basis of the design of outdoor spaces in this country, particularly in urban centres. Unfortunately, not much of this has been realised in Nigeria and very few studies have been carried out on the topic of human behaviour as a basis for design in the country.

In this paper, therefore the significance of human spatial behaviour and human psychological needs in outdoor spaces are discussed. The paper begins by defining and discusing the applicable human spatial concepts. It then discusses the topic as it relates to Nigeria and critically examines their implications for the design of outdoor spaces in this country.

CONCEPTS OF HUMAN SPATIAL BEHAVIOUR AND DEFINITIONS

A number of concepts and terms identified in the study of human spatial behaviour and psychological needs are applicable in landscape design. These include personal space/individual distance, intimate, social and public space, territoriality, social needs and visual enrichment needs.

Personal Space/Individual Distance: As noted by Sommer (1969), the best way to learn the location of invisible boundries is to keep walking until somebody complains. Man surrounds himself with an invisible bubble, breathing room or portable territory into which intruders may come. This is his personal space. It affords him room for

companionship and comradeship; yet it offers him protection, privacy and relaxation even in the least private outdoor environment.

Because of its invisibility, the concept is evolved from inter-personal transactions, principally individual distance. Individual distance is the characteristic spacing of specie members and is exhibited when two or more members are within proximity. Interaction between it and personal space affects the distribution of persons in a space. Although, the origins of the minimum space requirement of a thin man in a crowded situation ($1858cm_2$) is obscure, Sommer revealed that people in dense crowds such as in political rallies occupy $0.56 - 0.74m_2$ ($6-8ft_2$) each while in loose crowds, there is an average of $0.93m_2$ per person. (Sommer, 1969 p. 28).

Man's defense against invasion of his personal space in a public outdoor space is limited. At best, it is passive. His defense is a "matter of gesture and choosing a location that conveys a clear meaning to others" (Sommer, 1969 p. 45). Thus, his actions may either assume the form of avoidance display; that is, he assumes an avoidance position or retreats. Conversely, his action may be an offensive display (assumes offensive position), in which case he signals his intention not to tolerate any invasion of his privacy, studies show that in condition of high density, avoidance positions are more widely in use than offensive displays. In such situations therefore, early picnikers, visitors to a park, beach or outdoor concert or outdoor market for example, are more likely to occupy vantage but avoidance positions. This way, subsequent visitors are less likely to obscure their enjoyment or views.

The extent to which these actions are true of our urban cultures needs empirical investigation. With the apparent emergence of the behaviour of inconsideration of others, it is uncertain if our urbanities do employ offensive display more often.

Personal space and individual distance are acquired cultural phenomena. Differences therefore exist between cultures/geographical areas in distances people maintain between lovers, close relatives, friends and peer groups or between strangers. Thus differences are to be expected between 'Africans' and 'Europeans' as it is known to exist between the English, French and Orientals.

Intimate Space, Social and Public Space:

Hall (1969) had identified other kinds of human behaviour spaces in terms of distance. These include intimate space, social space and 'public' space.

Intimate space, shich is really within personal space, is one within which affection, comforting, protection and wrestling take place. Couples,

very close friends are apt to use this space. Less familiar individuals within this space cause discomfort to the person whose space is infringed upon. Social space is one within which social, informal and formal discourse takes place. Individuals chat with a collection of friends and acquaintances at this distance. Small groups congregate within this space. 'Public' space entails distance within which public address takes place, be it in an amphitheater or plaza.

c. Territoriality or Defensible Space:

Territorial is said to be one of the three fundamental human drives, the other two being status and sex (Laurie, 1975). Territorial claim and maintaining a certain distance from ones own kind is a biological need of all animals, man inclusive. Forms of human territories vary widely, with size ranging from a desk, bench to a continent. The area may be contigous space, points or paths or may be totally discontinous spaces. Territories may be clearly bounded or fade from a central point. They may be permanent, weekly, monthly or temporary, fixed or portable as personal space described earlier. They may be occupied all, some or none of the time. But importantly, territories can be defended physically, legally, verbally or not at all. (McClelland, 1978).

Legal status of property ownership and tresspass laws are manifestations of territotial instinct. Similarly, territoriality is also evident around us not only in the high walls, fences and hedges around our houses, offices and factories, but also in spaces we stake out for ourselves in buses, beaches, parks, market and other public spaces.

Cities offer to their many inhabitants variety, eventfulness possibility of choice and most of all, unlimited opportunities for contact and communication. On the contrary, cities offer their shortcomings, chiefly crowding or high population density and heterogenity of population. Under these circumstances, human spatial boundries (personal/intimate) space and territoriality) shrink and behavioural adaptations or coping strategies develop (Kaplan, 1978). Social and behavioural norms for maintaining privacy and territoriality consequently will practically substitute for lack of physical devices. Thus, people will tend to mark their positions in crowded markets, beaches and parks with mats, bags and other personal effects. Or : they would safequard their positions on public benches with handkerchiefs, bags, etc. They would tend to fix gaze on roof lights when packed as strangers in elevators. Or on a park bench, they will tolerate the closer presence of a stranger on their sides than directly in front.

Psychological Needs

Allied to the concepts of human spatial behaviour are human

psychological needs some of which are social, stabilizing and enrichment needs.

Social Needs are reflected in all societies of the world as individuals are found to have the need for socialinteraction, group affiliation or association companioship, love, protection for and from other people. 'Man is a social animal'. The behavioral expression of these needs is found in the proliferation of associations, societies, religious groups and in the use of beaches and village squares in this country. The obvious consequence of this need is that outdoor spaces designed for people's use and congregation should have a socio-petal form. In other words, they should engerder social interaction especially where the use is not contrary to this fulfilment.

Stabilizing Needs are reflected in the fact that humans have a need to be free from fear, anxiety, danger and thus have a stable life. Individuals therefore seek and demand a certain level of physical safety in their environment. Consequently, they instinctively withdraw or take precautionary measures against physical danger or threatening, ambigious situations in the physical outdoor environment which cause them a measure of discomfort. This chiefly accounts for their tendency to avoid steep grade changes and too many steps in outdoor spaces. It may account for their preference for ramped pedestrian bridges to stepped ones.

Response to this need for safety has given rise to some minimum requirements in physical development (such as road R.O.W'S walkway widths, handrails on outdoor steps) as contained in development regulations such as Lagos State Development Regulations.

Enrichment needs include people's need for beauty and aesthetic experience in their natural and built environment (Laurie, 1975). The instinctive prospensity of our forebears to decorate their traditional homesteads with vivid colors and carved motifs was perhaps a strong reflection of their understanding of this need. The fact that some people travel great distances to see beautiful natural sites such as Obudu Hills, Olumo Rock, Jos Plateau or even to the beaches, is perhaps another reflection of that need in our modern society.

The consequence therefore is that designed outdoor environments should provide for human aesthetic enrichment through the provision of visual beauty. The environment should reflect order or organization and provide meaningful complexity and variety (of forms, colors, textures etc.) suited to human behaviour.

ILLUSTRATIVE EXAMPLE OF HUMAN SPATIAL BEHAVIOUR AND PSYCHOLOGICAL NEEDS AS BASIS FOR DESIGN:

Some studies have been carried out to show the significance of human spatial behaviour and psychological needs in outdoor design. Among these are those

by Llye (1971), Whyte (1980) and Obiefuna et al (1981).

In his study of how people's outdoor behaviour patterns vary with region and cultural context, John Lyle performed a comparative study of parks of the cities of Paris and Los Angelese (Lyle, 1971). In both places, common patterns which he found included: (1) Human activity as people attractors; (2) Avoidance of dark and isolated places; (3) Pull to the center; (4) Edge effect, (5) Card games and conversation. People in both places were found to be where other people were. In this case, people clustered where activities were taking place, in the core areas and near main circulation routes. Dark isolated places or those away from main circulation routes where scarcely used. People in both places were found to cluster at the edge of a spatial unit such as grove of tress or a clearing. Card games, conversations and people watching were activities common to both.

Conversely, differences were found in: (1) Spatial age distribution, (2) Activities; (3) Local use patterns; (4) Man/Nature relationships and sitting habits. Spatial distribution in Paris showed a concentric pattern of age groups with children in the core ringed by adults and elderly. Teenagers were rare, being often found in large groups in the boulevards. In Los Angeles, people were spread all over the park, with different age groups inhabiting clearly separated areas or territories when possible. Teenagers were more commonly present. While activities in Paris parks were generally the same (reading, conversing and people watching), a heterogenity of activities occurred in Los Angeles parks. Active sports, games and picnicking were dominant with active sports usually in the green lawns and picnicking occurred under shade. Again, while patterns of use and volume of use were fairly the same for Paris parks, these vary in Los Angeles parks. Some parks in the latter were heavily used, while some were not used at all. Some were occupied by distinct ethnic groups while some were totally integrated. This perhaps was attributable to the heterogenity of the American population in the study area. Striking differences was found in man-nature relationship. In accord with French tradition, lawn areas were not walked on as people stayed on walkways, never mixing with trees, grass and flowers as nature was the backdrop. Sitting habits reflected these as they sat on the edge of walkways facing open spaces or activities. The influence of violence, drug peddling and other anti-social behaviour were manifested in Los Angeles parks by the absence of shrubbery and other materials which impeded surveillance from outside the parks.

Whyte's study is especially important in the further observation of the interaction of the built environment and human behaviour. In his study of small urban spaces in New

york, he made some compelling observations. He found that popular or well used (indeed well designed and managed) urban plazas are sociable places showing more people in groups, with higher population in two's; more individuals and people meeting people than in less used places (Whyte, 1980). In such places, he further observed, there is a complimentary between circulation and sitting. People tend to sit in the area of most circulation, especially where circulation bisects a sittable space such as junctions and transfer points. Importantly, they tend to sit where there are places to sit, whether these are designed for such or not. They tend to sit in socially comfortable seating; that is, one which offers the choice of sitting up front, in the back, to the side, in the sun of shade, in groups or alone. Also, they tend to stay in or move to the main pedestrian flow when stopping for a conversation. They show an inclination to station themselves near standing objects and equally show a liking for well-defined places such as corners, ends of steps or border of a fountain or sculpture. They however, rarely congregate in the middle of a large space.

Whyte also observed that successful urban plazas and spaces have a sense of enclosure, intimacy and offer varied behaviour setting; that is, judicious freedom to stand or sit as the individual or group prefers. They are the ones having the most sittable places. Futhermore, they afford the pleasure of looking at the passing scene while under the comfort of shade trees.

In a bid to utilize these observed behaviour as a basis for redesigning an outdoor space, a study was performed on a small outdoor mall (Caldwell Mall) at the University of Geogia, Athens, Georgia, U.S.A. (Obiefuna, et. al. 1981) The mall which had served as a linear pedestrian link between the north and south segments of the campus assumed several functions after the occupation of a new adjoining fiaculty building in 1981. It became in addition, a momentarily crowded and nodal space for students waiting to get into classrooms. Apart from two randomly placed benches; and notice boards, the mall lacked facilities for pedestrian use. It however, was enveloped by a dense canopy of mature trees.

The study which employed a Super 8 Movie Camera sought to discern the existing behavioral patterns in the space; the adaptation or self-innovations by users and circulatory conflicts if any. The aim was to use these as basis for redesigning the mall to discharge its new functions effectively.

Observations confirmed it as holding space for students and staff between lecture periods, a space for reading, chatting and relaxing under shade. Adaptations observed include sleeping on benches, leaning on walls, sitting on high retaining walls (1.5m), sitting on pavement, steps, curbs and

low tree planters. Bicycles were tied to light poles, hand rales and notice boards. Two motorcycles were parked there and occasional conflict with vehicles was seen as service vehicles passed through sometimes. Significantly, conversation was found to occur largely within the main pedestrian flow and near steps, handrails and light poles. In fact, the main doorway into the new building and the adjoining retaining wall were nodal points of this 'sidewalk' conversation. Seasonal change swerefound to affect the mall's use. The channelizing effect of the two enclosing buildings renders it too cold, drafy and strictly a transitory space during the cold season. Non-verbal communication or body language was interestingly found to be an integral part of human spatial behaviour.

These findings formed the basis of two redesign proposals which were formulated. Some elements of these proposals were simulated on the mall and their impacts on behaviour used to arrive at a single redesign proposal. Benches and seats were proposed at appropriate places and at effective seating heights; planters were raised to double as seats and in general, features were arranged to enhance pedestrian interaction and spatial behaviour in the space.

HUMAN SPATIAL BEHAVIOUR AS BASIS FOR DESIGN OF OUTDOOR SPACES IN NIGERIA

Although the above studies were mainly on the people of western culture, the conclusions have some implications for the design of street, pedestrian zones/plaza/markets and parks especially for large cities such as Lagos. This is because inspite of cultural differences, comparative studies have shown that people in the world's largest cities tend to "behave more like their counterparts in other world cities than like fellow nationals in smaller cities". For example, "big city people walk faster,.... and self-congest" (Whyte, 1980 p. 23). Little wonder therefore Nigerians from other states say that crazy people live in Lagos and that Lagos is a mad house!

Streets: To a visitor from the developed countries, the Nigerian pedestrians seem to always walk in the middle of streets and thus compete for the right of way with vehicles. In reality, the Nigerian pedestrian has no choice as the streets especially in the residential and business districts generally lack sidewalk spaces. These streets are devoted exclusively to vehicular circulation while the verges if any; are intensely competed for by open drainage channels, parked cars and street hawkers.

To apply the results of the above studies to outdoor design in Nigeria, it is important to note that existing local streets in residential and business districts should be redeveloped and new ones designed for people. Appropriate sidewalks, with a minimum of 1.2m separated from roads with curbs (Kerbs) should be provided with requisite

level relationships and ramps.

Indiscriminate curb-cuts such as are found on Marina Street, Lagos confer differential levels and consequently cause the pedestrians to hop between pavement levels or walk entirely on the road way. The unfortunate practice where territorial claims of some propeyty owners cause them to block sidewalk space with concrete bollards or chains or convert this into private parking is distasteful and ought to be vigorously discouraged.

Street furniture should be designed to make the street safer and work better. Light/telephone poles, seats, trash receptacles, trees etc. should be located near the edge of walkways to free the thoroughfare. Furthermore, main streets in residential and commercial districts should be designed to be lively. As has been shown, activities are magnets for people . Or as social animals, people go to lively places or where other people are (e.g. Balogun Square/Nnamdi Azikwe Street, Alaba International Market). In commercial districts with ample store fronts, wide sidewalks (minimum 3m) should be provided to offer opportunity for window shopping. Seats in the form of benches as well as pocket spaces should be located at rasonabl interval and locations to enable people pause, sit and watch the street scene unfold.

Indeed, what is urgently needed is for our streets to be organized (coordination of circulation, furniture, signage graphics, textures, colors of material etc.) in order to unleash the plethora of exiting, but organized human spatial behaviour.

b. Pedestrian Zones and Plaza:

Pedestrian zones and plaza are essentially pedestrian gathering places and therefore sociable spaces. Early village squares were local antecedents to the modern plaza and pedestrian zones. Incidentally, except in few urban markets, the essence of these as social places have not found much contemporary in our cities. Nevertheless, some areas in commercial and business districts such as Balogun Square, Nnamdi Azikwe Street, parts of Broad Street, Onitsha main market etc. have potentials to become strictly pedestrian zones.

Pedestrian zones may be part of one way streets, or may be wide sidewalks which culminate in a plaza or a pocket space on a busy street or may be the end of a dead-end street (cul-de sac). Small pedestrian zones may range from a minimum of 5.5-7.0m wide to a plaza of several meters in width. This minimum dimention allows room for window shopping circulation lane for amenities such as seating, trees, telephone and light fixture (Fig.1).

For these small but linear zones and plaza, a sculpture or monument, fountains, information kiosks or even snack vendors located in the center can distribute people

over the space, especially if incorporated with seating and shade or shelter.

Wider zones, squares or plaza with shops, buildings or active uses on both sides require even more activities for people to colonise the center. As already noted earlier, people rarely congregate in the center of a large outdoor space. In these instances, seats can be located parallel to pedestrian flows 9Fig. 2) or used to create smaller spaces or both; the aim being to maximize the people watching potential of these locations or to create opportunity for socialization or individuality. Food being a great generator of human activity can be a major element in colonizing the center. It is crucial in structuring these zones to remember that people engage in conversation in the middle of circulation or that they like to stand, lean or sit in unusual places (light/telephone poles, handrails etc.).

c. **Parks and Open Spaces:**

Parks, beaches and open spaces are planned as lungs for crowded cities. They should be designed to offer opportunity for the crowded city man to be alone, to strech out or socialize amidst the freedom of outdoor space. Parks should not only be accessible from surrounding areas, but should be designed to provide for both active and passive recreation. Beyond design requirements, location of activities should be guided by the compatibility of user behaviours associated with them. For instance, locating a spectator sport like soccer next to a picnic area may be less desirable than would be an informal space for volleyball.
Depending on the situation, a central magnet may be desirable or a few activity magnets will serve to distribute users over the park or beach, thus increasing chance of interaction and enjoyment.

Importantly, pocket parks, neighbourhood parks and open spaces should be developed not only for the adults but with the primary aim of serving the child in the city. Robbed of space, the city child plays and seeks adventure on the city streets. Play is part of a child enrichment needs as well as self expression. It is essential part of their development and learning. Therefore, equipment which motivate the development of body reflexes, intuition, spirit of adventure, inquisition etc, in the child at various stages of growth, must be an integral part of neighbourhood playgrounds open spaces or schools. (Fig. 3)

Developed beach facilities should cater for individuals, small group, family or large group picnics.
It should be added that observed spatial behaviour of the locality in question should form the basis for structuring these facilities.

CRITICAL DESIGN FACTORS

In the planning and design of all these spaces, some critical factors should be kept in focus. Among these are

seating, space definition, scale and visual beauty.

Seating determines the successful use of pedestrian outdoor spaces. Seats in the form of benches or low walls and ledges (300mm - 900mm, optimum 450mm) should be designated to offer opportunities for the individuals to be alone or in small groups for social interaction. (Fig. 4a and b). In commercial districts such as Martins Street; Balogun and Tinubu Squares, Lagos Island, street Cafe arrangement of movable seats in front of snack shops (without inhibiting circulation) can be desirable. Where possible, seats should be located to maximize the view of main circulation paths, corners and arterial junctions (e.g. Broad Street, Tinubu Square and 2nd Avenue, Festac Town, Lagos).
This is because people sometimes just like to sit and watch the world or other people go by. A minimum of 300mm of seating should be provided for each $3m_2$ of plaza or pedestrian zone (Whyte, 1980). In this climatic region, seats need to be situated under shade in hot afternoons, and need to face away from afternoon or evening sun where they are provided with backrests.

Along with this, special attention needs to be paid to circulation paths or walkways. They need to be wide enough in business districts (minimum 3m) especially to accommodate peak circulation and user tendency for 'sidewalk conversation'.

'Space' definition to clearly outline circulation and activity areas is important. Buildings and shop fronts will normally define plazas and pedestrian zones. Indentation in building facades coupled with colours create variety and hence visual interest in the spaces. Street furniture (Kiosks, Benches, Bollards etc,) along with vegetation pavement colour and texture can be used to divide such spaces into smaller activity areas or to define specific use areas. Trees where possible should be used to reduce the overhead plane in outdoor spaces. Spacing of these trees should be such that sunlight can filter in sufficiently in cool weather and provide shade in hot periods.

Trees are invaluable in urban spaces in hot climate. As has been shown, successful urban spaces are one which afford pedestrian view of passing scene under the comfort of tree shade. Where possible therefore on urban streets, trees should be planted for each 7.6m (25ft) of street frontage.
For plazas and pedestrian zones of $139m_2$($1500ft_2$), a minimum of four trees should be planted while in areas greater than $1115m_2$($12,000ft_2$, one tree is required for every $186m_2$ of plaza space (Whyte, 1980). Shrubs where appropriate should be combined with trees and site furniture to provide definition, enclosure or intimacy without inviting anti-social behaviour.

Scale and visual beauty are

equally important in outdoor design particularly in pedestrian zones and plazas. Such spaces sandwitched between highrise buildings as found in Lagos Island, will be dwarfed by the scale of those buildings.
Attempt therefore must be made to reduce the overhead plane and thus create human scale through the use of awnings in the case of shop fronts, and through the use of pergola and appropriate trees. Such spaces reduced to human scale when properly articulated with relevant activities invite pedestrian patronage.

Coordination of colours, texture as well as quality of finish of materials and building facades, along with forms of signage, treatment of cables, street furniture and general landscape elements will enhance the visual beauty of these spaces.

CONCLUSION

It should be stressed that enjoyable and popular urban spaces are the ones that provide variety for human behaviour and needs within an organized milieu. This implies,that in Nigeria the behaviour potential of the spatial arrangement in urban spaces must match or at least attempt to match the psychological needs and tendencies of the user. Cognizance though has to be made that even designed outdoor settings do induce their own share of unexpected behaviours. If the built environment therefore sets the stage for human behaviour future outdoor design should of necessity be based on careful and continual evaluation of post-occupancy behaviour patterns in existing pedestrian spaces in Nigeria urban centres.

Clearly the empirical study of the spacial behaviour of the urban population in Nigeria is presently untapped for design purposes. Until this challenge is taken up, reliance will be on
standards developed in western cultures.

REFERENCES

1. Bentley, I. Alcock, A., Murrain, P. McGlynn S. and Smith, G. (1985) Responsive Environments: A Manual For Designers. The Architectural Press, London.

2. Gump, P. V. 1971 "The Behaviour Setting: A Promising Unit for Environmental Designers", Landscape Architecture Jan. 1971 6 (2): 130 - 134.

3. Hall, K. T. 1969. The Hidden Dimension. Doubleday and Coy Inc. New York.

4. Kaplan, S. A. and Kaplan, R. eds. 1978. Humanscape: Environments for People. Duxburry Press, North Scituate, Mass.

5. Laurie, M. 1975. An Introduction to Landscape Architecture, Elsevier, New York.

6. Lyle, J.T. 1970. "People-Watching in Parks: A Report from France and California". Landscape Architecture, Oct. 1970, 61 (1); 30 and 51 - 52.

7. McClelland, L. 1978. "Crowding and Territoriality" in Kaplan, S. K. et. al Humanscape. Duxbury Press, North Scituate, Mass: 202 - 211.

8. Obiefuna. J. N. and Kwan, E. 1981 "Post Occupancy Evaluation: A Documentary on Caldwell Mall". Unpublished Report, University of Georgia, Athens, Georgia.

9. Obiefuna. J. N. 1991. "Pedestrianizing Our Urban Centres" Journal of Tropical Architecture: June 1991:. 26 - 31. 4 (6)

10. Pastalan, L. A. 1978. "Privacy as an Expression of Human Terrtoriality" in Kaplan, S. K. et, al. Humanscape, Duxbury Press, North Scituate Mass: 324 - 330.

11. Proshanky, H> M., 1ttelson, W. H. and Rivlin, L. G. 1976. Environmental Psychological: People and Their Physical Settings 2nd. Holt. Rinehart and Winston, New York.

12. Sommer, Robert 1969 Personal Space: The Behavioural Basis of Design. Prentice-Hall, Inc. Englewood Cliffs, New Jersey.

13. Whyte, William H. 1980. The Social Life of Small Urban Spaces. The Conversation Foundation, Washington, D.C.

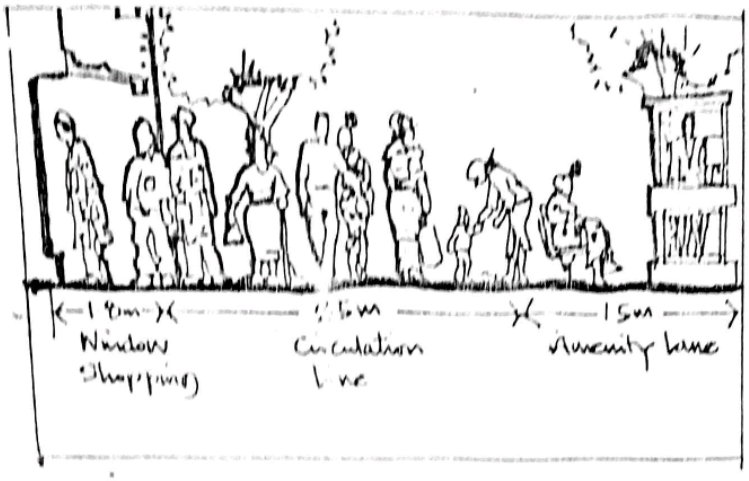
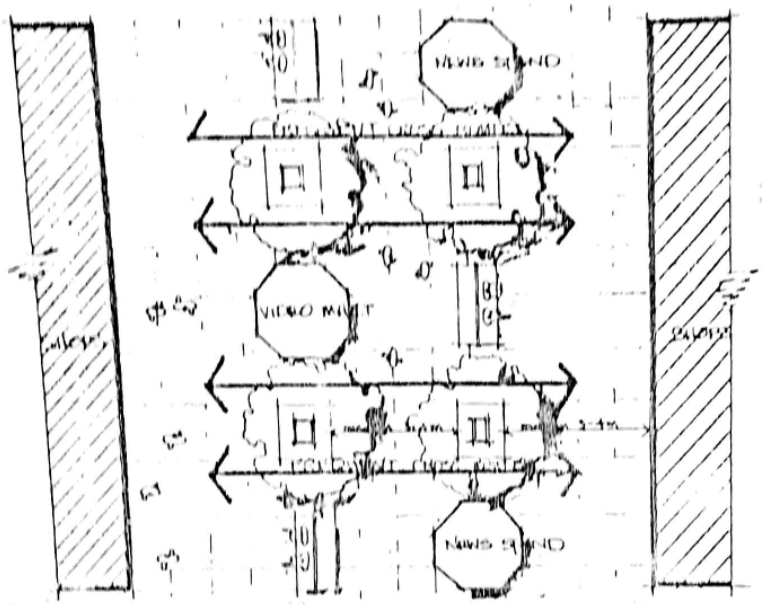


Fig 1. Pedestrian Zones (5-7M).



PLAN

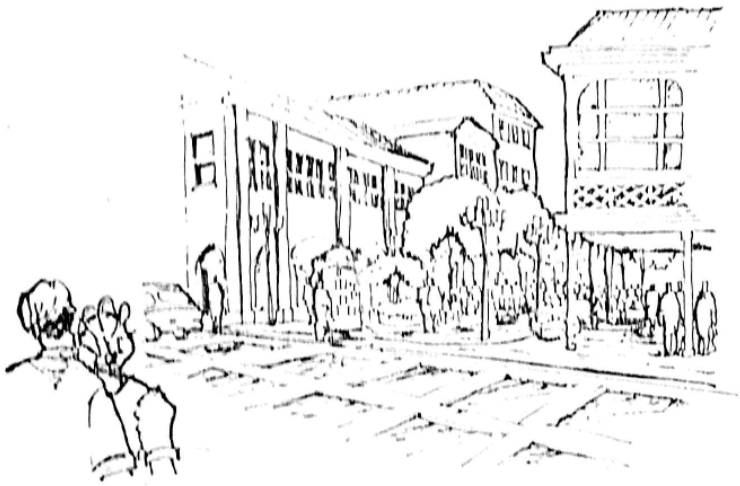


Fig 2. Pedestrian Plaza & Zones (7-7.0m)

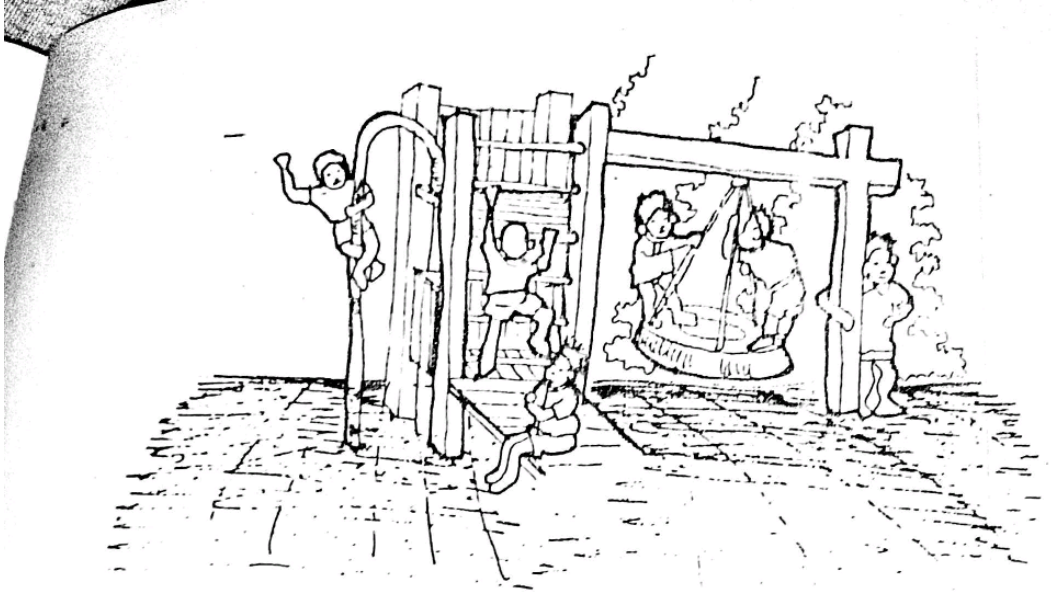


Fig 3: Children's Playground

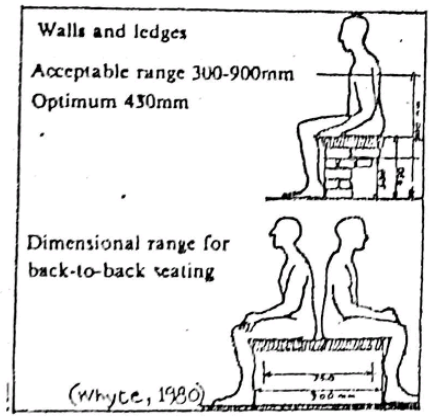


Fig 4a. Seat Height

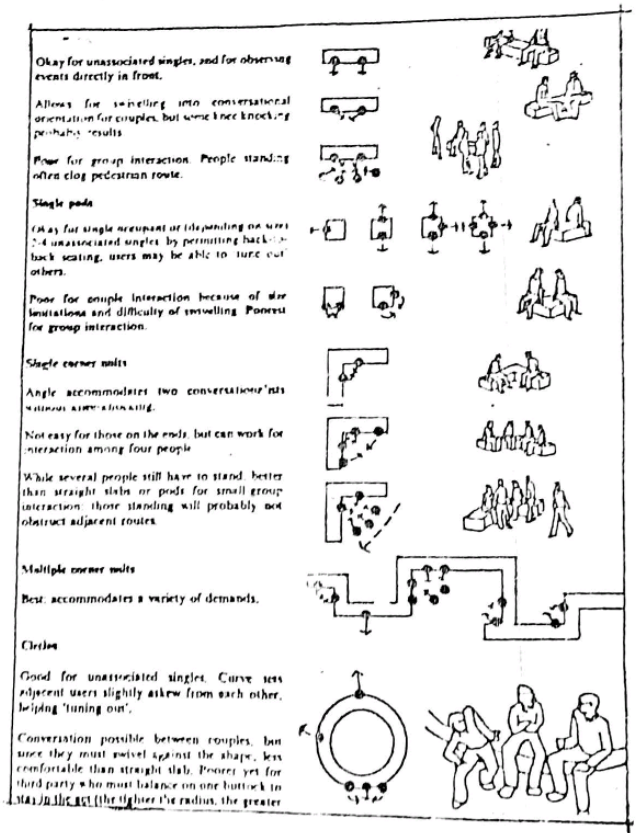


Fig 4b. Selected Seat Configuration
Source: Bently, et al.